The World Organisation for Animal Health (OIE)

Prevention and control of animal diseases worldwide

Feasibility Study – A global fund for emergency response in developing countries

Final Report
Part II

Submitted by:
Civic Consulting - Agra CEAS Consulting

Part II prepared by Civic Consulting
with support from
Agra CEAS Consulting and the
Institute of Risk and Insurance of Hamburg University

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September 2007

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Acronyms

AI: Avian Influenza

ART: Alternative Risk Transfer

ASF: African Swine Fever

BSE: Bovine Spongiform Encephalopathy

CBPP: Contagious bovine pleuropneumonia

CSF: Classical Swine Fever

FAO SFERA: Special Fund for Emergency and Rehabilitation Activities of the FAO

FAO: Food and Agriculture Organisation of the United Nations

FMD: Foot-and-Mouth disease

GFATM: Global Fund to Fight AIDS, Tuberculosis and Malaria

GPAI: Global Programme for Avian Influenza

HPAI: Highly Pathogenic Avian Influenza

ND: Newcastle Disease

OIE WAHWF: World Animal Health and Welfare Fund of the OIE

OIE: World Organisation for Animal Health

PPR: Peste de Petits Ruminants

RD: Rinderpest

SARS: Severe Acute Respiratory Syndrome

STDF: Standards and Trade Development Facility of the WTO

TAD: Transboundary Animal Disease

UN CERF: United Nations Central Emergency Response Fund

WFP: World Food Programme

WTO: World Trade Organisation

Executive summary

Methodology used

This study was conducted by Civic Consulting[1] in the period November 2006 to March 2007 and updated in September 2007. The work was undertaken using desk research, literature review and construction of a detailed literature database. It also involved an economic analysis based on incentive theory, as well as consultations with key relevant institutions/authorities and experts and case studies of selected national compensation schemes for epidemic livestock diseases in four countries. Additionally, an analysis of the operational principles of five existing global funds was conducted to identify best practices.

Study focus

The study explores the need for and possible operational rules of a Global Emergency Response Fund for Animal Epizootics and Zoonoses (GERFAE) that would provide developing and transition countries with immediate funding to cover the cost of control measures and livestock owners' compensation costs.

Conclusions

The analysis conducted indicates that the global framework for the financing of costs and losses of epidemic livestock diseases was significantly improved during the last decade, partly as a consequence of the Avian Influenza crises and other large scale outbreaks of animal diseases. However, the framework is still characterised by significant shortcomings:

- Limited global support: Currently there is hardly any global structure for the financing of animal disease risk management for highly contagious transboundary animal diseases in developing countries other than related to Avian Influenza. This may lead to the underfunding of measures to prevent outbreaks of highly contagious transboundary animal diseases and may delay adequate responses to emerging diseases.
- Fragmentation of donor response: Current multilateral global funds/facilities do not provide an answer to the inherent challenges of the animal disease risk, namely its cumulative nature, which would require a system to cope with the resulting highly volatile funding needs caused by outbreaks of various sizes.
- Inefficiencies caused by lack of incentives for prevention: Little incentives are provided for developing countries to prevent crises by improving their Veterinary Services and their animal health status. Veterinary restrictions in case of outbreaks by major importing countries and related losses of export revenue can even be the source of strong adverse incentives for affected livestock industries and governments to delay reporting of disease outbreaks.
- No consistent policy on cost-sharing with farmers: Only few countries (and mostly these are developed economies) have a consistent policy to share responsibility and costs related to

[1] With support from Agra CEAS Consulting (for sections 3.2.4, 6.2/5) and from the Institute of Risk and Insurance of Hamburg University (for sections 5.1/5 and 6.3/6)

outbreaks of animal diseases between government and livestock sector, which is a major incentive to upgrade bio-security in livestock production and also contributes to a financially sustainable animal health system.

The analysis of deficiencies indicates that it is still a significant challenge to develop an efficient global institutional framework to finance epidemic livestock disease risk, which addresses the limitations regarding mobilization and allocation of financial resources for epidemic livestock disease prevention and control for diseases other than AI, creates incentives for prevention at all levels and provides a mechanism to cope with the highly volatile nature of animal disease risk.

The study concludes that there is a need for a new global mechanism for the financing of animal disease risk management. *This could either be developed by extending the mandate of an existing fund/facility, for example developed in the framework of the AI crisis, or by creating a new instrument. For the aim of this analysis this question is not of significance, as the operational rules would be expected to be applied independent from the mechanism chosen and the hosting organisation(s).*

The report provides detailed suggestions for operational rules of a possible Global Emergency Response Fund for Animal Epizootics (GERFAE). It is suggested that the fund should operate on basis of guiding principles that include:

- The fund will encourage an effective and rapid emergency response for control of epidemic livestock diseases in developing and transition countries, *including through compensation of livestock holders*;
- The fund will function as a financial instrument, not as an implementing body;
- The fund will promote efficient global animal disease risk management;
- The fund will focus on diseases that pose a threat to "global public goods";
- The fund will provide incentives for prevention and early reporting;
- The fund will safeguard ownership of the emergency response by the affected countries;
- The fund will encourage sharing responsibilities and costs to the extent possible.

The objectives of GERFAE could be in principle achieved by two different approaches:

- *Approach A:* GERFAE would provide support to eligible countries in case of an outbreak of a relevant disease and provide financial support for emergency response planning in times without outbreaks;

- *Approach B:* GERFAE would provide financial support to eligible countries in case of an outbreak of a relevant disease only. Global financial support for emergency response planning will be provided through other sources/mechanisms.

The analysis indicates the advantage of Approach A, under which GERFAE would also directly (co-)finance emergency response planning, as this would allow for the easiest feedback loops between recipient countries and GERFAE, which are needed for financial planning and management of the fund, and are likely to increase the transparency of the process.

The report in brief (extended summary)

This feasibility study was led by Civic Consulting and explores the need for and possible operational rules of a Global Emergency Response Fund for Animal Epizootics and Zoonoses (GERFAE) that would provide developing and transition countries with immediate funding to cover the cost of control measures and livestock owners' compensation costs. It is Part II 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 review of relevant best practices and an economic analysis based on incentive theory, as well as in depth case studies of selected national compensation schemes for epidemic livestock diseases (in Australia, Netherlands, Nigeria, Vietnam). In addition, the following existing global funds have been analysed: The UN Central Emergency Response Fund (CERF); the Global Fund to Fight AIDS, Tuberculosis and Malaria; the WFP Working Capital Financing Facility; the OIE World Animal Health and Welfare Fund; and the FAO Special Fund for Emergency and Rehabilitation Activities. The results of the analysis have been a basis for developing operational principles for a possible Global Emergency Response Fund for Animal Epizootics and Zoonoses, including principles for incentive-compatible compensation of affected livestock holders through Country Compensation Mechanisms.

Current financing of epidemic livestock disease costs in developing countries

Comprehensive data on financing of costs and losses of outbreaks of epidemic livestock diseases and related preparedness/prevention measures in developing countries is scarce. An overview of the donor commitments for Avian and Human Influenza indicates that in terms of commitments bilateral donors have by far the largest share. Multilateral development banks as well as the European Commission are also major donors, accounting for nearly one third of total commitments. Individual countries are the largest group of recipients, with international organisations receiving a share of less than 20%. Multilateral global trust funds currently play only a limited role, although an increasingly relevant one.

A total of five operational global funds/facilities with a significant focus on animal health are discussed, with a common feature of them being their recent date of establishment. The oldest of the funds is the Standard and Trade Development facility, which was set up in 2002, followed by the FAO SFERA (2003), the OIE WAHWF (2004), WB Avian and Human Influenza Facility (AHIF) and UN Central Fund For Influenza Action (CFIA) (both in 2006). The Avian Influenza crisis led not only to a significant increase of attention regarding animal health issues, but also to the declared intention of donors to better co-ordinate their initiatives. Activities funded by the above mechanisms differ significantly (see section 5.1.1), as does the degree to which funding is provided to external recipients from these funds/facilities, with some of the funds being mainly an internal instrument of contingency financing rather than a mechanism to provide project-based funding to eligible external recipients.

The analysis of the current global institutional framework for the financing of costs and losses of epidemic livestock diseases indicates significant progress during the last decade. There is more global coordination of donors and recipient countries, and there are an increasing number of multi-lateral financial initiatives and mechanisms, created mainly during the last few years. This is partly a response to the threat of Avian Influenza and other zoonoses, but also the consequence of an increased awareness for the need to have effective and efficient global mechanisms to address specific global problems or emergencies. Other important developments regarding the financing of the global response to animal health threats are:

- There is growing attention for a need to provide financial resources for preventing epidemic livestock diseases, including by assessing and improving the quality of the Veterinary Services to create a more uniform implementation of animal health standards;
- Emergency response plans are increasingly prepared and implemented in many potentially affected countries to respond effectively in case of an outbreak of Avian Influenza with global financial (and technical) support;
- Vaccine banks are being established that allow in case of outbreaks to respond rapidly with vaccination, therefore potentially reducing the need for large-scale culling operations that dramatically increase potential costs and losses;
- There is growing awareness for the need to compensate livestock holders in case of disease related culling. In 2006, for the first time global guidelines in this respect for developing countries have been developed and the Global Programme for Avian Influenza is the first major donor initiative to provide financial support for compensation of farmers in affected countries.

In spite of these positive developments, the global framework for the financing of costs and losses of epidemic livestock diseases is also characterised by significant shortcomings:

- Limited global support: Currently there is hardly any global structure for the financing of animal disease risk management for highly contagious transboundary animal diseases in developing countries other than related to Avian Influenza. This may lead to the underfunding of measures to prevent outbreaks of highly contagious transboundary animal diseases and may delay adequate responses to emerging diseases.
- Fragmentation of donor response: Current multilateral global funds/facilities do not provide an answer to the inherent challenges of the animal disease risk, namely its cumulative nature, which would require a system to cope with the resulting highly volatile funding needs caused by outbreaks of various sizes.
- Inefficiencies caused by lack of incentives for prevention: Little incentives are provided for developing countries to prevent crises by improving their Veterinary Services and their animal health status. Veterinary restrictions in case of outbreaks by major importing countries and related losses of export revenue can even be the source of strong adverse incentives for affected livestock industries and governments to delay reporting of disease outbreaks. The lack of incentives for prevention and the existence of adverse incentives can be expected to lead to significant inefficiencies, as large-scale disease outbreaks in the past have indicated.
- No consistent policy on cost-sharing with farmers: Only few countries (and mostly these are developed economies) have a consistent policy to share responsibility and costs related to outbreaks of animal diseases between government and livestock sector, which is a major incentive to upgrade bio-security in livestock production and also contributes to a financially sustainable animal health system.

The analysis of deficiencies indicates that it is still a significant challenge to develop an efficient global institutional framework to finance epidemic livestock disease risk, which addresses the limitations regarding mobilization and allocation of financial resources for epidemic livestock disease prevention and control for diseases other than AI, creates incentives for prevention at all levels and provides a mechanism to cope with the highly volatile nature of animal disease risk.

Possible role for a Global Emergency Response Fund for Animal Epizootics (GERFAE)

It does not seem very likely that it would be possible to improve the current financing of animal disease risk management purely through better coordination of the bilateral donor community. The reason for this is that there needs to be a party that is ultimately taking and managing the animal disease risks agreed upon with eligible countries, which will require considerable efforts and innovative approaches for risk management to be able to fulfil the agree commitments. It seems unlikely that any individual donor would be willing to take this responsibility. This clearly indicates the need for a new global mechanism for the financing of animal disease risk management. **This could either be developed by *extending the mandate of an existing fund/facility*, for example developed in the framework of the AI crisis, *or by creating a new instrument*. For the aim of this analysis this question is not of significance, as the operational rules would be expected to be applied independent from the mechanism chosen and the hosting organisation(s).**

The wider global framework for animal health has to fulfil functions that are indispensable for an efficient and effective response to any given outbreak of a relevant disease, including the setting of standards, and technical assistance, where there is a wide body of experience at key organisations such as the FAO, OIE, World Bank, regional programmes and, last not least, bilateral donors, that form the backbone of development cooperation in the area of animal health. Therefore, developing emergency response standards and technical assistance to implement them should as a general principle *not* be performed by GERFAE, but by other appropriate institutions of the global animal health framework. **GERFAE would mainly be a financial instrument**.

The new instrument GERFAE (or the existing fund/facility with an extended mandate) would therefore be different from existing mechanisms regarding the following aspects:

- It would focus on all eligible animal diseases, that by their nature require global intervention;
- It would focus on providing a financial mechanism for eligible developing countries to cope with the highly volatile nature of animal disease risk;
- The financial support provided would be conditioned as to create incentives for prevention at all levels;
- Its operational rules would take into account best practices from developed, transition and developing countries to enhance control of eligible animal diseases, including through compensation of livestock holders, while preventing the creation of adverse incentives through overcompensation.

Recommendations for operational principles for GERFAE

Principles and eligibility criteria

A Global Emergency Response Fund for Animal Epizootics and Zoonoses (GERFAE) would be an important element of an efficient global framework for animal disease risk management. It should operate on basis of guiding principles that include:

- The fund will encourage an effective and rapid emergency response for control of epidemic livestock diseases in developing and transition countries, *including through compensation of livestock holders*;
- The fund will function as a financial instrument, not as an implementing body;
- The fund will promote efficient global animal disease risk management;
- The fund will focus on diseases that pose a threat to "global public goods";
- The fund will provide incentives for prevention and early reporting;
- The fund will safeguard ownership of the emergency response by the affected countries;
- The fund will encourage sharing responsibilities and costs to the extent possible.

The objectives of GERFAE could be in principle achieved by two different approaches:

- *Approach A: Providing financial support to emergency response and related planning.* GERFAE would provide financial support to eligible countries in case of an outbreak of a relevant epidemic livestock disease to implement a rapid emergency response and provide financial support for emergency response planning in times without outbreaks;
- *Approach B: Providing financial support to emergency response only*. GERFAE would provide financial support to eligible countries in case of an outbreak of a relevant epidemic livestock disease to implement a rapid emergency response only. Global financial support for emergency response planning will be provided through other sources/mechanisms.

The need for a linkage between the financial support to emergency response measures by GERFAE and emergency preparedness measures taken by recipient countries arises from both effectiveness and efficiency considerations. The effectiveness of an emergency response depends to a significant degree on the level of preparedness at an operational level reached before the onset of the emergency to enable a swift and timely response. Also, preparedness measures including emergency response planning are likely to reduce the costs of outbreaks of livestock diseases. The analysis indicates the advantage of Approach A, under which GERFAE would also directly (co-)finance emergency response planning, as this would allow for the easiest feedback loops between recipient countries and GERFAE, which are needed for financial planning and management of the fund, and are likely to increase the transparency of the process. However, in principle Approach B is also feasible, if other appropriate global mechanisms provide financial support

for emergency response planning and it is safeguarded that the needed information on the emergency response planning is provided to GERFAE.

The overall budget of GERFAE is likely to be inadequate to cover all outbreaks of epidemic livestock disease for developing and transition countries lacking adequate resources and capacity. Therefore under both Approach A and Approach B a set of eligibility criteria has to be developed, that define whether in principle a disease, measure/activity and country is eligible for support. Recommendations for eligibility criteria include:

⇒ ***Eligible diseases, that may trigger support of GERFAE in case of an outbreak, should be determined on basis of the following criteria***

- The public relevance of a livestock disease (depending e.g. on contagiousness and public health impact);
- The need for global coordinated action;
- The character of a livestock disease as relevant emerging risk.

Depending on the available resources a global emergency response fund could have separate windows to support the emergency response regarding outbreaks of the following diseases (in order of priority):

- *Category 1: Emerging livestock diseases* of high public relevance with a need for global coordinated action;
- *Category 2: Other priority epidemic livestock disease(s)* of high public relevance with a need for global coordinated action;
- *Category 3: Under-funded diseases* of high public relevance with a need for regionally coordinated action, where countries in the affected region lack adequate domestic resources and capacity to combat the outbreaks and there are clear indications for a risk of global impact if adequate disease control measures are not taken.

⇒ ***In principle, all emergency response measures that are supported from GERFAE should be co-financed in kind or in cash by the recipient country.*** Co-financing requirements may differ for specific categories of emergency response measures and have to be pre-defined within each country emergency response plan to increase transparency and reduce the administrative burden related to documentation and audit.

⇒ ***Country emergency response plans for specific disease outbreaks should define performance indicators for specific emergency measures.*** Performance indicators should be pre-agreed between the recipient country and GERFAE and form the basis for decisions to be made on a possible continuation of GERFAE assistance after the initial emergency response. Indicators should also reflect the duties of the recipient countries as members of relevant organisations such as the OIE to minimise the risk of the spread of animal diseases, e.g. through early reporting of suspicious disease cases.

⇒ ***It is recommended that countries have to fulfil a set of eligibility criteria to receive financial support for emergency response measures from GERFAE, namely:***

- To have in place a pre-defined and costed country emergency response plan for relevant diseases; and earmarked contingency funds to co-finance measures;

- To have a Country Compensation Mechanism in place to be eligible for support to compensation payments to livestock holders;
- To have conducted a PVS evaluation of the Veterinary Services and to develop and implement a country strategy to upgrade Veterinary Service to address relevant deficits identified;
- To have a country emergency management facility in place that can coordinate measures in case of an outbreak;
- Finally, there needs to be an eligibility criterion related to the income level of the recipient countries, with a limit to be set in a transparent way with the aim to target scarce resources to countries most in need, while not excluding countries where a GERFAE intervention would make a difference. Only in exceptional cases upon a decision of the Governing Board would GERFAE finance to a limited degree emergency response measures in specific low-income countries that do not fulfil the above mentioned criteria.

Mobilisation of funding

Initial soundings on the issue of mobilisation of funding have been undertaken with a number of potential donors, which highlight certain points:

1) Amongst national donor agencies the desire to contribute to such a fund has to be viewed in the context of a permanent tension between – what are perceived as – the 'benefits' of bilateral support compared to support channelled through multilateral agencies.

2) It was also noted that complementary action was needed "to help the livestock industries in developing countries access markets once they've controlled diseases and outbreaks of diseases". Thus, it was deemed essential that disease control be driven by the powerful incentive of the prospect of increased sales and revenue for farmers and countries.

3) Beyond this, assuming the establishment of GERFAE were to be accepted there is the key issue of accountability. While donors are willing to accept a 'trust fund' managed by an intermediary such as the World Bank which 'signs off' on the accounts this may also be difficult to achieve.

In terms of the scale of the required funds, the analysis undertaken in Part I on the potential costs of an outbreak is of relevance here. Under the 'most likely' scenario of this analysis, the total direct disease losses and control costs of an outbreak are estimated to range between US$ 5.3 billion in the case of scenario A (H5N1 infected countries), US$ 6.1 billion in scenario B (infected and non-infected at immediate risk countries), and US$ 9.7 billion in scenario C (all OIE developing country members), calculated on an annual basis. All these costs exclude on-farm losses from business interruption. In the particular case of LDCs (Least Developed Countries), the costs are presented separately. An analysis by country groups is of relevance because it is suggested to introduce an income eligibility criterion, for example one that allows access only to LDCs. Under the most likely scenario, in the event of an HPAI outbreak the estimated direct impact (excluding consequential losses) for the LDCs as a group ranges from US$ 73 million per year in scenario A (only 4 LDCs affected) to US$ 258 million in scenario B (8 LDCs affected) and nearly US$ 600 million if all 50 LDCs were to be affected (scenario C).

The projections quoted above are estimates of total direct disease losses and control costs, and may not be equated with the financial need of GERFAE. Several factors influence the financial need of GERFAE, including:

- Income eligibility criterion concerning eligible countries;
- Eligible diseases;
- Eligible measures;
- Co-financing rate required;
- Compensation rates applied;
- Types of costs compensated.

Assuming scenario B prevails (i.e. an HPAI outbreak that touches the countries currently listed as infected and non-infected at immediate risk) and on basis of an average compensation rates at 75% and a co-financing rate for eligible countries of 50%, the total required annual budget for GERFAE regarding HPAI would amount to US$ 103 million for the LDCs affected under scenario B, or US$ 2.45 billion on a global level. This illustrates the need for decisions early on in the planning process regarding eligible disease and measures as well the income eligibility criterion for GERFAE.

It has to be underlined that the results above have to be interpreted with great care and the assumptions for each scenario, as well as the limitations of the model, have to be taken into account (see Part I). Capital needed to finance emergency response measures of GERFAE cannot be estimated easily. There may be years without any disease outbreaks in recipient countries, and periods with numerous and/or large-scale disease outbreaks, which would require significantly more funding from GERFAE. That means total capital outlays for emergency response measures during a given budgeting period are variable, and an elaborated system for managing the risk of the fund has to be developed (see section 6.6). In the mid-to long term, epidemiological models that can be used to provide information for parameters describing the spread of diseases and potential magnitude of disease losses in eligible countries have to be developed, that can be used to narrowing down the range of scenarios.

This leads to the following recommendation:

⇒ ***Decisions on the eligible countries, diseases and measures, the co-financing rate required; compensation rates applied and types of costs compensated have to be taken early on in the planning process of GERFAE, as this significantly impacts on the budget required.*** Due to the variability of capital requirements for emergency response measures during a given budgeting period, an elaborated system for managing the risk of the fund has to be developed.

Compensation of livestock holders

Countries eligible for GERFAE support for compensation payments to livestock holders would be required to establish a Country Compensation Mechanism. Incentives of livestock holders to undertake risk management measures strongly depend on the principles according to which a Country Compensation Mechanism (CCM) operates. Regarding the question of what kind of organisational set-up a CCM should have to fulfil this compensation function, there is no globally valid best practice. The state of the Veterinary Service, the existing structure and the diversity of a country's livestock sector determine the institutional arrangement of a CCM, which could be implemented with a Central Animal Health Fund, a

Regional Animal Health Fund, Sector Agreements, etc. The formal integration of livestock holders, e.g. representatives of farmer's organisations, is likely to increase acceptance and performance of the Country Compensation Mechanism, and is also considered best practice in existing cost-sharing schemes for epidemic livestock diseases.

The need for a close linkage between Country Compensation Mechanism and Veterinary Service arises from several factors. Firstly, emergency response planning of the Country Compensation Mechanism to cope with emerging compensation claims is directly related to the emergency planning of the Veterinary Service regarding culling. Secondly, the availability of data on livestock holders/establishments that provide at least approximate information about the number and species of animals in a country's regions is equally important for the Veterinary Service and the Country Compensation Mechanism, in both emergency planning and emergency response. Thirdly, actual control measures including culling are carried out under the authority of the Veterinary Services, and timely compensation requires a very close cooperation in operational terms. Finally, the availability of contingency funds/a relevant government budget line to (co-)finance emergency response measures is equally relevant for both Veterinary Services and Country Compensation Mechanism.

This leads to the following recommendation for set up and operation of a Country Compensation Mechanism:

⇒ ***A Country Compensation Mechanism has to be to be adapted to a country's Veterinary Service infrastructure and livestock production structure.*** The institutional set-up of a Country Compensation Mechanism has to allow for close cooperation with the country's Veterinary Service because compensation is a key element of emergency response. In establishing a Country Compensation Mechanism, it should be drawn on existing social, political and industrial institutions in order to increase acceptance and reduce set-up costs. To avoid collusion, the use of independent financial auditors is recommended.

Providing incentives for early disclosure and compliance with veterinary restrictions

Operational guidelines of a Country Compensation Mechanism should encourage livestock holders to notify disease outbreaks to the Veterinary Service in due time and to comply with veterinary control measures. A simple mechanism to provide incentives for alertness, thus enabling the early observation of disease symptoms is to apply different compensation rates for healthy, visibly diseased and dead animals. The differentiation between healthy, visibly diseased and dead animals does not make high demands on the culling team's veterinary skills. The rule also does not undermine the incentive compensation payments provide for disease notification, since reduced compensation rates for diseased and dead animals just reflect the reduced values of visibly diseased and dead animals on the market.

Besides early disclosure, successful disease control and eradication requires imposing restrictions on livestock production in and around the location of a disease outbreak. Experience with compensation in both developing and developed countries indicates compensation rates need to be low enough to avoid encouraging farmers from still disease-free areas from presenting their animals to be culled, importing animals into culling zones or expanding culling zones through intentional infection. On the other hand, the upper limit for compensation simply is the market value. No rational livestock holder would seek culling of his animals when compensation would not exceed the animals' market value.

This leads to the following recommendations:

⇒ ***A Country Compensation Mechanism should compensate visibly diseased animals at half the rate of healthy animals. Dead animals should not be compensated at all,*** although there may be exceptions under specific circumstances. The compensation of culled animals as such provides incentives to notify suspected disease outbreaks to the Veterinary Service as it reduces a livestock holder's costs of disease notification, which could lead to culling of the herd. Additionally, taking into account the number of dead and visibly diseased animals provides incentives for livestock holders to regularly check the herd's health status as it imposes costs on delaying notification of suspected outbreaks.

⇒ ***A Country Compensation Mechanism should apply compensation rates that are sufficient to induce early disclosure and compliance with culling orders, but do not create adverse incentives for livestock holders to seek culling.*** Compensation rates for culled animals need to exceed a certain level to induce farmers to notify suspected disease outbreaks and to hand over animals to culling teams when they are located in a culling zone. They may under no circumstances be higher than market values and have to be determined on basis of type-specific animal values. The values have to be adjusted during longer outbreak situations to prevent adverse incentives resulting from large deviations between compensated values and actual market prices.

Differentiation of different livestock production sectors

Registration of livestock holders is an important precondition for effective and efficient animal disease risk management, including a functioning compensation system. However, in most countries a complete registration of livestock holders cannot be reached. Especially in countries with many backyard holders, registration would involve prohibitively high administrative efforts. Hence it should be aimed at achieving registration of farms above a certain size with the Veterinary Service. An incentive-based approach for this is to determine a maximum number of livestock compensated per unregistered livestock holder in case of an outbreak, i.e. a compensation limit. This would provide a clear incentive for registration to farmers. Experiences in other sectors indicate that this type of incentives work in practice. In case of an outbreak and culling, unregistered farms exceeding this maximum number of animals would not be compensated for those animals above the maximum number. This guideline would after a transition period split a country's livestock production industry into two sectors: Registered *commercial livestock producers* characterised by exceeding a certain farm size, and unregistered, *small-scale and backyard livestock holders*.

This leads to the following recommendation aiming at achieving an efficient level of registration of livestock producers:

⇒ ***A Country Compensation Mechanism should define a maximum number of animals for each specie that are compensated in case of culling, if the livestock holder is not individually registered.*** This maximum number of animals is the borderline between individually registered commercial livestock producers and small-scale and backyard livestock holders, who are not individually registered. The maximum number of animals to be compensated without registration should reflect the capacity of the Veterinary Service of the country. An appropriate borderline should be chosen so that the Veterinary Service can administer registration and fulfil its control function regarding commercial livestock producers. Unregistered livestock holders should not be compensated for culled animals above the maximum number.

Compensation of commercial livestock producers

Evidence from countries with Avian Influenza outbreaks has shown that a compensation rate of 50% of the animal value can be enough, if veterinary restrictions are accompanied by strong control efforts in order to prevent a violation of restrictions. A compensation rate of over 100% is generally not recommended because of the creation of adverse incentives. Based on these international experiences it is suggested to provide *higher compensation rates to commercial livestock producers meeting higher pre-defined bio-security standards*. As simplicity is key, the pre-defined criteria that determine a commercial farm's bio-security level need to be easily observable and verifiable, e.g. indoor keeping, fencing, all-in-all-out production documented in records, documented regular veterinary checks etc.

The report provides the following recommendations concerning the compensation of commercial livestock producers :

⇒ ***Animal losses of commercial livestock producers due to culling should be compensated according to the bio-security level of the farm.*** Low, moderate and high bio-security farms should be compensated at rates of 60%, 75% and 90 % of the type-specific animal value for healthy animals and half of these rates for visibly diseased animals. Criteria for bio-security have to be pre-defined and communicated to farmers to provide incentives for taking the relevant measures.

⇒ ***Compliance of commercial livestock holders with veterinary restrictions can either be achieved through an incentive-based approach by also compensating business interruption and other losses caused by veterinary restrictions, or through policing of livestock holders in disease outbreak situations.*** During long outbreak situations, livestock holders under movement restrictions could be worse off than livestock holders with infected herds if only animal losses due to culling are compensated. In these cases, adverse incentives are created and compliance with veterinary restrictions has to be massively controlled through deployment of police or military forces.

⇒ ***As soon as this is feasible, the GERFAE Governing Board should require Country Compensation Mechanisms from eligible countries to share costs and responsibilities with commercial livestock producers.*** Contributions of livestock holders to the CCM according to farm size are socially acceptable and would not have negative effects on animal disease risk management of livestock producers. Because of the related advantages, GERFAE should encourage cost-sharing in recipient countries even before it becomes a formal eligibility criteria.

Compensation of small-scale and backyard holders of livestock

Although it is unrealistic to achieve individual registration of small-scale and backyard livestock holders with the Veterinary Service in developing and transition countries, it is crucial for successful planning and carrying out of an emergency response to have some data available regarding livestock densities in different parts of the country. One way to obtain this is a regular census of livestock. Another way is to promote aggregate registration of livestock kept in one village or region, for example. The approach developed in this study is to formally treat these small-scale and backyard livestock holders as one entity in terms of the Country Compensation Mechanism. This entity will be referred to as a production community. A production community creates opportunities to transmit information to backyard holders of livestock; it could therefore enhance individual capabilities of risk management. The main advantage of the production community however is that it renders small-scale and backyard livestock holders, which

must be considered as uncontrollable livestock producers, accountable. This can be achieved through a community-based compensation approach.

In case of an outbreak, compensation payments would have to be determined according to the animals culled in the production community. The rules for a reduction of compensation payments would also be community-based, i.e. *high numbers of visibly diseased and dead animals would reduce compensation payments to the community as a whole. The individual livestock holder however receives a fixed share of total community compensation, which represents his share in the number of animals culled as specified in the culling records.* The individual livestock holder's share would not depend on the disease status of his animals at the time of culling. Therefore the individual backyard holder has a significant incentive to provide diseased and dead animals to the culling team for disposal, thereby reducing dramatically the risk for illegal sale of these animals on local markets. On the other hand, the total compensation that the production community receives will be determined according to the compensation rules described above, i.e. reduced depending on the number of diseased and dead animals in the community as a whole. This means that any diseased or dead animal reduces the amount paid per animal to all members of the production community, leading to a collective interest in early reporting and higher bio-security.

Small-scale producers and backyard holders usually have very low or no bio-security. Many bio-security measures seem unrealistic to achieve for these production systems, e.g. closed poultry production and the like. However, there are measures to reduce animal disease risk even on a small-scale or backyard production level. For example, ensuring access to clean water, fencing birds' farmyards and separation of sick birds are measures that can reduce the risk of attracting Avian Influenza and that can be implemented in small-scale and backyard production systems. It is recommended to provide explicit incentives for improving bio-security in production communities however in order to forward the process of improving bio-security in the small-scale and backyard sector. Similarly to commercial livestock producers, it is therefore suggested to differentiate compensation levels in order to provide incentives for production communities to undertake those kinds of measures, e.g. participation with disease awareness programs or the like.

This leads to the following recommendations regarding production communities of small-scale and backyard livestock holders:

⇒ ***Small-scale and backyard livestock holders should be encouraged to form production communities to increase collective responsibility and communal accountability for animal health.*** The geographical outline of a production community has to reflect structural aspects of animal disease risk management. The set-up of a production community should draw on existing administrational structures and social networks.

⇒ ***Animal losses due to culling incurred by small-scale and backyard holders of animals that are member of a production community should be compensated according to the bio-security level of the production community.*** Animals from production communities that do not take specific precautions should be compensated at rates of 75% of the type-specific animal value for healthy animals and half of these rates for visibly diseased animals. For production communities adhering to certain verifiable bio-security measures this rate should be increased to 90%. The compensation payment is community-based, and individual compensation therefore does not depend on the health status of the own animals, but on the health status of all animals culled in the community. This incentive structure increases collective responsibility and communal accountability for animal health.

Compensation outside of production communities

Although the organisation of small-scale and backyard livestock holders in production communities would be beneficial from a disease risk management point of view, this is an new approach at this stage and needs to be tested before its feasibility can be finally assessed. Experiences in countries such as Vietnam seem to indicate that it is possible to channel compensation payments through existing communities. However, it is clear that in some regions or countries the formation of production communities may not be feasible at all. It requires existing social structures, which may not exist in outskirts of large cities with a high turnover of migrant population, for example. It also requires trust in existing institutions, as the incentives provided are future compensation payments, and therefore a minimum of trust is required that commitments before an outbreak will be valid after the outbreak. If no trusted institutions are available, such an approach cannot work.

Although the most common situation currently, an environment of atomised backyard holders of livestock is most problematic from a risk-management point of view: Backyard holders are very difficult to reach – both to increase awareness for prevention/bio-security, and for control measures in case of an outbreak. The compensation guidelines should therefore provide clear incentives for small-scale and backyard livestock holders to form production communities, if the system is assumed to be feasible in the particular country. In addition, it is possible to introduce a higher *first-notification compensation rate* for the compensation of small-scale and backyard livestock holders to induce early reporting of disease cases.

This leads to the following recommendations for compensating losses of small-scale and backyard livestock holders outside of production communities:

⇒ ***Losses due to culling of animals of small-scale and backyard livestock holders outside of production communities should be compensated at rates of 60% of the type-specific animal value for healthy animals and half of this rate for visibly diseased animals.*** Low compensation rates provide an incentive for the formation of production communities, if introduced in the country. Policing of veterinary restrictions is needed however to ensure compliance of the small-scale and backyard livestock holders outside of production communities with veterinary restriction, as social control mechanisms do not exist.

⇒ ***An additional incentive for early disclosure could be provided by a special first-notification compensation rate of 90% of the animal value for backyard holders***. First-notification compensation rates of 90% of the animal value should only be considered for the compensation of the first individual livestock holder in each region that notifies the outbreak of a particular disease.

Governance arrangements

In the context of GERFAE, to facilitate optimal coordination of emergency planning and response, both activities should be funded by one mechanism under one management structure. Of the models analysed in the study, an explicit collaboration of relevant institutions (with one of them having a Trustee function) is perhaps more appropriate to further encourage streamlining of global efforts in the area of animal disease risk management and involve expert input within the more day-to-day activities of the fund. Involving agencies with core spheres of expertise appears to be the more holistic approach for a coordinated and efficient animal disease risk management. By encouraging interagency collaboration in such a manner it is more likely that coordination with other donors, stakeholders and activities is safeguarded.

It is recommended that the GERFAE should also follow the standard governance structure of a Governing Board, an Advisory Panel and a GERFAE Secretariat. The Governing Board should represent donors, eligible countries and, depending on the hosting arrangements, the leading Technical Agencies. The composition of the Board should reflect the funding efforts of all donors and the role of eligible countries and their regional organizations to encourage eligible country ownership and voice within the GERFAE function and process. It could potentially include observing or nonvoting members from other stakeholder groups that have an interest or expertise in animal health, such as the veterinarian, farmer organization, food industry community or NGOs that can assist governments in implementation of eligible measures. The Technical Agencies should be responsible for establishing the Advisory Panel, which could also include these other stakeholders groups, to provide objective scientific and technical advice to the GERFAE Governing Board.

This leads to the following recommendation for governance arrangements of GERFAE:

⇒ ***GERFAE should be created through a collaboration of relevant institutions. One institution should manage the day-to-day running and management of GERFAE, possibly in a Trustee function, in close cooperation with expert Technical Agencies.*** Such an arrangement would recognize the need for institutional arrangements to optimise efficiency and cost effectiveness of GERFAE activities, ensuring emergency planning and response plans to be funded by GERFAE are country-driven, appropriately prepared and executed and part of a greater, coordinated framework of national, regional and global animal disease risk management. Existing institution expertise should be leveraged.

⇒ ***GERFAE should have a governance structure which includes a Governing Board, an Advisory Panel and a Secretariat.*** The structure must safeguard against overlap and redundancy of initiatives to ensure efficiency of coordinated action and to build eligible country ownership and voice within the GERFAE process. It should ensure transparency, accountability and efficiency of stakeholder involvement and activities, and review, develop, monitor and evaluate GERFAE policies, operational and application funding guidelines.

Payment procedures / monitoring

The question of payment procedures and monitoring of GERFAE payments to eligible countries can be addressed at two levels: First at the level of the fund itself i.e. the relation between the fund and recipient governments and secondly at the level of disbursement of compensation payments to livestock holders through a Country Compensation Mechanism. In both cases, it is essential that a clear audit trail is established. In the case of GERFAE itself and its relation to both donors and recipient governments it is essential that it provides for and sets aside the necessary budget and obtains the necessary expertise to ensure that the plans for fund disbursement are sound and workable i.e. there is 'pre-vetting' and that following a disbursement a verifiable audit trail exists. Establishing this type of audit trail mechanisms for recipient governments is a well-established practice of donors and will not be discussed here in depth.

The major challenge is, however, to have a similar audit trail at the level of the disbursement to the final beneficiary through the Country Compensation Mechanism that any beneficiary country will have to establish to qualify for GERFAE support. Experience with other supranational compensation mechanisms shows that creating an audit trail for compensation costs is feasible, but can lead to a very high

administrative burden for performing the audits and also lead to significant delays. Therefore GERFAE needs to delegate as much auditing functions as possible through the use of independent financial auditors.

This leads to the following recommendation:

⇒ ***Once the fund is operational the GERFAE Governing Board, with guidance from the Advisory Panel and Technical Agencies, must establish an audit and monitoring processes, taking into account experiences of the ongoing projects funded through the Global Program for Avian Influenza.*** The processes should be reviewed regularly, adapted and result in GERFAE guidelines and requirements for eligible countries. GERFAE needs to delegate as much auditing functions as possible through the use of independent financial auditors, to be contracted when a Country Compensation Mechanism is set up.

Managing the risk of GERFAE

Without adequate provisions or in the absence of risk management measures, in case of a relevant outbreak of animal disease GERFAE has to provide funds rapidly to support emergency measures in eligible countries, even before related donor contributions are received. The timing of contributions to GERFAE and the release of funds for emergency measures can therefore be expected to differ, leading to a temporary deficit. The challenge is to find a financing strategy that addresses these temporary shortcomings and to prevent structural deficits which could arise in case of a catastrophic animal disease crisis.

A risk financing approach to managing GERFAE expenditure risk within a given budgetary period is recommended. Firstly, the initial working capital of the fund has to be established through donor contributions that are sufficient to finance expenses for emergency preparedness planning (under approach A) and emergency response measures under relatively certain capital outlay scenarios within the given period. Secondly, contingent grants from donors or other actors could be used to finance further emergency expenditures when needs are higher, so that GERFAE is a sustainable financing tool to support global animal disease risk management, but one that is to a certain extent self-sufficient from appealing for additional donor contributions in "normal" or "moderate" years. In periods with several outbreaks or significant large-scale outbreaks, which require further substantial emergency capital outlays, pre-arranged contingent loan agreements could be triggered to provide additional capital in order to ensure continuation of GERFAE's animal disease risk management operations. GERFAE should be principally able to pay back contingent loans in following periods.

This leads to the following recommendation:

⇒ ***It is strongly recommended that ex-ante contingent agreements should be arranged as opposed to negotiating ad hoc capital provision when capital is needed.*** This is for *timely* and *reliable* financing, with funds made available immediately under the specifications of a contingent agreement. The timing of funding is critical to the efficient response and deployment of emergency measures, and the security of sufficient funding when needed is a strong incentive for efficient and thorough contingency planning and emergency preparedness. Ex-ante negotiations save time and budgetary surprises in moments when time and money is most scarce and offer security to enable efficient financial planning and capital allocation.

Of course, an element of flexibility should also remain in these arrangements as understanding and quantifying potential global animal disease risk exposure and hence GERFAE expenditure risk is scientifically and technically challenging and will always be subject to uncertainty and modelling error. GERFAE should, however, be able to continue its operations in situations that require more funding. As the majority of the funding sources outlined above are public sector driven it is recommended that GERFAE also targets developing access to the international risk markets to relieve the burden of animal disease risk financing from donor budgets. Financing instruments such as those described in Annex 1 could and should be developed in the future with the aim to enable access for GERFAE to risk transfer tools and the risk capacity of the international reinsurance and capital markets, for example through insurance, derivative contracts or other risk transfer solutions such as risk smoothing structures or finite financing arrangements.

1. Introduction

Aim of the study

This feasibility study explores the need for and possible operational rules of a Global Emergency Response Fund for Animal Epizootics and Zoonoses (GERFAE) that would provide developing and transition countries with immediate funding to cover cost of control measures and livestock owners' compensation costs. It is Part II 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 feasibility study was conducted by Civic Consulting (project lead and overall consortium lead) with support from Agra CEAS Consulting (for sections 3.2.4, 6.2/5) and from the Institute of Risk and Insurance of Hamburg University (for sections 5.1/5 and 6.3/6).

Structure of the report

The structure of this report is as follows: Section 2 details the methodology employed for the study. Section 3 presents an overview of the operational principles of selected existing compensation schemes for epidemic livestock diseases (Australia, the Netherlands, Vietnam, Nigeria). Section 4 provides an overview of selected global funds for developing and transition countries. Options for a global institutional framework for the financing of costs and losses of epidemic livestock diseases are considered in Section 5. Recommendations for main operational principles for a Global Emergency Response Fund for Animal Epizootics and Zoonoses are proposed in Section 6. This includes the principles of GERFAE, mobilisation of funding, compensation of livestock holders, payment procedures, governance arrangements, and managing the risk of GERFAE.

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This analysis would not have been possible without the support from many sides, including veterinary authorities in several countries and interview partners at the global funds scrutinised for this report, including the UN Central Emergency Response Fund, the Global Fund to Fight AIDS, Tuberculosis and Malaria, the World Food Programme Working Capital Financing Facility and the World Organisation for Animal Health (OIE) World Animal Health and Welfare Fund as well as the FAO Special Fund for Emergency and Rehabilitation Activities. We also would like to thank organisations, such as *Agronomes et Vétérinaires Sans Frontières*, the European Commission (EC), the French National Institute of Agriculture Research (INRA), the Organisation for Economic Co-operation and Development (OECD) and the World Bank, which have authorized their experts to review the draft reports in depth. We would like to express our gratitude to the experts that provided very helpful written comments.[2] We also would like to thank Alain Dehove of the OIE and François Le Gall of the World Bank for the support and guidance provided throughout the study.

[2] Participants in the peer-review process were asked to provide their expert opinion, without necessarily expressing the view of their organisation.

2. Methodology

This study has been based on in depth case studies of selected national compensation schemes for epidemic livestock diseases and of selected existing global funds, an economic analysis based on incentive theory and a review of relevant best practices, including through interviews and analysis of existing studies and relevant reports and studies. These elements are detailed below:

Case studies compensation schemes

Compensation schemes in four different countries were selected for in-depth analysis. Each scheme is described in detail and the financial mechanisms are explored, as are the incentives provided by the schemes, and the level of responsibility their respective stakeholders hold. To guarantee diversity, the following criteria were taken into account when selecting the countries:

- The level of economic development;
- Outbreak of a major epidemic livestock disease in the past five years and/or innovative approach of the scheme;
- Data availability.

Australia, the Netherlands, Vietnam and Nigeria were selected for the case studies. Available literature on the selected schemes was scrutinized, and contact with the responsible national authorities and/or other country sources was established to collect data on the schemes and evaluate relevant experiences. Dimensions of the compensations schemes analysed include the institutional framework and the governance of scheme, the sources of funding, the coverage of the scheme and the compensation procedures. The interview process was complemented by conducting a global survey and interviews through regional cases studies on insurance and compensation schemes that is described in more detail in Part III (Pre-Feasibility Study on Market-Based Insurance Products for Emerging and Re-emerging Animal Disease Losses not Covered by Public Compensation).

Case studies global funds

There is a significant body of experience with global funds for developing countries and transition countries that are operational or planned, including emergency funds related to humanitarian aid, desert locust management, storms etc. The study focused on selected global funds that are of interest in terms of their aims and character, namely the UN Central Emergency Response Fund; the Global Fund to Fight AIDS, Tuberculosis and Malaria; the WFP Working Capital Financing Facility; the OIE World Animal Health and Welfare Fund; and the FAO Special Fund for Emergency and Rehabilitation Activities. Available documentation on the selected funds was reviewed and data-gaps were identified. On basis of an evaluation grid, in-depth phone interviews were carried out with the fund managers. Dimensions of the funds analysed include mobilisation of funding, intervention rules, governance and strengths and weaknesses.

Economic analysis

The starting point of the economic analysis conducted in the framework of the study is that due to externalities in the risk management of epidemic livestock diseases, a possible role of the Global Emergency Response Fund for Animal Epizootics should be to make sure that disease prevention and control measures are undertaken on an efficient level. The analysis is based on the theory of externalities, a widespread economic issue that often requires public market intervention to produce efficient results. One way to induce efficient prevention and control is to provide incentives through conditional compensation payments. Incentive theory and its application in economic models regarding insurance contract relationships is the theoretical background of this analysis. The dominant structure of these models is a principal-agent relationship. This is the relationship between risk-ceding agents, which are in the context of this study the governments of eligible OIE member countries and the livestock holders in these countries, and a risk-taking principal, which is the newly to be created Global Emergency Response Fund for Animal Epizootics. For the purposes of this analysis, the role of the fund can be interpreted as being an insurance facility for countries facing outbreaks of epidemic livestock disease to finance compensation payments. The implications of the models of insurance economics that will be referred to in the analysis are empirically tested and approved in many different insurance relationships. The analysis provides conclusions with respect to preconditions for compensation schemes that recipient countries have to introduce to be eligible for payments from the fund and the definition of compensation rules that should be applied, differentiating between professional livestock farmers and backyard holders of animals. The analysis takes into account best practices identified in the prior analysis of global funds and the "lessons learned" from experiences of compensation schemes for epidemic livestock diseases, as well as the results of the cost-benefit analysis presented in Part I (Economic impact of diseases and Cost-Benefit Analysis of Improved Disease Prevention and Rapid Control).

3. Operational principles of selected existing compensation schemes for epidemic livestock diseases

3.1. Introduction

Governments approach compensation for owners of culled livestock in the event of epidemic livestock disease outbreaks in various ways. Often this compensation is provided only as an ad-hoc measure by the government to the affected sector based on compensation rules that are defined ex-post, i.e., after the crisis occurred, which may lead to administrative and other problems and does not provide incentives for risk-management of farmers. Ad-hoc compensation is therefore considered as not recommendable. In many cases governments have therefore established statutory compensation schemes. Existing governmental compensation schemes in some cases provide indemnification exclusively from public sources, in other schemes contributions of the livestock sector are required. The following section provides case studies from four countries, namely in Australia, the Netherlands, Vietnam and Nigeria.

3.2. Analysis of selected compensation schemes

3.2.1. Australia

3.2.1.1. Institutional framework

With the legal document referred to as *Government and Livestock Industry Cost Sharing Deed in Respect of Emergency Animal Disease Response* the Emergency Animal Disease (EAD) Response Agreement was developed, establishing the framework for a cost-sharing agreement between the government and the industry.

The government and the livestock industries in the Australian public compensation scheme are represented on two key committees. The Emergency Animal Disease National Management Group (NMG) is a high-level committee that carries responsibility for decision making on policy and resource allocation issues during an emergency animal disease response. This group comprises the secretary of the Australian Government Department of Agriculture, Fisheries and Forestry, the chief executives of all state and territorial government parties and presidents of each of the relevant livestock industry organisations. The NMG is responsible for:

- Key decisions in an Emergency Animal Disease Response Program (EADRP) including: the approval of an EADRP, the budget, and a review of an EADRP where it believes the cost may exceed the agreed limit;
- Setting an upper limit on expenditure from time to time, at a level less than the agreed limit, below which EADRP expenditure may be committed without reference to NMG;
- Determination that an Emergency Animal Disease has been eradicated or contained;

- Determination that an Emergency Animal Disease is not capable of eradication or containment by means of an EADRP; and
- Consideration of efficiency audit reports and the financial audit report.[3]

Industry and government also collaborate through the Consultative Committee on Emergency Animal Diseases (CCEAD) which is a technical advisory committee comprised of the Commonwealth and State Chief Veterinary Officers, representatives from Animal Health Australia, Biosecurity Australia, the Australian Animal Health Laboratory and industry bodies. The CCEAD is responsible for:

- Receiving formal notifications from government parties on suspected emergency animal disease incidents;
- Advising the Emergency Animal Disease National Management (NMG) if any emergency disease response is required;
- Recommending to the NMG an emergency disease response plan;
- Considering regular reports on progress of a response and develop a consensus on further actions required;
- Providing regular consolidated reports to the affected parties, and to the NMG, on the status of an EADRP;
- In circumstances where rapid eradication of an emergency animal disease is judged no longer feasible, provide advice and recommendations to the NMG on when cost sharing should no longer apply and on options for alternative arrangements;
- Determining when a disease has been controlled or eradicated under an EADRP; and
- Recommending when proof of freedom has been achieved following the successful implementation of an emergency animal disease plan.[4]

In the event of a disease outbreak, the Chief Veterinary Officer of the State or Territory produces a Response Plan and budget to manage the outbreak. When satisfied with the technical aspects of this plan, the CCEAD recommends it to the Emergency Animal Disease National Management Group. Once approved by the NMG, the Response Plan commits the affected jurisdiction to the key strategies and core operational activities. The Response Plan and the subsequent government reaction are independently audited to ascertain that it is carried out effectively and successfully. It is also possible to have a financial audit.

[3] Adams, Ross. Presentation given 14 March 2005. Australian Department of Agriculture, Fisheries and Forestry

[4] Department of Primary Industries, Water and Environment (2003). *Emergency Animal Disease Management Plan*. Tasmania, AU. p10

3.2.1.2. Financial structure

All eligible emergency animal diseases for compensation must meet one or more of the following criteria: (1) it is a known disease that does not occur in endemic form in Australia, and for which it is considered to be in the national interest for the country to be free of the disease; (2) it is a variant form of an endemic disease, caused by a strain or type of the causal agent that can be distinguished by appropriate diagnostic methods, and if established in Australia would have a national impact; (3) it is a serious infectious disease of unknown or uncertain cause which may on the evidence available at the time, be an entirely new disease, or one not included in the categorised disease list; and (4) it is a known endemic disease, but is occurring in such a severe outbreak form, that an emergency response is required to ensure that there is neither a large scale epidemic of national significance or serious loss of market access.

At present 63 emergency animal diseases are considered for indemnification; they are classified into the 4 following disease categories which define the response to the disease in terms of proportion of government and industry funding (summarised also in Table 1):

Category 1 (funded 100% by the government): These diseases predominantly and seriously affect human health and/or the environment (depletion of native fauna) but may only have minimal direct consequences to the livestock industries. This includes diseases such as rabies and Nipah virus.

Category 2 (funded 80% by the government and 20% by the applicable industry(s)): These diseases have the potential to cause major national socio-economic consequences through very serious international trade losses, national market disruptions, and very severe production losses in the livestock industries that are involved. These diseases may have slightly lower national socio-economic consequences, but also have significant public health and/or environmental consequences. This includes diseases such as BSE, Hendra virus (formerly called equine morbillivirus), Highly Pathogenic Avian Influenza, and FMD.

Category 3 (funded 50% by the government and 50% by the applicable industry(s)): These diseases have moderate public impact and have the potential to cause significant (but generally moderate) national socio-economic consequences through international trade losses, market disruptions involving two or more states, and severe production losses to affected industries, but have minimal or no effect on human health or the environment. This includes diseases such as classical swine fever and Newcastle disease.

Category 4 (funded 20% by the government and 80% by the applicable industry(s)): These diseases could be classified as those that are mainly causing production losses. It is possible that there may be international trade losses and local market disruptions, but it is not typically of a magnitude that would be expected to significantly affect the national economy. The main beneficiaries of the successful emergency response to an outbreak of such a disease would be the affected livestock industry(s). This includes diseases such as Aujeszky's disease, contagious equine metritis and equine influenza.[5]

[5] Adams (2005), p11-13

Table 1: Australian cost sharing disease categories

Disease Category	Government Funding	Industry Funding
Category 1: very high public benefits	100%	0%
Category 2: high public benefits	80%	20%
Category 3: moderate public benefits	50%	50%
Category 4: low public benefits	20%	80%

Source: Adams, Ross. Presentation given 14 March 2005. Australian Department of Agriculture, Fisheries and Forestry.

When a disease affects more than one species of livestock, the contributions of each afflicted livestock industry are weighted according to both the gross value of production (GVP) of each industry and the importance of that particular disease for that industry; for example, compensation for losses due to FMD are allocated 50% to cattle, 30% to sheep and goats, and 20% to pigs.

When an infected animal species has financial ramifications for more than one industry, for example both the beef and dairy industries, the costs are shared on the basis of the GVP of each sector. For example, the agreed division for cattle disease is beef grazing (52.94%), beef feedlots (5.88%) and dairy (41.18%). Such arrangements also exist in sheep industries (wool and sheepmeats) and poultry industries (meat chicken and eggs).

The total amount that the affected industries are liable to pay may not collectively exceed 1% (2% for FMD) of the GVP of the industries involved. This upper limit determines the proportion affected industries pay which is then further dependent on the category of disease; for example, as affected industries are responsible for 50% of the disease costs for a *Category 3* disease, they will collectively pay half of their maximum contribution of 1% of their GVP, or a total of 0.5% of their GVP. The shares that the various state or territorial governments are liable to pay are divided proportionally (depending upon either their human population or number of animals), though in all cases the Commonwealth of Australia will fund 50% of the total government liability.

The livestock industries pay their share of the costs of a disease response through statutory industry levy arrangements or a charge based on production. In most cases, the levy is only collected when funds are needed (i.e., in the event of a disease outbreak). The industry has up to 10 years to pay back the government for their share of the costs.

3.2.1.3. Compensation

Losses eligible for compensation under this cost-sharing scheme include salaries and wages, operating expenses, capital costs, and compensation for owners of livestock. The costs of salaries and wages eligible for reimbursement include, but are not limited to: staff/consultants engaged by the party to assist directly with eradication; salaries or wages of staff/consultants engaged to backfill positions of seconded staff; allowances for staff/consultants involved in the emergency; fees and allowances to private veterinarians employed by the government parties to assist with disease operations. Operating expenses eligible for reimbursement include but are not limited to: expenses directly incurred by a party in the eradication program; internal laboratory services provided by a State/Territory government agency; external laboratory services provided for a government agency. Capital costs expenses eligible for reimbursement

include, but are not limited to, essential equipment required for the immediate servicing needs of parties responding to the disease.

Owners of livestock are eligible for compensation of: (a) any livestock or property which is destroyed for the purpose of eradication or prevention of the spread of an emergency animal disease; or (b) any livestock which an inspector is satisfied has died of a proclaimed disease and that there has been no unreasonable delay in reporting the death of the livestock. Loss of profit, loss occasioned by breach of contract, loss of production and other consequential losses are not eligible for compensation.

The initial compensation payment for the animal will be indemnified according to a calculation of its value on the basis of a sale at the place where the livestock was when it was destroyed or where the livestock was when it died of the disease (farm gate value).[6] This value is determined by the earliest of the following: (1) the date the owner reports the disease or suspicion of disease to an inspector or a veterinary surgeon; (2) the date of detection of the disease by an inspector; or (3) the date of imposition of a quarantine order relating to the disease. It may be that owners are eligible to receive a second valuation, or "top-up payment", when restocking their herds if the total value of livestock on the date of release of all restrictions pertaining to the property's eligibility to be restocked is greater than the first amount paid as compensation for the livestock following the outbreak.

A claim for compensation of livestock or other property must be made by, or on behalf of, the owner within ninety days after the date of destruction or death of the livestock or other property. A request for a second valuation must be made by or on behalf of the owner within 30 days of receipt of notification that the property is eligible to be restocked. A claim for a second payment for compensation must be made within 21 days of receipt of the second valuation determination. Claims for expenditure are managed by Animal Health Australia.

3.2.1.4. Strengths and weaknesses

This scheme provides an equitable and guaranteed compensation scheme, thereby reinforcing that no party is either better or worse off than another. This creates incentives for all participants in the livestock chain to participate in prevention and immediate reporting. Since percentages for each disease is broken down into compensation by industry, animal sector and geographical location, this limits the potential for conflicting interests in the chain of production which could theoretically inhibit a satisfactory disease response.

In order to accomplish a prompt and efficient indemnification, two payments are issued: the first will indemnify the farmer on the value of the livestock on the day the disease was reported or detected, or when a quarantine was issued, which provides immediate funding for farmers; and livestock owners may later receive a "top-up" payment when they begin to restock which reimburses any difference between the new market value and the amount for which they were indemnified; thereby ensuring that livestock owners are able to completely restock their herds following a disease outbreak without running the risk that livestock holders are overcompensated.

[6] Animal Health Australia (2002), p12

A potential weakness of this scheme is that it does not encourage complete planning reliability for farmers since levies are only collected to finance losses after an outbreak has occurred. Though farmers have 10 years to pay back the livestock industries, it could in some cases be an unexpected financial burden, depending on the amount of the losses they are responsible to reimburse.

Table 2: Main characteristics of the Australian Emergency Animal Disease Response Agreement

Name of scheme / programme	Australian Emergency Animal Disease (EAD) Response Agreement
Institutional framework / management/ governance of scheme	The government and the livestock industries are represented on two committees: (1) The Emergency Animal Disease National Management Group (NMG) which carries responsibility for decision making on policy and resource allocation issues; and (2) Consultative Committee on Emergency Animal Diseases (CCEAD) which is a technical advisory committee.
Source of funding / Cost-sharing (yes/no)	Depending on the disease categorisation, disease losses can be compensated by both government funding and the affected industry(s). Compensation is weighted according to the gross value of production (GVP) of the animal sectors involved and the production industries affected by an outbreak. The total amount that the affected industries are liable to pay may not collectively exceed 1% of the GVP of the industries involved (2% for FMD). The livestock owners contribute through industry statutory levy arrangements or a charge, often collected after an outbreak.
Diseases covered	At present 63 emergency animal disease are considered for indemnification and classified into 4 disease categories: *Category 1*: (funded 100% by the government) very high public benefits. *Category 2*: (funded 80% by the government and 20% by industry) high public benefits. *Category 3*: (funded 50% by the government and 50% by industry) moderate public benefits. *Category 4*: (funded 20% by the government and 80% by industry) low public benefits.
Compensation of livestock owners	Owners are compensated for (1) any livestock or property which is compulsory slaughtered; or (2) any livestock which has died of a disease. Consequential losses are not covered.
Compensation for other sectors	No payments for consequential losses are included in this agreement.
Compensation for government	The following costs are eligible for reimbursement: salaries and wages, operating expenses and capital costs directly incurred by a party in the eradication program; internal and external laboratory services. Consequential losses are not covered.
Compensation of smallholders	Owners are compensated for (1) any livestock or property which is compulsory slaughtered; or (2) any livestock which has died of a disease. Consequential losses are not covered.
Method of valuation	The value of livestock is based on the earliest of the following dates: (1) disease report; (2) detection; or (3) imposition of quarantine. Owners may receive a second payment if they are restocking their herds and the total value of the livestock is greater than the value for which they were initially indemnified.
Incentives provided for prevention and early reporting	- Equitable and guaranteed compensation scheme - Prompt and efficient indemnification
Documentary requirements and mode of payments	Invoices documenting costs are to be provided by affected parties to the Federal Government.
Legal basis	Government and Livestock Industry Cost Sharing Deed in Respect of Emergency Animal Disease Response

3.2.2. Netherlands

3.2.2.1. Institutional framework

A cost-sharing scheme between the Dutch government and representatives of unions of different livestock farmers and representatives of the product boards are agreed upon in negotiations, which take place every 5 years between both parties. These representatives and the Dutch government engage in formal negotiations to agree upon the costs to be shared in the event of an epidemic animal disease outbreak. The farmers and the industry are represented by the Product Boards, which exist for three sectors: livestock and meat; poultry and eggs; and dairy products. Each Product Board incorporates the whole product chain from farm to retailing and is involved in all trade and production activities within their sector. Livestock holders are represented on the Board of Governors in each Product Board.

The Ministry of Agriculture, Nature and Food is the government agency participating in these negotiations and responsible for designing the control and prevention programmes in the event of a disease outbreak. This agency administers the Animal Health Fund, which derives its legislative background from the *Gezondheids- en welzijnswet voor dieren* (Animal Health and Welfare Act). The Animal Health Fund is a financial tool used by the government for measures implemented in the event of epidemic livestock disease outbreaks such as culling, rendering, disinfection, compensation for direct losses to commercial holders and non-commercial holders and pre-emptive actions such as vaccination and prevention in case of an emergency.

In the Netherlands there is also an institutional framework to share the responsibilities for the measures. To prepare preventing or controlling measures, the ministry arranges meetings with all the organisations that have an interest or are potentially affected by an outbreak of animal disease, to discuss with them the proposals and suggestions. Based on the outcome of the consultations the policy is developed.

3.2.2.2. Financial structure

Negotiations are performed in 5-year intervals between the Product Boards and the Ministry and determine for each disease the maximum amount the Product Boards must pay in the event of an outbreak. If there is a disease outbreak and the Ministry orders controlling measures, the Animal Health Fund of the Ministry of Agriculture, Nature and Food finances costs and compensations. The Ministry subsequently invoices the relevant Product Boards, which are liable for the infected species. These Product Boards are accountable for reimbursement of the Animal Health Fund up to the pre-defined maximum amount specified in their 5-year negotiations. These amounts vary by sector and by disease. Costs and compensations relating to non-commercial holders are excluded from this and are paid fully by the government. The Product Boards have agreed to pay the following maximum amounts for specific diseases over the 2005-2009 period (the amounts yearly rise adapted to inflation and changes in the number of cattle, pigs, sheep, goats, poultry, beginning 2006):

Table 3: Maximum contribution of the related livestock sector to the Animal Health Fund

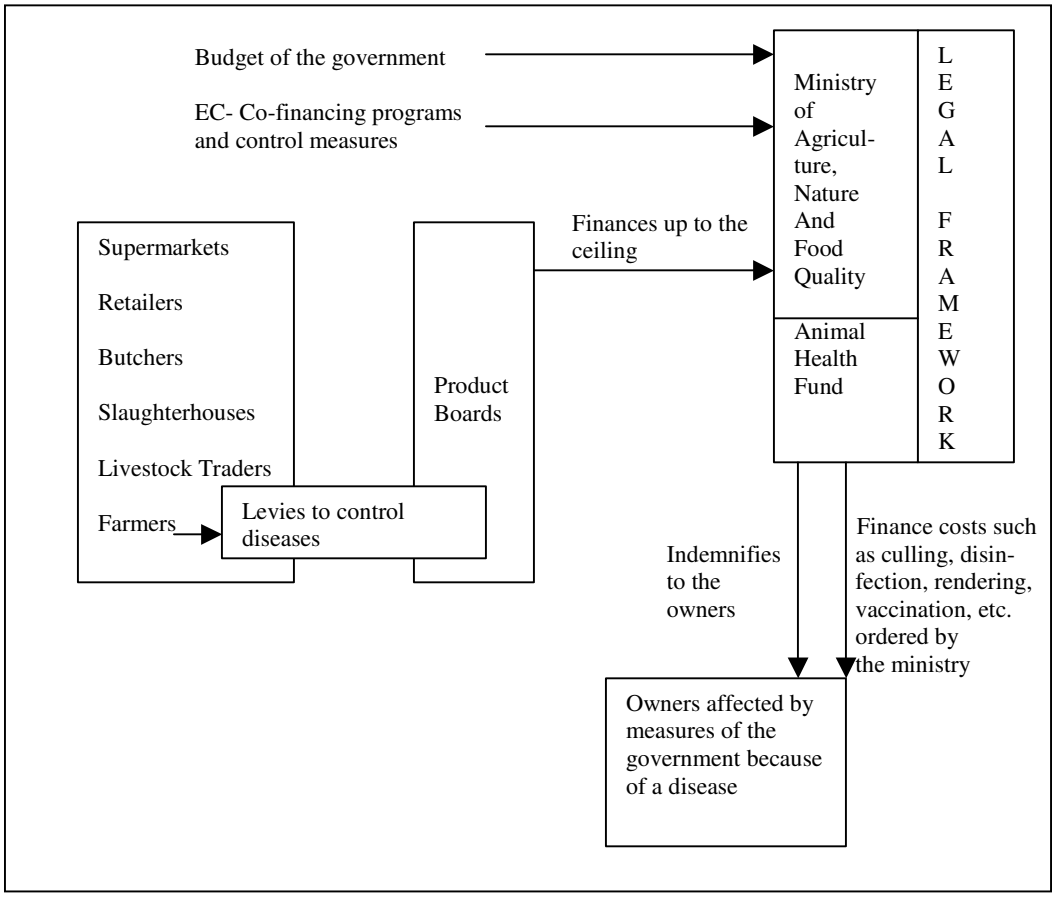
Sector (disease)	Maximum contribution of the sector (in million €)
Cattle (total diseases)	86.8
Pigs (African Swine Fever and SVD)	47.2
Pigs (Classical Swine Fever and FMD, others)	81.1
Sheep and goats (FMD, others)	3.7
Sheep and goats (Scrapies)	2.5
Poultry (Avian Influenza)	19.7
Poultry (Newcastle Disease)	2.2

Source: Questionnaire Walter Geluk (Senior policy advisor), questionnaire to Ministry of Agriculture, Nature and Food Quality of the Netherlands, updated figures for 2006

The Product Boards fund their financial responsibility initially with their reserves and/or a bank guarantee and subsequently, via levies to livestock owners in their sector. These levies, defined on a yearly basis by the industry representatives themselves, are differentiated by livestock species, age, utilisation, product, and production system. The Product Boards calculate the levies livestock owners must contribute; this figure takes into consideration the account of indemnifications from previous years that have to be refinanced and the level of reserves that has to be built up for future epidemics. The levies are differentiated and proportionally paid according to the animals' age or to the production. Any costs of the disease over this maximum amount is paid in full by the Dutch government, part of which is reimbursed from the EU's "Veterinary Fund", which maintains a system of co-financing losses caused by major disease outbreaks. Irrespective of the maximum contribution of the Product Boards to the Fund, costs of monitoring diseases are paid 50:50 by both the government and the Product Boards.

The public compensation scheme in the Netherlands is illustrated in Figure 1:

Figure 1: The Netherlands' compensation scheme with public involvement



Source: Civic Consulting / Ministry of Agriculture, Nature and Food Quality of the Netherlands

3.2.2.3. Compensation

Livestock owners are compensated under this cost-sharing scheme for major epidemics such as Avian Influenza, FMD, BSE, Swine fever, Newcastle Disease, Bovine tuberculosis, Brucellosis, Rinderpest and Scrapies (diseases specifically not covered include Aujeszky's disease, IBR, Johne's disease and Salmonella).

In the event of an outbreak of a relevant disease, livestock owners are compensated for the destruction of animals, eggs, milk, feed, and other materials. Direct losses of non-commercial livestock owners, who are not members of the Product Boards, are covered entirely by the Ministry in order to promote reporting of the disease. Consequential losses are not eligible for reimbursement under this scheme.

The Animal Health Fund also reimburses costs involved in monitoring and eradication measures of the Ministry such as culling, rendering, disinfection, and preventive actions such as vaccination in case of an emergency and any additional costs that accrue to the Ministry. Additionally, veterinarians are also liable

for compensation when they have visited an infected farm and therefore, by order of the Ministry, are banned from visiting other farms within the following 72 hours.

Compensating for livestock owners and smallholders is derived from the market value for the livestock before the epidemic outbreak, or the equivalent if market values are not available. The pre-epidemic value of the livestock is differentiated by category of animal and age and is based on purchasing price plus the costs for feed and housing. The Ministry decides on the final amount of the compensation payment. These compensation payments reimburse livestock owners' total loss of value, which is calculated by independent evaluators and based on the appraisal from the government veterinarian who conducts the initial inspection after the disease is first reported. At the time of inspection, healthy animals, which are culled, are indemnified at 100% of the market value, visible sick animals are indemnified at 50%, and animals that have already died are not indemnified at all.

3.2.2.4. Strengths and weaknesses

This scheme gives high financial responsibility to members of the production chain. Payment is conditional on the health of the animals, which is ascertained by the veterinarian's first visit to farm. This is to encourage early reporting and incentives to take preventive measures on the farm, as the financial consequences are severe for livestock owners with infected farms. Economic sanctions are also imposed if there is proof that an outbreak is the fault of the livestock owner when, for example, certain hygiene or sanitary conditions have not been met on the farm.

This compensation scheme provides high incentives for livestock owners to take preventive measures, except when the livestock owner does not intend to continue production following an epidemic disease outbreak. Livestock owners who expect to abandon production altogether after an outbreak do not have any incentives to avoid epidemics, except quasi-deductibles (reduced indemnification for sick or dead animals) and consequential losses, because they do not pay levies after the outbreak.

Under this scheme, levies are not differentiated among farmers or regions. Thus, levies do not reflect the risks of individual farmers and therefore may not affect risk management planning of individual farmers. But, as the Dutch Ministry pointed out, because of the risk of direct and consequential losses and the higher levies, farmers have and will take preventive measures voluntarily.

Also, the incentives for the producers and for the government may be liable to change when the ceiling of compensation by the Product Boards is reached. Above the ceiling the producers do not bear any of the direct costs of the measures to combat an outbreak. However, each producer still bears his own consequential losses.

Table 4: Main characteristics of the Dutch Animal Health Fund

Name of scheme / programme	Animal Health Fund
Institutional framework / management/ governance of scheme	The Ministry of Agriculture, Nature and Food is responsible for designing the control and prevention programmes in the event of a disease outbreak. Funding issues are based on formal negotiations between farmer representatives and representatives of the Product Boards and the Dutch Ministry of Agriculture, Nature, and Food.
Source of funding / Cost-sharing (yes/no)	Negotiations between the Product Boards and the Ministry determine for each specie / disease the maximum amount the Product Boards must pay in the event of an outbreak. Immediately after a disease outbreak, costs are financed by the Animal Health Fund of the Ministry of Agriculture, Nature and Food. The Ministry subsequently invoices the relevant Product Board. These Product Boards are accountable for reimbursement of the Animal Health Fund up to the pre-defined maximum amount specified in their negotiations. The Product Boards fund their financial responsibility via levies to livestock owners in their sector. Any costs of the disease over this maximum amount is paid in full by the Dutch government, part of which is reimbursed from the EU's "Veterinary Fund", which maintains a system of co-financing losses caused by major disease outbreaks.
Diseases covered	Major epidemics such as Avian Influenza, FMD, BSE, Swine fever, Newcastle Disease, Bovine tuberculosis, Brucellosis, Rinderpest and Scrapies.
Compensation of livestock owners	Livestock owners are compensated for the destruction of animals, eggs, milk, feed, and other materials. Consequential losses are not indemnified.
Compensation for other sectors	Veterinarians banned from visiting other farms within 72 hours after having been on an infected farm by order of the Ministry are indemnified.
Compensation for government	Costs involved in monitoring and eradication measures of the Ministry such as culling, rendering, disinfection, and preventive actions such as vaccination in case of an emergency and any additional costs that accrue to the Ministry.
Compensation of smallholders	The government fully bears the costs of compensating all direct losses for non-commercial holders. Consequential losses are not indemnified.
Method of valuation	The basis for compensating livestock owners and smallholders is the market value for the livestock before the epidemic outbreak or the equivalent if market values are not available. The pre-epidemic value of the livestock is differentiated by category of animal and age and is based on purchasing price plus the costs for feed and housing. Healthy animals at the time of inspection that are culled are indemnified at 100% of the market value, visible sick animals are indemnified at 50%, and animals which have already died are not indemnified at all.
Incentives provided for prevention and early reporting	This scheme gives high financial responsibility to members of the production chain. A reduced compensation conditional on the health of the livestock encourages early reporting and preventive incentives on the farm.
Documentary requirements	The final amount of the compensation payment is based on the appraisal from the government veterinarian.
Time frame for reimbursement	Boards have to pay at first call of the government
Legal basis	*Gezondheids- en welzijnswet voor dieren* (Animal Health and Welfare Act)

3.2.3. Vietnam

3.2.3.1. Institutional framework

The Vietnamese government established the National Prevention/Emergency Fund to control and prevent risks such as natural damage, epidemic livestock disease, and human disease outbreaks in the country. The first Highly Pathogenic Avian Influenza outbreak occurred in Vietnam in December 2003. AI poses a threat to Vietnam in two critical areas: (i) public health, given the zoonotic potential of the disease, and (ii) production, given the importance of the poultry sector for the domestic economy. In addition to these two critical areas, the poverty reduction potential of small-scale poultry production for rural smallholders needs to be kept in mind.

Considering the above factors, the Government of Vietnam (GoV) established an emergency support policy to contain the AI outbreak. Government decision No 396/QD-TTg on compensation was approved on April 20, 2004. In order to contain disease spread, the GoV's policies had to balance the potential consequences of decisions taken, while constructing a long-term sustainable strategy to contain future outbreaks. The Vietnamese Ministry of Agriculture and Rural Development (MARD) thus sought to improve the compensation policy implemented after the AI outbreak. The 2004 policy was elaborated and implemented under the pressures surrounding the AI emergency outbreak situation and therefore needed to be refined and adapted, not only to meet farmer's needs but also to address economic constraints arising at governmental level.

Based on a study by international and national consultants in 2005, government decisions No 574/QD-TTg (24/06/2005) and No 309/2005/QD-TTg (26/11/2005) on compensation policy were approved. The policies aim at preventing the public health threat derived from AI, as well as reducing the economic losses at national level associated to the outbreak. The policy rationale is to encourage farmers to declare the disease at an early stage to contain the disease spread among the poultry population. A key component of the support policy is a level of compensation that encourages farmers to cull animals rather than selling them illegally on the market.

There is an ongoing debate about adequate risk-sharing patterns between the public central government funds and poultry producers. Such patterns are closely related to the restructuring of the poultry production sector in Vietnam. The MARD is the government agency participating in these negotiations and responsible for designing the control and prevention programmes in the event of a disease outbreak. The National Committee for Avian Influenza Disease Control and Prevention (NCAI)[7] advises the GoV on the support policy, and on control and prevention strategies for AI. The National Prevention/Emergency Fund and the local Prevention/Emergency budget have been used to allocate support for containing AI outbreaks, such as direct compensation for poultry culled, restocking subsidies and coverage of other expenses.

[7] Chaired by the Minister of MARD, with the Vice Ministers of MARD and Ministry of Health (MOH) as vice chairmen, the official members of the committee are the representatives of the Ministry of Finance, Ministry of Trade, Ministry of Police, Ministry of Transport, Ministry of Natural Resources and Environment, Ministry of Culture and Information, and Ministry of Foreign Affairs. The Department of Animal Health (DAH) in MARD and the Department of Preventive Medicine in MOH are also formal members.

3.2.3.2. Financial structure

The National Prevention/Emergency Fund, which is generated through national taxes, is used in the case of national emergencies.

Currently, the Vietnamese Government faces two epidemic livestock diseases, namely Foot-and-Mouth Disease (FMD) and AI. In case of these diseases, the main principles guiding compensation for poultry and livestock producers who have poultry and livestock culled in the cases of AI and FMD are following[8]:

(i) The government contributes 50 percent of the costs for controlling the diseases. The remaining amount is contributed from provincial Prevention/Emergency budgets.

(ii) Ha Noi and Ho Chi Minh City do not receive any contribution from the central government, the budget will come from their local Prevention/Emergency budgets.

(iii) In cities and provinces where the contribution towards FMD and AI control exceeds 50% of the local Prevention/Emergency budget, the central government contributes the difference from the National Prevention/Emergency Fund.

(iv) The National Prevention/Emergency Fund supports all the costs for controlling the diseases for provinces which have been just established.

In the case of AI, the Vietnamese Government reacted with considerable effort to contain the outbreak once the scope and ferocity of the epidemic became apparent. It established a multi-ministerial AI steering committee (AIST), which is chaired by the Ministry of Agriculture and Rural Development, and comprises representatives of the ministries of Agriculture and Rural Development, Health, Finance, Planning and Investment, as well as other departments. A national action plan for the control of AI was drafted to provide guidelines for containing the epidemic. It was to be implemented by the AI working group, comprising the various technical animal husbandry and animal health institutes.

The budgets of the National Prevention/Emergency Fund and the provincial Prevention/Emergency budgets are financial tools for compensation. At the start of the AI outbreak, the Vietnamese government decided to provide a budget for the control of AI and recovery of the poultry production sector of 245.316 billion VND (15.1 million US$)[9]. This amount was subsequently increased by government decision No 906/QD-TTg (16/08/2004) by 22.675 billion VND (1.3 million US$).

Until March 2005, total central government budget allocated for AI was of 267.991 billion VND (16.4 million US$). On November 15th 2005, the Prime Minister signed decision number 1239/QDD-TTg to allocate an additional budget of VND 1,306.4 billion (81.5 million US$) for the 2005-2006 period to prevent and control the influenza pandemic. 85 percent of this budget was allocated to the central level (ministries, regional institutes), and the rest of the funding was allocated to 59 provinces and cities.

[8] According to government decision No 396/QD-TTg - 20/04/2004; government decision No 574/QD-TTg-24/06/2005; government decision No 309/2005/QD-TTg-26/11/2005; government decision No 738/QD–TTg–18/5/2006 and government circular No 44/2006/TT–BC–24/5/2006.

[9] Exchange rate at 1USD = 16000 VND

The key points of the central government's emergency policy guidelines on AI fund allocation and subsidy levels can be grouped into two categories: (i) funding for poultry producers (i.e. households, farmers, cooperatives, etc.); and (ii) funding for State Owned Enterprises (SOE).

Compensation funding from the National Prevention/Emergency Fund for poultry producers is dependent on the budget department of the Ministry of Finance, while compensation for State Owned Enterprises depends on the Department of National Enterprises of the Ministry. Compensation funding is shared equally between the central and provincial contingency budgets but the level of compensation differs considerably from province to province, depending on the income level.[10]

The case of Ho Chi Minh city is interesting when focusing on the management of financial resources during the AI outbreak. As opposed to other provinces, the department of finance of HCM allocates an amount of funds to the sub-department of animal health (SDAH). Subsequently, it is the SDAH that is in charge of allocating funds to the necessary activities to control and compensate the AI outbreak. This procedure sheds light on a new form of financial management at the provincial level. Although SDAH members mentioned that the allocation of funds through SDAH increases their workload, this financial organisation has the potential to allow the department to prioritise and allocate resources to animal health in a more accurate and efficient way, thus increasing responsiveness and reducing administrative tasks.

The allocation of funds in the provinces followed a different pattern, characterised by a control of the financial resources by the financial department (DF) at the provincial and district levels. Thus, the provincial DF allocated funds to the district DF, which in turn distributed the money to farmers in accordance to the previously specified number of animals culled. Contrarily to the case of Ho Chi Minh city, the sub-department of animal health was not involved in the fund allocation process in the provinces.

3.2.3.3. Compensation for private poultry producers

Following the recommendation of a study on compensation and related financial support to farmers, the government's compensation for birds culled during the stamping-out of outbreaks was raised from 10-15 percent of the market value of the poultry slaughtered in 2004 to 50 percent in June 2005 (VND 15,000 per bird). Increasing compensation level results in greater satisfaction of the farmers.[11] As mentioned previously, the compensation policy differs from private poultry producers to State Owned Enterprises.[12]

The main guidelines for compensation to private poultry producers from the central government were the following:

- Direct subsidy of 5,000 VND/head (0.32 US$) of poultry culled. From June 24 2005, this subsidy increased to 15,000 VND/head (0.94 US$) for poultry the farmer was forced to cull or culled voluntarily because of infection by the disease. From November 26, 2005, this subsidy

[10] Riviere-Cinnamon et al. (2005)

[11] Personal communication with Nguyen Anh Tuan, Department of Livestock Production, MARD, directly responsible for AI control and prevention project in Vietnam.

[12] Government decision No 396/QD-TTg, 2004; government decision No 574/QD-TTg, 2005 and government decision No 309/2005/QD-TTg, 2005

was of 10,000 VND/head (0.6 US$) for poultry culled voluntarily. Provinces were able to increase the subsidy level through their local contingency funds.

- Restocking subsidy of 2,000 VND/head (0.13 US$) was offered to recover poultry production. The amount given was directly related to the number of animals culled. This subsidy ended at the end of 2004.

- Other direct expenditures (i.e. equipment, facilities, disinfectants, protective clothing, staff in quarantine stations etc.) were financed by the central government budget at a rate of 3,000 VND/head (0.19 US$) of poultry culled for control of AI during and after the outbreak.

Poultry producers' losses were calculated at local level in relation to the number of animals culled per category. Categorisation and related compensation, however, differs greatly between the provinces.[13] For example, Ho Chi Minh City province divided poultry into 10 categories for different compensation levels, An Giang and Ha Tay Provinces divided poultry into 4 categories and Tien Giang province established 3 categories.

Contrary to the national policy on risk sharing in relation to AI (i.e. 50% financing from both the central government and the provinces), the actual percentage contributed by some provincial authorities was far below the suggested levels. It was however stated in the national policy document[14] that the provinces more heavily affected by the outbreak would receive a higher level of compensation. A study shows that the contribution share was of 11% for Tien Giang province and of 8% for An Giang, thus far below the 50% level envisaged for the provinces. The contribution from their respective Province Prevention Fund (PPF) was of 14% and 10%. On the contrary, Ha Tay province contributed 48% of the total amount spent on the AI crisis in the province, and its contribution from the PPF was 16%.

There are also differences regarding the policy of farmers' eligibility for compensation at the province level. The decision to compensate all farmers was made in the case of Ha Tay province, but some of the provinces did not compensate all farmers. Only poultry producers of over 100 animals were compensated in Ho Chi Minh, while to receive compensation in Tien Giang, production had to be above 50 animals. The number of animals culled was not explicitly described, as it was the case in An Giang province.[15]

3.2.3.4. Compensation for State Owned Enterprises

Vietnam currently possesses 12 Grand Parent (GP) SOE farms.[16] This category received the total amount of funds needed to feed the foundation stock; to restock and to ensure veterinary activities; disinfections; costs of labour; equipment, etc, from the central government. The funds were given to the sub-departments

[13] Riviere-Cinnamond et al (2005) and Ana Riviere-Cinnamond "Support policy strategy for avian influenza emergency recovery and rehabilitation of the poultry sector in Vietnam", MARD conference on 28th March 2005, Hanoi, Vietnam

[14] GoV-No 396/QD-TTg

[15] Riviere-Cinnamond (2005)

[16] Data from Department of Livestock Production - MARD

of animal health (SDAH, at the provincial level) for veterinary activities. SDAH then allocated funds to each farm in relation to needs, and a part of the fund was allocated for disinfecting activities.[17]

3.2.3.5. Method of evaluation

At the provincial and district levels, AI Committees for Avian Influenza Disease Control and Prevention are established by the official members of the committee, who are representatives of the sub-departments of Agriculture, Health, Animal Health, Finance, Trade, Police, Transport, Natural Resources and Environment, and Culture and Information, at different levels. At commune and village levels, the commune AI control committees supervise the control of animal movement, culling and disposal.

These commune committees comprise a commune leader, a lawyer, an animal health worker, a sample of affected farmers, a police officer and other personnel and individuals. Evaluation of losses is done at the local level. As an outbreak occurs, farmers should inform the head of the village. In turn, the head of the village should report to the communal committee for Avian Influenza Disease Control and Prevention. This communal committee in turn informs the AI committees for Avian Influenza Disease Control and Prevention at the provincial and district levels. These committees visit the stock and carry out tests to confirm the AI infection of the stock. When the result is positive, all of the poultry in the infected area is be culled. A culling document/appraisal form, which includes information on the date the owner reports the disease, the date of detection of the disease by an inspector, the date of culling, the number of poultry culled and the category of poultry, is then made and singed by farmers and representative members. Compensation to farmers is based on this document. Compensation is paid through the commune institution. The procedure is as follows: funds from the central government are allocated through the financial department (DF) at the provincial level. Then the financial department at the provincial level allocates the central government funds together with the provincial fund to the district financial department. The district financial department allocates the total compensation payment to the communes, which in turn distribute the money to farmers in accordance to the previously specified number of animals culled. All payment is made in cash.[18]

3.2.3.6. Timeframe for disbursement of funds

Responsiveness to needs during the AI outbreak was closely related to the timeframe in which funds were disbursed. Central government funds were distributed to producers both during and at the end of the outbreak, while farmers only received funds for restocking at the end of the outbreak. However, provinces advanced funds from their respective provincial prevention funds before receiving central government contributions, which allowed them to take the first preventive measures against AI.

As opposed to the disbursement of compensation funds to the poultry producers, calculation and disbursement of compensation funds for SOE were performed at the end of the outbreak only. There were no advance funds from central government.

[17] Riviere-Cinnamond et al. (2005)

[18] Personal communication with Mr Tuan, MARD and MOH. 2006; World Bank (2004)

3.2.3.7. Strengths and Weaknesses

Payment of this scheme is conditional on the health of the animals, which is ascertained by the first visit of the Committees for Avian Influenza Disease Control and Prevention to the stock. This is to encourage early reporting and incentives to take preventive measures on the farm, as financial consequences for a farmer with infected stock are important. Producers will thus be more willing to declare the disease at an early stage and cull their animals, reducing animal movement and illegal selling. Following this rationale, the AI outbreak is expected to be contained at a much earlier stage, hence reducing indirect costs and losses. This contributes to quick control of AI. The compensation policy reduces financial difficulties for farmers when infected poultry dies and when infected products are banned from being sold in the market.[19]

However, problems arise from the establishment of different categories and especially different compensation rates between provinces. For instance, farmers try to move and cull their poultry in neighbouring provinces, where support received and compensation rates are higher. Differing compensation rates and categories between provinces encourage animal movement, thus enhancing disease spread and hindering rapid disease containment.

The rationale behind compensating farmers is to increase compliance with regard to animal culling, and is therefore crucial in the containment of and AI outbreak. If the farmers are not compensated because they own only a small amount of poultry, there would be an incentive for them to sell potentially infected animals in the market, thus contributing to the spread of the disease.

Furthermore, late payment and unsatisfying compensation rates for farmers could encourage them to illegally move and sell their animals in order to minimise their share of losses and to not report when their poultry is infected, impeding rapid containment of the outbreak.[20]

Table 5: Main characteristics of the Vietnamese Compensation Scheme

Name of scheme / programme	Compensation/support policies for Prevention and Control of Highly Pathogenic diseases.
Institutional framework / management/governance of scheme (role of government/private sector)	The Ministry of Agriculture and rural Development is responsible for designing the control and prevention programmes in the event of a disease outbreak. A multi-ministerial AT steering committee (AIST), chaired by the Ministry of Agriculture and Rural Development, and compromising representatives of the ministries of Agriculture and Rural Development, Health, Finance, Planning and Investment, as well as other departments, negotiate a compensation/support plan.

[19] Son, N. T. (2007). Enhancing HPAI Control through compensation policy – Vietnam case. World Bank conference on 13th February, 2007

[20] Personal communication with Son,Tuan (2007)

Source of funding / Cost-sharing (yes/no)	The government supports 50 percent of the costs for controlling the diseases. The remaining level of risk sharing comes from provincial funds. Ha Noi and Ho Chi Minh City do not receive any contribution from the central government. Compensation from governmental budget is homogeneous across categories but provinces divide poultry into different categories for compensation. The level of compensation therefore differs considerably from province to province, depending on the income level of the province. The allocation of funds is mainly characterised by a control of the financial resources by the financial department (DF) at the provincial and district levels. Thus, DF at the provincial level allocated funds to the district DF, which in turn distributed the money to farmers in relation to the previously specified number of animals culled.
Diseases covered	Major livestock epidemics such as Avian influenza, Foot-and-Mouth disease.
Compensation of livestock owners	Owners are compensated for (i) livestock that is compulsory and willing slaughtered; or (ii) recovery of poultry production by restocking in 2004. The amount released was directly related to the number of animals culled. Consequential losses are not covered.
Compensation for government	Costs involved in monitoring and eradication measures of the Ministry such as culling, rendering, disinfecting and preventive action such as vaccination, internal and external laboratory services. Consequential losses are not covered.
Compensation of smallholders	Owners are compensated for (i) livestock that is compulsory and willingly slaughtered; or (ii) recovery of poultry production by restocking in 2004. The amount released was directly related to the number of animals culled. Consequential losses are not covered.
Method of valuation	Compensation of livestock producer is based on the value of livestock in the market before the epidemic outbreak. Poultry culled is indemnified at 10-15 percent of the market value in 2004, an amount that was raised to 50 percent in June 2005. Livestock culled because of FMD is indemnified at 50 percent of the market value.
Incentives provided for prevention and early reporting	Payment of this scheme is conditional on the health of the animals in order to encourage early reporting and incentives to take preventive measures on farms. The compensation policy reduces financial difficulties for farmers, hence their prevention and early reporting is voluntary, impeding a rapid spread of the outbreak.
Documentary requirements and mode of payments (loss assessment)	The final amount of the compensation payment is based on the appraisal from the AI committee at the village and commune levels.
Time frame for reimbursement	Disbursement of central government funds for poultry producers took place during and at the end of the outbreak. Funds allocated for restocking were only distributed at the end of the outbreak. Disbursement of compensation funds for SOE was performed at the end of the outbreak.
Legal basis	Compensation/support policies for Prevention and Control of Highly Pathogenic Avian Influenza in Vietnam were approved by the Vietnamese government (government decision No 396/QD-TTg, 2004; government decision No 574/QD-TTg, 2005 and government decision No 309/2005/QD-TTg, 2005). Compensation/support policies for Prevention and Control of food and mouth disease in Vietnam was approved by the Vietnamese government (Government decision No 738/QD – TTg, 2006 and government circular No 44/2006/TT – BC, 2006)

3.2.4. Nigeria

Nigeria does not have a comprehensive scheme for compensation in the event of animal disease outbreaks, although there is a history of compensation payments to livestock owners to compensate producers in cases where animals are culled for disease control purposes. Thus it is reported that in the past the Northern Nigerian Government had an apparently successful scheme to compensate cattle owners whose animals were slaughtered in order to contain Contagious Bovine Pleuropneumonia (CBPP).

National policy for control of Avian Influenza was control by stamping-out of infected farms with payment of compensation for birds culled; while vaccination was excluded. The rudiments of a government-funded (US$ 847,558 since 2003) compensation scheme were put in place in March 2006 compensating farmers at 30-50% of the market value. According to the WB/AICP Compensation Plan, compensation rates in Naira ($1 = 127 Naira) are the following: Ostrich N20,000; Emus N10,000; Turkey N2,500; Duck N1,000; Goose N1,000; Chicken N250. Total paid to date is N161 million. It was, however noted at the time that: "The existing veterinary law provides for the establishment of a compensation fund, but no steps have been taken as yet to develop the required implementation arrangements, including financing, fiduciary aspects, eligibility criteria, payment arrangements, flow of funds, etc."[21] It was also noted that it would be a condition for the disbursement of funds that there be specific and transparent rules and regulations on: (a) the actual mobilization of the needed financing, notably as regards cost sharing by livestock owners; (b) the intermediate disposition of such funds until they are actually needed; (c) the procedural steps required to trigger actual compensation payments; and (d) the administrative and payment arrangements in the event of an authorized case of compensation. In addition precise guidelines were sought for: (i) establishing and verifying compensation claims; (ii) determining the amount of compensation per animal; (iii) recording and reporting stamping out and compensation claims; (iv) actual payment to legitimate beneficiaries; and (v) monitoring payments. It is understood that while some of these points were addressed via a compensation manual, it lacked the necessary degree of specificity.

The general lack of adequate preparedness was confirmed by a mission carried out by FAO, OIE and AU IBAR in Nigeria in October 2006 which indicated that the State Veterinary Services capacity were not prepared to handle this disease emergency due to years of inadequate investment in Veterinary Services and a weakened central veterinary authority. Control activities were also complicated further by inability to mobilise compensation rapidly, so many farmers were poorly compensated because by the time the decision to cull was taken a significant proportion of poultry had already died from the infection and were ineligible for compensation. It also appears that while there was a rapid response committee set up at Federal level under the auspices of the Ministry of Agriculture no similar structures existed at State level. This, combined with the fact that the funds were held at Federal level, compounded the difficulties faced when the outbreak occurred.[22]

In addition, it was noted by Dr. M.D. Sa'idu, the Chief Veterinary Officer, at a seminar in December 2006[23] that "there were some attempts by some farmers to conceal the disease as they consider the flat rate compensation mechanism not attractive enough". This also led to "sale of birds to unsuspecting members of the public" which contributed the spread of the disease and attendant human exposure. It was also noted

[21] World Bank (2006b)

[22] Personal communication with the Delegation of the European Union to the Federal Republic of Nigeria, February 2007

[23] AHI Seminar on Compensation Issues: Nigeria's experience with compensation, December 2006

that there were "delays experienced in settling of compensation claims" and that subsistence owners insisted "on being paid outright cash before their birds are culled".

In conclusion it was noted that there was a need for timely payments, a sustainable compensation fund, better determination of the values to be compensated for and regular review of compensation rates to ensure these remain in line with economic realities. It is understood that currently the institutional structures and the compensation manual are in the process of revision and on 20 February 2007 it was announced that compensation rates for chickens had been doubled to 500 Naira per bird.[24] It is understood that this follows a renewed outbreak of Avian Influenza in the northern state of Bauchi and the first confirmed human death from the H5 N1 virus.

[24] Agence France Presse, 'Nigeria doubles health flu compensation for farmers', 21 February 2007, Dr Martin M'bonu

4. Experiences of selected global funds for developing and transition countries

4.1. Introduction

There is a large variety of global funds that provide financing for specific causes, focusing e.g. on emergency assistance, disease prevention or environmental programmes. This section analyses a total of five of such funds with respect to their financial, technical and operational characteristics. The following funds have been analysed: The UN Central Emergency Response Fund (CERF); the Global Fund to Fight AIDS, Tuberculosis and Malaria; the WFP Working Capital Financing Facility; the OIE World Animal Health and Welfare Fund; and the FAO Special Fund for Emergency and Rehabilitation Activities (SFERA). The results of the analysis have been a basis for developing operational principles for a possible Global Emergency Response Fund for Animal Epizootics and Zoonoses.

4.2. Analysis of selected global funds

4.2.1. UN Central Emergency Response Fund

The former Central Emergency Revolving Fund was upgraded into the Central Emergency Response Fund (CERF) by the UN General Assembly's adoption of Resolution A/RES/60/124 at 15 December 2005. The launch of CERF took place at 9 March 2006. The UN Emergency Relief Coordinator (ERC) John Holmes manages the Fund on behalf of the UN Secretary General.

The purpose of the new CERF is life saving intervention, which is defined in its three objectives;

- Promote early action and response to save lives;
- Enhance response to time-crucial requirements based on demonstrable needs;
- Strengthen core elements of humanitarian response in under-funded crisis.[25]

The focus on life-saving interventions implies that the fund does not cover pure prevention and/or preparedness activities. However distinct elements of some projects, such as in the area of health and animal health, may also cover preventive actions. Prevention and/or preparedness activities are only carried out in combination with rapid response, life-saving activities.[26]

The total capital of pledged and contributed monies for 2006 lies at US$ 300 million. Of this US$ 1.1 million has been pledged and US$ 299 million has been actually paid into the Fund.[27] US$ 343 million has been pledged so far for 2007, with US$ 40 million already transferred as of 27 January 2007. In 2006, 70% of all funds went to Africa.

[25] United Nations Office for the Coordination of Humanitarian Affairs (2006), The Central Emergency Response Fund (CERF). Retrieved December 21, 2006, from http://ochaonline.un.org/webpage.asp?Site=cerf

[26] Interview UN CERF

[27] CERF (2006, December 13). List of Pledges and Contributions in 2006

4.2.1.1. Mobilisation of funding

Governments, private organisations and individuals can all donate into CERF.[28] The majority of contributions come from governments, with less than 1% of the contributions coming from corporations, individuals and others.[29]

In 2006, 54 governments had donated to the fund, with the main contributors being the UK, the Nordic countries and the Netherlands. Some potential recipient countries have made symbolic contributions, such as Pakistan, Nigeria and Trinidad and Tobago.[30] Pledges for 2007 are from 68 governments and three private sector organizations. There is also an on-line giving facility for individuals managed by the UN Foundation, which is accessible through the CERF website.

To prevent the Fund from drying up in case of large-scale, or numerous emergencies, the UN Emergency Relief Coordinator decided to maintain a minimum balance of $30 million, the maximum allocation under the rapid response window, as a reserve.[31]

4.2.1.2. Intervention rules

CERF consists of a loan and a grant element. The loan facility includes US$ 50 million, the grant facility includes up to US$ 450 million. The United Nations, its funds, programmes and specialized agencies, as well as the International Organization for Migration, are eligible to apply for funds.[32] As Fund manager, OCHA is not eligible for the grant element of the fund, only for the loan element.

In order to be eligible for a grant, at least one of the three CERF objectives, as listed in the introduction above, need to be fulfilled. There are three sorts of grants, (a) Rapid Response for Sudden Onset Crises; (b) Rapid Response for Time Critical Requirements; and (c) Under-funded Emergencies.[33] The rapid response grants address the first two of the mentioned CERF objectives; the under-funded emergency grants the third.[34] Funds received by grantees for rapid response must be committed within three months.

The CERF loan facility provides funds to allow recipients to initiate activities as soon as a donor has made a firm pledge for support. The organisation then repays the advance to CERF on receipt of the related donor funds. The use of CERF funds thus allows early action provided a donor has pledged financial support.

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[28] CERF (2006). How to donate. Retrieved December 21, 2006, from http://ochaonline2.un.org/Default.aspx?tabid=7484

[29] Based on calculation of CERF (2006, December 13). List of Pledges and Contributions in 2006

[30] Interview. CERF (2006, December 13). List of Pledges and Contributions 2006

[31] ECOSOC (2006, September 14). Report, p3

[32] UN Secretariat (2006, October 10). Bulletin, p2

[33] United Nations Office for the Coordination of Humanitarian Affairs (2006, July 31). Guidelines Central Emergency Response Fund (CERF): Grant Component, p3

[34] Central Emergency Response Fund (2006, December 5). Fact Sheet, p1

Subject to availability, normally a maximum of US$ 30 million shall be applied to rapid response grants. Grants for under-funded emergencies are not subject to per country or per emergency limits. Instead, grants for under-funded emergencies are made based on the overall level of life-saving humanitarian needs not covered by donors.[35]

A formal appeal for the CERF rapid response grant element is typically field-driven and is initiated by the United Nations Resident Coordinator or Humanitarian Coordinator. The Resident Coordinator or Humanitarian Coordinator analyses the demonstrable or assessed needs for the rapid response in consultation with the Inter-Agency Committee Country Team. Preferably the Inter-Agency Country Team is extended in order to include all leading NGOs. National authorities are consulted as appropriate. Together a detailed list of priority life saving needs according to CERF criteria are prepared, including the:

1. Cause of the situation;
2. Number of people affected;
3. Description of humanitarian indicators and indications of any rapid deteriorations thereof;
4. Displacement figures (new displacements);
5. Implications if needs are not met;
6. Indicative budget (if available); and
7. Review of fund-raising efforts to date.

At the same time the Emergency Relief Coordinator may take on a proactive role, by alerting Resident Coordinator or Humanitarian Coordinator when use of CERF may be appropriate and about the analysis of needs with the Inter-Agency Committee Country Team.[36] Eligible humanitarian organizations, i.e. UN organizations and the International Organisation for Migration, draft grant applications on basis of the established list of priority needs. Applications for CERF rapid response grants need to be made through the Resident Coordinator or Humanitarian Coordinator, and all proposals must be endorsed by the relevant Resident Coordinator or Humanitarian Coordinator.

The CERF rejects proposals on base of criteria set for the fund (i.e. life-saving/core emergency humanitarian needs). Sectoral activities typically considered "life-saving" as per the CERF criteria are: food, health, protection, security, shelter/NFI, water and sanitation, multi-sector, and emergency education. However, the Resident/Humanitarian Coordinator may also make a case for activities from other sectors, by explaining why a particular activity is life-saving in the context under his/her jurisdiction. For example, Humanitarian/Resident Coordinators in Africa have successfully made the case for inclusion of agricultural activities as key life-saving activities for food security.

Another ground for rejecting proposals is when money from other sources is already available. An example of this was flooding in Suriname. An application was made for grant funding, however pledges

[35] Interview with UN CERF

[36] United Nations Office for the Coordination of Humanitarian Affairs (2006, July 31). Guidelines Central Emergency Response Fund (CERF): Grant Component, p5

had been already made. CERF then recommended drawing on the loan element. The loan element is used as a cash-flow mechanism. In 2006, US$ 30 million was provided in loans.[37]

In the table below an overview is given on the distribution of sectors CERF paid in 2006 during the period March 1 to December 21.

Table 6: CERF funding by sector (2006) – summary

Sector	Funds Disbursed US$	Percentage of Total
Food	48,091,823	27.57 %
Health	40,337,101	23.12 %
Multi-sector	30,715,357	17.61 %
Coordination and support services	24,616,943	14.11 %
Water and sanitation	12,073,275	6.92 %
Agriculture	9,894,042	5.67 %
Protection/Human Rights/Rule of Law	3,717,128	2.13 %
Shelter and non-food items	3,142,828	1.80 %
Education	1,036,718	0.59 %
Mine Action	516,800	0.30 %
Other	299,300	0.17 %
Total	**174,441,315**	**100 %**

Source: CERF (2006). CERF in Action. Retrieved at December 18, 2006, from: http://ochaonline2.un.org/Default.aspx?tabid=8879

Once a loan or a grant has been approved by the Emergency Relief Coordinator, it will be sent to the HC/RC (Resident Coordinator or Humanitarian Coordinator) and to the relevant Agency an approval letter and a draft letter of understanding (LoU) to be signed by an authorized representative of the recipient agency prior to the disbursement of funds.[38] The HC/RC plays a crucial leadership role in the prioritisation of programmes, but the contractual grant agreement is between United Nations Office for the Coordination of Humanitarian Affairs and the recipient agency.[39]

Reporting and accountability provisions are included in the letter of understanding, which also includes a provision on the repayment of the unused portion of the grant. Grantees have to report to UN Office for

[37] Interview with UN CERF

[38] CERF (2006, July 31). Project & Budget Template, p.2

[39] United Nations Office for the Coordination of Humanitarian Affairs (2006, July 31). Guidelines Central Emergency Response Fund (CERF): Grant Component, p5

the Coordination of Humanitarian Affairs on the use of the funds, as defined in the letter of understanding and monitoring by the Fund Manager and the Resident Coordinator or Humanitarian Coordinator.[40]

4.2.1.3. Governance

The UN General Assembly governs the Fund at the macro level. The General Assembly receives an annual report from the Secretary-General on the management and use of the Fund and debates the CERF during its annual deliberations on the strengthening the coordination of humanitarian affairs.

In addition, an independent advisory group has been established to provide the CERF with policy guidance and expert advice. The advisory group consists of eight donor members and four independent experts. For the donor side attention is being paid to scale and magnitude of contributions, as well as geographical balance. The independent experts represent stakeholders such as governments, NGO's, academic and research institutes.[41] The UN Secretary General appointed the twelve members and four alternates of the advisory group on 28 April 2006.[42]

The advisory group meets twice a year. Tasks of the advisory group are to:

- Review the timeliness and appropriateness of Fund allocations;
- Review the management of the Fund, including reporting and the results achieved against Fund use;
- Review Fund performance against the objectives set by the General Assembly;
- Assess Fund levels and recommend Fund replenishment;
- Examine the two- year independent review, at the initiation of the Emergency Relief Coordinator, of the function and performance of the Fund;
- Consider the effectiveness of, and provide recommendations on, the CERF website.[43]

The advisory group makes recommendations to the Emergency Relief Coordinator for the improvement of Fund's implementation and use.

The daily management of the Fund is in the hands of the Emergency Relief Coordinator, who has a small, dedicated CERF Secretariat. In addition to the CERF Secretariat, the Emergency Relief Coordinator receives advice from the broader Office of Coordination of Humanitarian Affairs, located in New York, Geneva, and field locations. The CERF Secretariat team initially started with five members, and grew to the current size of eight employees. Future expansion of the Secretariat is foreseen. The overhead costs for CERF disbursements are a flat rate of 10%, where the CERF Secretariat charges 3%, and the recipient

[40] United Nations Office for the Coordination of Humanitarian Affairs (2006, July 31). Guidelines Central Emergency Response Fund (CERF): Grant Component, p7, 9

[41] CERF(2006). Advisory Group Terms of Reference, Article IV(11)

[42] CERF (2006). CERF Advisory Group. Retrieved at December 18, 2006, from http://ochaonline2.un.org/Default.aspx?tabid=7942

[43] CERF (2006). Advisory Group Terms of Reference, Article II (4)

agency is allowed to charge 7%. These percentages are used for overhead costs and headquarters management.[44]

Stakeholders are heard through both the General Assembly and the advisory group. In the advisory group developing countries also have a seat. At the field level no particular mechanism has been developed yet for a standardised procedure of stakeholder involvement. Nevertheless, the UN requirements ensure stakeholders involvement, for example through the consolidated appeal.

4.2.1.4. Strengths and weaknesses (as perceived by the fund)

Strengths

The possibility of CERF to respond to emergencies in multi-facetted ways gives CERF an added value to existing humanitarian funding mechanisms, which respond to one specific facet of a disaster by providing either food, or clothes, or medicines etc. Whereas standby funds for specific goals are still needed, the CERF can play a complementary role.

The complementary role of CERF also comes to the front if emergencies break out and existing mechanisms lack the capacity to carry the costs. An example of this is the Côte d'Ivoire yellow fever outbreak in 2006. In October, the Côte d'Ivoire Ministry of Health reported two cases of yellow fever. At that time, the WHO did not have funding available to start vaccination. The CERF funded vaccinations and two additional interventions to stop further spread of the disease.[45]

Another strong aspect of CERF is its decentralised approach. The priorities assessment of the emergency is concentrated at the field level, through the close cooperation with the Resident Coordinator or Humanitarian Coordinator and the Country Team, which is comprised of UN humanitarian organizations, NGOs, and the Red Cross Movement.[46]

Weaknesses

One of the reasons that lead to the establishment of CERF was to fill the time lag between the launch of an appeal to the time funds are actually received. With the establishment of the Fund, UN agencies and their implementing partners were given the possibility to access the Fund within 72 hours of the start of the crises.[47] During the first six months of implementation, CERF did not always manage to have final approval of the Emergency Relief Coordinator within 72 hours, thereby delaying the time to disbursement.[48] Steps have been taken to improve timely implementation, which is already evident.

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[44] Interview with UN CERF. The amount of overhead that NGOs who may receive onward disbursements from UN Agencies is not dictated by CERF procedures. These overheads should be charged according to existing agreements between UN Agencies and their implementing partners.

[45] Interview with UN CERF

[46] Not all UN Country Teams have representation from NGOs and the Red Cross. However, the ERC has requested that all Humanitarian Coordinators maintain Country Teams with NGO and Red Cross representatives.

[47] OCHA (2006). The Central Emergency Response Fund. Retrieved December 21, 2006, from http://ochaonline.un.org/webpage.asp?Site=cerf

[48] ECOSOC (2006, September 14). Report, p10, 11

One of the lessons learned concerned the high workload of the Secretariat during the set-up phase of the Fund. Policies of the Fund had to be developed, while at the same time the Fund had to be put into practical use, which proved to be a tremendous amount of work. Workload and staff resources need to commensurate.[49]

The mandate of the CERF grant element does not cover emergency preparedness and risk reduction. Experience from CERF has learned that grants and loans may be used in mutually reinforcing ways. This might lead to a future scenario in which the loan element is used more for preparedness and prevention activities, whereas the grant element is complementary in its rapid response form.[50]

Table 7: Main characteristics of the UN Central Emergency Response Fund

Introduction	
Name of fund	Central Emergency Response Fund
Type of fund/hosting organisation	UN
Emergency covered	CERF covers life saving intervention activities, not prevention and preparedness activities.
Targeted countries/regions	No specific target countries are set.
Capital of fund/total programme budget	The total capital of pledged and contributed for 2006 lies at US$ 300 million. Of this US$ 1.1 million has been pledged and US$ 299 million has been paid into the Fund. For 2007, US$ 343 million has been pledged, of which $40 m had been paid into the Fund as of 29 January 2007
Contributions to fund in 2005	Not applicable
Mobilisation of funding	
Contribution of donors	Governments, private organisations and individuals can contribute.
Contribution of eligible countries	In total 68 member states and three private donors have pledged. Individuals can donate through the United Nations Foundation online grant facility.
Contribution of private sector	The vast majority of contributions comes from governments, with less than 1% of the contributions coming from the private sector.
Management of fund's risk	US$ 30 million is kept as a reserve to respond to a sudden-onset emergency.
Intervention rules	
Eligibility criteria for recipients	The United Nations, its funds, programmes and specialized agencies, as well as the International Organization for Migration.
Co-financing requirements of recipients	Not applicable
Required institutional arrangement at the national level	In countries with a UN Resident or Humanitarian Coordinator, the application will be lodged by him or her following consultations with the "Country Team" (preferably to include UN, NGO, and Red Cross representatives). The grant agreement is signed between the United Nations and the humanitarian organization.

[49] ECOSOC (2006, September 14). Report, p11

[50] General Assembly Economic and Social Council (2006, September 14). The Central Emergency Response Fund – Report of the Secretary General Addendum, Advanced Unedited Draft, p11

Funding limits for recipients or recipient countries	Rapid response grants for disasters or emergencies have a maximum funding limit of US$ 30 million. Funds must be committed within three months. For underfunded emergency grants there is no limit.
Rapid response mechanism	CERF consists of two elements, a loan and a grant element. The grant facility of the CERF has two components, one component for rapid response and one for underfunded emergencies.
Types of costs / losses covered	Proposals need to address core emergency humanitarian needs, i.e. life saving needs.
Incentives for risk-reduction	Not applicable
Procedural steps to trigger payments	The Emergency Relief Coordinator will send to the HC/RC and to the relevant Agency an approval letter and a draft letter of understanding (LoU) to be signed by an authorized representative of the recipient agency prior to the disbursement of funds. The LoU will be processed through the recipient agency's headquarters.
Monitoring of payments and expenditures	Reporting and accountability provisions are included in the LoU, that contains also a provision on the repayment of the unused portion of the grant. Grantees have to report to OCHA on the use of the funds, as defined in the LoU and monitoring by the Fund Manager and the HC/RC.
Governance	
Supervisory body	1. The United Nations General Assembly 2. The CERF Advisory Group
Number of employees managing fund	The Secretariat team started with five, and grew to eight members. Possible expansion of team in the future.
Administrative costs	The overhead is at a flat rate of 10%, of which 3% goes to the UN Secretary and 7% to the recipient agency. Overhead for forward disbursements from UN Agencies or IOM to NGOs/others as per usual operational agreements.
Fund management innovations	• Decentralised approach, i.e. the assessment of priority needs is carried out at field level, under the leadership of the UN humanitarian or resident coordinator. • The loan element is used as a cash-flow mechanism, so that projects can start immediately. In 2006 US$ 30 million has been provided in loans.
Role of beneficiary countries	Not applicable
Role of donors / multilateral agencies	Not applicable
Roles of other stakeholders	Stakeholders are heard through the General Assembly and the Advisory Group.

Source: Civic Consulting/CERF

4.2.2. The Global Fund to Fight AIDS, Tuberculosis and Malaria

The Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund) is a multi donor fund, created as a private Swiss foundation.[51] The initiative to create the Global Fund was launched in early 2001 by the then UN Secretary-General Kofi Annan. Solidarity grew as the G8 and the African Union started to pledge to the future fund.[52] The Global Fund to Fight AIDS, Tuberculosis and Malaria was registered under Swiss law in early 2002, and then its international Board met for the first time.[53]

The Global Fund does not target specific countries or regions, but has a flexible system under which it aims for a balanced distribution in relation to disease status, income levels and geography. An example of this is sub-Saharan Africa, which receives approximately 60% of Global Fund resources. At the same time, approximately 60% of the grant portfolio is allocated to HIV/AIDS grants. In total, 136 countries have been awarded funding to date.[54]

US$ 10.96 billion has been pledged in total to the Global Fund, of which US$ 8.12 billion has been paid as of 31 August 2007. Pledges to the Global Fund due in 2006 were US$ 2.03 billion.[55]

4.2.2.1. Mobilisation of funding

The large majority of the contributions to the Global Fund come from countries and/or multilateral agencies, with 7%[56] of the total being received from the private sector. At the Board level, donors have equal governance power with recipients in determining Global Fund policy.

The Global Fund does not set requirements for countries to donate specific amounts, however, countries might subject themselves to certain criteria. An example of this is the U.S. Government, which has to fulfil the legal requirement that the total of U.S. contributions will not exceed more than one-third of the total contributions received.[57]

Recipient countries are not obliged to contribute, but may do so. An example of this would be Nigeria, that has pledged so far US$ 30 million, or Russia, that in the upcoming years will donate to the Global Fund an amount equal to the total of grants received. [58]

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[51] Interview Ms Beatrice Bernescut, Information Officer, Production at the Global Fund, 15.11.2006 (From now on: Interview GFATM)

[52] Interview GFATM

[53] Global Fund to Fight AIDS, Tuberculosis and Malaria (2006). History of the Global Fund in Detail. Retrieved January 8, 2007, from: http://www.theglobalfund.org/en/about/road/history/default.asp

[54] Interview GFATM

[55] Global Fund to Fight AIDS, Tuberculosis and Malaria (2006). Pledges & Contributions to date. Retrieved at September 12, 2007 from: http://www.theglobalfund.org/en/funds_raised/pledges/

[56] Based on calculation Global Fund (2006). Pledges & Contributions to date. Retrieved at November 17, 2006 from: http://www.theglobalfund.org/en/funds_raised/pledges/

[57] Interview GFATM

[58] Interview GFATM

The private sector so far pledged US$ 655 million, of which US$ 267 million had been paid as of December 2006. The two largest donors in the private sector are the Bill and Melissa Gates Foundation, and *Product-Red*.[59] The Global Fund is an advocate for a reliable flow of resources in order to ensure that the prevention and treatment programs it finances are sustainable in the long term and that they are achieving their health results. The traditional funding sources (i.e. the donations from donor governments), though the foreseen major source of financing, will not be sufficient to meet the vast financial requirements in the future. Therefore, the Global Fund is engaged in an international debate about new innovative financial instruments. The most important mechanisms under debate are:

- The International Finance Facility (IFF);[60]
- Debt conversion;[61]
- The solidarity contribution on air travel (UNITAID).[62]

An innovative aspect of the Global Fund concerns the management of the Global Fund's risk. The traditional grant-funding model is based on a pie that is being divided between the recipients. The Global Fund works the other way around: Proposals are reviewed for technical and scientific validity, and ranked according to set criteria. Those proposals for which funding is available are approved by the Board. To date, there have been six rounds of grants, and in each of these rounds all recommended proposals were approved for funding; however, there have been rounds where this was only achieved by last-minute fundraising and in one round proposals had to be approved in stages as money became available.[63]

4.2.2.2. Intervention rules

There are three categories of minimum requirements for funding: applicant type, income level and, for upper-middle income countries, also disease burden.[64] These categories depend on the World Bank Income Classification where the following categories are eligible recipients;

- Low-Income Countries;
- Lower-Middle Income Countries;
- Upper-Middle Income Countries.

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[59] (Product)[RED] and Partners: American Express, Converse, GAP, Giorgio Armani, Motorola Inc., Apple

[60] "The idea behind "frontloading" is to use future expenditures on ODA and pledge them to the IFF as security for the issue of AAA-rated bonds, which would be offered in the international capital markets and so generate additional cash for development financing." (Global Fund to Fight AIDS, Tuberculosis and Malaria (2005). Financing the Fight Against AIDS, Tuberculosis and Malaria: Prospects of the International Finance Facility, p.4.)

[61] Debt conversion is the exchange of debt - typically at a substantial discount - for equity, or counterpart domestic currency funds to be used to finance a particular project or policy. Debt for equity, debt for nature and debt for development swaps are all examples of debt conversion. (OECD (2001). OECD Glossary of Statistical Term. Retrieved at January 11, 2007, from: http://stats.oecd.org/glossary/detail.asp?ID=552)

[62] Global Fund to Fight AIDS, Tuberculosis and Malaria (2007). Partnerships for Innovative Financing. Retrieved at January 11, 2007 from: http://www.theglobalfund.org/en/funds_raised/innovative_financing/

[63] Interview. The exact ranking criteria can be found in: Ibid, (2004). Decision Points Board Meeting Round 7, p11 - 12

[64] Ibid, (2006). Sixth Call for Proposals Frequently Asked Questions, p2.

High-Income Countries are not eligible for receipt. Lower-Middle Income Countries and Upper-Middle Income Countries need to fulfil additional criteria on counterpart financing[65], which are as follows;

- Lower-middle income countries must demonstrate counterpart financing with a progressive increase from 10% in year 1 to 20% over the duration of the proposal.
- Upper-middle income countries must demonstrate counterpart financing with a progressive increase from 20% in year 1 to 40% over the duration of the proposal.[66]

Both these country groups also have to demonstrate their focus on poor or vulnerable populations, by which they need to describe specifically:

- Which poor and vulnerable populations are targeted by the proposal;
- Why and how these population groups have been identified; and
- How they will be involved in planning and implementing the proposal.[67]

Applicants from Upper-Middle Income Countries are eligible to apply for support from the Global Fund provided that they face a high current national disease burden. The criteria for these are listed in the following table.

Table 8: Criteria for country disease burden

Disease	Country Disease Burden
HIV/AIDS	Ratio of adult HIV seroprevalence (as reported by UNAIDS, multiplied by 1000) to Gross National Income per capita (Atlas method, as reported by the World Bank) exceeds 5.
Tuberculosis	Country is on the WHO list of 22 high burden countries, or on the WHO list of the 41 countries that account for 97% of estimated burden of new tuberculosis cases attributable to HIV/AIDS.
Malaria	More than 1 death per 1000 people per year due to malaria.

Source: GFATM, Guidelines for Proposals, Sixth Call for Proposals, p4

To approach projects through a country-driven, coordinated and multi-sector approach involving all relevant partners,[68] the Global Fund expects proposals development and submission to be coordinated through a Country Coordinating Mechanism.[69] In its grant proposal, a Country Coordinating Mechanism

[65] "Counterpart financing" is defined as all domestic resources dedicated to the disease control program. This includes: contributions from governments; loans from external sources or private creditors; proceeds from debt relief; and private contributions, including those from non-governmental organizations, faith-based organizations, other domestic partners, and user fees." Ibid (2006). Guidelines for Proposals, Sixth Call for Proposals, p4.

[66] Ibid (2006). Guidelines for Proposals, Sixth Call for Proposals, p4.

[67] Ibid, (2006). Guidelines for Proposals, Sixth Call for Proposals, p4

[68] Ibid (2005). Revised Guidelines for Purpose, Structure and Composition of Country Coordinating Mechanisms and Requirements for Grant Eligibility, p1

[69] Ibid (2006). Guidelines for Proposals, Sixth Call for Proposals

should nominate one or a few Principal Recipients to be responsible for implementation and accountable for the financial and programmatic reporting of the grant.[70]

The concept of a Country Coordinating Mechanism started as a recommendation, and has developed itself into a requirement for the recipient country.[71] The Country Coordinating Mechanism can be either a National Country Coordinating Mechanism (CCM), a Sub-National Coordinating Mechanism (Sub-CCM) or a Regional Coordinating Mechanism (RCM).[72]

CCMs should build on and be linked to existing mechanisms for planning at the national level and be consistent with national strategic plans. The CCM is the representative of all interested stakeholders at the national level for grants received from the Global Fund, CCMs are instrumental in developing proposals and overseeing the utilization of Global Fund resources.[73] The CCM is not a legal entity in the recipient country, and the rules of the CCM are defined by the recipient country.[74]

It is the responsibility of the country to work closely with the CCM on the setting of targets. The Global Fund recommends countries to set fewer rather than more targets, and to use the grant filing and evaluation tool kit as a guideline to set their targets.

Before the Global Fund decides to enter a grant agreement with an entity that has been nominated by a Country Coordinating Mechanism, a Local Fund Agent will assess the required minimum capacities of the nominated Principal Recipient.[75] The Global Fund does not have local agencies in the countries itself, but contracts the Local Fund Agent to provide independent and professional advice on grant progress, requests for funding and local circumstances. In addition to the above-described assessment of the minimum capacities before grant agreement, the Local Fund Agent's main tasks are:

- To review the progress updates and requests that are submitted regularly by the Principal Recipient during program implementation. The Local Fund Agent verifies that targets have been reached and expenses incurred as reported and makes a recommendation to the Global Fund on how much to disburse to the Principal Recipient;
- To provide information to the Global Fund on the results of the grant;
- To assist the Global Fund with closure of the grant;
- To perform ad hoc services, such as investigations into the suspected misuse of funds.[76]

[70] Ibid (2003). Guidelines for the principal recipient assessment, p5

[71] Interview GFATM

[72] Global Fund to Fight AIDS, Tuberculosis and Malaria (2006). Guidelines for Proposals, Sixth Call for Proposals, p.6

[73] Ibid, (2005). Revised Guidelines on the Purpose, Structure and Composition of Country Coordinating Mechanisms and Requirements for Grant Eligibility, p2

[74] Interview GFATM

[75] Global Fund to Fight AIDS, Tuberculosis and Malaria (2003). Guidelines for the Principal Recipient Assessment, p.2

[76] Ibid, (2007). Local Fund Agents Frequently Asked Questions. Retrieved at January 18, 2007 from: http://www.theglobalfund.org/en/about/structures/lfa/faq/

There are currently six active Local Fund Agents working in approximately 130 countries. They are PricewaterhouseCoopers, KPMG, Emerging Markets Group, Swiss Tropical Institute, UNOPS and Crown Agents.

There is no specific rapid-response function of the Global Fund, however, the time frame between grant application and approval is short. Recipients have to issue a proposal, and after that it takes approximately three months from the submission deadline to Board approval for a financing period of the first two years of the proposal.

Once a proposal is submitted, it will go through a first screening by the Secretariat. After this screening all eligible proposals are then reviewed by the independent Technical Review Panel, who will then recommend a number of proposals to the Board. The Board decides whether or not a project will be funded for the upcoming two years.[77] During this two-year period resources are used to implement activities "for the prevention, treatment, care and support of people and communities living with and/or affected by the three diseases."[78]

After Board approval the Global Fund Secretariat requests the Local Fund Agent for the country to assess the financial management and administrative capacity of the nominated Principal Recipient(s). Based on the Local Fund Agent's assessment, the Principal Recipient may require technical assistance to strengthen capacities. Development partners may provide or participate in such capacity building activities. The strengthening of identified capacity gaps may be included as conditions precedent to disbursement of funds in the grant agreement between the Global Fund and the Principal Recipient.

The Global Fund functions on so-called performance-based funding. The majority of the proposals submitted to the Global Fund are for a period of five years. When the Board agrees for funding, it only does so for the first two years of proposal. Once the project starts the Local Fund Agent starts a process of continuous monitoring.

The monitoring reports prepared by the Local Fund Agent are reviewed by the Fund Portfolio Manager at the Secretariat. Upon evaluation at the end of the first two-year period the financing for the remaining years of the grant can be dependent upon fulfilment of conditions or be refused. This might happen when, for example, financial resources from previous rounds have not been used. For this the UN rules on well performing and poorly performing are followed. It is also possible that if a project is performing poorly more supervision (e.g. quarterly) is installed, in comparison to a project that is performing well, and will be reviewed every half year.[79]

4.2.2.3. Governance

The Global Fund has a board of twenty-four members, twenty voting and four non-voting members. The exact composition is as follows:

[77] Global Fund to Fight AIDS, Tuberculosis and Malaria (2006). The Global Fund's Proposals Process in Brief. Retrieved at November 17, 2006, from: http://www.theglobalfund.org/en/apply/proposals/

[78] Ibid, (2006). Guidelines for Proposals, Sixth Call for Proposals, p.22

[79] Interview GFATM

- Seven representatives from developing countries, one representative based on each of the six World Health Organization (WHO) regions and one additional representative from Africa;
- Eight representatives from donors;
- Five representatives from civil society and the private sector (one representative of a non-governmental organization (NGO) from a developing country, one representative of an NGO from a developed country, one representative of the private sector, one representative of a private foundation, and one representative of an NGO who is a person living with HIV/AIDS or from a community living with tuberculosis or malaria).

The four ex-officio nonvoting members of the Foundation Board consist of:

- One representative from the WHO;
- One representative from the Joint United Nations Programme on HIV/AIDS;
- One representative from the trustee; and
- One Swiss citizen with his or her domicile in Switzerland authorized to act on behalf of the Foundation to the extent required by Swiss law.[80]

The seats in the donor section are given to those donors that contribute the largest amounts. The Board is responsible for the overall governance of the organisation, including the approval of grants.[81]

Approximately 300 full-time employees are working at the Secretariat in Geneva. The Secretariat is responsible for the day-to-day operations, including mobilizing resources from the public and private sectors, managing grants, providing financial, legal and administrative support, and reporting information on the Global Fund's activities to the Board and the public.[82] The management expenses are slightly less than three per cent of the total grants, including the fees for the Local Fund Agents.[83]

To give other stakeholders the possibility to provide feedback on the development of the Global Fund, a bi-annual Partnership Forum is organised. In practise this is a conference for stakeholders.

4.2.2.4. Strengths and weaknesses (as perceived by the fund)

Strengths

One innovative aspect of the Global Fund is the high level of transparency, including on financial issues. This also contributes to building donor trust. An example of this is that all documentation available on the Global Fund is available on the website. Further strengths as perceived by the Global Fund are:

- High coverage, in terms of geography and population;

[80] Global Fund to Fight AIDS, Tuberculosis and Malaria (2006). By-laws, as amended April 27, 2006, p.3, 4

[81] Interview GFATM

[82] Global Fund to Fight AIDS, Tuberculosis and Malaria (2006). About the Global Fund – Secretariat. Retrieved at December 7, 2006, from: http://www.theglobalfund.org/en/about/secretariat/

[83] Interview GFATM

- Expenditure and efficiency are under continuous control;
- Country ownership;
- Flexibility.

Weaknesses and improvements

Due to its recent establishment, there are areas where the Global Fund is still learning what are the best practices. However, as mentioned above, this also contributes to the Global Fund's flexibility. Areas that still need further development are:

- Higher involvement rates of civil society;
- Improve the success rate of proposals submitted;
- Further improvement of the Local Fund Agent system.[84]

Table 9: Main characteristics of Global Fund to Fight AIDS, Tuberculosis and Malaria

Introduction	
Name of fund	Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund)
Type of fund/hosting organisation	Multi donor fund, registered as a private Swiss foundation.
Emergency covered	HIV/AIDS, tuberculosis and malaria
Targeted countries/regions	Low- and lower-middle countries or those countries where the diseases are reaching epidemic level.
Capital of fund/total programme budget	US$ 10.96 billion has been pledged in total to the Global Fund, of which US$ 8.12 billion has been paid as of 31 August 2007.
Contributions to fund in 2005	US$ 1.5 billion
Mobilisation of funding	
Contribution of donors	Most contributions come from donor countries.
Contribution of eligible countries	Eligible countries are not obliged to contribute, but may do so.
Contribution of private sector	The private donor so far pledged to date US$ 655 million, of which US$ 267 million had been paid until December 2006.
Management of fund's risk	Proposals are first reviewed for technical and scientific validity. Proposals are ranked according to set criteria, and those proposals for which funding is available are approved.
Intervention rules	
Eligibility criteria for recipients	The following categories of countries are eligible for funding: • Low-Income Countries • Lower-Middle Income Countries • Upper-Middle Income countries with a high disease burden

[84] Interview GFATM

Co-financing requirements of recipients	Lower-Middle Income Countries and Upper-Middle Income Countries need to fulfil counterpart-financing criteria.
Required institutional arrangement at the national level	The Global Fund expects proposals to be coordinated through a Country Coordination Mechanism.
Funding limits for recipients or recipient countries	None
Rapid response mechanism	The time frame between grant application and approval is short, but is not a rapid response.
Types of costs / losses covered	Resources from the Global Fund may be used to support activities for the prevention, treatment, care and support of people and communities living with and/or affected by the three diseases.
Incentives for risk-reduction	Not applicable
Procedural steps to trigger payments	After the Board has given approval the Local Fund Agent certifies the financial management and administrative capacity of the nominated Principal Recipients. The Secretariat and Principal Recipient negotiate a grant agreement, and sign it. Based on request from Secretariat, the World Bank makes initial disbursement to the Principal Recipient. The Principal Recipient makes the disbursements to sub-recipients for implementation, as called for in the proposal.
Monitoring of payments and expenditures	After board approval five-year proposals receive initially two year financing. Continuous monitoring will then be carried out by the Local Fund Agent, according to the UN rules on well performing and poorly performing. Approval of funding for the remaining years of the grant is dependent upon results obtained, based on the performance criteria established by the country in conjunction with the Global Fund.
Governance	
Supervisory body	The Global Fund has an interactive board of 24 members, of which 20 are voters and 4 are non-voters. 10 voters represent the donor side (countries, private sector etc.), and 10 voters represent the recipient side (NGOs, countries).
Number of employees managing fund	There are about 300 full-time employees at the Global Fund Secretariat in Geneva.
Administrative costs	The management expenses are slightly less than three per cent of the total grants, including the fees for the Local Fund Agents
Fund management innovations	High level of transparency, e.g. all documentation is available online.
Role of beneficiary countries	The Country Coordinating Mechanism of the country is responsible for determining the national plan and priorities for each disease, for submitting the proposal to the Global Fund, and for overseeing implementation of the grant. The Local Fund Agent, together with the Country Coordinating Mechanism, carries out the checks.
Roles of other stakeholders	Stakeholders can participate both at the country level, either by serving on the Country Coordinating Mechanism or by being an implementing agency for part or all of the funded programs. They can also participate on the international level by working within their respective delegations to the Board. Stakeholders can also give their feedback on the development of Global Fund at a bi-annual partnership forum.

Source: Civic Consulting/GFATM

4.2.3. WFP Working Capital Financing Facility

The WFP Secretariat implemented in 2003 a Business Process Review (BPR) of WFP business processes and procedures designed to improve organizational efficiency, maximize the use of resources and better respond to the needs of beneficiaries by improving the on-time availability of food aid.[85] One of the BPR's recommendations was to establish the Working Capital Financing Facility (WCF).

"The concept presented to the E[xecutive] B[oard] was to utilize the temporary cash surplus resulting from the receipt of contributions from donors in advance of expenditures actually being incurred. This cash held in WFP's treasury would be loaned to the eligible pilot projects based upon demonstrated need and their ability to repay the funds upon the receipt of confirmed contributions from donors."[86]

In February 2004, the Board approved the use of the Operational Reserve to finance five pilot projects on the basis of forecast contributions. The first five pilot projects started in 2004 in the Democratic Republic of Congo, Indonesia, the Palestinian Territories, West African Coastal and Cambodia. The Cambodia project was cancelled due to operational concerns, after which the China country programme was added. In 2005 this group was extended with five pilot projects in Ethiopia, Uganda, Southern African Regional, Sudan and Sudan (Darfur).[87]

The purpose of the loans of the WCF has generally been to procure food to begin projects on a timely basis, prior to the confirmation of donor contributions or to avoid pipeline breaks resulting from delays in the receipt of contributions.[88] A total of US$185.1 million in loans had been authorized under the WCF facility from its inception in 2004 through 31 March 2006. Of this amount, US$167.6 million has been repaid leaving a balance of US$17.5 million (9.5 percent). [89]

4.2.3.1. Mobilisation of funding

The WFP relies on voluntary contributions from governments, corporations and individuals. The large majority of the contributions come from governments, whose donations comprise both cash and food.[90]

Some donor governments might put certain limitations to their contribution to WFP, thereby limiting the opportunities for flexible use of donations. Examples of such limitations are the earmarking of donations for certain projects, or a limitation on using the donors' contribution to finance expenditures in advance of the receipt of the contribution.[91]

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[85] WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR), p1

[86] WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR), p22

[87] WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR), p4

[88] WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR), p22.

[89] WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR), p23

[90] WFP (2007). How WFP is funded. Retrieved at February 09, 2007 from: http://www.wfp.org/aboutwfp/funding/index.asp?

[91] WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR), p29

WCF uses the temporary cash surplus of the WFP to finance loans. The Operational Reserve is committed should the loans become impossible to repay.[92] "Use of the Operational Reserve may total about US$6.2 million, i.e., less than 3.3 percent of the total amount loaned and less than 1 percent of the total budgets of the nine pilot projects, which is well within the risk guideline originally proposed."[93]

To enable the Executive Director to ensure continued financing of projects pending confirmation of forecast contribution, the WCF has an advance ceiling of US$ 180 million (Financial Regulation 10.8). "In addition, changes were approved in the Financial Regulations to allow expenditures to be incurred during project preparation (FR 8.1) and use of the Operational Reserve to cover cases where a forecast contribution used as collateral for a WCF does not materialize (FR 10.6)."[94]

To back-up the lending facility, WFP has a 'risk reserve' of US$ 20 million per year to write-off any unrecoverable loans. Since mid-2004, WFP has lent US$ 210 million with over 95% repaid as of November 2006.[95]

4.2.3.2. Intervention rules

Once applications are received they are reviewed by the Office of Budget, which is administratively responsible for the WCF, and by the Operations Department. Any additional information deemed necessary is obtained from the applicant. Once this process has been completed, a meeting of the Credit Committee is scheduled.[96] The meetings are generally scheduled within five days of the receipt of an application. The applicant is given the opportunity to make a presentation and ask questions. The Committee then makes a decision.[97]

The only requirement on WCF loans is that recipient country offices need to be making maximum use of the resources they have available and agree to their eligible future income becoming collateral. Projects can only apply for an advance up to the limit of their discounted eligible forecast income. Donor constraints limit repayment possibilities making some forecast contributions ineligible as collateral. Lending can also be constrained by the overall ceiling on total WCF loans outstanding. A breakdown of loan components can be found in the following table:

[92] WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR)

[93] WFP (2006). Summary Report of the Evaluation of the Business Process Review, p3 (Executive Board Annual Session, Rome 12-16 June 2006, Agenda Item 7)

[94] WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR), p4

[95] Email WFP by Bronwyn Cousins, 27 November 2006

[96] The Credit Committee consists of the Senior Deputy Executive Director, Director [the Office of the Executive Director – Special Projects], Chief Financial Officer, Director Change Management, Deputy Executive Director (Administration Department) and the Deputy Executive Director (Fund Raising and Communications Department).

[97] WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR), p22

Table 10: Breakdown of loan components

Type of cost	Expenditure (in US$)	Percentage of total
Commodity	92,670,950	50 %
External Transport	16,801,728	9 %
Landside Transport, Storage and Handling	51,139,640	28%
Other Direct Operational Costs	7,612,928	4 %
Direct Support Costs	16,888,082	9%
Total	**185,113,329**	**100 %**

Source: Data as of 31 March 2006. Calculation based on: WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR), p24

There is no guideline or manual in which the criteria for approval of Work Capital Financing loans are consolidated. However, in 2005 by the Regional Directors and Regional Financial Analysts provided the following criteria:

- All Business Process Review building blocks must be in place. Preparation of accurate project planning tools and timely submission of quarterly review information;
- A loan must address the timing mismatch between forecast contributions and current needs;
- Working Capital Financing loans are "senior" to all other outstanding loans;
- There should be a suitable (comprehensive) rationale, including the value added to beneficiaries;
- There must be sufficient collateral to secure the loan. High probability forecast contributions are discounted at 75 percent and medium probability at 50 percent. Low probability contributions are not eligible as collateral;
- Details of the repayment schedule must be provided;
- The Working Capital Financing application must be signed by the Country Director (if applicable) and Regional Director.[98]

As a mean of risk reduction, the staff in the Fund Raising and Communications Department prepared for each pilot project a detailed forecast of individual contributions anticipated for the project by donor and anticipated date of receipt. These contributions are classified as high, medium or low probability. All classifications and forecasts are based on the donor's previous contributions to similar projects or to the country involved. The Fund Raising and Communications Department – Donor Relations determines the probability of a confirmation based on communication with the donor and the general history of the donor's contributions to WFP.[99]

"The forecasting of donations has assisted managers to better estimate the resources available to the pilot projects and to repay advances made from the WCF loans and PCA advances. The accuracy of the

[98] WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR), p25

[99] WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR), p27

forecasts varies considerably, however, highlighting the need for improved communication between forecasting staff and operational staff in order to minimize the risk of lending decisions being based on incomplete understanding of the determinants of the forecasts, in particular donor conditionality."[100]

Loans of the WCF are only accessible when the Country Office or Regional Bureau of the WFP agrees to produce a monthly financial and operational plan that shows income, expenditure and distribution during the life of the project. In addition, the Regional Director and Country Director of the project must agree to participate in a quarterly review which brings together each WFP department to discuss the project's financial and operational plan to make sure that all issues, financial and otherwise, are brought to light. A team at headquarters is responsible for monitoring the risk, both on a project-specific and an organization-wide level, associated with outstanding obligations. This team is also responsible for convening monthly sessions to discuss each project's credit standing as well as any strategic issues relating to working capital financing.[101]

4.2.3.3. Governance

The WFP Executive Board has been established by United Nations General Assembly resolution 50/8; FAO Conference resolution 9/95 and compromises 36 Member States of the UN and the FAO. The Board oversees WFP's humanitarian and development food aid activities.

The Board meets three times a year at WFP's Headquarters in Rome. The Executive Director, appointed jointly by the United Nations Secretary-General and the Director-General of the UN Food and Agriculture Organisation for five-year terms, sits at the head of the Secretariat of WFP. The Office of the Executive Director – Special Projects is administratively responsible for the WCF.

As outlined in Article V of the General Regulations, the Board comprises 36 States Members of the United Nations and/or UN Food and Agriculture Organisation. Of these, 18 are elected by the Economic and Social Council of the United Nations (ECOSOC) and 18 by the Council of UN Food and Agriculture Organisation. Each State Member serves three-year terms and is eligible for re-election.

The Credit Committee is an advisory group to the Executive Director that provides recommendations on individual loans. During 2006 there were 2 full time and 3 part time employees with support from many other HQ units as well as the country office and regional bureaus responsible for the administration of WCF. No specific WCF admin costs charged to recipient projects for loans but WFP charges a standard 7% support cost on all contributions received by the programme.

[100] WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR), pvi

[101] Email WFP (Bronwyn Cousins), 27 November 2006

Strengths and weaknesses (as perceived by WCF)

Strengths

- The advance funds to operations based upon the anticipated receipt of contributions which are forecast by Fund Raising and Communications Department – Donor Relations. This is a significant departure from WFP's usual procedures, which allow expenditures to be incurred for operations only upon the receipt of written confirmation from donors.[102]

- The Advisory Committee recognizes "the very positive results achieved through working-capital financing in the pilot projects, and notes that this business model introduces a great deal of flexibility at the operational level, as well as an increased level of authority delegated to the Executive Director for authorizing advance spending. The Advisory Committee emphasizes the need for timely, close and careful monitoring to accompany these new measures." [103]

Weaknesses

- The guidelines available to assist in understanding the use of the loan facilities and repayment procedures have been limited and lacking in consistency. Pilot project managers expressed concern regarding the lack of information about relevant policies.[104] In the Business Process Review of 2006 recommendations were made to improve the guidelines of loan approval. Most operational WFP staff have a limited understanding of the whole Business Process Review process, however, and need comprehensive guidelines on borrowing options such as the Working Capital Financing (WCF), the Project Cash Account (PCA), the Immediate Response Account (IRA), the Direct Support Costs Advance Facility (DSCAF) and CERF and on priorities for reimbursement.[105]

[102] WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR), p27

[103] WFP (2005). Executive Board Annual Session Rome, 6–10 June 2005. Report of the Advisory Committee on Administrative and Budgetary Questions, Agenda Item 6, p3

[104] WFP (2006). A Report from the Office of Evaluation Full Report of the Evaluation of the Business Process Review (BPR), p16

[105] WFP (2006). Summary Report of the Evaluation of the Business Process Review, p7 (Executive Board Annual Session, Rome 12-16 June 2006, Agenda Item 7)

Table 11: Main characteristics of WFP Working Capital Financing Facility

Introduction	
Name of fund	Working Capital Financing (WCF) Facility
Type of fund/hosting organisation	UN World Food Programme (WFP)
Emergency covered	Hunger
Targeted countries/regions	In 2004 WFP piloted working capital financing in five operations. Based on the results of these pilots, the Executive Board authorized the Secretariat to roll-out the WCF facility to a maximum of seven additional country operations. To date the WCF has given advances to WFP projects in the Democratic Republic of Congo, Indonesia, Southern Africa, Uganda, West Africa Coastal, Sudan, China, Niger and the Occupied Palestinian Territories. In 2007 WFP will roll-out WCF to all qualifying operations. WFP has operations in 82 countries around the world.
Capital of fund/total programme budget	In 2005 the WFP Executive Board approved a working capital ceiling of US$180 million
Contributions to fund in 2005	The facility does not seek directed contributions but leverages WFP's overall working capital or equity. Comprehensive guidelines due to be released and a refined financial planning tool and training are planned for 2007.
Mobilisation of funding	
Contribution of donors	Contributions to WFP come from governments, corporations and individuals. The large majority of the contributions come from governments.
Contribution of eligible countries	Recipient countries contribute a small proportion of funds overall. Contributions from recipient countries are more likely to come in the form of in kind contributions.
Contribution of private sector	WFP is increasingly appealing to the private sector for funding.
Management of fund's risk	The maximum annual write-off is estimated at US$20 million. This is covered by the Operational reserve. WFP has put a lot of effort into optimising project expenditure planning and income forecasting and these factors are very important when assessing each loan application. The Office of Budget and Financial Planning ensures that the organisations overall exposure is monitored and taken into account when advances are considered.
Intervention rules	
Eligibility criteria for recipients	A country office needs to satisfactorily participate in quarterly operational review(s) and there must be a joint agreement by the operations department, Office of Budget and the respective Regional Financial Analyst that the country office is ready in terms of having the necessary financial planning tools and training. Specifically, all systems and data must be in order, there must be strong pipeline management, Field Level Agreements with partners must be in place and internal controls must be in place for monitoring. There must also be strong understanding of long-term financing and full cost recovery as well as good connectivity to keep corporate systems up-to-date.
Co-financing requirements of recipients	Recipient country offices need to be making maximum use of the resources they have available and agree to their eligible future income becoming collateral.
Required institutional arrangement at the national level	See answer above on eligibility criteria. WCF loans are only given to WFP country offices or Regional Bureaus.
Funding limits for recipients or recipient countries	Projects can only apply for an advance up to the limit of their discounted eligible forecast income. Donor constraints limit repayment possibilities making some forecast contributions ineligible as collateral. There is a ceiling on total WCF loans outstanding at any given time of US$180 million.

Rapid response mechanism	The WCF enables the WFP to start projects through loans before contributions are announced. (WCF can be provided to a project prior to its official start date to pre-fill the pipeline, taking into account lead times, to ensure seamless distribution). Projects can request WCF throughout the life of a project. HQ aims to give a decision on the loan within 5 working days of receiving a full loan request package.
Types of costs / losses covered	Food aid activities.
Incentives for risk-reduction	Contributions are forecasted into high, medium or low probability to estimate the resources available to pilot projects and to repay advances made. Contribution forecasts are continuously being monitored so that project expenditure can be adjusted. Should a country office or regional bureau not manage their finances optimally or not participate satisfactorily in reviews, they may jeopardize their chances of receiving future loans.
Procedural steps to trigger payments	The project manager is required to confirm that: - The project has the logistical capacity to absorb any commodities purchased with the WCF; - The project will submit quarterly Financial Statements to the Credit Committee by the 20th of January, April, July and October; - Working capital financing is 'senior' to all other loans – i.e., the WCF has first creditor rights to be repaid in full prior to repayment of other borrowings; - All borrowings against forecasted income have been accurately reflected in the Financial Statements. Once applications are received they are reviewed by the Office of Budget, and by the Operations Department. Any additional information deemed necessary is obtained from the applicant. Once this process has been completed, a meeting of the Credit Committee is scheduled, generally within five working days of the receipt of an application. The Committee makes a decision, which is immediately reported to the applicant.
Monitoring of payments and expenditures	The Country Office/Regional Bureau must produce a monthly financial and operational plan that shows income, expenditure and distribution during the life of the project. The Regional Director and Country Director of the project must agree to participate in a quarterly review which brings together each WFP department to discuss the project's financial and operational plan to make sure that all issues, financial and otherwise, are brought to light.
Governance	
Supervisory body	The WFP Executive Board compromises 36 Member States of the UN and the FAO. It oversees WFP's humanitarian and development food aid activities. The Credit Committee is an advisory group to the Executive Director that provides recommendations on individual loans. The Credit Committee is made up of the CFO and the directors from Fundraising, Administration, Change Management, Programme Management, the Offices of the Executive Director and the Office of Budget and Financial Planning.
Number of employees managing fund	During 2006 there were 2 full time and 3 part time employees with support from many other HQ units as well as the country office and regional bureaus.
Administrative costs	No specific WCF admin costs charged to recipient projects for loans but WFP charges a standard 7% support cost on all contributions received by the programme.
Fund management innovations	Addresses the timing mismatch between when expenditure needs to be made and when contributions are forecasted to arrive.
Role of beneficiary countries	See section on intervention rules
Role of donors / multilateral agencies	Not applicable
Roles of other stakeholders	Not applicable

Source: Civic Consulting/WFP

4.2.4. OIE World Animal Health and Welfare Fund

In May 2004 the International Committee of the OIE adopted Resolution No. XVII on the Creation of a World Animal Health and Welfare Fund. The Resolution decided that a special account, entitled the World Animal Health and Welfare Fund, shall be created in the accounts of the OIE, with the Director General to be responsible for implementing the Resolution.[106]

In the Appendix of the Resolution, it was laid down that the purpose of the Fund is to support:

- Implementation of action programmes;
- Implementation of training programmes;
- Organisations of seminars, conferences and workshops;
- Editing and distribution of scientific and technical publications;
- Production of information media;
- Implementation of basic and applied scientific research programmes;
- OIE Strategic Plans approved by the Member Countries;
- Activities of developing countries in the aforementioned fields.[107]

The main focus of the fund is good governance in the veterinary sector as in line with the priority provisions in the Fourth OIE Strategic Plan (2006-2010). The current framework of the Fund is described in the OIE publication on "Ensuring Good Governance to Address Emerging and Re-emerging Disease Threats – Supporting the Veterinary Services of Developing Countries to Meet OIE International Standards on Quality".[108] This concept paper lays down the activities and the work programme of the Fund: capacity building; evaluation of Veterinary Services; OFFLU Network. Complementary concepts have been added since the Pledging Conference of Beijing (January 2006), notably: an Avian Influenza Vaccine Bank and Reference Laboratory Twinning programmes. "The OIE should use the World Animal Health and Welfare Fund to support its Member Countries by analysing and promoting a general framework for financing support to a global governance system for animal health."[109]

The total income of the Fund as of 31 December 2006, is EUR 24.2 million, of which EUR 10.6 million had been paid.[110] 2006 was also the first full year of the fund's operation.

The 2006 capital has mainly been used for identification of priority investments, the training of OIE Performance, Vision and Strategy (PVS) experts, and the evaluation of Veterinary Services in fifteen pilot

[106] OIE International Committee (2004). Resolution XVII, Article 1

[107] OIE (2004). Appendix to Resolution XVII, Article 2

[108] OIE (2006). Ensuring good governance to address emerging and re-emerging animal disease threats. Retrieved at March 01, 2007, from: http://www.oie.int/downld/Good_Governance/A_good_gouvernance.pdf

[109] OIE (2006). Resolution XXXV, Recommendation 4

[110] OIE (2007). The OIE World Animal Health and Welfare Fund

countries in all continents.[111] PVS is described in more detail in the section below on intervention rules. The fifteen countries in which the PVS pilot project was implemented are Brazil, Cameroon, Chad, Costa Rica, Cote d'Ivoire, Djibouti, Indonesia, Jamaica, Kenya, Kyrgyz Republic, Laos, Mexico, Ukraine, Vietnam and Yemen.[112] After the pilot project, PVS missions have continued and in total 36 missions have taken place (as of August 30, 2007).

4.2.4.1. Mobilisation of funding

When the World Animal Health and Welfare Fund was set up, it was foreseen that the resources for the Fund would consist of subsidies, donations and legacies provided by public or private bodies or institutions and private persons.[113] There have been no contributions yet of recipient countries, i.e. the fifteen countries in which the PVS pilot projects were run. However, for specific types of PVS evaluations contributions of the country evaluated could be considered in the future.[114]

So far, the main donors were the World Bank, USDA, UK, Switzerland, Japan, France, Canada and Australia. Prospective donors at this stage are the EC and other EU Member States.[115] No private donations have been made yet, however, in principle private donations are possible and will be aimed at in the future.[116] In the following table an overview of the Fund sources is given.

Table 12: Donors' contributions to World Animal Health and Welfare Fund

Funds from donors (US$) as at August 31, 2007 (received and announced contributions)	
World Bank (over 3 years)	3,000,000
USA (USDA)	2,411,026
UK (DFID) (over 3 years)	1,021,992
Switzerland	408,114
Japan	7,698,794
France	3,266,160
Canada (CIDA and CFIA) (over 3 years)	10,449,082
Australia (AusAID and DAFF) (over 3 years)	1,907,850
Total Contributions	**30,163,048**

Source: OIE (2007). The OIE World Animal Health and Welfare Fund.

[111] OIE (2006). International agencies join forces to advise OIE animal health and welfare fund. Retrieved at February 13, 2007, from: http://www.oie.int/eng/press/en_061101.htm

[112] OIE. List of Countries to be evaluated with the OIE-PVS tool

[113] OIE (2004). Appendix to Resolution XVII, Article 3a,b

[114] Interview OIE

[115] OIE (2007). The OIE World Animal Health and Welfare Fund

[116] Interview OIE

4.2.4.2. Intervention rules

In principle all OIE Member Countries are eligible to receive financing. However, in several cases donors earmark their contribution by defining benefiting countries/regions. For example, a substantial part of the 2006 donation of Japan was earmarked for the procurement of laboratory equipment in South-East Asia.[117]

Although rapid response to emergencies is not the main focus of the World Animal Health and Welfare Fund, specific measures can be implemented in a short period. An example of this is the Avian Influenza virtual vaccine bank for African countries, which was established to rapidly assist infected countries who would have to vaccinate poultry populations at risk and also countries not yet infected wishing to count with a strategic stock to protect themselves.[118] Funding related to the virtual vaccine bank can be released in three days.[119]

So far, 21.3 million doses of Avian Influenza vaccines for adult poultry were provided to seven African countries, of which 14 million doses were delivered to Egypt, 300,000 doses to Mauritius, 1 million to Mali, 1 million to Senegal, 1 million to Togo, 2 million to Mauritania and 2 million to Ghana.

One of the main activities carried out by the Fund in the area of capacity building for national Veterinary Services, as identified as one of the Strategic Areas in the fourth OIE Strategic Plan[120], is the development of the "Performance, Vision and Strategy" (PVS) instrument. The PVS tool is designed to facilitate the identification of areas of improvement to bring national Veterinary Services into compliance with the OIE quality standards. It is intended to help them to prevent and control animal diseases more effectively and/or to demonstrate to their trading partners that the health certificates issued by them are supported by reliable procedures.[121]

At the 2006 meeting of the advisory committee, the three main categories of countries interested in PVS evaluations were highlighted as follows:

1. A self-evaluation of the Veterinary Services of a country with respect to the OIE criteria with a view to assessing the current status and strengthening the appropriate areas of Veterinary Services and/or obtaining the financing and necessary support for their development from their government;

2. An evaluation in relation to bilateral negotiations between trading countries: it may be performed at the request of either country;

[117] OIE (2006). Grants, Subsidies and Donations received in US$

[118] OIE (2007). OIE provides African countries with 21,300,000 doses of AI vaccines for poultry protection against H5N1. Retrieved at July 04, 2007, from: http://www.oie.int/eng/press/en_070704.htm

[119] The virtual bank is based not only on physical stocks of vaccines but also on commitments from the provider to deliver vaccines when needed. This avoids vaccine loss due to lapsing expiry dates.

[120] OIE (2005). The Fourth OIE Strategic Plan, p13

[121] OIE (2006). Resolution XXXV

3. Less developed countries looking for external resources: An evaluation performed as part of an international financing request, financed by a donor or other funding agency.[122]

More than a diagnostic tool, PVS is a process oriented towards the future, which can be used in passive or active mode, depending on the level of interest and commitment by the users and the official service in improving their national services over time.[123] For a PVS evaluation, an official request from the government is a prerequisite.[124]

The Fund also financed the following economic studies:

- Economic impact of diseases and Cost-Benefit Analysis of Improved Disease Prevention and Rapid Control;
- Feasibility Study on the setting up of a Global Emergency Response Fund for Animal Epizootics and Zoonoses in developing and in countries in transition;
- Pre-Feasibility Study on Market-Based Insurance Products for Emerging and Re-emerging Animal Disease Losses not Covered by Public Compensation. [125]

Other ongoing, or carried out, activities in the field of capacity building are:

- Training of the trainers within Veterinary Services;
- Regional training seminars for policy makers, mainly focused on rights and obligations of member countries in accordance with the WTO-SPS Agreement;
- Training of evaluators for the use of the PVS instrument for evaluation of countries wishing to improve their Avian Influenza and other relevant diseases prevention and control systems.[126]

The following table contains a budget breakdown of the activities:

[122] OIE (2006). The OIE World Animal Health and Welfare Fund

[123] OIE (2006). Performance, Vision and Strategy (PVS): A Tool for Veterinary Services, p7

[124] OIE (2006). Minutes of the First Meeting of the Advisory Committee, p4

[125] This report is one of the Deliverables of the studies commissioned. For more information on the Terms of Reference of the studies see: OIE (2006). Call for Tender on Economic Studies relating to The Financing of Animal Epizootics and Zoonoses Losses in Developing and in Transition Countries. Retrieved at September 05, 2006, from: http://www.oie.int/eng/Services/AO/en_ao.htm?e1d12

[126] OIE (2006). Minutes of the First Meeting of the Advisory Committee, p4

Table 13: Overall breakdown of commitments at May 31, 2007

Activity	Cost (US$)
Procurement of laboratory equipment	6,378,504
Pilot PVS Evaluations	1,776,442
Capacity Building through OIE-RR/SRR	1,720,109
Coordination (3 years)	817,146
High Level Meetings	480,768
PVS Trainings	612,933
Other	704,766
Total	**12,490,668**

Source: OIE World Animal Health and Welfare Fund

A detailed accounting system has been established in 2006 to distinguish the expenditures to be derived from the World Fund and those attributed to the OIE General Budget or the Regional Representation.[127]

4.2.4.3. Governance

The Governance of the Fund is ensured by the general OIE governance mechanism: International Committee (the General Assembly of the official representatives of the 170 Member Countries); the elected Administrative Commission, two auditors *(Commissaires aux comptes)*; internal audit and an external auditor elected by the General Assembly. Within the OIE's general accounting system, a specific accounting system dedicated to the World Fund is in place; this allows regular reporting to a specific Management Committee of the World Fund.

"The Director General shall ensure that the Fund is managed in accordance with the financial rules of the OIE and the objectives fixed by the activity programme. [He] shall be assisted by a Management Committee, chaired by the President of the International Committee of the OIE or in his absence by the Vice President […]. [T]he Management Committee shall comprise the President and two members designated by the Administrative Commission of the OIE and chosen from among its own members. Representatives of donor bodies may be invited to participate in the work of the Management Committee in a consultative capacity."[128]

In addition, to support and guide the OIE in using this Fund, an Advisory Committee of the World Fund, made up of representatives from the main intergovernmental organisations sharing common objectives (WTO, FAO, WHO and OIE) and representatives from the major donors to the Fund and observers has been set up. The main purposes of the Advisory Committee are:

1. To examine the work program and priority activities conducted and to provide recommendations for future activities;

[127] OIE (2007). Minutes of the First Meeting of the Management Committee, p4

[128] OIE (2004). Appendix to Resolution XVII, Article 4a,b

2. To comment and provide recommendations on the basis of outcomes achieved;
3. To examine and comment detailed accounts on actual expenses;
4. To build alliances between the OIE, other intergovernmental organisations and donors in the field of animal health, including zoonoses;
5. To identify parallel investments being made, ensure effective coordination and to avoid duplication with other programs on the basis of investments made or foreseen;
6. To identify opportunities to leverage funding or additional donors potential.[129]

In general there are no overheads for coordination activities financed from the Fund. Otherwise a maximum of 7% is charged (5% for larger grant/activities) to donor contributions. Approximately two fulltime equivalent posts (plus part time involvement of OIE management and accounting services) are used for the management of the fund.[130]

4.2.4.4. Strengths and weaknesses (as perceived by the fund)

Strengths

Strengths as perceived by the World Animal Health and Welfare Fund are;

- Simple procedures and low management fee;
- Cost effective because experts of national Veterinary Services usually don't charge a fee when working for the OIE;
- Good opportunity for coordination with donors;
- Global outreach to regional services and collaborating centres.

Weaknesses

A weakness is that the Fund has been relatively recently established.

[129] OIE (2007). Minutes of the First Meeting of the Management Committee, p3

[130] Interview OIE

Table 14: Main characteristics of the OIE World Animal Health and Welfare Fund

Introduction	
Name of fund	World Animal Health and Welfare Fund
Type of fund/hosting organisation	OIE
Emergency covered	Control of animal diseases, including those affecting humans, and the promotion of animal welfare and animal production food safety.
Targeted countries/regions	OIE Member States, focusing on developing and transition countries.
Capital of fund/ budget	The total of received donations at August 31, 2007, was US$ 22 million.
Contributions to fund in 2005	Not applicable, as fund became operational in 2006.
Mobilisation of funding	
Contribution of donors	Main donors to date are World Bank, USDA, UK, Switzerland, Japan, France, Canada, and Australia.
Contribution of eligible countries	Currently no contribution of recipient countries, e.g. for PVS evaluations. However, for specific types of PVS evaluations contributions of the country evaluated could be considered in the future.
Contribution of private sector	No private donations so far, however in principle private donations are possible and will be aimed at in the future.
Management of fund's risk	Not applicable, as the Fund is not primarily focused on emergency measures.
Intervention rules	
Eligibility criteria for recipients	In principle all OIE Members are eligible, however, donors in several cases earmark their contributions.
Co-financing requirements	Currently no co-financing requirement
Required institutional arrangement at the national level	Beneficiaries of the vaccine bank should have a national emergency preparedness plan / national emergency vaccination programme in place. PVS evaluations are only carried out at the request of the country concerned and corresponding report has to be cleared by the country after OIE peer review.
Funding limits for recipients	Not applicable
Rapid response mechanism	Emergency is not the main focus of the Fund although specific measures can be implemented in a short period
Types of costs / losses covered	Not applicable
Incentives for risk-reduction	Not applicable
Procedural steps to trigger payments	Request from the country (e.g., PVS evaluation, delivery of vaccines). Receipt of invoice corresponding to budgeted action / contract
Monitoring of payments and expenditures	OIE accountability procedures. Within the OIE's general accounting system, a specific accounting system dedicated to the Fund is in place. Two auditors *(Commissaires aux comptes)*; internal audit and annual external audit. External evaluation planned in 2008
Governance	
Supervisory body	Management Committee and Advisory Committee
Number of employees managing fund	Approximately 2 fulltime equivalent posts plus part time involvement of OIE management and accounting services
Administrative costs	No overheads for coordination activities financed from the Fund. Otherwise a maximum of 7% is charged (five percent for larger grants/activities)
Role of beneficiary countries	Not applicable

Role of donors / multilateral agencies	One Donor representative at the Management Committee. Max. 12 Donors representatives at the Advisory Committee and WTO, WHO, FAO and WB
Roles of other stakeholders	Possible observer status at the Advisory Committee

Source: Civic Consulting/OIE

4.2.5. FAO Special Fund for Emergency and Rehabilitation Activities

The Special Fund for Emergency and Rehabilitation Activities (SFERA) is a fund of the Food and Agricultural Organization of the United Nations (FAO). It was agreed to set up the Fund at the 102nd Session of the FAO Finance Committee in May 2003. At this session the need was recognized "for ready access to substantial funds to meet emergencies."[131] The purpose of SFERA is to enable FAO "to rapidly initiate emergency operations by participating in inter-UN agency needs assessment and coordination activities, establishing an Emergency Coordination Unit (ECU) related to agricultural assistance with the necessary logistical equipment, preparing a programme framework and projects, and providing advance funding when a donor's commitment has been obtained for procurement of inputs."[132]

The Fund consists of three components: Working Capital Component, Revolving Fund and Programme Component. In detail, the three components are as follows:

- Working Capital Component: The working capital component is to advance funds to rapidly initiate project activities before donor funds on agreed projects are received, with the funds then being transferred back to the SFERA on receipt;
- Revolving Fund: The revolving fund is to support FAO efforts in needs assessment, programme development and early establishment of an emergency coordination unit;
- Programme Component: The programme component is to support specific emergency crises. The programme component was used in January 2005 in response to the Indian Ocean tsunami disaster and further developed as a result of the spread of Avian Influenza from November 2005.[133]

When SFERA was established, a target funding of US$ 2 million was set. However, during a 2004 FAO Council meeting the need for increasing both scope and target funding of the SFERA was recognized. Here the overall funding level for the revolving category was increased to at least US$5 million, and that for the working capital component to US$15 million.[134] Since its inception in May 2003, the SFERA has received 47 million US$ (as at 30 June 2006). The working capital component consisted of approximately US$ 12 million at the end of 2006.

4.2.5.1. Mobilisation of funding

There are no formal criteria for contributing to SFERA. Many major donors contribute, however so far the EC and USAID have not contributed to SFERA. SFERA has received contributions from some eligible

[131] FAO Finance Committee (2003). Proposal to Establish a Special Fund for Emergency and Rehabilitation Activities (Hundred-and-second Session), p.2. Retrieved at January 23, 2007, from: http://www.fao.org/DOCREP/MEETING/006/Y8994E.HTM

[132] FAO Finance Committee (2003). Proposal to Establish a Special Fund for Emergency and Rehabilitation Activities (Hundred-and-second Session), p2. Retrieved at January 23, 2007, from: http://www.fao.org/DOCREP/MEETING/006/Y8994E.HTM

[133] FAO Finance Committee (2006). Annual Report on Special Fund for Emergency and Rehabilitation Activities. (Hundred and Fifteenth Session), p.3. Retrieved at January 23, 2007, from: ftp://ftp.fao.org/docrep/fao/meeting/011/j8139e.pdf

[134] FAO Council (2004). Advance Funding for Emergency and Rehabilitation Activities (Hundred and Twenty-seventh Session of the Council), p.4. Retrieved at January 23, 2007, from: http://www.fao.org/docrep/meeting/008/j3631e.htm

countries (Jordan, China and Saudi Arabia). No private sector contributions were received for SFERA. The FAO would be interested to invite donors from this sector, too. In the following table an overview of the Fund sources are given.

Table 15: SFERA – overview of contributions

Funds from member countries (US$) as at 30 June 2006	
Sweden	10,015,796
Norway	7,111,615
France	5,930,420
Finland	3,895,476
Switzerland	3,696,573
Germany	1,303,687
United Kingdom	1,113,000
Saudi Arabia	1,000,000
Canada	809,454
Australia	59,325
Jordan	50,000
Total Members	**34,985,346**
From TCE Direct Operating Costs	12,000,000
World Bank	17,293
Total Received	**47,002,639**

Source: FAO Finance Committee (2006). Annual Report on Special Fund for Emergency and Rehabilitation Activities. (Hundred and Fifteenth Session). Retrieved January 23, 2007, from: ftp://ftp.fao.org/docrep/fao/meeting/011/j8139e01.pdf

As soon as a donor contribution is confirmed in writing, advance funding for procurements of inputs required to protect or to restart agricultural production are made. Thereby the four to six weeks are saved that are normally taken to transfer funds to FAO's bank account.[135]

In order to manage the risk of treating conditional commitments as firm commitment, the FAO Finance Committee adopted an approach and summarised the factors relevant to evaluating and limiting the risks from taking action on a firm but conditional commitment of funds as follows:

- The amount of the advance to be made based on the conditional donor commitment;
- The time before final, unconditional approval is expected;
- The feasibility of terminating the operations so funded or of securing alternative funding in case of default;
- The amount and status of other, similar advances outstanding;
- The total remaining of uncommitted SFERA funds;

[135] FAO Finance Committee (2005). Utilization of the Special Fund for Emergency and Rehabilitation Activities (Hundred and tenth Session), p2. Retrieved at January 23, 2007, from: ftp://ftp.fao.org/docrep/fao/meeting/009/j5943e.pdf

- Other prospective advance funding requirements, repayments of advances and receipts from donors in the foreseeable future.[136]

However, experience suggests that problems with "firm" but conditional commitments will be very rare, as disbursements made have been quickly repaid. Outstanding amounts are only for the most recent emergencies.[137]

4.2.5.2. Intervention rules

There are no formal criteria that recipients need to meet. The recipient government has to request assistance from the FAO and there needs to be a prospect to develop a significant response of the FAO in the country.[138]

Except contributions from unspent budget of closed projects (i.e. approx. US$ 0.8 million since the inception of the Fund), SFERA donations have been earmarked by donors for specific programmes. In the three years since SFERA started its operations, the Fund received over US$ 47 million, of which US$ 10 million were earmarked by donors for the tsunami programme and US$ 24.2 million for the campaign against the spread of Avian Influenza.[139]

SFERA does not provide direct payments to recipient governments, as the aim of SFERA is to finance the FAO response in the countries. Therefore no structure is required except a sufficient representation of FAO in the country.[140] This also means that there is no limit to the payments of funding. SFERA is mainly a rapid response mechanism, with the three components working complementary to address the needs in emergency situations. In some cases, for example Avian Influenza, there are also some longer-term interventions financed from the Fund.[141]

The procedures to trigger payment are simple. The FAO representative or operational officer in charge of a specific country contacts the SFERA fund management at the Emergency Operations and Rehabilitation Division (TCE) at FAO headquarters in Rome. The requests will be screened and the Director of the TCE Division will make a decision on basis of a brief analysis (the decision process could take as little as half a day).

[136] FAO Finance Committee (2006). Flexible Use of the Special Fund for Emergency and Rehabilitation Activities (Hundred and thirteenth Session), p2. Retrieved at January 23, 2007, from: ftp://ftp.fao.org/docrep/fao/meeting/010/j7532e.pdf

[137] FAO Finance Committee (2005). Utilization of the Special Fund for Emergency and Rehabilitation Activities (Hundred and tenth Session), p6. Retrieved at January 23, 2007, from: ftp://ftp.fao.org/docrep/fao/meeting/009/j5943e.pdf

[138] Interview FAO

[139] FAO Finance Committee (2006). Annual Report on Special Fund for Emergency and Rehabilitation Activities. (Hundred and Fifteenth Session), p.3. Retrieved at January 23, 2007, from: ftp://ftp.fao.org/docrep/fao/meeting/011/j8139e.pdf

[140] Interview FAO

[141] Interview FAO

4.2.5.3. Governance

The supervisory body is the FAO Finance Committee, the members of which come from 11 countries elected every two years from among the FAO member states. The committee meets twice a year and reviews, among other duties, also SFERA operations. The number of full time employees to manage the fund consist of approximately 10 % of one professional full time post and in addition one full time support staff. The administrative staff costs are absorbed by the FAO Emergency Division. No deduction is made from the amounts advanced to projects in anticipation of receipt of donor contributions (However, for the implementation of projects 10 % are subtracted for project support costs in line with general FAO rules).

Innovative aspects of the Fund include:

- Working capital component allows FAO actions as soon as there is a formal donor decision;
- SFERA enables FAO to finance need assessment missions using both internal and external experts, or join assessment missions together with other UN Agencies and partners if possible.[142]

4.2.5.4. Strengths and weaknesses (as perceived by the fund)

Strengths

Perceived strengths of SFERA are:

- Quick response: Without SFERA it would not have been possible for the FAO to respond quickly to emergencies such as the locust problem, Tsunami, and Avian Influenza;
- Flexibility: This Fund allows flexibility for the FAO to adjust activities to the realities on the ground within the overall framework of the programme.[143] SFERA "has contributed to FAO's track record in the field, showing that FAO is able to respond when needed".[144] "The SFERA has allowed a programmatic approach to an emergency when donors have agreed to pool funding under the SFERA. This has reduced transaction costs for FAO and donors, and greatly improved FAO's flexibility in responding to a crisis."[145]

Weaknesses

- Financial tracking for donors is required and sometimes donors insist on separate reports, which in these cases increases the administrative effort.

[142] Interview FAO

[143] Interview FAO

[144] FAO Finance Committee (2006). Annual Report on Special Fund for Emergency and Rehabilitation Activities. (Hundred and Fifteenth Session), p4. Retrieved at January 23, 2007, from: ftp://ftp.fao.org/docrep/fao/meeting/011/j8139e.pdf

[145] FAO Finance Committee (2006). Annual Report on Special Fund for Emergency and Rehabilitation Activities. (Hundred and Fifteenth Session), p5. Retrieved at January 23, 2007, ftp://ftp.fao.org/docrep/fao/meeting/011/j8139e.pdf

Table 16: Main characteristics of the FAO Special Fund for Emergency and Rehabilitation Activities

Introduction	
Name of fund	Special Fund for Emergency and Rehabilitation Activities (SFERA).
Type of fund/hosting organisation	Fund established by resolution of the governing bodies of FAO with separate accounting, but on the books of FAO regular or core programme.
Emergency covered	Emergencies requiring significant external assistance within the mandate of the FAO. SFERA can thus quickly field a needs assessment mission or establish rapidly an emergency coordination unit for agricultural assistance and to prepare a programme framework, and advance funding for procurement of inputs required to protect or restart agricultural activity, once donor support confirmation is received.
Targeted countries/regions	Any emergency project would be eligible for an advance from SFERA, however since its establishment SFERA has focused mainly on ca. 15 affected countries in Asia and Africa.
Capital of fund/total programme budget	Since its inception in May 2003, the SFERA has received 47 million US$ (as at 30 June 2006).
Contributions to fund in 2005	Approx. 18 million US$ from programme contributions plus approx. 0.5 million US$ from unspent budget of closed projects.
Mobilisation of funding	
Contribution of donors	There are no formal criteria. Many major donors contribute, however EC and USAID have so far not contributed to SFERA.
Contribution of eligible countries	There is no obligation for recipient countries to contribute. SFERA has received contributions from some eligible countries (Jordan, China and Saudi Arabia).
Contribution of private sector	None. In principle, FAO would be interested to invite donations from this sector, too.
Management of fund's risk	Criteria have been established for managing the risk of treating conditional donor commitments as firm commitments. Also, a maximum advance amount was adopted (which so far has never been reached). The main risk faced is that an advance would not be repaid. This is covered by not approving advances unless there is a signed agreement with a donor to provide contributions.
Intervention rules	
Eligibility criteria for recipients	The recipient government has to request assistance from the FAO and there needs to be a prospect to develop a significant response of the FAO in the country.
Co-financing requirements of recipients	None
Required institutional arrangement at the national level	No direct payments are provided for recipient governments, as the aim of SFERA is to finance the FAO response in the countries. Therefore no structure is required except a sufficient representation of FAO in the country.
Funding limits for recipients or recipient countries	Except contributions from unspent budget of closed projects (i.e. approx. US$ 0.8 million since the inception of the Fund), SFERA donations have been earmarked by donors for specific programmes or geographic regions.
Rapid response mechanism	SFERA is mainly a rapid response mechanism. But in some case, for example AI, there are also some longer-term interventions financed through earmarked contributions to the fund.
Types of costs / losses covered	Not applicable (see above).
Incentives for risk-reduction	Not applicable (see above).

Procedural steps to trigger payments	The FAO representative or operational officer in charge of a specific country contacts the SFERA fund management at the Emergency Operations and Rehabilitation Division (TCE) at FAO headquarters in Rome. The requests will be screened and the Director of the TCE Division will make a decision on basis of a brief analysis.
Monitoring of payments and expenditures	FAO accountability procedures
Governance	
Supervisory body	The supervisory body is the FAO Finance Committee, in which a total of 11 countries are represented.
Number of employees managing fund	Approximately 10 % of 1 professional full time post, and in addition 1 full time support staff.
Administrative costs	The administrative staff costs of SFERA are absorbed by the FAO Emergency division. No deduction is made from the amounts advanced to projects in anticipation of receipt of donor contributions. (However, for the implementation of projects 10 % are subtracted for project support costs in line with general FAO rules.)
Fund management innovations	Working capital component allows FAO actions as soon as there is a formal donor decision. The Fund enables FAO to finance need assessments using both internal and external experts, or joint assessment missions together with other UN Agencies and partners if possible.
Role of beneficiary countries	None
Role of donors / multilateral agencies	Donors have a general oversight responsibility exercised through the FAO Finance Committee.
Roles of other stakeholders	None

Source: Civic Consulting/FAO

5. Global institutional framework for the financing of costs and losses of epidemic livestock diseases

5.1. Overview of current external financing of epidemic livestock disease costs and losses

Comprehensive data on financing of costs and losses of outbreaks of epidemic livestock diseases and related preparedness/prevention measures in developing countries is scarce. The best-documented case is related to the recent outbreaks of Avian Influenza (see Part I). An overview of the donor commitments for Avian and Human Influenza indicates that in terms of commitments bilateral donors have by far the largest share. Multilateral development banks AfDB, AsDB and World Bank as well as the European Commission are also major donors, accounting for nearly one third of total commitments. Individual countries are the largest group of recipients, with international organisations receiving a share of less than 20%. Multilateral global trust funds currently play only a limited role, although an increasingly relevant one. For example, the World Bank managed multi-donor financed AHI facility receives a share of approximately 5% of total commitments.[146]

5.1.1. Multilateral global funds/facilities

Two operational global funds/facilities with a significant focus on animal health have already been described in detail in the previous section, namely the World Animal Health and Welfare Fund (WAHWF) of the OIE and the Special Fund for Emergency and Rehabilitation Activities (SFERA) of the FAO. Other relevant global funds/facilities include:

- Avian and Human Influenza Facility (AHIF, World Bank);
- Standards and Trade Development Facility (STDF, Facility's Secretariat at WTO);
- UN Central Fund For Influenza Action (CFIA, administered by the UNDP).

Budget details and description of the funds are provided in the following table:

[146] Based on figures from World Bank Avian and Human Influenza, Update on Financing Needs and Framework, November 30, 2006; World Bank, Avian and Human Influenzas Multidonor Financing Framework: Second Update Session 2.4 on Implementation of International Assistance, Bamako International Conference December 6-8, 2006. The picture may be partly distorted, as the share of "other/unallocated" commitments is rather high (28%).

Table 17: Overview of animal health related global funds/facilities[147]

Name	Hosted/ managed by	Budget in million US$	Description of fund/facility
Avian and Human Influenza Facility (AHIF)	World Bank	US$ **86** m (total of pledged commitments as of 30.06.2007)	Purpose is to minimize the risk and socio-economic impact of Avian Influenza (and other zoonoses) and of possible human pandemic influenza in developing countries lacking adequate domestic resources and capacity to prepare for and combat any onset of the disease. Specifically, it consists of a multi-donor financial framework designed to fill those financing needs and gaps that remain unmet from the loan, credit and grant assistance being made available from other sources.
World Animal Health and Welfare Fund (WAHWF)	OIE	US$ **30.2** m (total of contributions 31.08.2007)	The purpose of WAHWF is to control animal diseases, including those affecting humans, and to promote animal welfare and animal production food safety. WAHWF focuses on good governance in the veterinary sector, by supporting the Veterinary Services of developing countries to meet OIE international standards on quality.
Special Fund for Emergency and Rehabilitation Activities (SFERA)	FAO	US$ **47** m (total of contributions 30.06.2006)	A multi-donor trust fund hosted by the Food and Agricultural Organization of the United Nations (FAO). The purpose of SFERA is to enable FAO to rapidly initiate emergency operations by participating in inter-UN agency needs assessment and coordination activities, preparing a programme framework and projects, and providing advance funding when a donor's commitment has been obtained for procurement of inputs.
Standards and Trade Development Facility (STDF)	Facility's Secretariat at WTO	US$ **10.4** m (Contributions received by June 2007)	Global programme in capacity building and technical assistance to assist developing countries in trade and SPS measures. The STDF is both a financing and a co-ordinating mechanism. It provides grant financing for developing countries seeking to comply with international SPS standards and hence gain or maintain market access.
UN Central Fund For Influenza Action (CFIA)	Adminis-tered by the UNDP	Target size of US$ **30** m (fund was created in November 2006).	The Fund serves as a complementary means through which external support can be made available for use by UN system agencies and their partners. The Fund's resources will be used when activities essential for the fulfilment of objectives set out in the UN System Consolidated Action Plan are not being adequately funded or when unforeseen urgencies arise.

Note: Not including regional funds/facilities.

A common feature of these global funds/facilities is their recent date of establishment. The oldest of the funds is the Standard and Trade Development facility, which was set up in 2002, followed by the SFERA (2003), the WAHWF (2004), AHIF and CFIA (both in 2006). The Avian Influenza crisis led not only to a significant increase of attention regarding animal health issues, but also to the declared intention of donors

[147] Sources: AHI Facility. Retrieved March 1, 2007, from: http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTHEALTHNUTRITIONANDPOPULATION/EXTTOPAVIFLU/0,,contentMDK:20917407~pagePK:64168445~piPK:64168309~theSitePK:1793593,00.html; WAHWF: OIE (2006), Ensuring good governance to address emerging and re-emerging animal disease threats. Retrieved March 1, 2007, from: http://www.oie.int/downld/Good_Governance/A_good_gouvernance.pdf; SFERA: FAO Finance Committee (2006), Annual Report on Special Fund for Emergency and Rehabilitation Activities. (Hundred and Fifteenth Session), p.3. Retrieved January 23, 2007, from ftp://ftp.fao.org/docrep/fao/meeting/011/j8139e.pdf; STDF: www.standardsfacility.org/donors.htm, retrieved in September 2007. CFIA: UN System Influenza Coordination (UNSIC), Final Narrative and Financial Report 1 January 2006 – 31 December 2006, World Bank Avian and Human Influenza, Update on Financing Needs and Framework, November 30, 2006

to better co-ordinate their initiatives. As the table above illustrates, activities funded by the above mechanisms differ significantly:

- The WB Avian and Human Influenza Facility (AHIF) aims at minimizing the risk and socio-economic impact of Avian Influenza (and other zoonoses) and of possible human pandemic influenza in developing countries lacking adequate domestic resources and capacity;
- The OIE World Animal Health and Welfare Fund (WAHWF) focuses mainly on improving veterinary governance, e.g. by conducting PVS evaluations in developing and transition countries to provide a basis for upgrading it, and other activities in the field of animal health;
- The FAO Special Fund for Emergency and Rehabilitation Activities (SFERA) focuses on emergencies requiring significant external assistance within the mandate of the FAO, reaching from animal health related emergencies (such as Avian Influenza) to locusts and the Tsunami response;
- The Standards and Trade Development Facility (STDP) with its secretariat hosted at the WTO concentrates on capacity building and technical assistance to assist developing countries in trade and SPS measures.

Another important difference is the degree to which funding is provided to external recipients from these funds/facilities: The SFERA is mainly an internal instrument of contingency financing to allow for a rapid response of the FAO, including through the provision of in-house or external expertise, procurement of necessary equipment or supplies etc. No funds are transferred to recipient governments. Also the UN Central Fund For Influenza Action (CFIA) is a pooled funding mechanism for a coordinated UN response, "enabling the UN and subsidiary stakeholders to access funding rapidly".[148] The WAHWF mainly addresses activities conducted by the OIE, its regional representations and its cooperating partners (partly with external expertise), e.g. by conducting PVS evaluations, training seminars, conferences etc., creating arrangements for the emergency provision of vaccines and supporting activities of developing countries in these areas.

On the other hand, AHIF and STDF are mainly mechanisms to provide project-based funding to eligible external recipients. For example, organisations eligible for STDF funding include public sector and private sector entities as well as non-profit NGOs with expertise in the SPS area.[149] AHIF provides grants which can be executed by various recipients, including recipient governments, non-governmental organizations, international or regional organizations, and other partners. [150] As a source of co-financing for the GPAI (see below), funds from the AHIF are also relevant for direct support to compensation payments to farmers affected by the culling of poultry related to outbreaks of Avian Influenza. For example, the Afghanistan Avian Influenza Control & Human Pandemic Preparedness & Response Project, which is funded under the GPAI, also envisages a 2.4 million US$ grant from the AHIF for a compensation facility.[151]

[148] For more information see Terms of Reference for a UN Central Fund For Influenza Action (CFIA)

[149] http://www.standardsfacility.org/who_apply.htm

[150] Avian and Human Influenza Facility, http://siteresources.worldbank.org/INTTOPAVIFLU/Resources/AHI.Facility.Rocio.May07.pdf

[151] World Bank (2006c)

5.1.2. Multilateral development banks

Multilateral development banks are a crucial part of the current global institutional framework for the financing of costs and losses of epidemic livestock diseases. The most important financial mechanism both in terms of scope and resources is the Global Program for Avian Influenza (GPAI) of the World Bank. It allows for the use of up to 500 million US$ in IBRD loans or IDA credits or grants for new projects, or restructuring of existing projects with or without additional financing over the next years. The program was endorsed in January 2006 as an adaptable loan program, which can be applied across countries as needed. Countries can access funding to strengthen their veterinary and health services to deal with Avian Influenza outbreaks among animals; minimize the threat posed to people; and prepare for, and respond to, any potential human influenza pandemic. As of June 2007, the World Bank has approved financing of US$ 377 million for 40 projects in 45 countries.[152] The programme consists of four components, one of which is the Animal Health Component. In this component, four areas of activity have been defined for individual country projects, namely:

A. Enhancing HPAI Prevention and Preparedness Capability;

B. Strengthening Disease Surveillance, Diagnostic Capacity and Virus Research;

C. Strengthening HPAI Control Programs and Outbreak Containment Plans;

D. Improving Bio-security in Poultry Production and Trade.

Activity area C includes the sub-component "Targeting virus elimination at the source", which allows for supporting control measures such as stamping out with compensation of farmers and movement controls. It is important to note that the GPAI Programme is the first major donor initiative to provide not only technical assistance for developing national compensation policies but to actually provide financial support for compensation of farmers in affected countries, also drawing on the resources of the AHIF (see above). The World Bank is acting under its policy framework for emergency operations, facilitating quick processing, and allows to a certain degree for retrospective financing of eligible activities, an additional element increasing the flexibility of programme implementation.

The Asian Development Bank is also a major donor of AHI related activities with US$ 79 million committed as of 31 October 2006. The African Development Bank had disbursed 3 million US$ until this date, 55% of commitments,[153] and has together with ECOWAS (the Economic Community of West African States) put in place an emergency fund to be able to provide any country of the sub-region with immediate financial assistance, should an outbreak occur.[154]

5.1.3. Regional initiatives

Initiatives regarding animal health/AHI response have also been taken by regional organizations, including by the:

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[152] www.worldbank.org, retrieved September 2007

[153] World Bank, Avian and Human Influenzas Multidonor Financing Framework: Second Update Session 2.4 on Implementation of International Assistance, Bamako International Conference December 6-8, 2006

[154] ALive, Avian Influenza Prevention and Control and Human Influenza Pandemic Preparedness in Africa, Assessment of Financial Needs and Gaps, Fourth International Conference on Avian Influenza, Bamako - Mali - December 6-8, 2006

- Association of South East Asian Nations (ASEAN);
- South Asian Association for Regional Cooperation (SAARC);
- African Union Inter-African Bureau for Animal Resources (AU-IBAR).

Regional organisations and partnerships in some cases also have their own financial instruments, including funds/facilities relevant for animal health. For example, the ALive platform, the Partnership for Livestock Development, Poverty Alleviation & Sustainable Growth in Africa, has its own trust fund (hosted by the World Bank). The ALive Multi-Donor Trust Fund is dedicated to supporting interventions to ensure quality operations at the national level in the livestock sector, and has also been identified to support interventions on AHI. Activities funded are meant to be complementary to those financed by bilateral funds and/or in addition to those financed by the World Bank AHIF. Eight million euros have been allocated in the Multi-Donor Trust Fund of ALive for this purpose.[155]

5.2. Assessment of the current global framework for the financing of costs and losses of epidemic livestock diseases

The analysis of the current global institutional framework for the financing of costs and losses of epidemic livestock diseases indicates significant progress during the last decade. There is more global coordination of donors and recipient countries, and there are an increasing number of multi-lateral financial initiatives and mechanisms, created mainly during the last few years. This is partly a response to the threat of Avian Influenza and other zoonoses, but also the consequence of an increased awareness for the need to have effective and efficient global mechanisms to address specific global problems or emergencies, as is evident in the re-definition of the UN CERF and the setting up of the Global Fund to Fight AIDS, Tuberculosis and Malaria. Other important developments regarding the financing of the global response to animal health threats are:

- There is growing attention for a need to provide financial resources for preventing epidemic livestock diseases, including by assessing and improving the quality of the Veterinary Services to create a more uniform implementation of animal health standards;
- Emergency response plans are increasingly prepared and implemented in many potentially affected countries to respond effectively in case of an outbreak of Avian Influenza with global financial (and technical) support;
- Vaccine banks are being established (such as the virtual AI vaccine bank of the OIE) that allow in case of outbreaks to respond rapidly with vaccination, therefore potentially reducing the need for large-scale culling operations that dramatically increase potential costs and losses;
- There is growing awareness for the need to compensate livestock holders in case of disease related culling. In 2006, for the first time global guidelines in this respect for developing countries have been developed[156] and the Global Programme for Avian Influenza is the first major donor initiative to provide financial support for compensation of farmers in affected countries.

[155] Ibid.

[156] World Bank (2006a)

In spite of these positive developments, the global framework for the financing of costs and losses of epidemic livestock diseases is also characterised by significant shortcomings. Global efforts regarding Avian Influenza are in no way matched with respect to other diseases, although there have been longstanding programmes with a regional focus for other diseases (see Part I). Of course, some measures taken in the framework of AI emergency preparedness are also relevant for other epidemic livestock diseases, e.g. in the area of veterinary governance. But other measures are species-specific, such as the improvement of bio-security in production, and disease-specific, such as the development of vaccine banks. There is no globally coordinated effort to combat FMD that is anything like the AI response, even though it is likely that at least some of the past outbreaks in industrialised countries costing billions of US$[157] were caused by imports from third countries. A main deficiency therefore is:

- Limited global support: Currently there is hardly any global structure for the financing of animal disease risk management for highly contagious transboundary animal diseases in developing countries other than related to Avian Influenza. This may lead to the underfunding of measures to prevent outbreaks of highly contagious transboundary animal diseases and may delay adequate responses to emerging diseases.

Other deficiencies include:

- Fragmentation of donor response: The multitude of challenges posed by highly contagious transboundary animal diseases may require a multitude of answers depending, e.g. on regional circumstances, and therefore complementary actions by different donors on all levels are more than justified. However, this also leads to a certain fragmentation and does not provide an answer to the inherent challenges of the animal disease risk, namely its cumulative nature (see below, section 5.3), which would require a system to cope with the resulting highly volatile funding needs caused by outbreaks of various sizes.
- Inefficiencies caused by lack of incentives for prevention: Little incentives are provided for developing countries to prevent crises by improving their Veterinary Services and their animal health status, except where major importing countries provide a clear perspective for lifting of veterinary restrictions on imports and possibly also provide financing for related technical assistance. Veterinary restrictions in case of outbreaks by major importing countries and related losses of export revenue can even be the source of strong adverse incentives for affected livestock industries and governments that may lead to delayed reporting of disease outbreaks or to a lack of implementation of proper surveillance measures. The lack of incentives for prevention and the existence of adverse incentives can be expected to lead to significant inefficiencies, as large-scale disease outbreaks in the past have indicated.[158]
- No consistent policy on cost-sharing with farmers: Only few countries (and mostly these are developed economies) have a consistent policy to share responsibility and costs related to outbreaks of animal diseases between government and livestock sector, which is a major incentive to upgrade bio-security in livestock production and also contributes to a financially sustainable animal health system.

[157] The FMD-outbreak in the UK in 2001 showed the devastating consequences of this disease. It caused total losses of more than 13 billion € to the UK economy, according to government estimates, see Civic Consulting (2006)

[158] For a detailed discussion, see Civic Consulting (2006)

These deficiencies indicate the extent of the challenge to develop an efficient global institutional framework to finance epidemic livestock disease risk.

5.3. Objectives of an efficient global framework for financing costs and losses of epidemic livestock diseases

Managing animal health risk requires first of all awareness and actions at the farm and local level, and it is therefore a legitimate question whether any global mechanism is needed at all to address the risk posed by animal diseases. The financing of risk costs is usually not a task of public institutions, be it at the national or global level. Regarding animal disease risk however, this is different. Arrangements for the financing of costs and losses of disease outbreaks strongly influence risk management activities undertaken by farmers and other stakeholders, which again determine the severity of animal disease risk. Hence the set-up of the animal disease risk financing system is a key element of developing an animal health policy aiming at efficiently managing animal disease risk. To do this, the interdependencies between stakeholders' activities and animal disease risk have to be fully understood.

Epidemic livestock disease risk has two main characteristics; both of them have far-reaching consequences for risk financing (for a more detailed discussion see Annex 2).

- Firstly, there is a *strong interference of stakeholders' behaviour and risk*, which causes externalities of risk management. When individual livestock farmers decide about implementing prevention and control measures, they mainly take into account costs and benefits accruing directly to them. They do not necessarily consider costs and benefits accruing to third parties. For example, individual animal producers have a significant influence on the overall costs of a disease outbreak originating on their premises, since their decision to early report the disease to the authorities could make the difference between a local and immediately contained disease outbreak and a global animal health crisis.[159] Similarly, risk management undertaken by institutions of a given country, e.g. the Veterinary Services, the police, agricultural and health ministries, farmers' and traders' associations, do not only affect animal disease risk of this country. Their performance in containing outbreaks may determine whether the disease spreads to other countries or not, disrupts trade or even leads to a global pandemic. An economic consequence of these externalities is that animal disease risk management decisions are not efficient when based on costs and benefits of the decision maker, be it an individual farmer or the government of a specific country. It is therefore important to analyse cost and benefits of animal disease risk management from a global perspective and to decide which measures should be undertaken at an international level, and which at other levels, to ensure that all benefits are taken into account. In order to induce efficient animal disease risk management, a system for financing costs and losses of epidemic livestock diseases has to provide incentives for individuals and national institutions to enhance risk management.[160]
- The second key characteristic is the *cumulative nature of animal disease risk*. Animal disease risk is an accumulation risk (see Part III). Once an outbreak occurs, the disease can spread to other

[159] See Gramig et al (2006), p44 for the correlation between total costs of animal disease outbreaks and the duration of disease outbreaks, which strongly depend on the effectiveness and rapidity of control measures

[160] This issue is further discussed in sections 6.3 and 6.4

animals through infection. Accumulation is a typical feature of catastrophe risk. Despite a large number of individual risks, e.g. animals or herds, there are no pooling effects when individual risks are aggregated in a portfolio of risks, i.e. costs and losses of the risk portfolio would be highly volatile. That means that although the probability is high that global animal disease risk realisation is moderate compared to what could happen in a worst-case scenario, there is a small probability that the realisation of animal disease risk is catastrophic, i.e. that numerous large-scale disease outbreaks or even global animal disease crises happen. This complicates the subject of financing costs and losses of epidemic livestock disease outbreaks, since the need for funds is highly volatile. A system for financing costs and losses of epidemic livestock diseases should provide a mechanism to cope with this problem.[161]

From the discussion of the characteristics of epidemic livestock disease risk the following primary objective can be deducted for an efficient global framework for financing costs and losses of epidemic livestock diseases:

1. **To mobilize and allocate financial resources for epidemic livestock disease prevention and control in affected countries, where this is needed and appropriate for an efficient global response, while creating incentives for prevention at all levels and providing a mechanism to cope with the highly volatile nature of animal disease risk;**

An efficient global framework, however, cannot work by just concentrating on a financing mechanism, as the allocation of resources has to aim at adhering to certain animal health standards. The allocation has further to take into account to which degree these standards are actually implemented, and the flow of resources obviously depends on where outbreaks actually occur, leading to a need for surveillance and reporting systems. Finally, as developing and transition countries may lack absorption capacity for the resources provided, there is a need to provide technical assistance where needed. This underlines the interrelationship between the objective of an efficient global framework for financing costs and losses of epidemic livestock diseases and the functioning of an overall global framework for animal health. Additional objectives of the overall global framework for animal health which are relevant in this context therefore include:

2. To establish guidelines and rules for efficient animal disease risk management;

3. To monitor disease status and effectiveness of animal disease risk management of countries;

4. To provide technical assistance for epidemic livestock disease prevention and control, in countries where this is needed and appropriate for an efficient global response.

It has to be stressed that an efficient global institutional framework for the financing of costs and losses of animal diseases depends to a significant degree on adequate standard setting, surveillance and technical assistance, areas in which a large number of global initiatives are ongoing (see Part I). However, in line with the Terms of Reference of this study the discussion only concerns the external financing of the global institutional framework, in so far as it relates to emergency preparedness and response.[162] However, as the

[161] Relevant strategies are analysed in section 6.8 and Annex 1.

[162] The other phases of the disease management cycle, i.e. general prevention/mitigation and recovery/rehabilitation will not be discussed in detail, as these fall out of the scope of the study. It has, however, clearly to be underlined that an efficient

analysis of deficiencies of the current global framework has shown, it is still a significant challenge to develop an efficient global institutional framework to finance epidemic livestock disease risk, which addresses the limitations regarding mobilization and allocation of financial resources for epidemic livestock disease prevention and control for diseases other than AI, creates incentives for prevention at all levels and provides a mechanism to cope with the highly volatile nature of animal disease risk.

5.4. Possible role for a Global Emergency Response Fund for Animal Epizootics

It does not seem very likely that it would be possible to improve the current financing of animal disease risk management purely through better coordination of the bilateral donor community. The reason for this is that there needs to be a party that is ultimately taking and managing the animal disease risks agreed upon with eligible countries, which will require considerable efforts and innovative approaches for risk management to be able to fulfil the agree commitments (see section 6.6). It seems unlikely that any individual donor would be willing to take this responsibility. This clearly indicates the need for a new global mechanism for the financing of animal disease risk management. **This could either be developed by extending the mandate of an existing fund/facility, for example developed in the framework of the AI crisis, or by creating a new instrument. For the aim of this analysis this question is not of significance, as the operational rules (developed in section 6 of this report) would be expected to be applied independent from the mechanism chosen and the hosting organisation(s).**

The role of a Global Emergency Response Fund for Animal Epizootics (GERFAE) in the global institutional framework for animal health recommended here is to fill this identified gap and support activities aiming at reducing the adverse consequences of a disease outbreak, focusing on improving emergency preparedness planning and emergency response measures. Both are key aspects to effective and efficient animal disease risk management. Especially emergency response planning as part of the preparedness process is crucial for the rapid implementation of emergency measures (see section 6.1).

Effective and efficient emergency preparedness and emergency response need to be planned, financed and carried out. In an attempt to further specify the role of GERFAE in the global institutional framework for animal health, it is necessary to determine in which of these processes GERFAE participates and, if applicable, how GERFAE is involved. As mentioned above, the wider global framework for animal health has to fulfil functions that are indispensable for an efficient and effective response to any given outbreak of a relevant disease, including the setting of standards, and technical assistance, where there is a wide body of experience at key organisations such as the FAO, OIE, World Bank, regional programmes and, last not least, bilateral donors, that form the backbone of development cooperation in the area of animal health. Therefore, developing emergency preparedness and emergency response standards and technical assistance to implement them should as general principle *not* be performed by GERFAE, but by other appropriate institutions of the global animal health framework. **GERFAE would therefore mainly be a financial instrument**.

The ultimate goal of the global institutional framework for animal health, i.e. effectively and efficiently managing animal disease risk, has to be seen in the light of the prevailing capability for animal disease risk

management of global animal disease risk has implications for all phases of the disease management cycle and support to general prevention measures, for example, can in many instances be an efficient measure, as has been analysed in depth in Part I.

management in developing and transition countries; some of them may even lack the most basic qualifications for effective disease prevention and control. Thus GERFAE's role in a global animal health context is also to induce an improvement of emergency response capacities among the least developed countries with regards to animal disease risk management by committing conditional financial support to eligible countries based on pre-defined and costed country emergency response plans. The fund will take into account countries' capacities of managing animal health risk and aim at a step-by-step improvement of emergency preparedness and emergency response capabilities in countries with poor competences in animal disease risk management. However, the financial support of GERFAE would focus on providing financial support on basis of these plans after an outbreak takes place. It would not provide funds for implementing emergency preparedness and prevention measures in times without outbreak, as to reduce overlap with existing mechanisms and to focus on its main task of managing disease risk more efficiently.[163]

The new instrument GERFAE (or the existing fund/facility with an extended mandate) would therefore be different from existing mechanisms regarding the following aspects:

- It would focus on all eligible animal diseases, that by their nature require global intervention (see section 6.1.3);
- It would focus on providing a financial mechanism for eligible developing countries to cope with the highly volatile nature of animal disease risk;
- The financial support provided would be conditioned as to create incentives for prevention at all levels;
- Its operational rules would take into account best practices from developed, transition and developing countries to enhance control of eligible animal diseases, including through compensation of livestock holders, while preventing the creation of adverse incentives through overcompensation.

[163] The only emergency preparedness measure GERFAE could finance is the preparation of pre-defined and costed country emergency response plans, see a detailed discussion in section 6.1.4.1.

6. Recommendations for main operational principles for a Global Emergency Response Fund for Animal Epizootics

6.1. Principles of GERFAE

6.1.1. Rationale

A Global Emergency Response Fund for Animal Epizootics and Zoonoses (GERFAE) would be an important element of an efficient global framework for animal disease risk management. This is the conclusion of the previous section of this study, which assessed the need for and the possible role of such a fund. GERFAE would provide eligible countries with immediate funding for an emergency response to outbreaks of epidemic livestock diseases. Options for setting up such a global emergency response fund will be defined in the following sections on basis of a set of guiding principles. These guiding principles were derived from the Terms of Reference, discussions with the OIE, other relevant organisations and stakeholders, as well as an analysis of best practices.

Suggested guiding principles for a Global Emergency Response Fund for Animal Epizootics and Zoonoses (GERFAE) would include:

I. **The fund will encourage an effective and rapid emergency response for control of epidemic livestock diseases, *including through compensation of livestock holders*:** The fund shall encourage a high level of preparedness and, in case of an outbreak of relevant epidemic livestock diseases, control measures that are coordinated, rapid and simple to implement.

II. **The fund will function as a financial instrument, not as an implementing body:** The fund is a financing instrument to provide emergency funding for control measures and compensation payments to livestock holders under a pre-established framework and response plan. Financial support provided by the fund will take into account that resources to respond to an emergency should be provided as much as possible from domestic and existing bilateral or multilateral sources.

III. **The fund will promote efficient global animal disease risk management:** The global emergency response fund will deploy financial resources where needs and financing gaps are highest, and expected benefits of measures are largest. It will promote measures that minimise total costs and losses of epidemic livestock disease outbreaks over time, taking into account the costs of these measures.

IV. **The fund will focus on diseases that pose a threat to "global public goods":** The global public interest in managing risks associated with a particular animal disease depends on the possible public health, animal health and/or economic impacts of an outbreak. The global emergency response fund will therefore focus on livestock diseases that pose a threat to "global public goods", e.g. zoonoses such as AI or other highly contagious transboundary animal diseases.

V. **The fund will provide incentives for prevention and early reporting:** The global emergency response fund will provide incentives that are designed to encourage risk-reducing

behaviour of all parties involved, including national and local governments and livestock operators.

VI. **The fund will safeguard ownership of the emergency response by the affected countries:** Countries affected by an outbreak of an epidemic livestock disease should have ownership of the emergency response process and support from the global emergency response fund will be provided accordingly.

VII. **The fund will encourage sharing responsibilities and costs to the extent possible:** The financing of the emergency response has to reflect the responsibilities of the parties involved. The costs of disease control, eradication and emergency preparedness should be shared as much as possible, taking into account social aspects, i.e. affordability and social consequences.

This leads to the following recommendation for setting up a global emergency response fund:

1. ***A Global Emergency Response Fund for Animal Epizootics and Zoonoses (GERFAE) would be an important element of an efficient global framework for animal disease risk management.*** It should operate on basis of guiding principles that include:

- The fund will encourage an effective and rapid emergency response for control of epidemic livestock diseases, *including through compensation of livestock holders*;
- The fund will function as a financial instrument, not as an implementing body;
- The fund will promote efficient global animal disease risk management;
- The fund will focus on diseases that pose a threat to "global public goods";
- The fund will provide incentives for prevention and early reporting;
- The fund will safeguard ownership of the emergency response by the affected countries;
- The fund will encourage sharing responsibilities and costs to the extent possible.

6.1.2. Purpose and objectives

A global emergency response fund would be created to assist eligible countries in implementing an emergency response for control and/or eradication of epidemic livestock diseases, when domestic and existing bilateral or multilateral donor resources are insufficient.

The **purpose** of GERFAE would be to provide timely funding for a coordinated, effective and rapid emergency response to outbreaks of epidemic livestock disease for developing and transition countries lacking adequate domestic resources and capacity to combat the outbreaks.

The **specific objectives** of GERFAE would therefore be:

a) Relevant epidemic livestock disease outbreaks brought under control and/or eradicated in eligible countries;

b) Increased emergency preparedness planning concerning epidemic livestock diseases.

These objectives could be in principle achieved by two different approaches:

- *Approach A: Providing financial support to emergency response and related planning.* GERFAE would provide financial support to eligible countries in case of an outbreak of a relevant epidemic livestock disease to implement a rapid emergency response and provide financial support for emergency response planning in times without outbreaks;

- *Approach B: Providing financial support to emergency response only*. GERFAE would provide financial support to eligible countries in case of an outbreak of a relevant epidemic livestock disease to implement a rapid emergency response only. Global financial support for emergency response planning will be provided through other sources/mechanisms.

Both approaches will be analysed in the following sections. Other approaches that will not be considered are the following:

- Providing support to emergency response only, i.e. providing funds without appropriate prior emergency preparedness planning. The reasons for the need of a linkage between emergency preparedness and response are discussed in section 6.1.4.1.[164]

- Providing financial support also to general prevention and recovery measures. The reason is that these measures fall out of the scope of the study.

The overall budget of GERFAE is likely to be inadequate to cover all outbreaks of epidemic livestock disease for developing and transition countries lacking adequate resources and capacity. Therefore under both Approach A and Approach B a set of eligibility criteria has to be developed, that define whether in principle a disease, measure/activity and country is eligible for support. These are explored in the following sections. It goes without saying that even if all eligibility criteria concerning specific measures are fulfilled, budget limitations are likely to require difficult choices in allocating GERFAE's resources, that have to be facilitated by a transparent decision making process and an appropriate governance structure (see section 6.4).

6.1.3. Eligible diseases

In line with the guiding principles a global emergency response fund should focus on those livestock diseases that pose a threat to "global public goods", depending on the possible impacts of the diseases on public health, animal health and the wider economy. To employ this principle, diseases have to be categorised according to objective and transparent criteria. The following criteria can be considered relevant to categorise livestock diseases at a global level:

- The public relevance of a disease;
- The need for global coordinated action;

[164] The exclusion of this approach means in consequence, that GERFAE would not provide funds to countries on an ad-hoc basis, without prior planning process (see discussion of eligibility criteria in section 6.1.5). Although this may result in bitter decisions, this is a needed limitation as otherwise the incentives for eligible countries to do proper emergency planning would be reduced.

- The character of a disease as relevant emerging risk.

The *public relevance* of animal diseases relates to the possible impacts of a disease outbreak and consequently the public benefits involved with disease risk management.[165] The most important factors determining the impacts of diseases are:

1. *Contagiousness:* The more contagious a disease is, the higher the overall economic impact of an outbreak can be. A striking example is FMD which is considered an extremely contagious disease. The virus can be air-, soil-, animal- or equipment-borne and survive for long periods in meat and non-pasteurised dairy products.

2. *Public health impact:* Public benefits of animal health risk management also depend on whether diseases can affect human health or not. If a disease poses a threat to public health significant public benefits are associated with disease prevention, control and containment. This is most dramatically illustrated by the example of Highly Pathogenic Avian Influenza (HPAI), a contagious animal disease that potentially could lead to a human flu pandemic.

3. *Other factors:* There can be other disease characteristics that can lead to significant impacts on animal health/welfare, food security, and the wider economy. For example, if a disease is notifiable according to OIE rules, an outbreak may lead to severe animal and animal product trade disruptions with associated economic consequences (for recent examples see Part I).

Outbreaks of epidemic animal disease may therefore require public intervention, which – in line with the guiding principles – should be financed at the lowest appropriate level. Also, depending on disease characteristics, the geographic area affected by disease outbreaks will differ. Accordingly, prevention and control efforts have to be coordinated in institutions that are the best suited to cover the entire geographic area potentially affected by a disease outbreak. For certain diseases an outbreak would potentially only have economic and/or public health impacts that are regionally limited. For other diseases an outbreak could potentially have global public health and/or economic impacts or other characteristics of the disease could require global coordinated action. This ultimately leads to the categories "diseases with need for global coordinated action" and "diseases without need for global coordinated action" among the diseases classified as publicly relevant.

Taken together, the criteria *public relevance of a disease* and the *need for global coordinated action* are quite similar to the definition of transboundary animal diseases. Transboundary animal diseases (TADs) are "those [diseases] that are of significant economic, trade and/or food security importance for a considerable number of countries; which can easily spread to other countries and reach epidemic proportions; and where control/management … requires cooperation between several countries."[166] Examples of significant TADs include:

- Foot-and-Mouth disease (FMD);
- Rinderpest (RP);
- Contagious bovine pleuropneumonia (CBPP);

[165] See Civic Consulting (2006)

[166] Otte et al. (2004)

- Bovine Spongiform Encephalopathy (BSE);
- Rift Valley Fever (RVF);
- Peste de Petits Ruminants (PPR);
- Classical Swine Fever (CSF);
- African Swine Fever (ASF);
- Newcastle Disease (ND);
- Avian Influenza (AI).

The difference between the criteria for disease categorisation and the definition of TADs is mainly the aspect of regional vs. global need for action. For TADs a transboundary cooperation of several countries is required and may in some cases be sufficient, whereas under the criteria developed above (in line with guiding principle IV) only those diseases would be considered as being eligible under the global emergency response fund where a global coordinated response is needed. In some cases, however, even diseases that only have a regional impact may require global attention when financial resources for emergency response measures are not sufficiently available in the affected region. This is the case when there are clear indications for a risk of global impact if adequate disease control measures are not taken at a regional level.

Another criterion for disease categorisation is the question on whether a disease is an *emerging disease* or not. According to the OIE Terrestrial Animal Health Code, an emerging disease "means a new infection resulting from the evolution or change of an existing pathogenic agent, a known infection spreading to a new geographic area or population, or a previously unrecognised pathogenic agent or disease diagnosed for the first time and which has a significant impact on animal or public health."[167]

Many major global health scares of recent decades, for example BSE, SARS, Avian Influenza, were caused by animal diseases that had been qualified as an emerging disease at the time.

Based on these categorisation criteria a global emergency response fund could have separate windows to support the (rapid) emergency response regarding outbreaks of the following diseases (in order of priority):

> *Category 1 - Highest priority:* Emerging livestock diseases of high public relevance with a need for global coordinated action (i.e. *all* diseases fulfilling all three categorisation criteria);
>
> *Category 2 - High priority:* Other priority epidemic livestock disease(s) of high public relevance with a need for global coordinated action (i.e. *selected* diseases fulfilling the first two of the three categorisation criteria, namely public relevance and need for global action). This category may include endemic diseases that are considered a priority;
>
> *Category 3 – Exceptional support:* Under-funded diseases of high public relevance with a need for regionally coordinated action, where countries in the affected region lack adequate domestic resources and capacity to combat the outbreaks when there are clear indications for a risk of global impact if adequate disease control measures are not taken at the regional level (i.e. selected diseases fulfilling only the first of the three categorisation criteria, namely public relevance).

[167] OIE (2006a), chapter 1.1.1

The reasons to assign different priorities for support to these diseases are as follows:

Category 1: As a global emergency response fund will have limited resources compared to overall need is advisable to focus efforts on where they make the biggest difference, as is the case with emerging diseases with significant potential impacts and a need for global action.

Category 2: It is unlikely that a global emergency response fund would have the resources needed to address the significant number of TADs having a high public relevance and where there is a need for global coordinated action. It would, however, also not be appropriate to only intervene regarding emerging diseases, as a global response may in some cases also be needed for diseases such as FMD, that are endemic in some regions, to prevent major trade disruptions. Therefore the governance mechanism of a global emergency response fund would have to define and regularly update a shortlist of priority epidemic livestock diseases that would be eligible for support.

Category 3: A global emergency response fund should generally not intervene regarding diseases that only have a need for regionally coordinated action, as this is more appropriate to be financed at a regional level by relevant actors. However, in exceptional cases affected countries may lack adequate domestic resources and capacity to combat the outbreaks and there are clear indications for a risk of global impact if adequate disease control measures are not taken, e.g. by causing regional economic or civil instability. In these cases GERFAE could also intervene, if appropriate resources are available and a decision by the Governing Board is taken in this respect (see sections 6.2, mobilisation of funding, and 6.4 governance).

This leads to the following recommendation for setting up a global emergency response fund:

2. ***Eligible diseases, that may trigger support of GERFAE in case of an outbreak, should be determined on basis of the following criteria***:

- The public relevance of a livestock disease;
- The need for global coordinated action;
- The character of a livestock disease as relevant emerging risk.

Depending on the available resources a global emergency response fund could have separate windows to support the emergency response regarding outbreaks of the following diseases (in order of priority):

- *Category 1: Emerging livestock diseases* of high public relevance with a need for global coordinated action;
- *Category 2: Other priority epidemic livestock disease(s)* of high public relevance with a need for global coordinated action;
- *Category 3: Under-funded diseases* of high public relevance with a need for regionally coordinated action, where countries in the affected region lack adequate domestic resources and capacity to combat the outbreaks and there are clear indications for a risk of global impact if adequate disease control measures are not taken.

6.1.4. Eligible measures

The "disease management cycle" consists of four phases, namely:

I. *Prevention/mitigation;*

II. *Emergency preparedness;*

III. *Emergency response;*

IV. *Recovery*.

The relevant phases with respect to the operation of a global emergency response fund are mainly phases II and III, i.e. emergency preparedness and emergency response. Global financial support to general prevention and recovery measures are not considered here, as these are out of the scope of the study.

6.1.4.1. Emergency preparedness

The need for a linkage between the financial support to emergency response measures by GERFAE (see next section) and emergency preparedness measures taken by recipient countries arises from both effectiveness and efficiency considerations:

- *Effectiveness:* The effectiveness of an emergency response depends to a significant degree on the level of preparedness at an operational level reached before the onset of the emergency to enable a swift and timely response, as has been emphasised again in the Report of the Tsunami Evaluation Coalition and is also emphasised by a recent FAO/OIE case study of the Magaria outbreak of Avian Influenza in Niger. [168]

- *Efficiency:* Preparedness measures including emergency response planning are likely to reduce the costs of outbreaks of livestock diseases, including costs of culling and compensation and losses due to business interruption and loss of export markets (see Part I). An appropriate level of emergency preparedness and a linkage between emergency preparedness and emergency response is therefore part of an efficient global animal disease risk management (principle III).

For the following analysis it is therefore assumed that global financial support is available for emergency preparedness measures, provided either from GERFAE (Approach A) or through other *global* sources/mechanisms (Approach B).

Emergency preparedness measures / activities (phase II of the disease management cycle) mainly relate to *emergency response planning, financial preparedness, preparation of infrastructure,* and *training*:

[168] Tsunami Evaluation Coalition (2006); Le Brun, Y. and Fermet-Quinet, E. (2006)

Box 1: Main emergency preparedness measures (pre-outbreak)

Emergency response planning

- Strategic planning (incl. linkage to general disaster preparedness)
- Developing compensation protocols
- Developing protocol for determining a suspected outbreak
- Communication planning

Financial preparedness

- Preparation of Country Compensation Mechanism
- Setting up contingency funds/budget lines

Preparation of infrastructure

- Preparation of laboratory infrastructure for emergencies,
- Setting up of vaccine banks, if appropriate
- Equipment for field teams
- Census and registering of herds, including setting up of appropriate databases

Training

- Training of field teams (culling, disposal, disinfection, vaccination),
- Simulation exercise

Most important from the GERFAE perspective is appropriate emergency response planning, for the following reasons:

- *Financial planning and management:* Emergency response planning in recipient countries will lead to easier financial planning, management and oversight for GERFAE as the costs of predefined plans and responsibilities can be estimated to a certain extent. This may allow for better definition of funding limits per emergency if necessary given the overall resources available to GERFAE;

- *Transparency:* Emergency response planning in recipient countries will provide transparency and prevent confusion as to what GERFAE can or cannot fund and the responsibilities of other stakeholders later in the emergency response phase. This can be expected to contribute to a more efficient emergency response with a greater chance of success at a reduced cost.

Both arguments indicate the advantage of Approach A, under which GERFAE would also directly (co-)finance emergency response planning, as this would allow for the easiest feedback loops between recipient countries and GERFAE. Emergency preparedness measures other than emergency response planning should not financially be supported from GERFAE, as giving financial support to more comprehensive prevention measures could dilute the emphasis on proper emergency preparedness planning. The implementation of other emergency preparedness measures (based on the emergency planning supported by GERFAE) should be financed from other sources. It can be expected that bilateral donors, for example, will be much more likely to support specific projects, such as the improvement of the

diagnostic laboratory infrastructure, when this is based on a sound emergency response plan. Therefore, Approach A could potentially catalyse and mobilise additional financial resources for emergency preparedness, even when only planning activities are supported directly by GERFAE.

In principle Approach B is also feasible, under which GERFAE would not contribute to emergency response planning, as long as other appropriate global mechanisms provide financial support for emergency response planning and it is safeguarded that the needed information on the emergency response planning is provided to GERFAE. Without this type of linkage, however, Approach B could not be considered, as there would be insufficient data for financial planning and management for GERFAE and the allocation process in case of an emergency would be likely to be inefficient and not transparent.

This leads to the following recommendation for setting up a global emergency response fund:

3. ***Emergency response planning for outbreaks of relevant livestock diseases has to be (co-)financed by GERFAE (Approach A) or through other appropriate global mechanisms (Approach B).*** The analysis indicates the advantage of Approach A, under which GERFAE would also directly (co-)finance emergency response planning, as this would allow for the easiest feedback loops between recipient countries and GERFAE, which are needed for financial planning and management of the fund, and are likely to increase the transparency of the process. However, in principle Approach B is also feasible, if other appropriate global mechanisms provide financial support for emergency response planning and it is safeguarded that the needed information on the emergency response planning is provided to GERFAE.

6.1.4.2. Emergency response

Measures related to phase III of the disease management cycle (emergency response) include, for example:

Box 2: Main emergency response measures (post-outbreak):

Human resources:

- Recruiting and dispatching of specialized and trained field teams

Control measures:

- Stamping out (incl. culling, disposal, disinfection)
- Compensation
- Emergency vaccination (including procurement of vaccines),
- Testing and monitoring

Supporting measures:

- Communication
- Confinement
- Quarantine
- Zoning
- Movement control (including control of wildlife)
- Data collection to ensure accountability regarding the number of animals culled, vaccinated, or amount of compensation given etc., including related audit procedures

The definition of emergency response measures eligible for support can be related to and guided by the following issues:

- Defining priority emergency measures;
- Defining the level of support and possible co-financing requirements for emergency measures;
- Defining performance criteria for emergency measures.

Priority emergency measures

As has been pointed out before (see section 5.3), an essential function of a global institutional framework for animal health is to establish standards, guidelines and rules for emergency response in case of disease outbreaks. In line with its character as a financial instrument GERFAE is not expected to fulfil this function, but is expected to use the relevant standards, guidelines and rules both in developing proper emergency response planning before an outbreak and in determining priority emergency measures after an outbreak of a relevant disease. The fund management under the guidance of the GERFAE Governing Board would aim to develop three categories of measures that are likely to be defined for each eligible disease separately. These are:

1. Emergency response measures that are always eligible for support;

2. Emergency response measures that are eligible for support only under specific conditions;

3. Emergency response measures that are not eligible for support at all.

This arrangement would create transparency for parties requesting support, and would at the same time provide guidance to the fund management. It would also allow for a better estimate of required resources in case of an outbreak and would provide crucial guidance for the developing and costing of emergency response plans for eligible countries. The alternative, namely to define eligible measures for each outbreak ex-post, would increase flexibility, but could be expected to increase the administrative effort and reduce the predictability concerning the resources required.

This leads to the following recommendation for setting up a global emergency response fund:

4. ***Categories of emergency response measures that are eligible for support from GERFAE should be defined specifically for each eligible disease and then referred to and stipulated within each country emergency response plan, namely:***

- Measures that are always eligible for support;
- Measures that are eligible for support only under specific conditions;
- Measures that are not eligible for support at all.

Level of support and co-financing requirements

There are several arguments in favour of a strict co-financing requirement (in cash or kind) for emergency response measures financed by external donors:

- A co-financing requirement is a classical approach used by other global funds[169] and also within the insurance sector to reduce or deter moral hazard. If, for example, a national compensation programme for farmers was to be exclusively financed by external donors, a recipient government might be tempted to overstate for political reasons compensation values for culled livestock. This problem would likely to be less relevant in case the recipient governments has to pay part of the bill from its own budget;[170]

- A co-financing requirement guarantees the ownership of the emergency response process by the recipient government (guiding criteria VI);

- A co-financing requirement leads to a sharing of costs (guiding criteria VII);

[169] For example the Global Fund to Fight AIDS, Tuberculosis and Malaria. Other emergency funds such as the UN CERF do not apply co-financing requirements, however in these cases the problem of moral hazard is less relevant, as payments are directed to other UN bodies, and not to recipient governments.

[170] The same argument is, of course, also true for the payment of compensation by a recipient government to eligible farmers. For this reason, whenever possible, similar requirements have to be implemented in the compensation procedures, see section 6.3 below.

- A co-financing requirement reduces the overall amount of financial support required, or, alternatively, allows support for more measures than would have been the case without such a requirement.

On the other hand, there are also valid concerns regarding co-financing that are related to the practicability of this type of requirement:

- A co-financing requirement increases the administrative burden, as the contribution of the recipient government has to be documented and audited. This may increase transactions costs.

- A co-financing requirement may lead to delays in planning and response, if the recipient government does not have the required funds available when they are needed, e.g. for budgetary constraint reasons.

- A co-financing requirement may lead recipient governments to decline external assistance completely, for example in the case of low income countries, leading to a spread of disease with all related risks and costs.

In summary, these concerns relate to a possible *increase in administrative burden*, a possible *delay in the emergency response* and a possible *lack of resources of a recipient government*. Can these issues be addressed through appropriate arrangements?

The increase of the administrative burden is a serious concern and in fact experiences with programs requiring co-financing of disease control costs indicate in some cases a very significant administrative burden for recipient governments resulting from co-financing procedures. However, this is to a large extent caused by the specific definition of the co-financing requirements. For example, in the EU context the EU "Veterinary Fund" finances ex-post up to 50% of disinfection costs related to a disease outbreak as documented by the recipient government. It is clear that it is no small task to ensure a proper audit trail for the actual spending concerning a significant number of private companies contracted to disinfect various farms spread over the outbreak zone in a specific country. However, co-financing requirements could be defined in much simpler terms. Some measures financed by GERFAE will not require co-financing of the recipient government in cash, but in kind, such as the sending out of field teams for culling. Here documentation of the culling process and the number of staff involved would possibly provide sufficient evidence to document fulfilling the co-financing requirements. Also providing staff and premises for a national emergency management facility that would take over in case of an outbreak (see below) would be a contribution in kind to the emergency preparedness and response process that is relatively easy to monitor.

In other cases where a co-financing in cash could be required from the recipient government, such as for compensation payments to farmers, the disbursement process will in any case require thorough documentation and audit (see section 6.5), therefore the additional burden for documenting and auditing co-financing requirements may be less relevant. Whenever possible pre-defined flat rates could be used to calculate the GERFAE contribution to a measure. In all cases it is crucial that both GERFAE's contribution and the related co-financing requirements are defined in detail in advance in the country emergency response plan to increase transparency and allow for proper costing.

The possible delay in the implementation of emergency response measures caused by co-financing requirements could be addressed in two ways: The ideal approach is to stress the aspect of financial

preparedness in preparing the country emergency response plan and include in the plan the setting up of specific earmarked national contingency funds/budget lines to cover expected co-financing requirements of the government, which mitigate the above aspects in addition to encouraging better government emergency planning and more comprehensive ownership of the process. The other possibility is that GERFAE in some cases pre-finances the contribution of the recipient country as a loan[171] at predefined conditions regarding the pay back period and the interest rate applied. In both cases emergency response measures would not be delayed and co-financing requirements would be adhered to.

Finally, the possible lack of resources of a recipient government could be addressed through the same mechanism. If the recipient country is in principle in a position to co-finance measures, the GERFAE loan for the co-financing share of the recipient country would have to be paid back in the agreed timeframe. In case the GERFAE Governing Board decides on basis of pre-determined criteria that a country is not in a position to finance its share fully (e.g. for specific low income countries), the loans could in exceptional cases be fully or partly converted to grants (i.e. would not be repayable).

This leads to the following recommendation for setting up a global emergency response fund:

5. ***In principle, all emergency response measures that are supported from GERFAE should be co-financed in kind or in cash by the recipient country.*** Co-financing requirements may differ for specific categories of emergency response measures and have to be pre-defined within each country emergency response plan to increase transparency and reduce the administrative burden related to documentation and audit. In case of a temporary lack of resources by the recipient country GERFAE could pre-finance the country-contribution on a loan basis at predefined conditions regarding the pay back period and the interest rate applied. For specific low-income countries, individually to be agreed by the GERFAE Governing Board, co-financing requirements would be waived or apply only to a limited extent.

Performance indicators for emergency response measures

By definition emergency response is only one phase of the disease management cycle and any support from GERFAE to specific measures has therefore to be limited in time. The question is whether there should be flexibility regarding the duration of support to specific measures or not? There are examples for setting very strict time limits. Funds from UN CERF received by grantees for rapid response must be committed within three months, for example. This is in line with purpose of CERF, which is not meant to replace traditional funding channels, but rather "to mitigate the unevenness and delays of the voluntary contribution system by providing seed money for core emergency humanitarian activities in the first three months of a sudden onset crisis"[172] (see section 4.2.1). Setting time limits has some advantages, such as providing incentives for implementing a rapid response and for involving other sources of funding. On the other hand, as the emergency response to livestock diseases is complex, it seems to be very difficult to

[171] A comparable approach is taken by the Working Capital Facility of the WFP, which provides (internal) loans for the rapid implementation of emergency programmes on basis of forecast donor commitments, see section 4.2.3. Of course, providing this loans to recipient countries comes at a risk, because GERFAE would have limited leverage to enforce repayment, other than to withdraw further support.

[172] United Nations Office for the Coordination of Humanitarian Affairs 2006: Guidelines Central Emergency Response Fund (CERF) - Grant Component (this does not apply, however, for under-funded emergencies)

apply strict timelines, especially as the cluster of organisations and donor programmes working in the veterinary field is much more limited than in the humanitarian field and in several cases no other organisation may be prepared to take over from GERFAE. To set any specific time limit across all measures would very likely result in an arbitrarily chosen restriction, whereas the main criteria needs to be whether control of an outbreak is achieved.

It is therefore recommended that in the country emergency response plan for specific disease outbreaks performance indicators are defined. A valuable source in this respect is the OIE PVS instrument, in which PVS indicators are given. An example for a performance indicator would be the percentage of livestock holders that were affected by culling measures and were subsequently compensated within a given time-window. Performance indicators would be pre-agreed between the recipient country and would be monitored by GERFAE. This would form the basis for possible continuation of GERFAE assistance after the initial emergency response. The pre-agreed indicators should also reflect the duties of the recipient countries as members of relevant organisations, such as the OIE, to minimise the risk of the spread of animal diseases and to prevent, through appropriate measures, related trade disruptions as much as possible. Indicators should include aspects such as:

- Degree of collaboration with relevant international institutions such as the OIE and the FAO, e.g. as reflected in the time lag between occurrence of suspicious disease cases and the time of reporting by the affected governments and the willingness to request external technical assistance from these organisations;

- Firmness of sanitary measures to control/eradicate the disease in the shortest period possible, as reflected for example in the degree to which the pre-agreed emergency response plan is implemented in practice.

This leads to the following recommendation for setting up a global emergency response fund:

6. ***Country emergency response plans for specific disease outbreaks should define performance indicators for specific emergency measures.*** Performance indicators should be pre-agreed between the recipient country and GERFAE and form the basis for decisions to be made on a possible continuation of GERFAE assistance after the initial emergency response. Indicators should also reflect the duties of the recipient countries as members of relevant organisations such as the OIE to minimise the risk of the spread of animal diseases, e.g. through early reporting of suspicious disease cases.

6.1.5. Eligible countries

GERFAE would be targeted at developing economies and economies in transition and should ideally contribute to an increased emergency preparedness of eligible countries. One mechanism to achieve this objective to define appropriate eligibility criteria for countries that wish to receive financial support from GERFAE. Five possible eligibility criteria are explored in this section:

- The requirement to have a pre-defined and costed country emergency response plan for relevant diseases and earmarked contingency funds, for example through national budget

allocations, to co-finance these emergency response plans by countries that can financially contribute to emergency preparedness and response measures;

- The requirement to have a Country Compensation Mechanism in place to be eligible for support to compensation payments to livestock holders;

- The requirement to have conducted a PVS evaluation of the Veterinary Services and to develop a country strategy to upgrade Veterinary Service to address relevant deficits identified;

- The requirement to have a country emergency management facility in place that can coordinate measures in case of an outbreak (either specific for livestock disease outbreaks or for general emergencies);

- An upper limit relating to the level of development of a specific country, e.g. BIP/capita or any other appropriate indicator.

A pre-defined and costed country emergency response plan for relevant diseases seems to be a crucial and feasible eligibility criterion. As has been discussed above, it is a pre-condition not only for an effective and efficient response, but also for the transparent functioning of GERFAE. For those countries that can afford co-finance these plans, the additional requirement of earmarking contingency funds to partly finance emergency response measures can further catalyse and reinforce the contingency planning process and create local ownership.

The requirement to have a Country Compensation Mechanism in place to be eligible for support to compensation payments is based on best practices in many countries. It also emphasises local ownership of the process, increases accountability and reinforces pre-crises planning. This type of mechanism is especially relevant in countries that have a significant modern livestock sector. In these cases it typically involves the government and – to some extent and where existing – relevant stakeholder organisations. Examples of this type of schemes have been described in section 3. GERFAE should not provide funding to ad-hoc compensation schemes (see section 6.3 below).

The PVS-instrument is a tool to assess the quality of the Veterinary Services of a given country.[173] Currently, a significant number of OIE member states do not fulfil OIE minimum standards concerning the Veterinary Services, which increases the risk of livestock disease outbreaks and trade disruptions. The PVS instrument has been specifically developed to support countries by evaluating their Veterinary Services through an external expert team and provide a basis for developing a country strategy to upgrade Veterinary Service and address relevant deficits. A PVS evaluation of the Veterinary Services and a country strategy to address relevant deficits of its Veterinary Services seems to be a feasible eligibility criterion, especially in case the PVS evaluation is financed from outside sources.

The requirement to have a country emergency management facility in place that can coordinate measures in case of an outbreak, either specific for livestock disease outbreaks or for general emergencies, seems also to be both feasible and necessary. Such a facility has the potential to increase the overall effectiveness

[173] OIE (2006b)

of the response while in the same time providing an opportunity for a more centralised chain of command, which has proven to be essential in the fight against, e.g. Avian Influenza. It is also a suitable measure to increase the ownership of the recipient country with respect to the emergency response and to provide co-financing in kind through the provision of staff and premises for the facility.

Finally, there needs to be an eligibility criterion related to the income level of the recipient countries, as it is not the intention for GERFAE to support emergency response measures in developed countries that have a highly developed Veterinary Service and sufficient means to finance an appropriate emergency response. An appropriate maximum income level of eligible countries would have to be set in a transparent way with the aim to target countries most in need, while not excluding countries where a GERFAE intervention would make a difference. This issue is obviously of significant relevance for the operation of GERFAE, as the level at which the maximum income level is set determines the maximum number of eligible countries and the expected losses to be covered by GERFAE. This issue is further explored in section 6.2.

The above criteria would apply for countries that wish to receive financial support for *emergency response measures*. Eligibility criteria for financial support for *emergency preparedness planning* under Approach A would have to relate not to the existence of for example a country emergency response plan and an adequate management facility, but rather relate to a commitment of the country to introduce them.

This leads to the following recommendation for setting up a global emergency response fund:

7. ***It is recommended that countries have to fulfil a set of eligibility criteria to receive financial support for emergency response measures from GERFAE, namely:***

- To have in place a pre-defined and costed country emergency response plan for relevant diseases; and earmarked contingency funds to co-finance measures;
- To have a Country Compensation Mechanism in place to be eligible for support to compensation payments to livestock holders;
- To have conducted a PVS evaluation of the Veterinary Services and to develop and implement a country strategy to upgrade Veterinary Service to address relevant deficits identified;
- To have a country emergency management facility in place that can coordinate measures in case of an outbreak;

Finally, there needs to be an eligibility criterion related to the income level of the recipient countries, with a limit to be set in a transparent way with the aim to target scarce resources to countries most in need, while not excluding countries where a GERFAE intervention would make a difference.

Only in exceptional cases upon a decision of the Governing Board would GERFAE finance to a limited degree emergency response measures in specific low-income countries that do not fulfil the above mentioned criteria.

6.2. Mobilisation of funding

Initial soundings on the issue of mobilisation of funding have been undertaken with a number of potential donors including DFID in the UK, SIDA in Sweden, AusAID in Australia and relevant services of the European Commission. It should be noted from the outset that these informal soundings concerning GERFAE should not in any way be seen as a formal response from any of these organisations but they do highlight certain points:

1) It will be critical to ensure that the access point for a formal discussion on this issue is chosen with great care as there appears for the most part to be limited recognition in these broad ranging bodies of the desirability of achieving the *public good* of improved prevention and control of epizootics and zoonoses. More generally, amongst national donor agencies the desire to contribute to such a fund has to be viewed in the context of a permanent tension between – what are perceived as – the 'benefits' of bilateral support compared to support channelled through multilateral agencies.[174]

2) DFID[175] noted that it had several ongoing initiatives in the livestock sector the objective of which is to improve the livelihoods of poor livestock keepers. The view was taken that they would be more likely to respond to an initiative like GERFAE when countries had placed livestock sector development within their poverty reduction strategies. In this context it was recognised that Transboundary Animal Diseases were an important constraint to productivity and to accessing markets but there was concern that a new initiative might not adequately "address some of the fundamental policy and institutional constraints preventing existing Veterinary Services from effectively applying emergency preparedness plans. How do we enable the provision of basic Veterinary Services in rural areas, let alone TAD control?" It was also noted that complementary action was needed "to help the livestock industries in developing countries access markets once they've controlled diseases and outbreaks of diseases" and in this context it was pointed out that, "whilst hundreds of millions of euros have been spent on the control and eradication of Rinderpest, African farmers have not benefited from increased market access." Thus, it was deemed essential that disease control be driven by the powerful incentive of the prospect of increased sales and revenue for farmers and countries.

3) Beyond this, assuming the establishment of GERFAE were to be accepted there is the key issue of accountability. While donors are willing to accept a 'trust fund' managed by an intermediary such as the World Bank which 'signs off' on the accounts this may also be difficult to achieve. Thus, for example, Europeaid, the implementation arm of the EU's development policy is only willing to commit funds if the institution to which such funds are committed is considered to have financial rules equivalent to those of the Commission's own. Thus any body so established must be responsible for the utilization of funds and provide assurance of a proper audit trail. There is therefore the need to have a capacity to monitor and 'pre-vet' disbursements in a manner, which is acceptable to donors (see section 6.5 below).

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[174] Thus in January 2007 AusAID announced that it was contributing A$ 5 million to help ASEAN Plus Three countries "enhance regional preparedness for and capacity to cope with emerging infectious diseases such as avian influenza". This is part of AusAID's November 2005 commitment to contribute A$100 million over 4 years to combat the threat of pandemics and other emerging diseases within the region.

[175] Personal communication from Tim Leyland, International Animal Health and Agricultural Trade Standards Adviser, Renewable Natural Resources and Agriculture Team, Policy Division, Department for International Development (DFID), UK, January 2007.

4) Further issues (not in any particular order of importance) which were noted but not expanded on in discussions were the need to ensure that:

- The funds must be of a sufficient order of magnitude to be 'programmable';
- Recipient countries need to be involved on the basis of 'partnership' i.e. there needs to be a full buy in which will almost certainly mean national money has to be committed;
- The funds must be clearly used for the purposes intended and donors must be able to participate in a relatively straightforward manner.

In terms of the scale of the required funds, the analysis undertaken in Part I on the potential costs of an outbreak is of relevance here. The table below indicates the total direct costs and losses of HPAI under the 'most likely' scenario.

Table 18: Estimated global impact of HPAI: direct costs and losses (a) (in '000 US$)

Impact: scenario 1 (most likely)				
	Value of culled poultry	**Culling/ Disposal costs**	**Control costs**	***Total direct disease losses and control costs (a)***
Global impact, annual (i)				
scenario A (ii)	4,271,540	747,519	320,365	*5,339,425*
scenario B (iii)	4,898,934	857,313	367,420	*6,123,668*
scenario C (iv)	7,763,260	1,358,571	582,245	*9,704,075*
Global impact, total (i)				
scenario A (ii)	8,543,080	1,495,039	640,731	*10,678,850*
scenario B (iii)	9,797,868	1,714,627	734,840	*12,247,335*
scenario C (iv)	15,526,520	2,717,141	1,164,489	*19,408,151*

Source: *"OIE Del1 global costs analysis.xls"*, Agra CEAS (1 March 2007)
(a) Includes animal value losses, culling/disposal and control costs.
(i) The 'global' impact is given in a range, depending on 3 scenarios in terms of country coverage (scenarios A to C). Furthermore, it is indicated per year and in total, depending on the assumptions for duration of the impact of the epidemic. In the 'most likely' scenario presented here the duration is assumed to be 2 years (based on experience of real outbreaks in the baseline).
(ii) Scenario A includes the following countries: Cambodia, China, Indonesia, Laos, Thailand, Vietnam, S. Korea; Mongolia, Kazakhstan, Russia, Turkey, Romania; Nigeria, Niger, Sudan.
(iii) Scenario B includes the countries of scenario A plus: N Korea, Malaysia, Brunei, Myanmar, Singapore, Philippines; Bangladesh, Bhutan, India, Nepal, Sri Lanka.
(iv) Scenario C includes all OIE developing country members (132 countries in total).

Under the 'most likely' scenario of this analysis, the total direct disease losses and control costs of an outbreak are estimated to range between US$ 5.3 billion in the case of scenario A (H5N1 infected countries), US$ 6.1 billion in scenario B (infected and non-infected at immediate risk countries), and US$ 9.7 billion in scenario C (all OIE developing country members),[176] calculated on an annual basis. Using the assumptions of the duration of the epidemic impact of the 'most likely' scenario (which assumes a 2 year impact period), then the direct impact of an HPAI outbreak is estimated to range between US$ 10.7 billion (scenario A), US$ 12.2 billion (scenario B) and US$ 19.4 billion (scenario C). All these costs exclude on-farm losses from business disruption.

In the particular case of LDCs (Least Developed Countries),[177] the costs are presented separately in the Table below.

Table 19: Estimated impact of HPAI for LDCs: direct costs and losses (a) (in '000 US$)

Impact: scenario 1 (most likely)				
	Value of culled poultry	**Culling/ Disposal costs**	**Control costs**	***Total direct disease losses and control costs (a)***
Impact on LDCs, annual (i)				
scenario A (ii)	58,080	10,164	4,356	*72,600*
scenario B (iii)	206,292	36,101	15,472	*257,865*
scenario C (iv)	467,749	81,856	35,081	*584,686*
Impact on LDCs, total (i)				
scenario A (ii)	116,160	20,328	8,712	*145,200*
scenario B (iii)	412,584	72,202	30,944	*515,730*
scenario C (iv)	935,497	163,712	70,162	*1,169,372*

Source: *"OIE Del1 global costs analysis.xls"*, Agra CEAS (1 March 2007); LDC definition based on UN ESC
(a) Includes animal value losses, culling/disposal and control costs. Excludes consequential on-farm losses.
(i) The 'global' impact is given in a range, depending on 3 scenarios in terms of country coverage (scenarios A to C). Furthermore, it is indicated per year and in total, depending on the assumptions for duration of the impact of the epidemic. In the 'most likely' scenario presented here the duration is assumed to be 2 years (based on experience of real outbreaks in the baseline).
(ii) Scenario A includes the following countries (LDCs): Cambodia, Laos, Niger and Sudan.

[176] List of infected and non-infected at immediate risk of countries used in scenarios A and B respectively is based on the Global Strategy for the Progressive Control of HPAI and current status (OIE, WAHID). For full scenarios, assumptions and sources under each scenario see Part I, Annex 5.

[177] The list of LDCs is based on UN ESC.

(iii) Scenario B includes the countries of scenario A plus (LDCs): Bangladesh, Bhutan, Myanmar, and Nepal.
(iv) Scenario C includes all LDCs that are OIE developing country members (50 countries in total).

An analysis by country groups is of relevance because it was suggested in section 6.1.5 to introduce an income eligibility criterion, for example one that allows access only to LDCs. Under the most likely scenario, in the event of an HPAI outbreak the estimated direct impact (excluding consequential losses) for the LDCs as a group ranges from US$ 73 million per year in scenario A (only 4 LDCs affected) to US$ 258 million in scenario B (8 LDCs affected) and nearly US$ 600 million if all 50 LDCs were to be affected (scenario C).

The projections quoted above are estimates of total direct disease losses and control costs, and may not be equated with the financial need of GERFAE. Several factors influence the financial need of GERFAE, including:

- Income eligibility criterion concerning eligible countries;
- Eligible diseases;
- Eligible measures;
- Co-financing rate required;
- Compensation rates applied;
- Types of costs compensated.

Assuming scenario B prevails (i.e. an HPAI outbreak that touches the countries currently listed as infected and non-infected at immediate risk) and on basis of an average compensation rates at 75% and a co-financing rate for eligible countries of 50%, the total required annual budget for GERFAE regarding HPAI would amount to US$ 103 million for the LDCs affected under scenario B, or US$ 2.45 billion on a global level. This illustrates the need for decisions early on in the planning process regarding eligible disease and measures as well the income eligibility criterion for GERFAE.

It has to be underlined that the results above have to be interpreted with great care and the assumptions for each scenario, as well as the limitations of the model, have to be taken into account (see Part I). Capital needed to finance emergency response measures of GERFAE cannot be estimated easily. There may be years without any disease outbreaks in recipient countries, and periods with numerous and/or large-scale disease outbreaks, which would require significantly more funding from GERFAE. That means total capital outlays for emergency response measures during a given budgeting period are variable, and an elaborated system for managing the risk of the fund has to be developed (see section 6.6). In the mid-to long term, epidemiological models that can be used to provide information for parameters describing the spread of diseases and potential magnitude of disease losses in eligible countries have to be developed, that can be used to narrowing down the range of scenarios.

This leads to the following recommendation:

8. ***Decisions on the eligible countries, diseases and measures, the co-financing rate required; compensation rates applied and types of costs compensated have to be taken early on in the planning process of GERFAE, as this significantly impacts on the budget required.*** Due to the variability of capital requirements for emergency response measures during a given budgeting period, an elaborated system for managing the risk of the fund has to be developed.

6.3. Compensation of livestock holders

As discussed in section 6.1.5, countries eligible for GERFAE support for compensation payments to livestock holders are required to establish a Country Compensation Mechanism. Incentives of livestock holders to undertake risk management measures strongly depend on the principles according to which a Country Compensation Mechanism (CCM) operates. Therefore GERFAE should provide guidance for the operation of a CCM to ensure efficient animal disease risk management of livestock holders.

6.3.1. Effective and efficient risk management of livestock holders

6.3.1.1. What risk management of livestock holders is desired?

Before analysing how it can be achieved that livestock holders conduct effective and efficient animal disease risk management activities, it should be clarified what individual activities we refer to, i.e. what is the individual behaviour we would like to see among livestock holders. For that purpose we distinguish among four different individual risk management activities:

- Registration;[178]
- Prevention and bio-security;
- Early disclosure;
- Compliance with veterinary restrictions.

A precondition of being prepared for emergency situations and being able to immediately undertake appropriate risk management measures in crisis situations is that a Veterinary Service conceives where animals are kept in the country, how many animals, which species, and in which production system. That means Veterinary Services ideally need to have a database available providing that kind of information. Quick and reliable information transmission from Veterinary Service to livestock holders in emergency situations is much easier if livestock holders/establishments are properly identified. Locating eligible people and communicating their rights to them is also an important precondition for a compensation system to function properly.[179] Hence there are various reasons why a database of livestock holders/establishments, managed or accessible by a competent authority, has to be established; it is an important instrument of animal disease risk management. The development of this database and even more its administration requires active registration of livestock holders and their cooperation in keeping proper livestock inventory records. *Registration* is an issue in times without major outbreaks. For obvious reasons

[178] The term "registration" is here used as synonym to "identification of establishments/owners", which is a prerequisite for any system of animal identification and traceability, an important tool for animal health management in general. As Appendix 3.5.1 of the OIE Terrestrial Animal Health Code – 2006 points out, "[a]nimal identification and animal traceability (…) may significantly improve the effectiveness of: management of disease outbreaks and food safety incidents, vaccination programmes, herd/flock husbandry, zoning/compartmentalisation, surveillance, early response and notification systems, animal movement controls, inspection, certification, fair practices in trade and the utilisation of veterinary drugs, feed and pesticides at farm level." http://www.oie.int/eng/normes/mcode/en_chapitre_3.5.1.htm

[179] World Bank (2006a), p10

the entire Veterinary Service activity and capacity should be devoted to emergency response in a crisis situation, and a livestock census in such a situation may even increase the risk of disease spread.[180]

All kinds of *prevention and bio-security* activities are the second form of individual risk management which has to be mentioned here, e.g. maintaining good hygienic conditions on farms, fencing feedlots to avoid livestock contact with wild animals in regions with endemic diseases, etc. As GERFAE focuses on financing emergency response planning and emergency response measures only, prevention activities are not the central interest of this study. However guidelines for the operation of a Country Compensation Mechanism may have an effect on the willingness of livestock holders to conduct prevention and bio-security activities. Hence the operational guidelines developed here have to explicitly take into account the incentives they provide for prevention and bio-security.

The third form of individual risk management is *early disclosure*. This measure is universally critical towards effectively and efficiently managing animal disease risk. The term early disclosure comprises desired behaviour of livestock holders to regularly check the health status of their herds and immediately notify the Veterinary Service in case disease symptoms can be observed. As Gramig et al. (2006) noted,[181] "The importance of early disclosure of a disease outbreak or a suspected problem by a producer cannot be overstated." If an outbreak is reported immediately, a well functioning Veterinary Service has a chance to control and eradicate the disease quickly and to keep overall costs of the outbreak low.

Last but not least, livestock holders' *compliance with veterinary restrictions*, including emergency response measures, is an individual risk management activity to be considered here. To enable effective and efficient animal disease risk management, livestock holders have to refrain from importing animals into or exporting animals out of movement restriction zones, and they have to support emergency measures, e.g. cooperate with culling teams when the Veterinary Service instructs emergency culling. Although emergency response is governed by the Veterinary Services, the question of compliance is certainly one to be addressed here, since the operational guidelines of a Country Compensation Mechanism have an influence on the willingness of livestock holders to comply with veterinary restrictions.

6.3.1.2. How can risk management of livestock holders be achieved?

Animal disease outbreaks have serious consequences for livestock holders, e.g. animal losses, costly veterinary restrictions, decreasing demand for animal products, etc. Therefore efficient disease containment and eradication should be in the livestock holders' own interest. Despite of this, measures must be taken to ensure compliance of livestock holders, because individual risk management behaviour is costly for the individual livestock holder, and a large part of the benefits accrue to other individuals, who do not bear these costs. In economics this phenomena is referred to as externalities (see Annex 2). A very general result of economic analysis is that activities causing positive externalities are undertaken on an inefficiently low level if the decisions on these activities are made privately.[182] The reason is that private decisions are based on private cost-benefit considerations; hence external benefits are not taken into

[180] Le Brun, Y., and Fermet-Quinet, E. (2006)

[181] Gramig et al. (2006), p44

[182] See Cornes et al. (2001), chapter 3

account. Externalities justify, from an economic point of view, to assess possibilities of market intervention, which aim at adjusting individuals' decisions towards efficiency.

The most intuitive instrument to achieve that individuals undertake disease risk management measures is regulation. This simply means to establish legal standards that force individuals to undertake individual risk management activities, ideally on efficient levels. Regulation is widely used in any field where individual and collective interests may drift apart. Several preconditions have to be fulfilled however so that regulation can be used to achieve efficient individual animal disease risk management behaviour. A first precondition is that it is possible to control regulated issues. Control of individual animal disease risk management activities largely depends on the capacity of the Veterinary Service, and also on the nature of the activity considered. Early disclosure for example cannot be perfectly controlled, because it is not possible to observe permanent alertness of livestock holders regarding changes of their herd's health status. The capacity of Veterinary Services is probably the main obstacle to achieving efficient animal disease risk management of livestock holders through regulation in many developing and transition countries. Secondly, violation of regulated issues needs to be sanctioned. If non-compliance with regulation does not have negative consequences, regulation cannot be a successful instrument to achieve efficient individual risk management behaviour. Also this precondition may not be fulfilled in regulating risk management of livestock producers. Sanctioning poor backyard holders for example may not be easy to implement, particularly when violation of legal standards turns out to be very common.

A second instrument to reach efficient risk management activities of livestock holders is compensation, which is the focus of this section of the study. The compensation of costs and losses that livestock holders incur due to disease outbreaks and related control measures is an instrument to induce livestock holders to contribute to animal disease risk management, e.g. by declaring the disease and cooperating with culling teams. The compensation rules however have to be carefully designed in order to be incentive compatible. With reference to the reasoning above, which identified externalities as the cause of inefficient individual behaviour, the function of a compensation mechanism is to release some of the costs of risk management activities from the individual livestock holder. That makes individual risk management measures less costly and induces individual livestock holders to change their behaviour towards increasing risk management activities.

6.3.1.3. Set-up of a Country Compensation Mechanism

Setting up a Country Compensation Mechanism (CCM) is an eligibility criterion for countries that wish to receive financial support from GERFAE for compensation payments (see section 6.1.5). Regarding the question of what kind of organisational set-up a CCM should have to fulfil this compensation function, there is no globally valid best practice. Therefore we focus on pointing out the operating principles of a Country Compensation Mechanism, not its institutional framework.

A compensation mechanism has to work closely together with the national Veterinary Service, since emergency response measures of the Veterinary Service must be accompanied by compensation in order to be successful.[183] It could therefore even be considered that the CCM is part of a country's Veterinary Service. The state of the Veterinary Service, the existing structure and the diversity of a country's livestock sector determine the institutional arrangement of a Country Compensation Mechanism, which

[183] World Bank (2006a), p25

could be implemented with a Central Animal Health Fund, a Regional Animal Health Fund, Sector Agreements, etc. The formal integration of livestock holders, e.g. representatives of farmer's organisations, is likely to increase acceptance and performance of the Country Compensation Mechanism,[184] and is also considered best practice in existing cost-sharing schemes for epidemic livestock diseases. It is also best practice for establishing a Country Compensation Mechanism to draw on existing structures and involve stakeholder organisations as much as possible.[185]

The need for a close linkage between Country Compensation Mechanism and Veterinary Service arises from several factors. Firstly, emergency response planning of the Country Compensation Mechanism to cope with emerging compensation claims is directly related to the emergency planning of the Veterinary Service regarding culling. Secondly, the availability of data on livestock holders/establishments that provide at least approximate information about the number and species of animals in a country's regions is equally important for the Veterinary Service and the Country Compensation Mechanism, in both emergency planning and emergency response. Thirdly, actual control measures including culling are carried out under the authority of the Veterinary Services, and timely compensation requires a very close cooperation in operational terms. Finally, the availability of contingency funds/a relevant government budget line to (co-)finance emergency response measures is equally relevant for both Veterinary Services and Country Compensation Mechanism.

As compensation payments to livestock holders have led to significant problems in the past and badly designed programs can even lead to a spread of disease (see section 4 of Part III), a CCM has to operate on predefined rules that prevent the creation of adverse incentives. For this aim, however, a certain complexity of compensation rules is required (e.g. taking into account the development of market prices, see below). On the other hand simplicity and transparency are key for success of a compensation system in a developing country context, and are also prerequisites to create local ownership and involvement. The challenge will be to create compensation rules as simple as possible and define as many procedural aspects as feasible *before* a disease outbreak, while taking into account the practical realities of the country. An important role of GERFAE could be to contribute to an exchange of best practices in this respect.

This leads to the following recommendation for set up and operation of a Country Compensation Mechanism:

9. ***A Country Compensation Mechanism has to be to be adapted to a country's Veterinary Service infrastructure and livestock production structure.*** The institutional set-up of a Country Compensation Mechanism has to allow for close cooperation with the country's Veterinary Service because compensation is a key element of emergency response. In establishing a Country Compensation Mechanism, it should be drawn on existing social, political and industrial institutions in order to increase acceptance and reduce set-up costs. To avoid collusion, the use of independent financial auditors is recommended (see recommendation 25).

[184] World Bank (2006a), p10, 11

[185] Civic Consulting (2006)

6.3.2. Providing incentives for early disclosure and compliance with veterinary restrictions

6.3.2.1. Livestock holders' costs and losses of animal disease outbreaks

Operational guidelines of a Country Compensation Mechanism should encourage livestock holders to notify disease outbreaks to the Veterinary Service in due time and to comply with veterinary control measures. Analysing the incentives of livestock holders for undertaking risk management measures first of all requires understanding the economic consequences they have to bear, because these consequences, i.e. the livestock holder's costs and losses, directly depend on the risk management activities early disclosure and compliance with restrictions, which are analysed in this section. The following table provides an overview of possible costs and losses farmers may incur in case of an animal disease outbreak.

Table 20: Livestock holders' costs and losses

	Type of costs/ losses	Examples
Direct impact	*Direct disease losses and control costs*	▪ Value of culled or dead animals ▪ Costs related to culling (e.g. disposal costs) ▪ Veterinary inputs ▪ Cleansing and disinfection etc.
	Other direct production losses of livestock holders directly caused by veterinary restrictions	▪ Business interruption losses directly caused by veterinary restrictions ▪ Partial loss of animal value (e.g. through vaccination, etc.) ▪ Other expenses directly related to established restriction zones in the country (extra feeding costs, etc.)
Indirect impact	*Losses caused by ripple effects (impacts on prices and on upstream and downstream activities)*	▪ Price effects on the sales markets ▪ Loss of access to, or the opportunity to access, regional and international markets ▪ Public's loss of confidence in animal industries in their countries, or of an importer country regarding the animal health situation in the exporter country

Note: This is a shortened version of a table included in Part I.

Livestock holders incur *direct disease losses and control costs* when they are located in a culling zone. The major portion of this cost and loss category usually is the lost value of culled animals. Depending on characteristics of the livestock producer and national practices,[186] culling may imply other costs like disposal, veterinary or disinfection costs for the livestock holder.

Livestock holders incur *direct production losses* when they are directly affected by veterinary restrictions. As emergency culling usually goes along with veterinary restrictions imposed for a certain period of time, farmers located in a culling zone additionally have to bear direct production losses, e.g. business interruption losses due to temporary restocking prohibitions. Unlike direct disease losses and control costs,

[186] Throughout this section we will assume that emergency culling and disposal of culled animals is provided by the Veterinary Service, so that a livestock holder's direct disease losses and control costs predominantly consist of the value of culled and dead animals.

farmers located outside of culling zones may also have to bear direct production losses. The reason is that disease eradication and containment can require establishing a restriction zone around the culling zone. Restrictions imposed on farmers in restriction zones may be breeding prohibitions, movement prohibitions of feed and/or animals, ring vaccination, etc.

Losses caused by ripple effects are not restricted to farmers directly affected by emergency response measures. As there is no direct link between losses caused by ripple effects and livestock holder's risk management activities, they will not be considered in the analysis of incentive compatibility of a Country Compensation Mechanism. Examples for losses caused by ripple effects are price effects or losses due to the closing of export markets.

6.3.2.2. Early disclosure incentives

From an individual livestock holder's perspective, there may be a feeling of being at the mercy of animal diseases. Although prevention may reduce the probability of an infection, not much can be done when there appears to be an infection in the herd. Particularly notifying the Veterinary Service may not be seen as a risk-reducing activity: The Veterinary Service in charge would probably order culling, which means that the livestock holder would loose animals which do not yet show disease symptoms and still could have been sold on the market. From a livestock holder's perspective, early disclosure can be perceived as increasing animal disease losses. The compensation of costs and losses caused by disease outbreaks and the following emergency response measures reduces the livestock holders' costs of notifying the Veterinary Service and thus potentially induces him to actually make the decision to notify the Veterinary Service. The very existence of a proper compensation scheme has therefore to be considered a major incentive for disease reporting and possibly even early disclosure. The condition is that a good, well-publicised and respected CCM can be introduced. This is a major challenge, as experience in the livestock sector and other sectors indicate that farmers in developing countries do often not trust government compensation. Therefore assistance to eligible governments may be required not only regarding the technical details of a CCM, but also regarding a communication strategy to inform livestock holders on the system and to build up trust in the system.

The right to get compensated may induce a livestock holder to notify the Veterinary Service about suspected disease outbreaks. However early disclosure is not a discrete, but a continuous form of behaviour, since it involves the livestock holder's enduring alertness regarding his herd's health status. It is not sufficient to make sure that a livestock holder notifies suspected disease outbreaks in order to achieve efficient early disclosure behaviour. Additional incentives are needed to make sure that livestock holders frequently check their animals' health status, so that disease symptoms will be observed in an early phase of the disease outbreak.

A simple mechanism to provide incentives for alertness, thus enabling the early observation of disease symptoms is to apply different compensation rates for healthy, visibly diseased and dead animals. The compensation rate for healthy animals should be cut by half for visibly diseased animals. Dead animals should generally not be compensated at all, although there may be exceptions under specific circumstances, when dead animals have market value (and thus there is the danger they will be sold) or with diseases with high mortality rates (such as Avian Influenza) when disease control teams cannot

respond within 72 hours of disease reporting by the farm in question.[187] The differentiation between healthy, visibly diseased and dead animals does not make high demands on the culling team's veterinary skills. The rule also does not undermine the incentive compensation payments provide for disease notification, since reduced compensation rates for diseased and dead animals just reflect the reduced values of visibly diseased and dead animals on the market.

This leads to the following recommendation for the provision of incentives for early disclosure:

10. ***A Country Compensation Mechanism should compensate visibly diseased animals at half the rate of healthy animals. Dead animals should not be compensated at all,*** although there may be exceptions under specific circumstances. The compensation of culled animals as such provides incentives to notify suspected disease outbreaks to the Veterinary Service as it reduces a livestock holder's costs of disease notification, which could lead to culling of the herd. Additionally, taking into account the number of dead and visibly diseased animals provides incentives for livestock holders to regularly check the herd's health status as it imposes costs on delaying notification of suspected outbreaks.

6.3.2.3. Compliance with veterinary restrictions

Besides early disclosure, successful disease control and eradication requires imposing restrictions on livestock production in and around the location of a disease outbreak. From a livestock holder's perspective, it may be beneficial to violate these restrictions, although this behaviour could have a negative overall effect on animal disease risk. As far as compliance cannot be enforced through regulation, control and sanctioning, a Country Compensation Mechanism has to provide incentives to livestock holders to comply with veterinary restrictions. Addressing this issue first of all requires understanding in what situations and why it could be beneficial for livestock holders to violate veterinary restrictions. We distinguish between the following forms of non-compliance with veterinary restrictions:

- *Avoid culling:* Farmers located in a culling zone do not hand over their animals to culling teams;
- *Seek culling:* Farmers located outside of culling zones import animals into culling zones or intentionally attract the disease to expand the culling zone;
- *Violate restrictions:* Farmers located inside of restriction and/or culling zones do not respect movement restrictions, breeding or restocking prohibitions, etc.

The compensation guidelines developed here explicitly have to take into account the incentives they provide to livestock holders for compliance with veterinary restrictions.

[187] For a detailed discussion of the issue of compensating sick and dead animals in the context of Avian Influenza see World Bank (2006a), p15. In any case, however, compensation for dead animals has to be lower than for healthy ones and visibly diseased ones.

6.3.2.4. Lower and upper limit of compensation rates for animals culled

The determination of compensation rates is a critical issue for the incentive compatibility of a Country Compensation Mechanism, as they affect the willingness to early disclose suspected disease outbreaks and to comply with veterinary restrictions. In World Bank (2006a) it is stated that compensation rates "(…) need to be high enough to encourage farmers to engage in early and complete reporting of the disease."[188] This statement describes incentives of farmers with disease cases in their herds to early disclose these outbreaks. It is concluded that compensation rates need to meet or exceed a minimum level in order to encourage early disclosure. Such a minimum rate would also provide incentives for compliance of livestock holders with culling orders and mitigate one form of non-compliance with veterinary restrictions, namely "avoid culling".

Experience with compensation in both developing and developed countries, on the other hand, also indicate the risks of overcompensation: "[Compensation rates] need to be low enough to avoid encouraging farmers from still disease-free areas to present their animals to be culled, or others to move potentially sick birds across zones in hopes of receiving compensation in excess of prevailing market prices."[189] This notion refers to the second form of non-compliance with veterinary restrictions defined above, i.e. "seek culling", which comprises the import of animals into culling zones or the expansion of culling zones through intentional infection.

Both activities represent an intentional spread of the disease. The quote above states that a maximum compensation rate should not be exceeded in order to ensure this form of compliance with veterinary restrictions. Unlike the determination of the minimum compensation rate it is possible to exactly define an upper limit, which could definitely eliminate non-compliance with veterinary restrictions in the form of intentional infection of livestock. This upper limit for compensation simply is the market value. No rational livestock holder would seek culling of his animals when compensation would not exceed the animals' market value.[190]

This leads to the following recommendation for determining a feasible spread between minimum and maximum compensation rates:

11. ***A Country Compensation Mechanism should apply compensation rates that are sufficient to induce early disclosure and compliance with culling orders, but do not create adverse incentives for livestock holders to seek culling.*** Compensation rates for culled animals need to exceed a certain level to induce farmers to notify suspected disease outbreaks and to hand over animals to culling teams when they are located in a culling zone. They may under no circumstances be higher than market values.

[188] World Bank (2006a), p19

[189] Ibid

[190] It will be shown below that this conclusion does not hold when we include direct production losses, e.g. business interruption losses, in the analysis of incentives. However this problem cannot be solved through adjusting compensation rates, which is why we abstract from this issue for the time being.

6.3.2.5. Determining compensation rates for animals culled

The analysis of incentives shows that compensation rates generally have to be based on livestock holders' losses due to culling, i.e. on the market values of the culled animals. That implies defining compensation rates according to animal types. An animal type is defined by animal characteristics that determine the animal's market value, e.g. species, usage, sales market, age, breed, etc.[191] Every Country Compensation Mechanism should develop a scheme of animal types which basically has to fulfil two requirements: First of all the different animal types in the scheme should appropriately reflect value differences of livestock characterised by species, usage, sales market, age, breed, etc. produced in the country. The definition of animal types in the scheme secondly has to allow for an unquestionable classification of livestock produced in the country into animal types to create trust among livestock holders regarding compensation for their animals and to avoid problems in assigning animal types to livestock culled during emergency situations. These efforts result in establishing a list of animal types distinguished for the purpose of compensation through a Country Compensation Mechanism.

Next a value has to be assigned to every animal type on this list, which we will refer to as the *type-specific animal value*. Type-specific animal values have to be based on actual market prices, but a strict orientation on market prices bears problems and may not be possible anytime. First of all, the volatility of market prices is seen as a problem to create trust among livestock holders, as it would cause uncertainty regarding animal compensation values and thus undermine the incentives for early disclosure and compliance with culling orders. This valid objection suggests calculating type-specific animal values as a smoothed average of past and actual market prices and holding it constant for a certain period of time. If the compensation value is set on basis of a mix of historical and present market values, then it implies the need for good market price tracking, and a pre-determined formula, to avoid time-consuming negotiations in an emergency situation. Simplification, objectivity and transparency of compensation is a key for developing country operations, therefore as many of the related decisions should betaken prior to an emergency period (i.e. establishing price tracking mechanisms and related formulas ex-ante).

The rules determining type-specific animal values however have to allow for adjustment in order to avoid the above mentioned adverse incentives, i.e. "seek culling" in case of significant price drops,[192] and to remain incentives for early disclosure and compliance with culling order in case of price increases. Such an adjustment of type-specific animal values would have to take place when the deviation from the actual market value for that animal type exceeds a tolerable range.

Market prices for certain animals may not be determinable due to low trade volumes. In this case, we suggest defining the type-specific animal values as a share or multiple of the values of the type of the same species with the highest representation on the local market. This share or multiple value should be estimated based on prices of historical transactions of the animal type in consideration and should also be established well before an outbreak occurs.[193]

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[191] See section 3.2 in Riviere-Cinnamond (2005)

[192] World Bank (2006a), p21

[193] A similar system could be used when market prices are non-existent because the local market breaks down. Then the reference could be the nearest market which is still in operation, i.e. the neighbour market.

Particularly large farms may serve different output markets at different prices.[194] This is unproblematic as long as livestock holders serve domestic markets only, since price differences on domestic markets mainly reflect transportation costs from the farmer's point of view, and significant differences in market prices between regions have to be considered when setting compensation rates.[195] Problems however occur when livestock holders produce for export markets and export market prices systematically exceed domestic market prices. Compensation rates would need to reflect these value differences in order to be incentive compatible, which implies that type-specific export animal values would have to be determined. Compensation would then have to be based on recent sales records of the export-oriented farm to determine the share of production produced for export.[196] The degree to which it is in practice feasible to differentiate between high numbers of different type-specific animal values depends on the national circumstances. The more animal types are defined and the better current market prices are monitored, the more is safeguarded that adverse incentives for livestock holders are prevented. In practice, a Country Compensation Mechanism will in most developing and transition countries have to work with a limited number of type-specific animal values, as "simplicity is a key requirement for a compensation system".[197]

This leads to the following recommendation for the definition of animal values, which should be used as a basis for determining compensation rates for animals culled:

12. ***A Country Compensation Mechanism has to develop an unambiguous scheme of animal types representing the different values of animals produced in the country.*** For this aim type-specific animal values have to be determined, which are a smoothed transformation of past and actual local market values. The values have to be adjusted during longer outbreak situations to prevent adverse incentives resulting from large deviations between compensated values and actual market prices. Incentive compatible compensation of export-oriented farms requires developing and recording type-specific export values in case of price differences between similar animal types produced for domestic and export markets.

[194] World Bank (2006a), p8

[195] Market prices for specific animal types may differ significantly between different regional markets, especially in the case of large countries. The correct equivalent for a livestock holder's losses when his animals get culled is the market price on the nearest local market, i.e. the local market. Therefore, in case that no country-wide market value for a given animal type can be set, the Country Compensation Mechanism should base type-specific animal values on regional market prices and would have to develop and maintain records of *regional type-specific animal values* for determining compensation rates.

[196] This approach, however, would only be necessary for compensating animal losses when culling indeed affects export possibilities of export-oriented farms. Once export markets are closed due to import restrictions of other countries, compensation to export-oriented farms should be based on locally or regionally determined type-specific animal values only in order to avoid "seek culling" behaviour. Type-specific export animal values reflect supply and demand on the export markets. If only some, but not all importing countries impose import restriction, the type-specific export animal values would ideally reflect this reduction of demand, and the type-specific export animal value would approach to the corresponding domestic type-specific animal value.

[197] World Bank (2006a). Refer to pages 20-23 for a detailed discussion of market prices and price baselines.

6.3.2.6. Compensation of different livestock production sectors

In the last section general recommendations for the compensation of livestock holders have been developed in order to achieve individual risk management. The incentives for early disclosure and compliance with veterinary restrictions are generally shared among different livestock holders. In order to develop clear compensation guidelines, however, a differentiation of categories of livestock holders has to take place.

As has been mentioned before, registration is an important precondition for effective and efficient animal disease risk management, including a functioning compensation system. As it requires cooperation of livestock holders, it can be perceived as an individual risk management activity. However, in most countries a complete registration of livestock holders cannot be reached. Especially in countries with many backyard holders, registration would involve prohibitively high administrative efforts. On the other hand, registration of livestock holders/establishments is important for planning and implementing emergency response. It therefore has to be an aim of a Country Compensation Mechanism to achieve and improve livestock registration. It is therefore recommended to differentiate between individually registered and individually unregistered livestock producers. An obvious criterion based on reasonable assumptions regarding the costs and benefits of registration is farm size.[198] Hence it should be aimed at achieving registration of farms above a certain size with the Veterinary Service. To actually achieve registration of large farms, an incentive- and a regulation-based approach is recommended here.

The incentive-based approach is to determine a maximum number of livestock compensated per unregistered livestock holder in case of an outbreak, i.e. a compensation limit.[199] This would provide a clear incentive for registration to farmers. Experiences in other sectors indicate that this type of incentives work in practice. For example, in a smallholder banana crop insurance program in the Caribbean, where premiums were deducted at source from banana payments to farmers, once it was known that farmers not registering their holdings would not be compensated in the event of a claim, almost all farmers were keen to register, and the database became the most detailed informational source on banana holdings in the islands.[200] For livestock, eligibility to compensation being dependent on registration of herds could be a significant incentive to register. This could be particularly important where there are existing disincentives to register herds - e.g. potential taxation or other issues. In case of an outbreak and culling, unregistered farms exceeding this maximum number of animals would not be compensated for those animals above the maximum number. Registration would therefore be a dominant strategy of large farms over non-registration. However this is only true if the compensation limit is a credible commitment of the Country

[198] Costs mainly increase with the number of registrations, while benefits increase with the share of livestock registered. That means an efficient level of registration predominantly requires large farms to register.

[199] The maximum number of animals to be compensated would have to be defined per species. The aim of this principle is to gain control of registered farms, so that registered livestock producers are available for information transmission, for improving emergency preparedness and emergency response, and for controlling compliance with legal standards. The maximum number of animals to be compensated would need to be adjusted to the capacity of the Veterinary Service, so that the Veterinary Service can fulfil its role in animal disease risk management in an environment of a properly registered livestock industry. The Veterinary Service ultimately has to be capable of accomplishing additional control and information functions that come along with the opportunities for risk management which are provided by an increasing level of registration.

[200] This example refers to the example of, the Windward Island Crop Insurance Ltd (WINCROP), which provides banana windstorm coverage in 4 Caribbean islands. Source: Communication with authors.

Compensation Mechanism (and government). This assumption could however be questionable. A livestock holder with a large herd may assume that compensation will be provided anyway when culling occurs. That is why the credible commitment of the Country Compensation Mechanism could be complemented by legislative measures. It could be prohibited for unregistered livestock producers to hold more than a maximum number of animals. The Veterinary Service would have to enforce compliance with this legal standard, i.e. force registration or disposal of animals in unregistered farms exceeding the maximum number of animals.

This guideline would after a transition period split a country's livestock production industry into two sectors: Registered *commercial livestock producers* characterised by exceeding a certain farm size, and unregistered, *small-scale and backyard livestock holders*. The maximum number of animals is a threshold in terms of a Country Compensation Mechanism. Livestock producers exceeding this farm size will be treated as commercial livestock producers. This implies rights and duties of commercial livestock producers and the application of compensation guidelines developed for commercial livestock producers (see section 6.3.3 below). On the other hand, there are small-scale and backyard livestock producers, characterised by farm sizes falling short of the maximum number of animals to be compensated for unregistered livestock holders. The guidelines for the compensation of costs and losses of animal disease outbreaks for small-scale and backyard producers developed in section 6.3.4 (below) describe the operational principles of a Country Compensation Mechanism for the compensation of this sector.

It has to be noted that the registered commercial sector and the unregistered small-scale and backyard sector will not be equally relevant in all developing and transition countries. Registration makes only sense if it implies a certain level of official veterinary control.[201] Therefore countries with stronger Veterinary Services may set lower thresholds for the numbers of animals that can be kept without registration, i.e. increase the share of the livestock population under veterinary control. In general, the relevance of individually registered and unregistered livestock sectors would depend on the capacity of the Veterinary Service and the state of evolution of the livestock industry in the country.[202]

This leads to the following recommendation aiming at achieving an efficient level of registration of livestock producers:

13. ***A Country Compensation Mechanism should define a maximum number of animals for each specie that are compensated in case of culling, if the livestock holder is not individually registered.*** This maximum number of animals is the borderline between individually registered commercial livestock producers and small-scale and backyard livestock holders, who are not individually registered. The maximum number of animals to be compensated without registration should reflect the capacity of the Veterinary Service of the country. An appropriate borderline should be chosen so that the Veterinary Service can administer registration and fulfil its control function regarding commercial livestock producers. Unregistered livestock holders should not be compensated for culled animals above the maximum number.

[201] Official veterinary control means that the Veterinary Authority knows the location of the animals and the identity of their owner or responsible keeper and is able to apply appropriate animal health measures, as required (OIE Terrestrial Code).

[202] See Figure 2.1 in World Bank (2006a), page 10, regarding the state of evolution of the national poultry industry in various countries. If countries are very divers regarding their Veterinary Service capacity and livestock production structure, it could be considered to apply regionally differentiated maximum numbers of animals to be compensated in unregistered farms.

6.3.3. Compensation of commercial livestock producers

6.3.3.1. Compensation of animals culled

As has been pointed out before, a lower compensation rate for visibly diseased animals and dead animals provides adequate incentives for early disclosure of suspected animal disease outbreaks and for cooperation of livestock holders in the case of emergency culling. The question is whether the compensation rate for healthy animals should be equal to the type-specific animal value, or lower. Evidence from countries with Avian Influenza outbreaks has shown that a compensation rate of 50% of the animal value can be enough, if veterinary restrictions are accompanied by strong control efforts in order to prevent a violation of restrictions. A compensation rate of over 100% is generally not recommended because of the creation of adverse incentives. Based on these international experiences we suggest the following system: As we base compensation rates on type-specific animal values, which may deviate from actual market prices, *we suggest a compensation rate of at least 60% for healthy animals to prevent falling below the minimum of 50% of actual market values. For the same reason, we recommend to compensate healthy animals at a maximum rate of 90%.*

The goal of a Country Compensation Mechanism supported by GERFAE is to induce effective and efficient animal disease risk management of livestock holders. As commercial livestock producers differ in their risk management standards, it would not make sense to treat them equally. From an incentive point of view, livestock holders meeting higher (pre-defined) bio-security standards need to be treated better than others meeting lower standards, in order to provide incentives for the evolution of the livestock industry towards higher bio-security standards among commercial livestock holders. We therefore suggest providing *higher compensation rates to commercial livestock producers meeting higher pre-defined bio-security standards*. Compensation rates however have to stay within the above defined range of 60% to 90% of type-specific animal values to provide incentives for early disclosure and cooperation with culling orders without creating adverse incentives.

For that purpose we classify commercial livestock producers into three different bio-security levels, which will be referred to as low, moderate and high. As simplicity is key, the pre-defined criteria that determine a commercial farm's bio-security level need to be easily observable and verifiable, e.g. indoor keeping, fencing, all-in-all-out production documented in records, documented regular veterinary checks etc. Depending on the circumstances of the country the CCM would have to concentrate on bio-security measures for developing the classification that make a difference for the farm's risk of attracting and/or spreading animal diseases. The three bio-security levels could be reflected by compensation rates of 60% of the type-specific animal values for low bio-security farms, 75% for moderate bio-security farms and 90% for high bio-security farms for healthy animals. Visibly diseased animals should be compensated at half of this rate. It is important to have clear administrative procedures in place regarding the assessment of the bio-security level and related compensation level, as this has a financial implication for the farmer. If the assessment has to be done by the same persons (e.g. culling teams, veterinarians) who need to have the full co-operation of the farmers in the culling operation, this could lead to tensions. Distancing financial compensation decisions from the normal functions of Veterinary Services would be operationally desirable, if it is feasible, and has to be carefully planned by the CCM. As the differentiation of the compensation level depending on bio-security measures is intended as incentive for increasing bio-security of livestock holders, such a system has to be properly communicated to the farmers in advance.

This leads to the following recommendation for the compensation of commercial livestock producers' costs and losses of animal disease outbreaks:

14. ***Animal losses of commercial livestock producers due to culling should be compensated according to the bio-security level of the farm.*** Low, moderate and high bio-security farms should be compensated at rates of 60%, 75% and 90 % of the type-specific animal value for healthy animals and half of these rates for visibly diseased animals. Criteria for bio-security have to be pre-defined and communicated to farmers to provide incentives for taking the relevant measures.

6.3.3.2. Compensation of business interruption or other direct production losses

The compensation of animal losses can have a significant effect on the willingness of livestock holders to early disclose disease outbreaks, to comply with culling orders and to avoid intentional infection or movement of animals into culling zones ("seek culling behaviour"). Compensation rates have to exceed a minimum level to provide incentives for the former goals, but must not exceed a maximum level to achieve the latter goal. However, we have focused so far on animal losses. Once an animal disease outbreak is confirmed, the Veterinary Service imposes various kinds of restrictions on livestock holders in and around the origin of the outbreak. These restrictions cause various kinds of direct production losses, e.g. business interruption losses or extra feeding costs, as has been shown in Table 20.

These losses caused by veterinary restrictions have an influence on early disclosure decisions, because livestock holders know that notification may trigger various kinds of restrictions, which would affect them for an unknown period of time. This aspect is particularly important for export-oriented commercial farmers, who may permanently loose international sales markets after notification of disease outbreaks. Business interruption losses and other losses such as extra feeding costs also provide an incentive to attract the disease, i.e. "seek culling", to livestock holders, which are directly affected by veterinary (movement) restrictions but are not located in a culling zone. The reason is that during a longer disease situation business interruption losses and related losses of these livestock holders increase. If no end to the veterinary restrictions is in sight, potential losses of these farmers can only be reduced when the disease spreads and requires carrying out culling (and compensation) on their farms, too. A farmer with an infected herd could be better off than a farmer with a healthy herd located in a restriction zone. It is straightforward to see that farmers would have adverse incentives to "seek culling", since they would not have to bear no longer extra feeding costs, etc.

Other adverse incentives created by veterinary restrictions outside culling zones are incentives to violate business restrictions[203] in order to reduce direct production losses, e.g. to restock production facilities although a temporary business restriction has been imposed, or to violate movement restrictions. Especially when livestock is not infected, restrictions seem to be incomprehensible from the livestock holder's point of view.

[203] "Violation of business restrictions" is the third form of non-compliance with veterinary restrictions that has not been addressed yet. It may be difficult to distinguish from "seek culling" and "avoid culling", but such a general category is needed to capture the various sorts of veterinary restrictions and the incentives of livestock holders to violate these restrictions.

Not all of these costs and losses accrue to every livestock holder. But it is the case that all livestock holders affected by veterinary restrictions bear costs and/or losses besides the loss of animals that may have been culled under an emergency response program. The adverse incentives described here obviously cannot be solved through adjusting compensation rates for animals culled.[204] It would, however, be possible to provide compensation to livestock holders for the costs and losses directly caused by veterinary restrictions. This is referred to as the incentive-based approach. If direct production losses like business interruption or other direct losses are compensated, livestock holders would not have the above mentioned adverse incentives. A compensation of direct production losses would also provide incentives for early disclosure in addition to compensation for animals culled.[205] Compensation for direct production losses would however have to be conditioned upon the compliance with restrictions. It is important to underline that direct production losses only refers to losses such as business interruption losses that are exclusively borne by farmers directly under veterinary restriction. Other losses caused by ripple effects such as a drop in prices of livestock caused by a disease outbreak are borne by all farmers in a country or region similarly and do not have to be compensated to prevent adverse incentives.

Compensation of direct costs and losses of farmers other than the animal value is uncommon in most of the compensation systems in the world, for various reasons including the need to quantify e.g. business interruption losses. The exact amount of costs and losses caused by veterinary restrictions such as business interruption losses is hard to determine, but they certainly depend on the time period the restrictions are in force and on the farm size. That is why daily flat rates for compensating business interruption losses directly caused by veterinary restrictions are used in some existing schemes, e.g. for FMD in France.[206] In many cases, budgetary restraints will be a major reason to not even consider the possibility of compensating business interruption losses and other direct production losses of livestock holders under veterinary restrictions. However, a compensation system that only compensates the value of culled animals and therefore provides adverse incentives may cause more serious disease outbreaks and could even be more expensive than an incentive compatible system that provides more comprehensive compensation.

Instead of compensation of business interruption losses through the Country Compensation Mechanism it would be also possible to develop private insurance solutions for these losses to complement governmental compensation of the animal value. In many cases insurers consider the existence of a functioning public veterinary infrastructure and governmental compensation of the animal value a prerequisite to enter the epidemic disease insurance market. Developing complementary insurance of business interruption losses could therefore be envisaged in parallel to upgrading the veterinary system and to establishing the Country Compensation Mechanism. However, as the research for Part III indicates, this is rather a long-term perspective and in most developing and transition countries private insurance of epidemic disease losses is currently not an option.[207]

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[204] Promoting early disclosure and avoiding "seek culling" of livestock holders located within restriction but outside of culling zones would require adjusting compensation rates in the opposite direction. "Violating business restrictions" cannot be addressed at all through compensation rates for animals culled.

[205] The necessity for including direct production losses into compensation schemes has been recognised in the EU context. Civic Consulting (2006), p80-81

[206] Cassagne (2002)

[207] Please refer to sections 4 and 5 of Part III. It has also to be noted that to make a difference regarding incentives for risk management, any private insurance solution would need to be compulsory, which is an additional hurdle.

It has to be clearly understood that any system that only compensates the value of animals culled and at the same time imposes movement or other business restrictions for veterinary purposes on livestock holders, necessarily creates adverse incentives. In these cases compliance with veterinary restrictions has to be enforced by policing livestock holders. This approach can be expected to require a massive extension of control compared to an incentive-based approach, i.e. may need the deployment of police and/or military forces to support the emergency response of Veterinary Services.[208] There is some evidence that suggests that a policing approach can successfully complement limited compensation in emergency response.[209]

If a policing-approach is chosen, veterinary restrictions can possibly be enforced if a government is capable of mobilising enough forces to enforce movement restrictions. However, a policing-approach during disease outbreak situations does obviously not provide any incentives for early disclosure before the first outbreak is detected. In case compensation rates for animals culled do not provide sufficient incentives for early disclosure, this may lead to efforts of livestock holders to conceal the outbreak. The highest adverse incentive to conceal an outbreak would have farms that would face the highest production losses in case veterinary restrictions are imposed. These would be large farms and particularly export-oriented farms, which have much to loose when the official Veterinary Service notifies the outbreak to the OIE and import restrictions on their products are imposed in major markets. Although in many cases export oriented farms are said to apply higher bio-security standards than other production sectors, this indicates the need for enhanced disease surveillance in export-oriented farms under a policing approach, since they would have strong incentives to conceal suspected disease outbreaks when business interruption losses and other direct production losses are not compensated.

The following recommendations aims at achieving compliance of livestock holders with veterinary restrictions and reinforcing incentives for early disclosure:

15. ***Compliance of commercial livestock holders with veterinary restrictions can either be achieved through an incentive-based approach by also compensating business interruption and other losses caused by veterinary restrictions, or through policing of livestock holders in disease outbreak situations.*** During long outbreak situations, livestock holders under movement restrictions could be worse off than livestock holders with infected herds if only animal losses due to culling are compensated. In these cases, adverse incentives are created and compliance with veterinary restrictions has to be massively controlled through deployment of police or military forces.

16. ***If an incentive-based approach is chosen to achieve compliance with veterinary restrictions and to provide additional incentives for early disclosure, a Country Compensation Mechanism has to determine daily flat rates to compensate business interruption and other losses of livestock holders directly caused by veterinary restrictions.*** The flat rates should reflect costs and losses as precise as reasonably possible, which means they would have to depend on farm size, on the sort of restrictions in force, and on the situation of the farm affected by the veterinary restrictions.

[208] The control-based approach also implies movements of people around restrictions zones, which may not be considered as helpful for disease containment.

[209] World Bank (2006a), p24

6.3.3.3. Summary of compensation of commercial livestock holders

The following table summarises the recommendations for the compensation of commercial livestock producers and emphasizes how incentives for different individual risk management activities are provided:

Table 21: Overview of compensation principles for registered livestock producers

	Low bio-security	Moderate bio-security	High bio-security
Characteristics	Bio-security level I (Low bio-security)	Bio-security level II (Moderate bio-security)	Bio-security level III (High bio-security)
Incentives for registration	Correct registration with the Veterinary Service will be monitored and is a pre-condition for compensation payments		
Compensation rate healthy animals	60% of type-specific animal values	75% of type-specific animal values	90% of type-specific animal values
Compensation rate diseased animals	Half of the rate for health animals is compensated for visibly diseased animals, no compensation for dead animals		
Compensation ceiling	No maximum number of animals to be compensated		
Incentives for early disclosure	Half of the rate for healthy animals is compensated for visibly diseased animals, no compensation for dead animals		
Additional incentives for early disclosure and compliance with veterinary restriction	Option 1: Incentive-based approach, i.e. compensation of other direct production losses of livestock holders directly caused by veterinary restrictions (e.g. business interruption costs, extra feeding costs, partial losses in animal value) Option 2: Policing approach to monitor early disclosure an compliance with veterinary restrictions		
Incentives for bio-security	Higher compensation rates for higher bio-security levels. Compliance with level-specific bio-security requirements will be controlled		

6.3.3.4. Contract Farming

A comprehensible approach is needed for the treatment of contract farming, i.e. when the owner and the farm manager are different persons, which is sometimes the case in commercial livestock production. The compensation system developed here is based on incentive compatibility, which means that the conditions determining the amount of compensation are designed to induce risk-reducing behaviour of livestock holders, i.e. registration, early disclosure, compliance with emergency restrictions and prevention. From an economic point of view, legal ownership of farm or herd is not a relevant criterion. It is decisive that the beneficiary of compensation payments is the person that makes decisions regarding registration, early disclosure, selling animals, buying animal products, restocking, prevention, etc. Hence, a Country Compensation Mechanism should disburse compensation payments, whenever legally possible, to the person responsible for farm management decisions. Sharing rules between owner and manager should not be developed on the level of the Country Compensation Mechanism, since these could never reflect the

complexity of existing manager-owner relations regarding labour and capital input and willingness to accept risk. How payments are shared between manager and owner should be negotiated between them. [210]

6.3.3.5. Contributions of commercial livestock holders to the Country Compensation Mechanism

There is an increasing recognition in many developed countries that it is desirable to share responsibility and costs of epidemic disease outbreaks with the affected livestock sector.[211] In nearly all countries that have implemented a cost-sharing system, this is focusing on the commercial sector, as transaction costs rarely justify collecting contributions from backyard holders.[212] In most countries, collecting contributions from backyard holders is also not possible for practical and social reasons. Should GERFAE require from Country Compensation Mechanisms in eligible countries to collect contributions from the commercial sector? In the short term this does not seem to be a feasible approach, as most developing and transition countries would already struggle to register commercial livestock producers required for implementing a Country Compensation Mechanism. However, as soon as feasible the GERFAE Governing Board should consider to require CCMs from eligible countries to share costs with livestock producers.

The following sections explore possible cost-sharing rules, that could be implemented once the GERFAE Governing Board decides to introduce this requirement, possibly with a transition period during which commercial farmers' contributions to the CCM would gradually be required to increase. In the following, several possible criteria determining the individual contribution of livestock holders will be introduced and assessed.

Farm size

An appropriate criterion for determining contributions of commercial livestock holders to a Country Compensation Mechanism could be farm size, which would have to be determined according to the numbers and/or types of animals. Different approaches are possible to determine farm size. A pragmatic approach would be to determine farm size categories. The more size categories are defined, the more precise contributions could be levied. As a more precise approach a specific levy could be imposed on the farmer for each animal of a specific category, as is the case in many established cost-sharing systems. Contributions based on farm size do not have any adverse effects on the incentives provided by the compensation rules developed in the previous sections. Furthermore, they are socially acceptable, since farm size is a factor, which reflects the ability to pay contributions. Therefore farm size is a reasonable criterion for determining commercial livestock producers' contributions to a Country Compensation Mechanism.[213]

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[210] In World Bank (2006a) it is suggested to split compensation between manager and owner to protect the manager, see p9

[211] See Civic Consulting (2006)

[212] An exception to this rule is the German compensation system, which also requires backyard holders of livestock to contribute.

[213] Calculating the contributions needed to finance a CCM, has many overlaps with needs which commercial insurers would have to develop premium rates for livestock insurance products. Please refer to the comments made in section 4 of Part III.

Adding a regional risk factor

Each of the above mentioned methods for determining contributions could be used in combination with a regional risk factor. This would create opportunities to provide additional incentives for animal disease risk reducing measures which have not been addressed in the analysis on compensation principles: Location and relocation decisions. Animal disease risk is regionally different, e.g. because diseases are endemic in some regions but not in others, because livestock density and therefore the risk of infection differs regionally, etc. In order to provide incentives for locating and/or relocating in regions with lower animal disease risk, a regional risk factor could be established which increases or decreases contributions according to relative animal disease risk in the region.

It can however be perceived as socially problematic to charge additional contributions according to regional risk, because relocation decisions involve large investment and transaction costs. We therefore recommend adding a regional risk factor[214] to govern the structure of a country's livestock industry only when risk accumulation in problematic regions is seen as a main obstacle towards effective and efficient animal disease risk management in a country.

These considerations lead to the following recommendation for the determination of contributions from commercial livestock producers to a Country Compensation Mechanism:

17. ***As soon as this is feasible, the GERFAE Governing Board should require Country Compensation Mechanisms from eligible countries to share costs and responsibilities with commercial livestock producers.*** Contributions of livestock holders to the CCM according to farm size are socially acceptable and would not have negative effects on animal disease risk management of livestock producers. If regional risk accumulation is a serious issue for effectively and efficiently managing animal disease risk in a country, a Country Compensation Mechanism should apply regional risk factors that increase or decrease contributions to influence location and relocation decisions. Because of the related advantages, GERFAE should encourage cost-sharing even before it becomes a formal eligibility criteria.

6.3.4. Compensation of small-scale and backyard holders of livestock

Compensation guidelines developed in the following section apply to what we refer to as the *small-scale and backyard livestock holders*, i.e. the unregistered sector in the context of a Country Compensation Mechanism. As mentioned above, a complete registration of all livestock holders in developing and transition countries would neither be a feasible, nor an efficient measure to enhance animal disease risk management. However, registration of livestock producers creates various opportunities for improving animal disease risk management, e.g. control, information transmission and implementation of bio-security standards. It would be misleading to conclude that inducing structural changes in the livestock industries of these countries towards commercial farming necessarily decreases global animal disease risk. Traditional livestock production in developing countries is an important reservoir of genetic variability.

[214] The concept of regional risk adjustment and other elements of reaching risk-adjusted contributions to a cost-sharing scheme are discussed in depth in Civic Consulting (2006), p76-80

Furthermore it is a key factor of food security and employment for the poor population in developing and transition countries, and any government initiative to prohibit backyard holding of animals can lead to livestock owners going underground and escaping veterinary control measures.[215]

This section therefore firstly presents an approach that is new, but partly based on experiences with community-based compensation in countries such as Vietnam (see section 3.2.3). It aims at increasing animal disease risk management standards in the traditional livestock production through social accountability by introducing compensation through "production communities". As a second step, general rules for compensating backyard holders are elaborated. A Country Compensation Mechanism would have to provide for compensation of both backyard holders inside of production communities and of backyard holders where such communities do not exist, as a community approach has to be developed on the basis of existing social structures and is not always feasible (see section 6.3.4.3 below).

Independent from whether backyard holders of livestock are organised to some extent or not, it is important to recall the main criteria that separates this sector from the commercial livestock sector. In recommendation 13 (above) it was stated that a threshold has to be defined for the maximum number of livestock that is to be compensated in case the holder is not individually registered. This implies that *backyard holders of livestock are only compensated for animals that are below this threshold number, determined by the Country Compensation Mechanism*.

6.3.4.1. A social accountability approach: Compensation through production communities

Although it is unrealistic to achieve individual registration of small-scale and backyard livestock holders with the Veterinary Service in developing and transition countries, it is crucial for successful planning and carrying out of an emergency response to have some data available regarding livestock densities in different parts of the country. One way to obtain this is a regular census of livestock. Another way is to promote aggregate registration of livestock kept in one village or region, for example. The idea of the approach developed here is to formally treat these small-scale and backyard livestock holders as one entity in terms of the Country Compensation Mechanism. This entity will be referred to as a production community.

Some issues would have to be considered when a production community is defined. First of all, a representative of every production community, who functions as a link between the Veterinary Service and the Country Compensation Mechanism on the one side and the production community's livestock holders on the other side, is needed. The *production community representative* basically enables the interaction between Veterinary Service and the livestock holders needed to ensure effective and efficient animal disease risk management, e.g. transmission of knowledge and data. The production community representative would explain to livestock holders in the production community the compensation rules of the Country Compensation Mechanism, so that the incentive-based rules can result in the desired individual risk management behaviour.

Secondly, the geographical outline of a production community, which we will refer to as the *production community territory*, has to be geared to the structural circumstances relevant for animal disease risk

[215] World Bank (2006a), p5

management in the countries. Treating production communities as one entity in a framework for animal disease risk management makes sense if it actually is one element in terms of animal disease risk. That is definitely the case for small-scale and backyard flocks or herds kept in rural villages in many developing and transition countries, as these animals cannot be separated. From a risk management perspective, the flocks of 100 backyard holders kept in open sheds in a village are one risk factor, not 100 different ones. This also implies that if a production community is established, all livestock holders within the geographical scope of the production community have to be members of this production community to become eligible for compensation payments. When a production community is established, it should draw on existing social structures such as local government units or cooperatives. This would help keeping transaction costs of the formation of production communities low and also improve existing administrational structures or social networks.[216]

The production community representative would be responsible to provide data on the livestock held to the Veterinary Service. The quality of data from a production community might not be as high as from an individually registered livestock holder, but the Veterinary Service would at least have approximate data available for emergency planning and would have a contact point to promote awareness in the community. With the production community representative, members of a production community would have a contact person available for notifying disease suspicions or other problems regarding animal health risk. The organisation of production communities would therefore be a step in the establishment of animal health infrastructure in regions where such infrastructure is very limited. It could also be easily integrated into or built upon any existing network of para-veterinarians/local animal health workers or other relevant initiatives, if already existing.

This leads to the following recommendation for promoting the formation of production communities of small-scale and backyard livestock holders:

18. ***Small-scale and backyard livestock holders should be encouraged to form production communities to increase collective responsibility and communal accountability for animal health.*** The geographical outline of a production community has to reflect structural aspects of animal disease risk management. All small-scale and backyard livestock holders within this territory have to be members of the production community, which is to be encouraged through the design of compensation rules. The set-up of a production community should draw on existing administrational structures and social networks.

[216] An example of community based targeting is the Productive Safety Net Program in Ethiopia, which started in 2005 and has been designed to provide households with enough income (cash/food) to meet their food gap, and thereby protect their household assets from depletion, and to build community assets to contribute to addressing root causes of food insecurity. The program components are public works (identified by the community) and direct support. The program is targeted geographically – food insecure areas have been defined to the Peasant Association (PA) level – and community/administrative targeting, based on pre-defined eligibility criteria, where a community committee is set up by the PA to select beneficiaries and a general assembly reviews the list, amends and endorses it. A review mechanism is also in place to consider other beneficiaries for exceptional conditions and appeal committees exist at PA and at district level to handle targeting complaints. Community targeting was possible as strong community structures exist in rural areas of Ethiopia. NB: A PA is the lowest administrative level in Ethiopia. Each PA comprises approximately 1,000 households. For more information refer to the World Bank presentation "The Productive Safety Net Programme in Ethiopia", http://info.worldbank.org/etools/docs/library/207058/The%20Productive%20Safety%20Net%20Programme%20in%20Ethiopia.pdf

6.3.4.2. Incentive compatibility in the community-based compensation approach

As has been pointed out, the organisation of small-scale and backyard livestock holders as a production community could improve the performance of public risk management because it enables registration of these livestock holders in an aggregated form and increases the outreach of the Veterinary Services. A production community creates opportunities to transmit information to backyard holders of livestock; it could therefore enhance individual capabilities of risk management. The main advantage of the production community however is that it renders small-scale and backyard livestock holders, which must be considered as uncontrollable livestock producers, accountable.

This can be achieved through a community-based compensation approach. In case of an outbreak, compensation payments would have to be determined according to the animals culled in the production community. The rules for a reduction of compensation payments would also be community-based, i.e. *high numbers of visibly diseased and dead animals would reduce compensation payments to the community as a whole. The individual livestock holder however receives a fixed share of total community compensation, which represents his share in the number of animals culled as specified in the culling records.*[217] The individual livestock holder's share would not depend on the disease status of his animals at the time of culling. Therefore the individual backyard holder has a significant incentive to provide diseased and dead animals to the culling team for disposal, thereby reducing dramatically the risk for illegal sale of these animals on local markets. Every diseased or dead animal provided to the culling team would increase the share of the livestock holder in the total amount received by the production community. On the other hand, the total compensation that the production community receives will be determined according to the compensation rules described above, i.e. reduced depending on the number of diseased and dead animals in the community as a whole. This means that any diseased or dead animal reduces the amount paid per animal to all members of the production community.

This community-based compensation approach would have several advantages. Early disclosure would be in the collective interest. Each and every livestock holder in the production community would have an incentive to notify a suspected disease outbreak in case an animal with disease symptoms in the production community is seen, regardless whether it is the own animal, the neighbour's animal or any other animal on the community's territory. The reason is that in case of culling, the individual compensation payment depends on the disease prevalence in the production community territory, i.e. would be reduced when the neighbour's animals are visibly diseased or dead. This alignment of social and individual interest would greatly improve early disclosure behaviour.

As disease prevalence in a production community becomes a social issue, this promotes a collective sense of responsibility for animal health and better creates disease awareness than any educational program imposed on livestock holders. Bio-security activities of every production community member would become a communal issue, and this would guarantee that simple bio-security measures would be carried out.[218] Bio-security measures requiring investment would likely not be undertaken by individual livestock holders, e.g. to allow for a certain degree of fencing of feedlots. On the level of a production community

[217] The culling certificate for the livestock holder would only state the numbers and animal types culled. The compensation equivalent could not be determined until culling is completed and a production community culling summary is available. For details on payment procedures see section 6.5.

[218] E.g. to prevent dead birds being carried into the production community's territory by roaming dogs, etc.

however, it could be better afforded to undertake such investments. The organisation of small-scale and backyard livestock holders in production communities could therefore potentially be an instrument to promote the cooperation of livestock holders in prevention and bio-security issues.

Small-scale producers and backyard holders usually have very low or no bio-security. Many bio-security measures seem unrealistic to achieve for these production systems, e.g. closed poultry production and the like. However, there are measures to reduce animal disease risk even on a small-scale or backyard production level. Ensuring access to clean water, fencing birds' farmyards and separation of sick birds are measures that can reduce the risk of attracting Avian Influenza and that can be implemented in small-scale and backyard production systems. We recommend providing explicit incentives for improving bio-security in production communities however in order to forward the process of improving bio-security in the small-scale and backyard sector. Similarly to commercial livestock producers, we therefore suggest differentiating compensation levels in order to provide incentives for production communities to undertake those kinds of measures, e.g. participation with disease awareness programs or the like. We will denote production communities that verifiably undertake predefined measures to reduce animal disease risk as *bio-secure production communities*.

In the previous section different compensation rates within the commercial sector have been introduced, depending on the level of bio-security. It is recommended to apply a similar differentiation of compensation rates within the small-scale and backyard sector. As the mere formation of a production community is a first level of improved bio-security in this sector, compensation rates should be equivalent to moderate bio-security farms of the commercial sector. Accordingly compensation rates of bio-secure production communities should be equivalent to high bio-security farms of the commercial sector.

This leads to the following recommendation for compensating losses of small-scale and backyard livestock holders:

19. ***Animal losses due to culling incurred by small-scale and backyard holders of animals that are member of a production community should be compensated according to the bio-security level of the production community.*** Animals from production communities that do not take specific precautions should be compensated at rates of 75% of the type-specific animal value for healthy animals and half of these rates for visibly diseased animals. For production communities adhering to certain verifiable bio-security measures this rate should be increased to 90%. The compensation payment is community-based, and individual compensation therefore does not depend on the health status of the own animals, but on the health status of all animals culled in the community. This incentive structure increases collective responsibility and communal accountability for animal health.

6.3.4.3. Compensation outside of production communities

Although the organisation of small-scale and backyard livestock holders in production communities would be beneficial from a disease risk management point of view, this is an new approach at this stage and needs to be tested and evaluated in different transition and developing countries before its feasibility can be finally assessed. Experiences in countries such as Vietnam seem to indicate that it is possible to channel compensation payments through existing Communities (see section 3.2.3). However, it is clear that in

some regions or countries the formation of production communities may not be feasible at all. It requires existing social structures, which may not exist in outskirts of large cities with a high turnover of migrant population, for example. It also requires trust in existing institutions, as the incentives provided are future compensation payments, and therefore a minimum of trust is required that commitments before an outbreak will be valid after the outbreak. If no trusted institutions are available, such an approach cannot work. Furthermore some behavioural preconditions have to be fulfilled to form a production community: In an environment with an antagonised neighbourhood, the cooperation necessary among livestock holders to form a production community may not be feasible. In very sparsely populated environments, the reduction in animal disease risk caused by production communities may not justify the transaction costs of forming and running a production community.

Although the most common situation currently, an environment of atomised backyard holders of livestock is most problematic from a risk-management point of view: Backyard holders are very difficult to reach – both to increase awareness for prevention/bio-security, and for control measures in case of an outbreak. Individual compensation of unregistered livestock holders also burdens the Veterinary Service with high transaction costs of dealing with a large number of small-scale and backyard livestock holders individually. The compensation guidelines should therefore provide clear incentives for small-scale and backyard livestock holders to form production communities, if the system is assumed to be feasible in the particular country. We therefore suggest providing the lowest compensation rates compatible with early disclosure for individual compensation of unregistered livestock holders, i.e. 60% of the type-specific animal value for healthy animals.

It has to be emphasized that compliance with restrictions has to be enforced through controls and sanctions, as there is no sense of collective responsibility or of communal accountability as it is the case for livestock holders in production communities. Controls seem to be complicated as we are dealing with small-scale and backyard farmers here who may be located in remote areas, and possibilities for sanctioning are rare. For unregistered backyard holders outside of production communities, there is no alternative to enforcing compliance with restrictions other than through a policing approach.

This leads to the following recommendation for compensating losses of small-scale and backyard livestock holders outside of production communities:

20. ***Losses due to culling of animals of small-scale and backyard livestock holders outside of production communities should be compensated at rates of 60% of the type-specific animal value for healthy animals and half of this rate for visibly diseased animals.*** Low compensation rates provide an incentive for the formation of production communities, if introduced in the country. Policing of veterinary restrictions is needed however to ensure compliance of the small-scale and backyard livestock holders outside of production communities with veterinary restriction, as social control mechanisms do not exist.

6.3.4.4. Higher compensation for first notification

A compensation rate of 60% of the animal value in case of atomised backyard holders of livestock may not be sufficient to induce notification of the Veterinary Service. We do not recommend providing higher compensation rates, because we want to induce an increase of bio-security in the small-scale and backyard

sector, which only seems to be possible in the framework of production communities. However, it is possible to introduce a higher *first-notification compensation rate* of 90% of the type-specific animal value for the compensation of small-scale and backyard livestock holders. Any system of first-notification compensation rates has to be introduced on an experimental basis first and has to be evaluated carefully.

The economic justification for such a higher rate for the first individual reporting a disease outbreak is as follows: The individual decisions on notification and cooperation are quite different for a livestock holder supposed to notify a first outbreak and a livestock holder supposed to cooperate with culling. The reason is that it could be easy for livestock holders who observe disease symptoms to sell their healthy animals on the market. In contrast, it is reasonable to assume that the probability to successfully avoid culling when located in a culling zone is lower, since control measures have already commenced. Also, non-cooperation with culling orders bears an additional risk of getting sanctioned for violating legal standards. These considerations on notification and cooperation decisions suggest that minimum compensation rates aimed at inducing early disclosure would need to exceed minimum compensation rates aimed at inducing cooperation with culling teams. This is particularly the case for the very first outbreak in a region. Once an outbreak has occurred in a region, the alertness of the Veterinary Service and the awareness of consumers increases. That makes non-notification a less beneficial strategy for livestock holders. Therefore higher compensation rates for livestock holders that notify disease outbreaks in a particular region may be needed at first to provide additional incentives for early disclosure. Increased compensation rates for first notification in a region are called *first-notification compensation rates*. It has to be stressed that there is little experience so far with applying higher compensation rates for first notification, but current experience suggests the need for additional incentives, especially in the case of smallholders. As a summary document of recent FAO consultation on compensation stated, "the potential merits of rewards for reporting under certain conditions […] need to be explored. […] it is clear that the current system in many countries does not result in reporting of disease by smallholders".[219] The higher compensation rate would apply only for animals of the individual holder that reported the disease outbreak. A higher first-notification compensation rate is only recommended for backyard holders of animals. Higher compensation rates are not very likely to have significant impact on the willingness of commercial farmers to notify rapidly, as they have significant additional burdens to bear (e.g. business interruption losses), compared to which the increase in compensation for animals sculled becomes less relevant.

This leads to the following recommendation for compensating losses of small-scale and backyard livestock holders:

21. ***An additional incentive for early disclosure could be provided by a special first-notification compensation rate of 90% of the animal value for backyard holders***. First-notification compensation rates of 90% of the animal value should only be considered for the compensation of the first individual livestock holder in each region that notifies the outbreak of a particular disease.

[219] FAO (2006a), p3

6.3.4.5. Summary of compensation of backyard livestock holders

The following table summarises the guidelines for the compensation of small-scale and backyard livestock holders and emphasizes how incentives for different individual risk management activities are provided:

Table 22: Overview of compensation principles for small-scale and backyard livestock holders

	Backyard holders outside of production communities	**Backyard holders in production communities**	**Backyard holders in production communities applying bio-security measures**
Characteristics	Not registered Individual compensation	Registered through production community Community-based compensation	Registered through production community Community-based compensation Verifiably undertake predetermined risk-reducing measures
Incentives for registration	Higher compensation only possible through formation of a production community	Application of the more beneficial compensation scheme for production communities requires fulfilling registration duties	
Compensation rate healthy animals	60% of type-specific animal values	75% of type-specific animal values	90% of type-specific animal values
Compensation rate diseased animals	Half of the rate for health animals is compensated for visibly diseased animals, no compensation for dead animals		
Compensation ceiling	Maximum number of animals to be compensated per livestock holder		
Incentives for early disclosure	First-notification compensation rate of 90% of type-specific animal values for healthy animals, half of the rate for visibly diseased animals, no compensation for dead animals	Community-based compensation, i.e. the individual share of a member in the compensation paid to the community depends on the share in the number of animals culled, independent of the disease status of the individual's animals. This creates communal accountability, as the total compensation provided to the community decreases with a higher share of diseased or dead animals.	
Incentives for bio-security	Indirect incentives through incentives for registration	Higher compensation for higher bio-security level Community-based compensation creates collective responsibility for the community's animal health status	
Compliance with veterinary restrictions	Policing approach needed to ensure compliance	Communal accountability, complemented by enforcement measures (less than under policing approach)	

6.4. Governance arrangements

The governance arrangements for GERFAE should address the following issues:

1. The institutional platform chosen to host and manage GERFAE.

2. The governing bodies and structures needed to safeguard transparency, accountability and efficiency of stakeholder involvement and activities; and to review, develop, monitor and evaluate GERFAE policies, operational and funding guidelines.

3. The application process for funds and fund dispersal, and the monitoring and evaluation of these processes and implemented measures financed by GERFAE.

These points will be briefly discussed below, using examples from other functioning funds to illustrate the different governance arrangements that could be considered.

6.4.1. Designated body for hosting and managing GERFAE

There are three alternative hosting arrangements that can be considered when discussing a home for GERFAE:

- Option 1: One institution hosts and administers the fund. This would mean that one institution would take full responsibility of the day-to-day running, management and execution of GERFAE activities – e.g. for the application processes, fund dispersal, provision and replenishment – with other organisations represented in the governance structures to ensure transparency, accountability and correct implementation of guidelines. OIE, FAO and the World Bank are examples of possible hosting organizations.

- Option 2: A collaboration of agencies with one organisation functioning as Trustee. This would mean two or more agencies playing key roles in the running, management and execution of GERFAE activities, each within their respective sphere of competence. An example of this model is the Global Environment Facility (GEF), where the UNDP, UNEP and World Bank are "Implementing Agencies" of GEF functions, with the World Bank designated as Trustee of the GEF Trust Fund serving in a fiduciary and administrative capacity.

- Option 3: Two institutions host and administer distinct GERFAE activities. For example one host institution could be responsible for the emergency response planning component of GERFAE, whereas the financing of emergency response measures would be managed and administered by a second institution, as suggested under Approach B (section 6.1.2).

A fourth alternative is to set up a new home for GERFAE, but due to the cost and time implications of this, over leveraging existing experience, structures and facilities, this option will not be considered. For example the World Bank's current experience with a donor funded mechanism for the response to Avian and Human Influenza is valuable as it includes, among other measures, compensation to livestock owners. GERFAE should build upon such and other valuable institutional experiences.

An example of the first hosting arrangement is the Central Emergency Response Fund (CERF) which is hosted by the United Nations in New York, under the management of the Under-Secretary General for Humanitarian Affairs, who is also the UN Emergency Relief Coordinator and head of the UN Office for the Coordination of Humanitarian Affairs (section 4.2.1). As mentioned above an example of the second arrangement is GEF which operates, on the basis of collaboration and partnership among the "Implementing Agencies" UNDP, UNEP and World Bank, as a mechanism to facilitate "cooperation in GEF-financed activities by multilateral development banks, United Nations agencies and programs, other international institutions, national institutions and bilateral development agencies, local communities, non-governmental organizations, the private sector and academic community" in order to "assist in the protection of the global environment and promote thereby environmentally sound and sustainable economic development".[220]

The three leading agencies of GEF are designated to ensure "the development and implementation of programs and projects which are country-driven and based on national priorities" and actions that are "strongly influenced by existing national polices and sub regional and regional cooperative mechanisms". Each Implementing Agency has a particular field of competence. In addition, the World Bank is the designated Trustee of the GEF Trust Fund, holding in trust the funds, assets and receipts which constitute the GEF Trust Fund and managing and use them in accordance to GEF provisions, keeping them separate and apart from all other accounts and assets administered by the World Bank.[221]

In the context of GERFAE, to facilitate optimal coordination of emergency planning and response, both activities should be funded by one mechanism under one management structure. This makes the hosting arrangements outlined in Options 1 and 2 preferable over the third suggestion of having two agencies distinctly manage the two potential functions of GERFAE. Of the two preferred models either could be implemented. The more explicit collaboration of Option 2, where in the context of GERFAE the term "Implementing Agency" would be more accurately replaced by the title "Technical Agency", is perhaps more appropriate to further encourage streamlining of global efforts in the area of animal disease risk management and involve expert input within the more day-to-day activities of the fund. By explicitly involving agencies with core spheres of expertise to be responsible for: monitoring and supporting eligible countries in the development of their emergency planning and response plans; ensuring that necessary actions, responsibilities for planning and implementation, cost and timing estimates are appropriately defined within these plans; promoting the purpose of the fund and ensuring coordination of these plans with other related non-GERFAE funded efforts regionally and in-country; and the monitoring and oversight of GERFAE-financed measures, appears to be the more holistic approach for a coordinated and efficient animal disease risk management. By encouraging interagency collaboration in such a manner it is more likely that coordination with other donors, stakeholders and activities is safeguarded. Therefore it is recommended that one institution should manage the day-to-day running and management of GERFAE (in alignment with Approach A, section 6.1.2), possibly in a Trustee function, in close cooperation with expert Technical Agencies. In particular the Technical Agencies should monitor the preparation and development of eligible country-led emergency planning and response plans to be funded by GERFAE.

[220] GEF (2004)

[221] GEF (2004)

This leads to the following recommendation for the institutional platform for GERFAE:

22. ***GERFAE should be created through a collaboration of relevant institutions. One institution should manage the day-to-day running and management of GERFAE, possibly in a Trustee function, in close cooperation with expert Technical Agencies.*** Such an arrangement would recognize the need for institutional arrangements to optimise efficiency and cost effectiveness of GERFAE activities, ensuring emergency planning and response plans to be funded by GERFAE are country-driven, appropriately prepared and executed and part of a greater, coordinated framework of national, regional and global animal disease risk management. Existing institution expertise should be leveraged.

6.4.2. Organisational structure of GERFAE

There are many examples for the organizational structure of global funds that could be used as a template GERFAE (see section 4). Other examples are:

- **The Global Environment Facility (GEF)**:[222] GEF has an Assembly, a Council, a Secretariat and a Scientific and Technical Advisory Panel to provide appropriate advice. In addition the three Implementing Agencies have established a process for their collaboration.
    - The GEF Council is the main governing body. It is comprised of 32 member countries, including developing and developed countries, as well as those with economies in transition. The Council meets semi-annually or "as frequently as necessary at the seat of the Secretariat to enable it to discharge its responsibilities"[223]. All GEF full-size projects must be approved by the GEF Council.
    - The GEF Assembly is comprised of all the countries that are members of the GEF. It meets once every three years to review the policies and operations of the GEF on the basis of reports submitted by the Council. Amendments to the GEF Instrument – the document that established the GEF – can be made only by the Assembly.
    - The GEF Secretariat serves and reports to the Assembly and Council. It includes staff members seconded from the Implementing Agencies and coordinates the implementation of GEF activities such as projects, programs, and decisions of the Assembly and Council.
    - Implementing Agencies are responsible for creating project proposals and for managing GEF projects. They are accountable to the Council for their GEF-financed activities and for the implantation of operational policies and decisions of the Council within their respective areas of competence.

[222] Information taken from GEF (2004), p13-17

[223] GEF (2004), p14

- The Scientific and Technical Advisory Panel (STAP) provides objective scientific and technical advice to the GEF. In addition a Monitoring and Evaluation Unit conducts reviews of GEF's work and publishes lessons learned so that the GEF's effectiveness can enhanced.

- **UN Central Fund for Influenza Actions (CFIA)**:[224] The proposed CIFA, designed as a pooled funding mechanism to support a coordinated UN response to AHI, will be governed by one inter-agency Steering Committee composed of high level Avian Flu focal points for each participating agency and supported by a Secretariat[225] and an Administrative Agency (UNDP) responsible for the maintenance of the fund account, receipt of donor contributions and the disbursement of funds upon instruction of the Steering Committee. The Steering Committee will be responsible for ensuring that the CFIA operations are in line with the Terms of Reference of the fund and will develop them as appropriate detailing rules and procedures. In addition, the Steering Committee will be tasked with reviewing and approving project submission by participating UN agencies, making funding decisions by consensus, meeting once a month or anytime it should be required to do so.

It is recommended that the GERFAE should also follow the standard governance structure of a Governing Board, an Advisory Panel and a GERFAE Secretariat. The Governing Board should represent donors, eligible countries and, depending on the hosting arrangements, the leading Technical Agencies. The composition of the Board should reflect the funding efforts of all donors and the role of eligible countries and their regional organizations to encourage eligible country ownership and voice within the GERFAE function and process. It could potentially include observing or nonvoting members from other stakeholder groups that have an interest or expertise in animal health, such as the veterinarian, farmer organization, food industry community or NGOs that can assist governments in implementation of eligible measures. The Technical Agencies should be responsible for establishing the Advisory Panel, which could also include these other stakeholders groups, to provide objective scientific and technical advice to the GERFAE Governing Board.

In composing the Board membership the focus should be on securing the coordination of GERFAE-funded activities with other donor initiatives and establishing the function of GERFAE within the larger network of donors, funds and programmes. The aim is to safeguard against activity overlap, redundancy of initiatives and to ensure efficiency of coordinated action. The role of the Governing Board, with advice from the Advisory Panel and Technical Agencies, will be to ensure transparency, accountability and efficiency of stakeholder involvement and activities, and to review, develop, monitor and evaluate GERFAE policies, operational and application funding guidelines. The Governing Board can either prescribe the regularly-reviewed and updated rules of application, to then be implemented by the Secretariat on a day-to-day basis e.g. CERF, or make funding decisions by consensus and meet to do so whenever an application to GERFAE is submitted by an eligible country, e.g. such as CFIA. The minimum requirements for the GERFAE Secretariat would be at least one person with experience in

[224] Information taken from Terms of Reference for UN Central Fund For Influenza Actions (CFIA).

[225] The small Secretariat will be composed of a seconded person from one of the participating UN agencies to process requests and ensure follow up of Steering Committee decisions.

financial management and another one in procurement. However its staffing would depend on the overall governing arrangements and structure.

This leads to the following recommendation for the governance structure for GERFAE:

23. ***GERFAE should have a governance structure which includes a Governing Board, an Advisory Panel and a Secretariat.*** The structure must safeguard against overlap and redundancy of initiatives to ensure efficiency of coordinated action and to build eligible country ownership and voice within the GERFAE process. It should ensure transparency, accountability and efficiency of stakeholder involvement and activities, and review, develop, monitor and evaluate GERFAE policies, operational and application funding guidelines.

6.4.3. Application process

It is recommended that the application process of an eligible country for GERFAE funding should be developed in the future once the fund is operational by the GERFAE's Governing Board, with guidance from the Advisory Panel and Technical Agencies, in line with the fund's operational principles and eligibility criteria. This should not be designed before the governance structure and principles of operation are established.

Once designed the process should be reviewed regularly, adapted and developed as appropriate to ensure continued efficient decision making and operational activity. The established procedure must clearly outline the application, decision making and fund dispersal process for eligible recipients, i.e. the application format required, the eligibility criteria that must be met to make an application valid, e.g. the presence of a detailed, Technical Agency-approved and costed response plan covering eligible measures for funding, evidence of an eligible disease outbreak in-country etc., and who ensures these criteria are met and allows funds to be disbursed.

Given the discussions and recommendations of previous sections, GERFAE-funded measures will be implemented by recipient governments, with technical support from the Technical Agencies and other partners where appropriate, according to predefined and Governing Board/Technical Agency approved emergency planning and response plans. These plans, in addition to outlining and budgeting the practical contingency plans, will elaborate on the tasks and responsibilities of government and its implementing partners, if any, and on how funds should be disbursed to ensure maximum efficiency in plan deployment. As part of its role in defining the fund management and operational principles, the Governing Board must specify if implementing partners specified in the country plans, such as the Technical Agencies, will be eligible for direct financial support from GERFAE when these plans are mobilized, or whether funds should be channelled only to recipient governments to be redistributed to its chosen implementing partners if any.

The Governing Board must also approve regular reports on the activities of GERFAE, prepared by the Secretariat, containing the necessary information to meet the principles of accountability and transparency. In addition a Monitoring and Evaluation mechanism should be established to conduct reviews of

GERFAE-financed measures and publish lessons learned so that GERFAE effectiveness can be enhanced and the planning and response process improved at all levels.

This leads to the following recommendation:

24. ***Once the fund is operational the GERFAE Governing Board, with guidance from the Advisory Panel and Technical Agencies, must establish an application and funding process that is in line with the fund's defined operational principles and eligibility criteria.*** The process should be reviewed regularly, adapted and developed as appropriate to ensure continued efficient decision making and operational activity. In addition to regular reporting on fund activities, a Monitoring and Evaluation mechanism should be established to conduct reviews of GERFAE-financed measures to improve effectiveness and the planning and response process at all levels.

6.5. Payment procedures / monitoring

The question of payment procedures and monitoring of GERFAE payments to eligible countries can be addressed at two levels: First at the level of the fund itself i.e. the relation between the fund and recipient governments and secondly at the level of disbursement of compensation payments to livestock holders through a Country Compensation Mechanism. In both cases, it is essential that a clear audit trail is established. In the case of GERFAE itself and its relation to both donors and recipient governments it is essential that it provides for and sets aside the necessary budget and obtains the necessary expertise to ensure that the plans for fund disbursement are sound and workable i.e. there is 'pre-vetting' and that following a disbursement a verifiable audit trail exists. Establishing this type of audit trail mechanisms for recipient governments is a well-established practice of donors and will not be discussed here in depth.

The major challenge is, however, to have a similar audit trail at the level of the disbursement to the final beneficiary through the Country Compensation Mechanism that any beneficiary country will have to establish to qualify for GERFAE support (see section 6.1.5). An extensive discussion of this issue has been presented recently by the World Bank.[226] This sets out the elements needed to ensure efficient and transparent management of a compensation fund as follows:

- Provision of the legal basis for establishing responsibilities for compensation fund administration. It is clear from case studies that it is essential to ensure clear lines of responsibility and communication between the institutional structures from the central to the local level in advance of any outbreak occurring;
- Conducting a financial needs assessment (how much will compensation cost) and a regularly updated assessment of what compensation levels should be applied;
- Identification of the payment agencies needed to get the funds to the beneficiaries. This should include a delineation of how funds should flow from any compensation fund which is set up to the central implementing agency, to the local level and ultimately to the final beneficiaries;
- Deciding on the payment instruments (cash, bank transfers, vouchers, and so forth). While cash payments are generally considered most appropriate for small-scale subsistence producers for larger commercial farmers payments via the banking system are clearly more appropriate. Experience with vouchers was generally considered unsatisfactory due the issues of understanding associated with these as well as the potential difficulties of cashing in the vouchers;
- Designing the basis on which payment will be made, that is, certification. Such culling and compensation certificates should serve the dual purpose of certification of culling and evidence of receipt of cash (or if need be as a payment entitlement voucher) and should reflect ownership, date, location, category, number of birds culled, unit compensation and total compensation;
- Communication of the time frame for payment;
- Monitoring disbursements;
- Operational and financial audits.

[226] World Bank (2006a) and personal communication from Patricia McKenzie at the World Bank

The document also emphasises the importance of social accountability mechanisms: "it is […] essential to develop a strategy to engage farmers, including smallholders, in scrutiny of the official accountability processes. The participation of community-based organizations, NGOs, and citizens in general has proven to be one of the most critical factors for ensuring successful accountability arrangements and in mitigating the risk of funds being diverted." This underlines the need of the participation of stakeholder organisations in the Country Compensation Mechanism and the advantages of an community-based compensation approach, as is suggested through the introduction of "production communities", that will not only increase social accountability regarding animal health, but also regarding possible compensation payments.

An example of how control arrangements for a compensation fund for poultry have been set up in practice is the case of Albania.[227] The key elements are set out below:

- It is required that all forms to be used to record cullings and compensation claims be pre-numbered and recorded in the database of the Compensation Fund. All unused forms, as well as any invalid or incorrectly completed forms, must be returned to the Compensation Fund when the culling records are submitted.

- Compensation payments to animal owners will be in cash or by bank transfer or postal transmission. Vouchers or animal replacements are not allowed. Payments to be made within four weeks from the date of culling. *The detailed procedures given in the project document are described in the box on the following page.*

- The same document also provides detailed arrangements for reviews and audits for the Compensation Fund. These include periodic operational reviews to confirm the validity and legitimacy of the compensation payments made, based on the verification of compensation claims and payments made in randomly selected samples of villages and territories; this verification is to include: checking against the database maintained by the Compensation Fund, collecting and verifying information available and obtained at the village level, checking with individual poultry owners, checking forms and reports, etc. Financial audits are carried out in accordance with International Standards on Auditing (ISA), and the World Bank's guidelines on auditing. During project implementation, the project's financial management arrangements are to be supervised in two ways: (i) review of the project's quarterly interim unaudited financial reports and as well as the project's annual audited financial statements and auditor's management letter; and (ii) during supervision missions, review of the project's financial management and disbursement arrangements.

The example of Albania illustrates that payment procedures of Country Compensation Mechanisms are a challenge, but that also a significant body of experience is currently accumulated to provide reliable audit trails and the required accountability for donors, including for compensation of communities of smallholders. GERFAE will not only need to built on this experience, but would, through its guidelines and requirements, become an important mechanism for identifying and promoting best practices.

[227] World Bank (2006d)

Culling and Flow-of-Funds Arrangements for the Compensation Fund - Albania

The fund distinguishes between the owners of village and backyard poultry and commercial poultry holders. It is envisaged that owners of village and backyard poultry will, at the time of culling, receive a Culling Certificate noting the date and the type and number of birds culled. Each certificate is to be signed by all four members of what are termed Local Supervision Committees (LSC) and countersigned by the poultry owner. The certificate is to be completed in four copies: one for the poultry owner, one each will be attached to the village summary certificate, third will be kept at the commune/municipal administration and the fourth will be send to the Project Management Unit handling the procurement and finance management of the project. Certificates not signed by all members of the LSC and the poultry owner are considered invalid. Based on these individual poultry owner certificates, the LSC will compile a Village Summary Poultry Culling Record. All four LSC members will sign and the poultry owners will countersign this list of birds culled and their owners. Forms not signed by all four members of the LSC are invalid, and all claims included on an invalid Village Summary Poultry Culling Record are rendered invalid as well. The village summary culling record is the official record that establishes the poultry owners' right to compensation from the Compensation Fund. The summary list should be completed in 4 copies. One copy to be posted in a public space, one to be kept at the municipal/commune administration, a third copy with the attached individual certificates to be sent to the secretariat, and the fourth copy to be sent to the PMU handling the procurement and finance management.

The commune/municipality will compile a summary report based on the summary village reports. The pre-numbered commune summary forms are provided by the secretariat. The summary report is to be signed by the mayor. One copy to be sent to the PMU handling the procurement and finance management of the project. A copy with all attached summary village reports and the individual certificates to be sent to the secretariat. For village and backyard poultry owners, payment are to be made in person and in cash at the village level, in a public place. The funds for such payments will be transferred by the Compensation Fund through the banking system to the commune/municipality. The farmers will receive the compensation amounts from the commune/municipality cashier. Payment to the poultry owners will be made by the cashier and supervised by the two community representatives on the LSC, based on the village summary culling record kept by the commune/municipality and cross-checked against that kept in the village. To receive payment, each poultry owner will be required to present his/her culling certificate; the date and amount of payment is to be recorded on the certificate and countersigned by the poultry owner. All payments made to individual poultry owners are recorded on both copies of the village summary poultry culling record kept by the commune/municipality, and each poultry owner must sign for the payment received on both copies to confirm receipt of payment. These two copies of the village summary poultry culling record thus become the "village culling-and payment record". They must be signed by the commune/municipality and the two community representatives on the LSC. The commune/municipality then completes the Summary Report by entering for each village the amounts paid, by village and by type of poultry. The commune/municipality keeps one copy and submits the other to the Compensation Fund, with a copy of each village's culling-and-payment record attached.

For commercial enterprises the culling should be undertaken in the presence of the owner, a representative from the regional veterinary directorate, and one official from the commune/municipality. All three to sign the list of culled birds. The blank forms are provided by the secretariat. One copy of the form is to be kept by the owner of the commercial enterprise, the second copy is to be retained at the municipal/commune administration and the third copy is to be kept at the secretariat. For commercial poultry farmers that have bank accounts, the compensation payments are to be made through the banking system, typically through the treasury accounts. The Compensation Fund will transfer the funds to the treasury accounts, which will instruct its branches in the appropriate locations to credit the account(s) of the eligible recipients. The Compensation Fund is to inform the PMU of the dates and mounts of payments made, with appropriate documentary evidence.

Experience with other supranational compensation mechanisms such as the EU "Veterinary Fund" shows that creating an audit trail for compensation costs is feasible, but can lead to a very high administrative burden for performing the audits and also lead to significant delays. Therefore GERFAE needs to delegate as much auditing functions as possible through the use of independent financial auditors that should already be contracted when a Country Compensation Mechanism is set up, somewhat similar to the approach of the Global Fund to Fight AIDS, Tuberculosis and Malaria (see section 4.2.2). The contract would be activated once an outbreak occurs, so that during an outbreak random checks in the affected areas can be conducted to check the audit trail on an exemplary basis (i.e. before the end of the fiscal year). It would increase the feasibility of this approach if the related costs were to be included as eligible measure for which GERFAE would provide support as part of the emergency planning/response process.

This leads to the following recommendation:

25. ***Once the fund is operational the GERFAE Governing Board, with guidance from the Advisory Panel and Technical Agencies, must establish an audit and monitoring processes, taking into account experiences of the ongoing projects funded through the Global Program for Avian Influenza.*** The processes should be reviewed regularly, adapted and result in GERFAE guidelines and requirements for eligible countries. GERFAE needs to delegate as much auditing functions as possible through the use of independent financial auditors, to be contracted when a Country Compensation Mechanism is set up.

6.6. Managing the risk of GERFAE

The functions of GERFAE in global animal disease risk management have been specified before. They involve the financing of measures regarding:

- Emergency response planning;
- Emergency response measures with respect to this planning, including compensation payments to farmers affected by culling.

From a purely financial point of view, GERFAE first and foremost needs to have capital at its disposal in order to fulfil its role in global animal disease risk management, i.e. to (co-) finance the above mentioned activities.

Without adequate provisions or in the absence of risk management measures, in case of a relevant outbreak of animal disease GERFAE has to provide funds rapidly to support emergency measures in eligible countries, even before related donor contributions are received. The timing of contributions to GERFAE and the release of funds for emergency measures can therefore be expected to differ, leading to a temporary deficit:

- Donor contributions to GERFAE may increase after an outbreak, but due to the budgeting procedures of many donors, significant time lags may arise between the points in time when funds are needed and when funds are available;

- Animal diseases risk is cumulative, i.e. individual risks (of a professional farmer's herd, a production community's stock of animals, etc.) and risks of whole regions and even countries are not independent, but positively correlated. Even if GERFAE's means are on average sufficient to follow its commitments, there will be periods of high losses, when expenses exceed funds available.

The challenge is to find a financing strategy that addresses these temporary shortcomings. In case of a large global animal health crisis, GERFAE could face a structural deficit, i.e. even when assured future income is taken into account, present financial commitments cannot be financed. The challenge is to prevent structural deficits which could arise in case of a catastrophic animal disease crisis.

Risk management and financing strategies should be guided by the following principles to ensure GERFAE will be able to honour its financial commitments to eligible countries even in case of relevant large-scale/numerous animal disease outbreaks:

- The execution of re-active animal disease risk management in developing and transition countries strongly depends on the availability of GERFAE's funds;
- As it is vital for re-active animal disease risk management to immediately commence containment and eradication measures, GERFAE must always have funds available, i.e. has to have a certain amount of working capital at its disposal;
- The financing of GERFAE expenditure and expenditure risk is completely provided by donors. Monetary contributions by recipient countries are not a realistic option. Regarding financing animal disease risk, only in-kind contributions by recipient countries will be considered, or

earmarked contingency co-financing fund by recipient governments where appropriate. However these sources of financing will be considered and taken account of in each country's prepared and costed emergency response plan;

- Depending on the severity and number of outbreaks, GERFAE's working capital could be depleted within a rather short time. GERFAE has to be protected against financial incapability, since denial to follow its commitments when the fund is depleted is not a preferred option;
- No international risk pool like UN CERF exists which could provide ad hoc protection against shortcomings of GERFAE by simply entering this pool. GERFAE therefore has to find its own solution to ensure financial solvency.

The following will be discussed as possible, but not exhaustive, options that could be considered to address temporary and structural deficits:

1. Maximising initial capital available within the fund;
2. Reducing expenditures in crisis situations;
3. Contingent loans and grants;
4. Risk transfer through reinsurance and Alternative Risk Transfer (ART) instruments.

Before various risk management strategies can be considered however it is first important to understand the risk to be managed and financed.

6.6.1. Understanding and managing GERFAE financial risk

Financing emergency response planning and emergency response measures involves varying outlays of capital from GERFAE. The development of a risk management strategy to cope with these varying costs requires understanding their underlying cause and structure. Emergency preparedness must be accomplished before and independent of the occurrence of disease outbreaks to maximise the ex-ante benefits of contingency planning with respect to operational timeliness and efficiency in the event of a response and for a country to be eligible for GERFAE funds (section 6.1.5). Therefore the costs associated with emergency response planning (if Approach A is followed) can be planned for every budgetary period. They do depend on the realisation of animal disease risk, e.g. serious outbreaks of disease A in period 1 may make it necessary to allocate more funds to preparing countries for outbreaks of disease A in period 2, but for each budgetary period there is little variability in these costs during the period itself, i.e. emergency preparedness expenses are determined and known for a budget period when budget plans are developed.

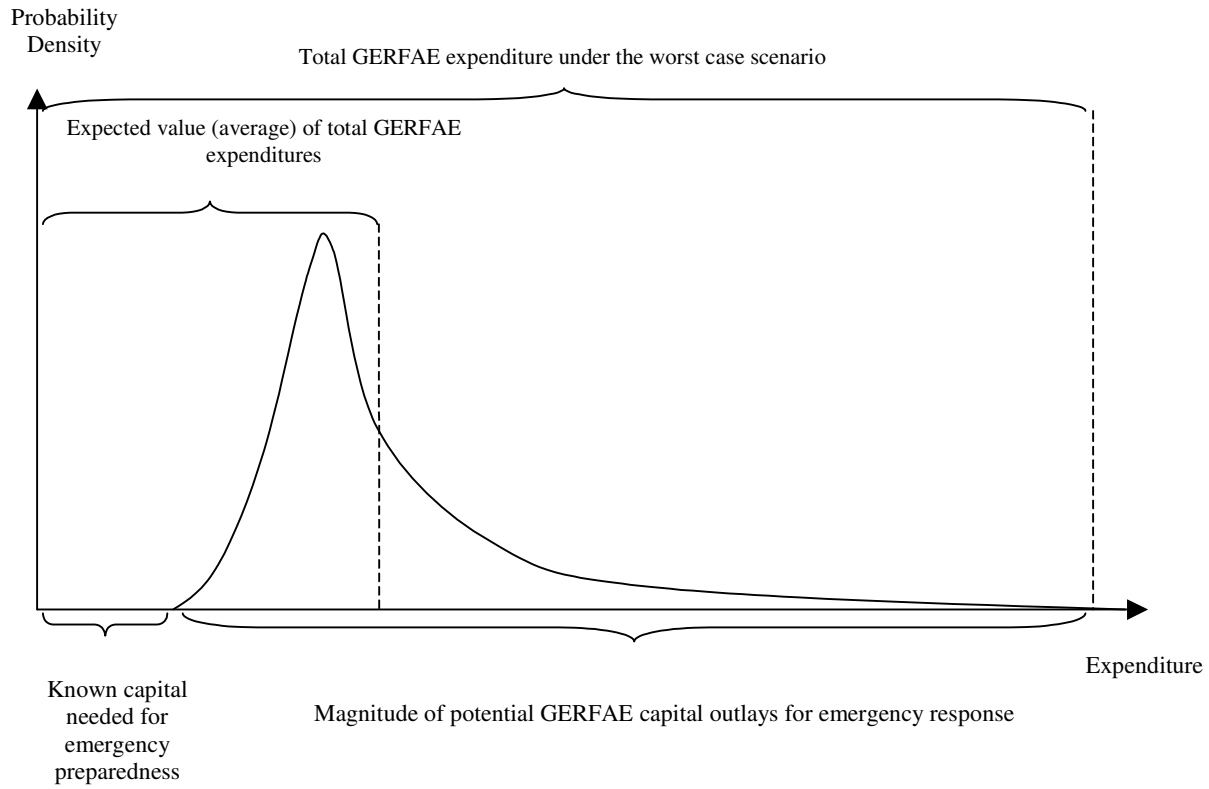
Capital needed to finance emergency response measures cannot be estimated so easily. There may be years, or budgetary periods, without any disease outbreaks in recipient countries. Conversely there also may be periods with numerous and/or large-scale disease outbreaks, which would require significantly more funding from GERFAE. That means total capital outlays for emergency response measures during a given budgeting period are variable. They are not purely stochastic, driven solely by epidemiological factors however; there is crucial human influence on the cost of emergency assistance required to thoroughly cope with animal disease outbreaks. Firstly, individual animal producers have a significant influence on the overall costs of a disease outbreak originating on their premises, since their decision to disclose the disease early could make the difference between a local and immediately contained disease

outbreak and a global animal health crisis. Secondly, national institutions in recipient countries influence animal disease risk, such as Veterinary Services, the police, agricultural ministries and farmers' associations for example. Their performance in carrying out tasks designated to them in the pre-defined emergency plans, e.g. avoiding animal movements into or out of restriction zones or comprehensively culling all animals of a certain species in a culling zone, critically determines the time it takes to eradicate a disease, the number of animals affected and hence the response cost. Thirdly, international animal health institutions (including GERFAE) can potentially influence animal disease risk. For example, these organisations may influence the quality of preparedness and response in recipient countries; their performance with respect to making funds immediately available can also determine the timeliness and success of executed emergency plans and measures in the case of an event e.g. culling, and so on.

Therefore while emergency preparedness costs are deterministic and known, expenditures for emergency response are variable and unknown for each budgetary period, which poses a risk to the financial viability of GERFAE. The clearest way to illustrate this risk is through a probability density function of potential GERFAE capital outlays during a budgetary period, see figure below. For any amount of GERFAE expenditure chosen, the probability density function gives the probability that actual GERFAE expenditure during a budgetary period will be less than or equal the chosen amount by considering the area under the probability density function to the left of that value.[228] As animal disease risk is cumulative, the probability density function is steep on the left and flat on the right. That means the probability is high that GERFAE expenditures are moderate, but there is a small probability that catastrophic disease outbreaks happen which require severe emergency measures and cause large expenditures. This is a typical characteristic of catastrophic events and of livestock disease risk (see Part III).

[228] As the area under the probability density function denotes probabilities, the total area under this function is defined as 100%, or one.

Figure 2: Hypothetical probability density function of total GERFAE expenditure in any given budgetary period



The details of how such a probability density function could be generated for actual GERFAE expenditures from epidemiological models and Monte Carlo simulations will be described later in Annex 1. However for the following discussion it should be noted that the term "worst case scenario" should refer to some statistically defined expenditure value of the probability density function, such as the 99th percentile, which is the modelled maximum expenditure expected to be exceeded only once in every 100 years. These are examples of benchmarks set by rating agencies and regulating authorities for the financial and (re)insurance industries[229] to determine capital holding requirements of institutions to reflect risk they are bearing.

6.6.2. Working capital to finance expected expenditures

It is easy to understand that GERFAE, at the least, has to have sufficient funds to finance emergency response planning (under Approach A, see section 6.1). Furthermore, if no disease outbreaks in a budget

[229] E.g. Hull (2000), p342

period are highly unlikely it is clear that a certain amount of capital is needed within the fund to finance relatively low expenditures which would be needed almost certainly. Together we define this amount as the *minimum* working capital GERFAE needs to a) finance emergency response planning activities planned for a budgetary period and b) to finance operational emergency responses needed with high probability during every budgetary period.

Of course there is also the possibility that within a given budgetary period the actual level of GERFAE emergency response expenditures for disease outbreaks exceeds the level of expenditures associated with high certainty at the beginning of the budgetary period, as illustrated by the shape of the probability density function above. A risk financing strategy should be developed that balances the size of the working capital of GERFAE in a given budgetary period with other financing options, as discussed below, to ensure the fund's financial viability throughout the spectrum of possible expenditure levels required by GERFAE. Ultimately the amount of working capital has to take into account a trade-off of different costs associated with increasing and decreasing its level.[230]

The more self-sufficient the fund, able to cope with higher levels of emergency expenditure without external financing or support, the higher the resulting required working capital to retain this risk. Increasing working capital involves expected opportunity costs of idle funds that could be needed or employed somewhere else by GERFAE or donors[231], as there is a higher the probability that GERFAE's working capital exceeds funds needed to support emergency preparedness and control measures in a certain period. Decreasing working capital increases transaction costs of arranging and activating contingent funds, because the probability that GERFAE's working capital falls short of funds needed to support emergency preparedness and control measures in a certain period increases. This implies that more or larger contingency financing arrangements are necessary to meet the defined capital reserve requirements as the probability that contingent funds are needed increases, as does the associated risk of capital in-flow delays and other administrative complications when coordinating various financing sources.

For example a straightforward risk management strategy to ensure GERFAE can cover its worst case scenario of required expenditures in a budgetary period would be for GERFAE to make an effort to accumulate high donations in order to maximize available capital to match this level. The advantage of holding a large amount of capital within the fund to cover extreme but rare events is that it would provide certainty regarding fund availability for a budgetary period. From a donors' perspective this would facilitate capital allocation and donor financial management planning, since only one donation for every budget period would be required and would avoid potential delays in capital provision, which could occur when contingency arrangements are triggered. However holding a considerable amount of capital to cover events that occur infrequently obviously involves high opportunity costs and an inefficient allocation of donors' capital. These significant disadvantages make this strategy impractical even if the capital could be mobilized from donors in the first place. Furthermore large surpluses in good periods could be a signal for donors to reduce donations in future periods, creating potential adverse incentives to GERFAE management with respect to controlling expenditures. Initial significant contributions from donors could

[230] See Syroka and Wilcox (2006)

[231] Ibid

also make it less likely that further donations could be secured from those donors if they were indeed needed.

The definition of the working capital available to GERFAE should result from a thorough analysis of the overall risk exposure of fund – i.e. a understanding of the distribution in terms of frequency and magnitude of possible GERFAE expenditures during a given timeframe – and respond to overall capital reserves it is expected to hold to cover a maximum level of expenditure during a budgetary period, as defined by the worst case scenario level in the figure above. It should consider the opportunity and transactions costs involved. It is acknowledged that this is not a straight-forward task, as discussed in Annex 1, modelling animal disease risk is a challenging activity and estimates of possible GERFAE expenditures should be treated with caution. Building simulation models that correctly capture the physical relationships between many variables, for many diseases in many countries poses significant scientific, mathematical and programming challenges and may not adequately reflect the risks being modelled. However, it is recommended that GERFAE makes headway in this regard. Studying the nature and costs of previous outbreaks, where possible, and modelling disease risk and running Monte Carlo simulations with respect to these models and budgeted contingency plans, under a range of operational implementation assumptions, is a critical first step that should underpin discussions regarding working capital allocation. Grounding such decisions in quantitative considerations, in the context of the overall risk GERFAE is willing to manage, will result in a more optimal and efficient risk financing solution for the fund in the long-term.

6.6.3. Risk financing strategies to cope with uncertain expenditures

As discussed above, if the realisation of animal disease risk in a certain budgetary period exceeds the working capital available to finance control measures in recipient countries affected by animal disease outbreaks, a strategy has to be developed to cope with such situations in which additional funds are needed.

In general, two different strategies exist. One is simply to reduce expenses; the working capital initially allocated then has to suffice under any scenario of animal disease risk realisation in the period considered. A second approach is to make arrangements for ensuring the inflow of additional funds when they are needed, i.e. contingent funding. Both strategies and options to realise theses strategies will be presented.

6.6.3.1. Reduction of expenses

If no measures are in place to secure additional contingency funds, GERFAE could stop financing re-active risk management measures when its working capital is spent or reduce funding activities when a depletion of fund capital is foreseeable in an actual crisis situation. This may be the only alternative in the case where no additional means can be mobilised in short time. A reduction of expenditures would have to follow a prescribed procedure, which makes sure that the most crucial emergency measures are still undertaken before completely running out of capital rendering GERFAE incapable of action.

As soon as the depletion of working capital due to large-scale or numerous animal disease outbreaks can be foreseen, pending measures have to be chosen according to expected benefits per unit of expected financial support by GERFAE. In such a situation, GERFAE would be principally able to support any bulk of measures whose sum of expected financial support is smaller or equal to the remaining funds. However it is not possible to establish this profitability-ranking through individually assessing single emergency

measures, since cross-effects have to be taken into account. Cross-effects capture the fact that expected benefits of certain emergency measures depend on the execution of other measures. That means individual measures cannot be ranked, but there is a choice between financially feasible bundles of emergency measures, i.e. emergency programs. When the depletion of working capital is foreseeable, GERFAE should choose that financially feasible emergency program(s) which maximise expected benefits.

It must be noted that decisions in an emergency situation are not reached in such a formal and technical way as depicted here. However, the aim of maximising benefits under budget constraints is a reasonable guideline for decision-making. Some advantages of this strategy are that critical operations are not completely halted. Plus operating with a fixed amount of capital for each budgetary period provides certainty regarding fund availability and emergency measures affordable in that period. The obvious disadvantage is that a reduction of expenditures in crisis situations is inefficient. Efficiency of emergency programs is the key concern of GERFAE when these programs are planned and prepared. The omission to implement some of these programs or parts of them due to a lack of resources in emergency situations, for which these programs have been designed, is therefore inefficient and wasteful. Furthermore a reduction of expenditures reduces the income and welfare of the population in recipient countries where the omitted measures should have been undertaken. Omitting efficient emergency measures could ultimately burden other countries or even global animal production and population.

If a need to reduce expenditures is foreseeable, GERFAE should make sure that the worst scenarios can be avoided, i.e. remaining funds should be deployed for containment measures to avoid a large-scale disease spread. Although every crisis situation is different, GERFAE should anticipate situations with serious budget constraints. The guiding question is how disease containment can be ensured without sufficient means to carry out prearranged emergency programs. That means the above mentioned prescribed procedure which makes sure that the most crucial emergency measures are still undertaken, before running fully out of capital and being incapable of action, should be seriously designed for various outbreak scenarios and different amounts of remaining capital.

It should be noted that the need to focus on the most crucial emergency measures could lead to an animal health policy which is perceived as unfair. This could happen when means are insufficient to fund eradication (compensation among other measures) in a certain country with high disease prevalence, and the decision is reached to focus on containing the disease spread, e.g. through applying emergency vaccination and intensifying border control. GERFAE has to make sure that it can apply a policy which may be perceived as unfair, and consider what such a policy would mean for future compliance of the deprived country with international animal health standards and GERFAE's requirements.

It has to be emphasized that a reduction of expenditures may be necessary even if arrangements to ensure additional funding have been made. In a case when contingent funding is not sufficient to finance required expenditures, which may be realistic under a catastrophic scenario beyond those envisioned and planned for through rigorous modelling analysis. Hence considering procedures for a reduction of expenses may be a worthy exercise nevertheless.

6.6.3.2. Contingent funding

The aim of contingent funding is to ensure that additional funds are available when they are needed, i.e. in situations when the working capital available is insufficient. We distinguish between three broad contingent funding options, namely:

- Contingent grants from donors;
- Contingent loans from donors, international organizations or banks;
- Risk transfer via insurance or Alternative Risk Transfer (ART) products.

Other options are also possible, although an exhaustive list of risk financing solutions is beyond the scope of this document. The question arises as to why ex-ante contingent agreements should be arranged at all as opposed to negotiating capital provision when capital is needed, i.e. ex-post, once a severe disease outbreak or outbreaks have occurred. The answer is that it allows for *timely* and *reliable* financing, with funds made available immediately under the specifications of a contingency agreement. The timing of funding is critical to the efficient response and deployment of emergency measures, and the security of sufficient funding when needed is a strong incentive for efficient and thorough contingency planning and emergency preparedness. Ex-ante negotiations save time and budgetary surprises in moments when time and money is most scarce.[232]

Before presenting the options, special attention has to be devoted to the mechanism that activates contingent funds and if necessary the amount of funds made available. This mechanism requires a variable, known as index, and the determination of a certain value of that variable, known as a trigger. The specified index can be monitored throughout a budgetary period, and as soon as it reaches its pre-determined trigger value, contingent funding can be activated and funds made available so that operations can continue without financing-gap interruptions.

It is self-evident that the index and trigger have to correlate with GERFAE's expenditure and capital requirements for contingent funding to provide a sufficient "hedge" against GERFAE's expenditure risk; that is to effectively mitigate the risk of exhausting the capital available to GERFAE and therefore the cessation of critical emergency response and preparedness activities. Different sorts of underlying indices can be distinguished. In order to introduce the critical aspects and issues associated with defining an appropriate index, it is useful to present the two extremes of conceivable triggers to motivate the discussion: a trigger based on objective and independently verifiable parametric index versus using actual or estimated GERFAE expenditure as an underlying index to trigger contingency funds. Possible triggers and indices will be discussed subsequently in Annex 1. This discussion is most relevant in the context of risk transfer arrangements with the international risk markets, but should also be considered for other donor-based financing options.

Contingent grants from donors

Agreements could be arranged in which donors commit to provide contingent grants to GERFAE under specific triggering conditions. Contingent grants would be described by an ex ante agreement regarding the conditions under which an additional grant is due and its amount. Contingent grants are conceivable without determination of conditions before hand however, i.e. ad hoc grants where GERFAE would solicit additional funding from donors when its internal funds were on the verge of depletion after a serious disease outbreak(s). This unsystematic fund-raising during or after crisis situations is a predominant way international disaster aid is financed.[233] It can be interpreted as contingent grant financing since it depends

[232] Doherty (2000), p414 – 416.

[233] See United Nations (2005) for an example of how these issues of funding are beginning to be tackled for humanitarian emergency aid.

on the occurrence of a crisis situation, although the contingency is not specified, formalized or secured in an ex ante manner. Preventing temporary insolvency of GERFAE cannot be guaranteed through relying solely on such unsystematic, ad hoc contingent grants and donations.

The aim of being able to access additional funds is to ensure that capital is provided when it is needed to finance emergency measures in recipient countries. Therefore GERFAE has to have well-established channels to donors in order to ensure rapid capital provision in case of an emergency situation. In case of ex ante specified contingency agreements, proper triggers and payment procedures can prevent temporary incapability of action, although these must be carefully specified to ensure that contingent donations are granted in a timely manner. A discussion of possible triggers and the requirements associated with them is discussed in Annex 1. Establishing well-functioning structures between GERFAE and potential donors from the outset will also be necessary to ensure appropriate budgeting and capital allocation for donors to be able to perform their contingency financing function well. This approach aims to bring at least some form of security for GERFAE into the often unsystematic and unpredictable arena of donor emergency fund raising.

A comprehensive, systematic contingency grant program could completely avoid temporary financial deficits for the fund. Whenever GERFAE expenditures reach a critical level, a trigger could be activated and new capital provided. By assuring a volume of contingent grants for a budgetary period the program would also provide certainty regarding how much capital can be raised and what kind of emergency measures can be afforded in the period considered, which allows for efficient and optimal allocation of GERFAE capital. In contrast, ad hoc contingent grant financing bears uncertainty regarding funds available and therefore emergency measures that can be undertaken. The availability of guaranteed contingency grant arrangements could allow for a reduction in the fund's working capital, promoting a more efficient use of the resources. A further advantage of being purely grant financed is that no additional claims to refinance loan-financed losses of the past would burden GERFAE's budget (see section 6.8.5). This would increase the financial capability of the fund and would reduce the probability of structural deficits after bad, high-expenditure years. Additionally contingent grants from donors could most likely increase the total amount of donations compared to, say, a strategy to maximisation the initial capital of the fund, because they raise donors' awareness of animal disease risk and of the need to fund emergency measures.

However there are some disadvantages. Under a contingent grant program there still may be a risk of structural deficits if not enough contingency funding can be secured to cover large-scale or numerous animal disease outbreaks that require emergency measures exceeding the sum of working capital and contingent grants. It could create little incentive for GERFAE to work efficiently if, for example, contingent grants are triggered by GERFAE expenditures. To mitigate this possibility, asymmetric information regarding the justification of expenses has to be reduced such as through an obligation for GERFAE to report regularly to donors about the necessity of operations financed and for GERFAE to follow an auditable and transparent operational process in order to make it easy for donors to provide capital when funds are needed. Unexpected delays in the provision of contingent capital could lead to GERFAE's temporary incapability of action, although as mentioned above clear definition of payment procedures can help avoiding such situations.

However, all such arrangements imply that donors have to hold almost as much capital as could be claimed from contingency arrangements to ensure that they can service these agreements faithfully. As with holding large capital reserves within GERFAE, there are opportunity costs, with funds reserved in donors' accounts instead of the GERFAE account, capital which could be put to more productive work on

other donor projects. Pushing ex ante specified contingent grants, and indeed the success of such a strategy, mainly depends on the donors' risk management and willingness to make appropriate provisions on their side. The efficiency of donor capital allocations is not in the scope of GERFAE and it is unclear how willing or able the donor community could be to address such strict contingency grant requirements of GERFAE.

Contingent grants do not necessarily require independent triggers. Current practice of international aid funding shows that grants are provided without independent and objectively verifiable variables that indicate a need for the requested amount of additional capital. The WFP for example pre-finances worldwide operations through funds available in its Immediate Response Account (IRA). The IRA is a flexible resource facility that enables WFP to respond quickly to emergency situations, while appeals and formal donations forecasts are under preparation. The IRA is a revolving fund, i.e. is funded by reimbursing allocations made to a specific operation with directed multilateral contributions subsequently received for that same operation.[234] WFP's Board establishes a target level for the IRA for each financial period. The target level should be maintained by repayment of advances made for eligible operations or activities, and by annual replenishment contributions from donors. Donors are requested to replenish the IRA annually in order to return it to its target level in January of each year.

It is recommended that arranging contingent grant financing a priori should be pursued whenever possible so that reliance on ad hoc and uncertain donor grants and donations during or after an animal disease crisis can be reduced or eliminated altogether. Without securing additional funding from donor stakeholders GERFAE would not be a sustainable instrument to finance emergency response planning and emergency response measures in recipient countries.

Contingent loans from donors, international organizations or banks

Agreements could be secured in which donors, international organizations or banks commit to provide contingent loans under ex ante determined triggering conditions. Principal, interest and (re-) payment procedures would have to be negotiated and determined before hand and these agreements would be valid for a certain period of time to ensure that contingent capital provision is triggered when additional capital is needed and to limit unexpected delays in the provision of contingent capital which could lead to GERFAE's temporary incapability of action.

As far as contingency agreements with banks are considered, a guarantee of a relevant institution would be necessary to borrow on their securities. The bank's evaluation of the guarantee would limit the principal and determine the interest rate with respect to the prevailing interest level on financial markets. Securing and paying for financing from the capital markets for example, where actors by necessity follow sound capital allocation and risk management procedures, formalizes and strengthens the security and reliability of such arrangements. It is conceivable that contingent loans from donors could be agreed under more favourable conditions, particularly lower interest rates, as donors do not need to maximise profits and repayments could be charged against donations of future periods. However the amount of contingent capital from donors would probably be limited, since, as discussed above, a contingency agreement requires the holding of capital reserves to service the arrangements for which they are being paid. Donors may not be geared to provide this function, unlike a well-rated private sector institution.

[234] WFP (2006)

A comprehensive contingency capital program could completely avoid temporary deficits for the fund. Whenever the fund is on the verge of depletion, a trigger could be activated and new capital provided. GERFAE would be able to assure a volume of contingent capital that corresponds to its ability to pay back loans and interest, avoiding temporary deficits completely. The program would also provide certainty regarding funds available and emergency measures affordable in the period considered and as with a contingent grant program it would allow for efficient allocation of capital at GERFAE's account.

In general it is assumed that contingent loan financing would not provide protection against structural deficits, which means that arrangements have to be made for the case when expenditures for the financing of appropriate emergency measures exceed the sum of working capital, contingent grants and contingent loans. In order to align capital provision and capital requirement, several contingency capital agreements with different triggers and/or multiple trigger agreements could be arranged. The design of the entire contingency capital program, particularly the trigger sequence and the amount of capital provision it activates, would play a decisive role for the alignment of capital availability, management and capital requirement. A trigger should activate when available capital is almost diminished, but enough capital should be left over that guarantees continuation of operations until contingent capital from loans arrives. Every subsequent contingent capital arrangement should fulfil these conditions, and hence take into account previous arrangements (see Annex 1).

However contingent loans in general do not require independent triggers. The reason is that unlike reinsurance payouts or contingent grants, GERFAE would not benefit from the provision of a contingent loan, since it is required to pay back the principal and the interest, unless very favourable conditions from donor lenders are secured. As the ability to pay back is limited, the total volume of contingency arrangements is limited too. After a sequence of periods with high expenses, GERFAE would have to spend a large share of its means to pay back principal and interest of the contingent loans it drew on which could undermine the financial stability of the fund.

Given the discussion above contingent loans could be arranged to finance emergency response measures necessary in periods with serious disease outbreaks, when GERFAE expenditures are higher than expected and working capital or other free sources of funding are unavailable. In theory such loans could be indexed to actual GERFAE capital outlays or other appropriate indices to ensure funds are triggered in a timely manner. Loans would have to be repaid with interest in the following periods. Hence the working capital of the fund would have to be increased to finance obligations from contingent loans taken in the past in future budgetary periods and this should be considered when arranging such financing provisions.

Risk transfer via insurance or ART

The final option to be discussed in this report is the possibility of securing contingency funding through reinsurance or other ART derivative or securitization products from the international risk market. GERFAE could buy protection to cover the risk of animal disease outbreaks and high GERFAE expenditures. In return for a premium, the risk taker would cover part of GERFAE's expenditure risk, establishing secured contingency funds when needed. The price for risk transfer via an insurance or derivative instrument depends on the risk taker's assessment of magnitudes and probabilities of potential compensation payments it is required to make, i.e. of the severity of animal disease risk covered under the negotiated contract. A payment is made only when the pre-specific trigger is activated by a pre-determined index, up to a maximum amount, which is the limit for the contract in the period covered. The more frequent the risk that is being covered the more expensive the premium charged. Hence it only makes sense to use such an instrument for more extreme levels of risk, where securing other forms of

contingency funding at lower cost, such as contingency grants and loans, would be difficult and/or public sector funds may be stretched or depleted.

It is important and non-trivial to determine what is meant by animal disease risk in terms of such a contract. More so than the other contingent capital arrangements described above, an index and trigger has to be defined which reflects the severity of animal disease risk and triggers risk mitigating payments. Furthermore these parameters must be defined when negotiating a risk-transfer contract in such a way that they provide adequate protection for GERFAE yet also security and confidence for the risk taker. A discussion of trigger and index requirements for risk transfer to the international markets in the context of moral hazard and basis risk is given in Annex 1 and is not repeated here. However it is clear that risk transfer is only appropriate for emergency events least capable of being influenced by GERFAE, international institutions, national Veterinary Services and livestock holders in recipient countries. Furthermore the structure of such risk-transfer instruments could have proportional quota-share (co-insurance) features to further deter moral hazard and therefore encourage and attract more private sector counterparts.

Given the unknown nature of global animal disease risk, and the complications in monitoring and quantifying this risk, accessing the international risk markets is not straightforward. As discussed in Annex 1, the most realistic approach of engaging private sector risk takers such as reinsurers, hedge funds or investment banks is through education and by creating mutual trust between GERFAE and the risk industry. In particular this can be done through increasing transparency of GERFAE's operations and reporting procedures, as well as engaging independent, international animal diseases experts and investing in cutting-edge modelling and research initiatives to establish appropriate, objective and independent indices, triggers and a thorough GERFAE expenditure risk analysis. It also requires investments of risk-takers to studying animal disease risk, observing animal disease risk management and screening incentive compatibility of risk management principles on the level of GERFAE, national institutions and individual farmers.

Mutual trust can only be developed through long-term relationships. Therefore from the outset it is important for GERFAE to engage in such initiatives. It could start a pilot project with selected, interested risk takers for example, aimed at setting the stage for future possibilities to transfer GERFAE expenditure risk to insurance markets. One idea is to test this type of arrangements in limited pilots, such as covering animal disease risk only in countries with well-functioning Veterinary Services, i.e. with a certain PVS evaluation result, and adequate historical data for risk assessment. This would also be an opportunity to promote PVS evaluations to reinsurers, i.e. what kind of quality of a Veterinary Service they can expect in countries where they cover the costs of animal disease outbreaks. With time and success such pilots could evolve into more substantial longer-term commitments. With the development of appropriate indices and triggers, derivative-type instruments and a broader range of risk takers could become involved and a wider portfolio of risk management tools and strategies could be considered. Of course, these types of risk transfer solutions come at a cost, which would have to be covered by GERFAE, and ultimately the contributing donors.

Provided that risk transfer can be arranged, GERFAE would be able to continue financing emergency measures in periods with several serious animal disease outbreaks, when expenses exceed GERFAE's overall working capital and capability of fund raising. Risk transfer solutions, e.g. reinsurance, should be

deployed for low-probability high-severity events. The reason is that risk transfer is costly,[235] unlike contingent loans. However a period with several large-scale disease outbreaks purely financed by contingent loans could result in a serious long-term capital-deficit situation for GERFAE. At a certain level of risk it may make sense to leverage capital within this fund through risk transfer to ensure financial viability in extreme cases. As in such cases donors themselves may find it difficult to cope with the required financial commitments, having supported GERAFE at more frequent levels of risk, sharing this risk with entities outside the public sector should therefore be considered.

6.6.4. Recommendations for GERFAE financial risk management

A risk financing approach to managing GERFAE expenditure risk within a given budgetary period is recommended. Firstly, the initial working capital of the fund has to be established through donor contributions that are sufficient to finance emergency preparedness expenses and emergency response measures under relatively certain capital outlay scenarios within the given period. Secondly, contingent grants from donors or other actors could be used to finance further emergency expenditures when needs are higher, so that GERFAE is a sustainable financing tool to support global animal disease risk management, but one that is to a certain extent self-sufficient from appealing for additional donor contributions in "normal" or "moderate" years. In periods with several outbreaks or significant large-scale outbreaks, which require further substantial emergency capital outlays, pre-arranged contingent loan agreements could be triggered to provide additional capital in order to ensure continuation of GERFAE's animal disease risk management operations. GERFAE should be principally able to pay back contingent loans in following periods.[236]

These funding instruments summarise GERFAE's initial capability of fund raising and they can and should be arranged in various quota share or excess-of-loss formations, in expenditure terms and in time, to attain an optimal balance of risk financing capability and opportunity/financing cost given the spectrum of risk GERFAE faces in a given risk period.[237] This is a challenging exercise in itself, but will need to be considered and developed as the fund evolves and begins to operate to allow for the most optimal and efficient financing structure. It is strongly recommended that such decisions are always made in the context of quantitative analysis of the underlying *global* GERFAE risk and a management decision as to what the overall capital reserves of GERFAE should be, to reflect the financial obligations it has made to recipient countries.

It is also strongly recommended that ex-ante contingent agreements should be arranged as opposed to negotiating ad hoc capital provision when capital is needed. This is for *timely* and *reliable* financing, with funds made available immediately under the specifications of a contingent agreement. The timing of funding is critical to the efficient response and deployment of emergency measures, and the security of sufficient funding when needed is a strong incentive for efficient and thorough contingency planning and

[235] Hess (2006), p10

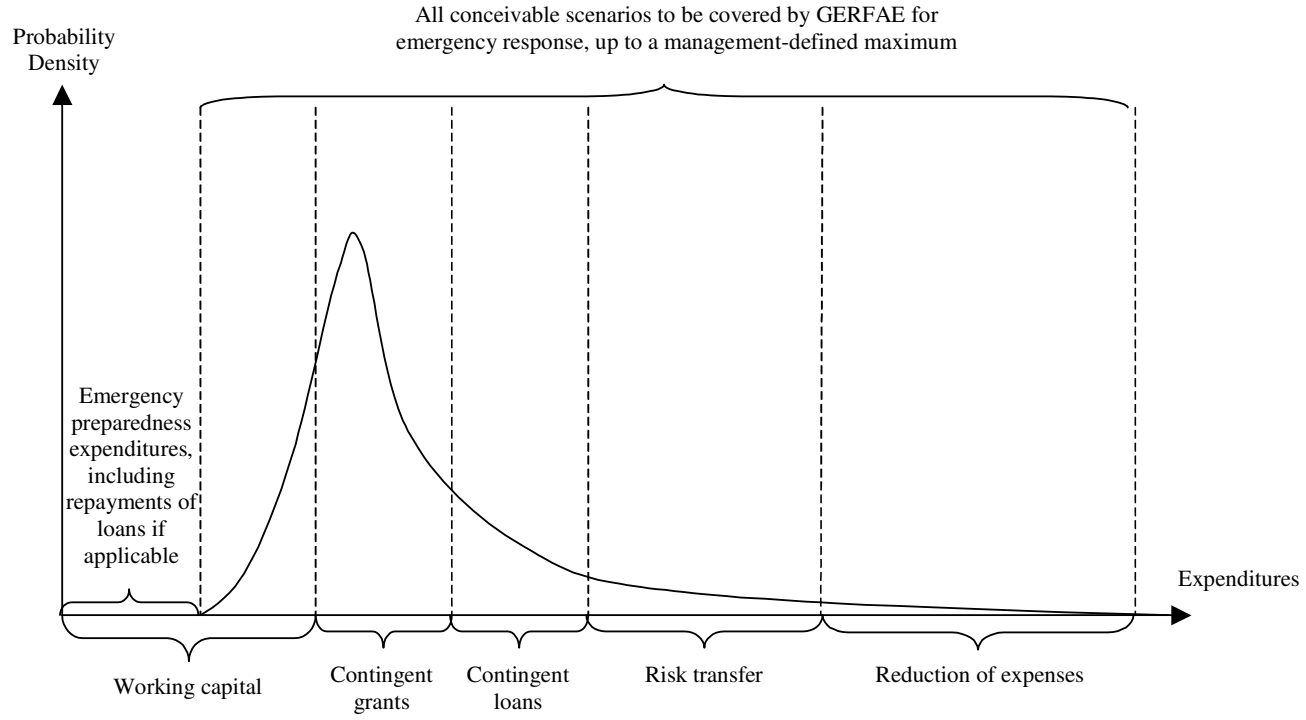
[236] For examples considering the roles of various financing instruments in a comprehensive risk financing strategy see Hess (2006), and Gurenko and Mahul (2006)

[237] For an example of how resources can be mobilized through time see Ghesquiere and Mahul (2007)

emergency preparedness. Ex-ante negotiations save time and budgetary surprises in moments when time and money is most scarce and offer security to enable efficient financial planning and capital allocation.

Of course, an element of flexibility should also remain in these arrangements as understanding and quantifying potential global animal disease risk exposure and hence GERFAE expenditure risk is scientifically and technically challenging and will always be subject to uncertainty and modelling error. GERFAE should, however, be able to continue its operations in situations that require more funding. As the majority of the funding sources outlined above are public sector driven it is recommended that GERFAE also targets developing access to the international risk markets to relieve the burden of animal disease risk financing from donor budgets. Financing instruments such as those described in Annex 1 could and should be developed in the future with the aim to enable access for GERFAE to risk transfer tools and the risk capacity of the international reinsurance and capital markets, for example through insurance, derivative contracts or other risk transfer solutions such as risk smoothing structures or finite financing arrangements.

Figure 3: Simple illustration of potential GERFAE financial risk management structure



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Annex 1: Towards indexing GERFAE expenditure risk

For the risk management of GERFAE, special attention has to be devoted to the mechanism that activates contingent funds and if necessary the amount of funds made available. This mechanism requires a variable, known as index, and the determination of a certain value of that variable, known as a trigger. The specified index can be monitored throughout a budgetary period, and as soon as it reaches its pre-determined trigger value, contingent funding can be activated and funds made available so that operations can continue without financing-gap interruptions. In order to introduce the critical aspects and issues associated with defining an appropriate index, it is useful to present the two extremes of conceivable triggers to motivate the discussion: a trigger based on objective and independently verifiable parametric index versus using estimated or actual GERFAE expenditure as an underlying index to trigger contingency funds. This discussion is most relevant in the context of risk transfer arrangements with the international risk markets, but should also be considered for other donor-based financing options.

Selecting a trigger and index

The appropriateness of a trigger and index depends on the discussion and analysis of basis risk and moral hazard.[238] Basis risk denotes the potential mismatch between contingent funds and GERFAE's needs for additional capital. The higher the level of basis risk, the less perfect the correlation between the index and GERFAE's expenditure is.

An underlying index to trigger contingency funds can involve moral hazard when there is no or little independency between the index itself and the activities of the beneficiaries of the contingent funds. Consider the hypothetical situation where the GERFAE performs poorly in managing animal disease outbreaks, e.g. forgoing proper control and precise support of animal disease risk management or monitoring of compensation values in recipient countries, resulting in prolonged and more expensive interventions. If the index and trigger for additional funding was actual GERFAE expenditures, the index would increase as outbreaks became more serious and expensive. Ultimately GERFAE could benefit from its own poor performance through the flow of contingent funds, even if no malicious intent or unethical behaviour was behind GERFAE's poor performance leading to the triggering of additional funds. Thus there is an obvious conflict of interest and incentive problem when using such an underlying index. Providers of contingent capital anticipating inefficient behaviour would increase the price of contingent capital or most likely withdraw or restrict access to such contingent funds completely. Whenever the behaviour of the beneficiary of contingent capital influences the index and the possibility of triggering funds, moral hazard persists that may complicate the arrangement, increase the price or limit the availability of contingent financing agreements.

A perfect index is free from basis risk and moral hazard. In the following, possible indices and triggers are presented and analysed in the context of animal disease risk with reference to basis risk and moral hazard.

Underlying parametric triggers and indices

Events that may activate the flow of contingent funds can often be described by objective and independently verifiable parameters that describe the risk in question; these parameters can then be used as

[238] Shaik, et al. (2006) and Meuwissen et al. (2006)

an underlying index to trigger funds from various financing arrangements. To illustrate this concept consider the parameters that are regularly used in the international (re)insurance and financial markets to provide index-based or parametric (re)insurance or risk management solutions for institutions and companies exposed to earthquake, hurricane or weather risk for example. The severity of such events can be represented by indices such as the intensity of an earthquake on the Richter scale and the location of its epicentre, the wind speed, category and/or position of a hurricane, or the temperature or rainfall amount recorded at a reference weather station. These indices and their values can then be attributed or correlated to the financial exposure of an institution or company seeking to manage the specific financial risk associated with them.

Consider the following simple example. By using its portfolio data from previous years and historical wind speed data from a reference weather station(s) provided by the National Weather Service, a car insurance company with a large portfolio of comprehensive covers in a certain city can perform an analysis between the wind speeds of past windstorms in the city in question and the actual car insurance claims they subsequently received as a result of the storms. The analysis can be used to determine the relationship between maximum wind speed on any given day and claims the insurer expects to receive as a result. If a good relationship is found between strong winds and claims, a wind speed index could be developed as an underlying variable for index-based reinsurance coverage, which would trigger funds to the insurer to assist in the settlement of the expected excess claims if the wind-speed index exceeds a pre-determined trigger level during a specified period. In other words the index is designed to be a proxy that correlates well with the actual car insurance claims the company would expect to receive in the event of a windstorm.

In general such parametric triggers are objective and independently verifiable and are therefore free from moral hazard since no one can influence these observable parameters, such as the strength and locations of severe windstorms as reported by National Weather Services, or the occurrence of such events, particularly extreme and catastrophic events, in the first place. However simple parametric triggers and indices often involve basis risk: for example the actual losses of the car insurer in the illustrative example above may be very different if a 125 km/h maximum wind speed storm happens during day or night, because at night not as many cars are at risk because some are kept and protected in garages.

Of course, it is possible to define an index and trigger as a function of several objective underlying parameters, for example wind speed, time of the day, duration and wind direction in the example above, to reduce basis risk. An advanced approach is to model the consequences of catastrophic events, using even more complex relationships to determine output risk measures from objective input parameters; this approach is usually used for earthquake and hurricane risk transfer solutions in the international parametric reinsurance and catastrophe bond market.[239] Technical and objective parameters describing the event are used as input variables – such as the time, strength and track of a hurricane – and a model explicitly takes into account the expected consequences and financial impact of the event, e.g. the resulting property and casualty losses of an insurance company selling insurance to residents in a specific area, such as a zip-code in Florida. Sophisticated model-derived indices and triggers such as this can greatly reduce basis risk of the subsequent amount of triggered contingent funds. Specialized, independent firms are usually hired to model such complex risk[240] and as these models and their inputs are specified at

[239] RMS (2005)

[240] Examples of such companies include AIR Worldwide Corporation and Risk Management Solutions (RMS) amongst others.

the outset and solely objective, independently verifiable parameters are used to determine the model output, i.e. the index, they are free of moral hazard.

A recent example of where an objective index was used to secure contingent funding is World Food Programme's (WFP) Ethiopia Drought Insurance Pilot Project. The WFP pilot used a weather derivative to demonstrate the feasibility of establishing contingency funding for an effective aid response in the event of contractually specified severe and catastrophic shortfalls in precipitation during the 2006 agricultural season.[241] The underlying index of the weather derivative – known as the Ethiopia Drought Index (EDI), on which payments would be triggered through WFP's weather derivative contract with Paris-based reinsurance company AXA Re – was based on rainfall data taken from 26 of the best weather stations distributed throughout the agricultural areas of Ethiopia. WFP showed there is a strong correlation between drought in Ethiopia and subsequent expenditure of the WFP and its donors to provide Ethiopian people with emergency food aid and assistance due to drought-related agricultural production shortfalls. By using 50-years of historical rainfall data from the 26 stations the EDI was constructed for each Ethiopian agricultural season from 1956-2005 and for 2006 as the daily data was recorded and reported. The historical EDI shows an 80 percent correlation with the total number of historical food aid beneficiaries from 1994 to 2004, but more critically it picks up the well documented catastrophic drought events that have occurred in the past 50 years, specifically 1965, 1984 and 2002, which the index was designed to capture. Hence the EDI used by the WFP team showed limited basis risk and was free from moral hazard since the rainfall data from the 26 weather stations could not be influenced by WFP and was monitored by an external third party company for quality and integrity throughout the life of the weather derivative contract in 2006.

However in the context of animal disease risk and GERFAE expenditure risk, purely objective and independently verifiable parameters are not available as in the case outlined above for Ethiopian drought. Variables describing the occurrence or the consequences of an outbreak always depend on the performance of GERFAE, authorities in recipient countries and/or farmers in disease prevention and control. However certain information does exist and/or has the potential of being collected at national levels[242] and there is also potential to use epidemiological and simulation models to estimate the financial risk to GERFAE given certain operational and response implementation assumptions. From such considerations possible objective indices and trigger mechanisms may exist to enable access to index-based contingency funding arrangements which have significant controls on moral hazard without introducing an unacceptable amount of basis risk (see discussion below).

GERFAE expenditures

Simply using GERFAE expenditures for total emergency preparedness and response in a given time frame as an underlying index to trigger additional funds is an extreme alternative to the parametric approach outlined above. It would involve little basis risk, assuming any outstanding concerns regarding the timing and magnitude of available contingent funds would be addressed, but as discussed above the approach is open to potential moral hazard. Contingent financing arrangements with GERFAE expenses as an underlying index would have a contractual structure similar to traditional reinsurance coverage used by

[241] For details of pilot see WFP (2005)

[242] Meuwissen et al. (2006)

insurers, which bases risk mitigating compensation payments on actual losses incurred (claims) as reported by the insurance company.

If GERFAE's actual expenditures were used an underlying index to trigger contingent funds, instruments and strategies to reduce the possibility of moral hazard would have to be applied in order to convince providers to make contingent capital available. For example additional trust and assurances could be created between GERFAE and the provider of contingent capital through transparency of operational activities and expenditures; proof of compliance with developed contingency plans and eligibility criteria; monitoring of operations and expenditures, financed with contingent capital to reduce informational asymmetries; structure of the contingency funding agreement(s) to have quota sharing (co-financing) arrangements and larger retention levels to deter moral hazard, over or in addition to excess-of-loss structures for example. It should be noted that using GERFAE's actual expenditures as the underlying index for contingent financing agreements is more likely be possible with grant-providing donors than with commercial private sector risk-taking, entities who would be uncomfortable with such unfamiliar risk, such an unconventional counter party and arrangement and the potential for moral hazard.[243] Current practice of international aid funding shows that grants are provided without independent and objectively verifiable variables that indicate a need for additional capital.

Possible GERFAE triggers and indices

As discussed above, objective and independently verifiable technical parameters that describe animal disease risk are in general not available, but it is worth rethinking possible variables that could be used or investigated further to enable access to index-, and potentially market-based, contingency funding arrangements which have significant controls on moral hazard without introducing an unacceptable amount of basis risk.

There are several underlying indicators that are discussed in the literature, other than expenditure-based indices, that could be used to form a country-level or regional index to capture and estimate the financial impact of a given disease outbreak, particularly for a *global* fund such as GERFAE which will have some capacity within its working capital to absorb basis risk events. Potential indicators could include, individually, in combination or in relation to, but not exclusively, the following:[244]

- Country-level or outbreak-specific animal mortality rates;
- Number of animals infected with a particular disease in a given timeframe;
- The number of culled or vaccinated animals in response to an outbreak;
- Duration of the epidemic outbreak;
- Declaration of an outbreak or associated trade restrictions;
- Human mortality rates due to a specific zoonotic disease outbreak.

[243] These are also the reasons cited for the lack of traditional reinsurance capacity for livestock in current market, see Part III.

[244] Green et al. (2006) and Meuwissen et al. (2006)

These indicators, which would have to be defined per country or region and disease, have varying degrees of moral hazard potential, which will be discussed below, particularly as specific control strategies and measures can influence their value. However, if control strategies are defined as part of the pre-requisite country-specific emergency contingency plans for GERFAE funding eligibility and if monitoring of these indicators is performed by several independent parties using pre-agreed, best practice monitoring and reporting methodologies with cross-check mechanisms, there is potential to use this information in some way to help manage and monitor GERFAE expenditure risk, if not access contingent capital. Furthermore, the definition of contingency plans implies the operational GERFAE costs associated with a certain epidemic duration or number of animals culled or vaccinated in an area for example is known before the event occurs, therefore the financial risk associated with varying levels of these indicators, and thus the contingent capital required in the case of extreme events, can be estimated and quantified. Finally, if some or all of these indicators are aggregated to the ultimate global GERFAE level, i.e. into a GERFAE-specific expenditure index, the ability to influence such an index from the country-level may be somewhat limited, restricting the opportunities for deliberate moral hazard. Taking a global approach will also encourage a global perspective to the risk management of GERFAE, maximizing the potential risk pooling effects gained from considering all diseases risks together for the purpose of capital allocation and fund management.

As a significant share of GERFAE's total expenditures for emergency response measures would be compensation payments, the number of animals of a certain species infected with or dead from a certain disease within the period considered could serve as an underlying index, involving relatively little basis risk as a GERFAE expenditure indicator. As mentioned above compensation values would probably differ between regions, such a variable would have to be defined for each region characterised by different animal compensation values. Records of dead animals due to animal disease outbreaks could be arranged, e.g. through compensation payment data from GERFAE to national compensation schemes. However there is severe moral hazard potential. The institutions involved in animal disease risk management determine the number of dead animals due to disease outbreaks, since they administer vaccinations and execute slaughters. That means they directly determine the index and indeed many of the indicators outlined above. The more comprehensively they carry out disease eradication, the more likely it is that the organisations would be provided with contingent funding via an index-based mechanism particularly if such an index was solely based on country-specific data. Nevertheless several structures and procedures could be set in place as part of GERFAE's operational activities to ensure that opportunities for moral hazard can be reduced and controlled to a certain extent.

This approach has been taken by the World Bank in Mongolia[245] where livestock mortality data collected through the annual government animal census is used to determine a livestock mortality index value and potentially trigger a contingent credit line from the World Bank to the Government of Mongolia to address extreme mortality losses. It should also be noted that a similar approach has been used in a recent market securitization of extreme human mortality risk, arranged and issued by Swiss Re who obtained US$ 362 million of mortality risk coverage through their Vita Capital II programme[246], reportedly partly in response to growing fears of a potential human influenza pandemic. The underlying catastrophe bond will be triggered if there is an abrupt jump in a human mortality index developed using reported data from several

[245] Mahul and Skees (2006)

[246] See for details: http://www.swissre.com/Internet/pwswpspr.nsf/fmBookMarkFrameSet?ReadForm&BM=../vwAllbyIDKeyLu/gdso-6bdjyb?OpenDocument

institutions over the period 2006-2010. The structure of the Vita Capital II risk coverage is based on a combined mortality index, which applies predetermined weights to the annual general population mortality in the United States, United Kingdom, Germany, Japan and Canada. The principal of the Vita Capital II notes begins to be at risk if, during a measurement period of any two consecutive years within the risk coverage period, the combined mortality index exceeds predefined percentages of the expected mortality level. The concept cannot be easily transferred to the animal health context however due to the issues of moral hazard mentioned above, as in this example the records for human mortality are taken from institutions which are not involved in the financial arrangement transferring human mortality risk to the capital market and the counterparties involved have no possibility of influencing the index and such an extreme event.

Another indexing approach is to use the event of an outbreak of a certain disease in a certain region within a given timeframe itself as a trigger for a pre-specified amount of contingent funding. Such a trigger would assume the value of zero if there was no outbreak or the pre-specified amount of contingent funding made available to GERFAE if an outbreak occurred in the defined period. As with the indicators above this is not an independent variable, since the probability of the occurrence of an outbreak depends on the performance of international institutions, authorities in recipient countries and/or farmers in disease prevention. One could assume that it is in the interest of Veterinary Services and other relevant organisations that outbreaks do not occur at all, hence controlling moral hazard, but it could involve significant basis risk as quantifying the amount of funding required is difficult. Outbreaks can imply significant or negligible GERFAE expenses, depending on how rapidly the disease can be contained and eradicated. However through the application of various epidemiological and simulation models to estimate the financial risk to GERFAE given certain operational and response implementation assumptions in the event of an outbreak, guided by the emergency preparedness and contingency plans, could determine an average amount that should be triggered if pre-specified outbreak events happen.

A third idea is to use decisions from institutions outside national Veterinary Services as an objective trigger for additional funding, e.g. the declaration of import restrictions. Contingency financing could be activated when one or several countries ban the import of animals or animal products of a certain species from a certain region or nation. As the institutions ruling the import ban do not benefit from contingent funds, such a trigger would be free from many of the aspects of moral hazard potential discussed above. The implementation of import bans would only be partially correlated with GERFAE expenditures however, which would introduce significant basis risk into this mechanism.

The analysis of alternative approaches shows that it is complicated to find an underlying index, indices or triggers that involve little moral hazard opportunity but that are highly correlated with GERFAE expenditures. The approaches mentioned can be combined and calibrated to optimise the trade-off between basis risk and moral hazard, as shortly described in the comments on designing and modelling indices below. As risk transfer is principally a sound strategy to cope with variable GERFAE expenditure risk, and that the possibilities of risk transfer ultimately depend on the finding of an appropriate index that potential risk takers, particularly within the private sector, will accept, it is worthwhile to discuss and outline the prerequisites necessary for the development of potential indices and triggers.

Towards indexing GERFAE expenditure risk

In order to implement a successful index-based risk management program, the data used to construct the underlying index or indices must adhere to strict quality requirements to facilitate: a) confident use of the index as a reliable indicator on which to make risk management and financing decisions for both

GERFAE fund managers and contributing donors; and b) potential risk-transfer opportunities to the international risk markets. These include[247]:

1. Reliable and trustworthy on-going regular collection and reporting procedures;

2. Regular quality control and monitoring of data reported;

3. An independent source of data for verification, e.g., an independent third-party observer or several independent sources collecting the same information;

4. A long, quality-controlled, and internally consistent historical record to allow for a proper actuarial analysis of the risks involved.

Given the discussion above of possible GERFAE indices and triggers, it is clear that few if any of the suggested indicators satisfy these ideal criteria, in particular to a level necessary to attain objective b) – risk transfer to the international risk markets – which requires a strict interpretation of the listed conditions. However potential does exist to strengthen or introduce new measures within each GERFAE recipient countries' emergency preparedness activities and planned emergency response measures to ensure that data before, during and after a potential disease outbreak within the country is collected in a manner that satisfies the quality and independency requirements of the first three points. As suggested in the section above: establishing baseline data for livestock holdings in each country; using international best practices for data collection and reporting procedures with a checks and balances system; arranging for international independent third-party observers to check and quality control this data and procedures where possible; closely monitoring outbreak control and eradication operations and expenditures; establishing co-financing arrangements with recipient governments for response measures; and pooling risks from disparate regions and diseases to limit the possibility of data from a particular country or organization influencing the index, are possible mechanisms that could be easily established as a standard part of GERFAE's operations and response mechanisms. Over time the systematic application of these data collection procedures would produce a rich historical record of animal disease risk information in a given country or region eligible for GERFAE funds and may achieve some minimal level of adequacy and trust in index construction to entertain the concept of risk transfer using market-based mechanisms.

In fact, one of the greatest impediments to accessing and securing risk transfer to the international risk markets is precisely this lack of existing historical data regarding animal disease risk and the associated uncertainty regarding the frequency of outbreaks, the probability distribution describing the spread of livestock disease epidemics when they occur and the losses expected. Indeed this uncertainty has been attributed as the major cause for the lack of reinsurance capacity within the private sector for epidemic livestock disease risk. The premiums associated with risk management strategies involving risk transfer are based on a sound actuarial analysis of the underlying risk. An appropriate premium given the probability and severity of specific risk events will be charged by a commercial risk-taker, hence the quality of historical, as well as on-going, data is paramount.

It is clear that since animal disease losses occur irregularly and often infrequently in time and place and as historical data of past disease outbreaks – if such events have ever occurred – particularly in developing and transitional countries, if any exists, is poor or incomplete, assessing the underlying risk for GERFAE

[247] World Bank (2006)

is significantly demanding. The additional complicating factors regarding livestock diseases characteristics – for example the spread of many diseases, such as FMD, is not only difficult to ascertain from a scientific and epidemiological standpoint, but can depend highly on the control strategy applied and therefore the particular environment, the farm and herd intensity and marketing structure, of the outbreak location as well as the critical behaviour of actors involved when an outbreak occurs – pose serious challenges.

However, if market-based mechanisms for risk transfer are to be ultimately used as a complementary risk management tool for instruments such as GERFAE, these challenges regarding the lack of adequate historical data and understanding of the underlying risk for premium rate making need to be addressed. As proposed by Meuwissen et al.[248] in the context of commercial epidemic livestock insurance, the use of the expertise and knowledge of those working in the epidemic animal disease risk arena can complement any existing data to inform the rate making methodology. Furthermore, epidemiological models can be used to provide information for parameters describing the spread of diseases and potential magnitude of disease losses; and models exist that can be used to investigate the impact of spatial, dynamic and stochastic model stimulates, given a specific control strategy or strategies.

The elicitation of subjective expert knowledge, from local and international research institutions, can provide GERFAE with the quantitative information necessary for modelling purposes. Expert opinion for example can advise as to the expected frequency of diseases in a particular country or national sub-region, given animal and farm densities and geographical characteristics and the control measures appropriate for each situation under consideration.[249] A discussion of the appropriate control measures will be necessary nonetheless when drawing up appropriate emergency contingency plans as part of each country's preparedness strategy. Coupling these epidemiological models with Monte Carlo simulation methodologies for example is an adaptable approach to investigating aspects of livestock disease outbreaks that are stochastic in nature and to gain an insight into the probability distribution of the various parameters that can describe an outbreak, such as the duration of an epidemic or the estimated magnitude of direct GERFAE expenditures generated through the pre-established compensation schemes and response measures. As suggested by Meuwissen et al. (2006) stochastic variants can be incorporated into epidemiological models by using probability distributions derived from expert consensus and opinion that can then be introduced as model input modifications.[250] Each simulation would randomly draw numbers from these specified distributions, representing a possible combination of parameters that could occur for a particular disease outbreak in a specific country. Combining these results of all simulations will lead to a distribution of output values for various disease outbreak indicators, such as mortality rates or the number of vaccinated animals, which could then be converted into direct livestock epidemics losses for GERFAE within a given country, a region and ultimately for the entire GERFAE portfolio.

It should be stressed that using such a modelling approach guided by expert opinions is not straightforward and poses significant technical and methodological challenges. Furthermore this approach may not be appropriate for detailed and accurate farm-level loss analysis but might be more appropriate for general, aggregate statistics and estimates of an outbreak, such as the number of farms infected or the duration of an epidemic[251] which could be used as the underlying indices from which the expected

[248] Meuwissen et al. (2006)

[249] Ibid

[250] Meuwissen et al. (2006)

[251] Ibid

probability distribution of GERFAE expenditures could be estimated. This aggregated approach makes sense in the context of GERFAE, a global fund which will have some capacity within its working capital to absorb animal disease risk, but will be concerned with large-scale destabilising events that can impact its overall portfolio and financial solvency. Furthermore, technical uncertainties, assumption errors and remaining exogenous factors, such as actor behaviour during an outbreak event which are difficult to predict and model – disadvantages of this approach leading to potentially significant basis risk – could be more easily managed by taking a aggregate view, as GERFAE could also absorb a certain amount of basis risk within its operations if it took a portfolio over a country-specific approach to risk management and capital allocation.

This modelling approach to handling events and risks that occur infrequently in time and place and where limited historical data exists is not a unique solution for animal disease risk, but is commonly used within the hurricane and earthquake reinsurance and risk transfer markets. Many reinsurance, derivative and securitization contracts and their associated premiums are based on the output of sophisticated models estimating losses due to specified events, as described in this Annex, which are continually being refined and improved.[252] It is therefore recommended that GERFAE should make headway in understanding and modelling its underlying animal disease risk and focus efforts and innovation on pushing the necessary research and data collection techniques required to develop this field.

To summarize, the challenges of indexing GERFAE expenditure risk during a given time frame to objective and independently verifiable parameters will be significant, however steps can be taken to ensure that the data collected documenting indicators which would become underlying country and disease specific indices, could be introduced. Furthermore, these real-time indices could be linked to ex-ante expert epidemiological modelling and simulations to understand their probability distribution over a given timeframe. The methodological technology potentially exists and should be developed to elicit the underlying distribution of GERFAE expenditure risk. Not only will this enable model-derived rate making information to be generated in the future for potential risk transfer opportunities, but it will also improve the capital allocation and risk management decisions of GERFAE as discussed earlier. Such modelling approaches can be used to establish appropriate triggers for management decisions and funding flows that could be contingent on real-time indices as they are reported and collected for a particular event or events.

Ultimately, pooling these risk indices from the disparate regions and diseases within the GERFAE portfolio is the optimal approach to limit the possibility of data from a particular country or organization influencing an aggregated index. In this way opportunities for moral hazard can be reduced and controlled to a certain extent and the potential beneficial risk pooling effects gained from considering all diseases risks together for the purpose of capital allocation and fund management can be used. The development of such a total GERFAE expenditure index, composed of underlying expenditure indices for specific eligible country, disease risks and attributed emergency response measures, should be the objective of GERFAE managers. However, this will be a slow process and much research, work, innovation and piloting needs to be developed before such techniques can be applied and used with confidence and reasonable assurance of accuracy.

The realistic process will be a step-by-step approach, taking a country or disease one at a time, establishing the appropriate data collection procedures and modelling efforts. This must be then followed by engaging and interacting with relevant private and public sector stakeholders to educate and build trust

[252] E.g. following Hurricane Katrina, RMS (2005)

within the system through transparency in risk monitoring, analysis methodology and GERFAE operation. Taking such as approach may potentially open the doors to market-based risk transfer opportunities in the future and crowd-in the private sector to develop a new and sustainable market for animal disease risk.

Annex 2: The characteristics of epidemic livestock disease risk

The financing of risk costs is usually not a task of public institutions, be it at the national or global level. Regarding animal disease risk however, this is different. Arrangements for the financing of costs and losses of disease outbreaks strongly influence risk management activities undertaken by stakeholders, which again determine the severity of animal disease risk. Hence the set-up of the animal disease risk financing system is a key element of developing a global animal health policy aiming at efficiently managing animal disease risk. To do this, the interdependencies between stakeholders' activities and animal disease risk have to be fully understood.

Interference of animal disease risk

From a financing point of view, risk is a stochastic variable. Each stochastic variable has a distribution, which determines the values the variable may assume and the associated probabilities. A key characteristic of animal disease risk is the strong dependency of risk distribution from stakeholders' animal disease risk management activities. Individual farmers can keep their animals separated from other animals and thus reduce their probability of infection. Also national governments influence animal disease risk. If they decide to establish or improve the Veterinary Services throughout a country, which carries out regular controls of herds, disease outbreaks could be noted and contained earlier. This measure would therefore reduce the probability of large-scale disease outbreaks in the country. In many developing and transition countries, multilateral or bilateral donors finance or directly provide technical assistance to national Veterinary Authorities in disease control and eradication. In these cases, the total costs and losses of a disease outbreak are not only caused by the response of the national authorities, but are also influenced by the effectiveness of the technical assistance provided by international donors.

Externalities of animal disease risk management

As has been pointed out, animal disease risk is not purely stochastic; it is determined by the behaviour of stakeholders to some extent. This is not necessarily a problem. There is some sort of interference for most of the risks we know. And it is not an argument for public intervention: If the individual farmer can influence disease risk of his herd, he will undertake efficient risk management in order to minimise animal disease losses, while taking into account the costs of risk management measures. The same argument applies to other stakeholders if we assume that they pay for the measures they undertake and bear the costs and losses of disease outbreaks. This picture does not grasp the extent of interference however. The reason is that risk management activities are associated with externalities: When individual livestock farmers decide about implementing prevention and control measures, they mainly take into account costs and benefits accruing directly to them. They do not necessarily consider costs and benefits accruing to third parties. For example, individual animal producers have a significant influence on the overall costs of a disease outbreak originating on their premises, since their decision to early report the disease to the authorities could make the difference between a local and immediately contained disease outbreak and a global animal health crisis.[253] Similarly, risk management undertaken by institutions of a given country, e.g. the Veterinary Services, the police, agricultural and health ministries, farmers' and traders'

[253] See Gramig et al (2006), p44 for the correlation between total costs of animal disease outbreaks and the duration of disease outbreaks, which strongly depend on the effectiveness and rapidity of control measures.

associations, do not only affect animal disease risk of this country. Their performance in containing outbreaks may determine whether the disease spreads to other countries or not, disrupts trade or even leads to a global pandemic. An economic consequence of these externalities is that animal disease risk management decisions are not efficient when based on costs and benefits of the decision maker, be it an individual farmer or the government of a specific country. It is therefore important to analyse cost and benefits of animal disease risk management from a global perspective and to decide which measures should be undertaken at an international level, and which at other levels, to ensure that all benefits are taken into account.

Complementary relation between individual and public risk management

Understanding the importance and consequences of stakeholders' risk management activities is a precondition to the development of animal health policy strategies. One has to be aware of the complementary relation between individual and public risk management, too. That means efficient risk management comprises of efficient measures at the individual as well as at the public level. Deficits in individual risk management cannot be compensated through intensifying public risk management and vice versa. This is most obvious regarding ex-post risk management, following disease outbreaks. Early disclosure of disease outbreaks to the Veterinary Service in charge is an indispensable individual risk management measure. Even the best-equipped Veterinary Service could not check every herd for disease symptoms on a daily basis. Early disclosure therefore requires individual risk management activities, i.e. an alerted farmer who controls his animals' health status and reports disease symptoms immediately if necessary (see also section 6.3).

Once the outbreak is confirmed, emergency measures have to be carried out. Establishing restrictions, carrying out emergency slaughters and other emergency measures are public tasks. Individuals do not have knowledge, decision-making power and resources needed to perform these disease control measures. However risk-reducing behaviour of individuals is still important when disease control measures are implemented after the outbreak has been confirmed. The reason is that compliance with emergency restrictions cannot be enforced completely; the cooperation of individual farmers is necessary to ensure compliance with restrictions.

Cumulative nature of animal disease risk

Animal disease risk is an accumulation risk (see Part III). The reason is that once an outbreak occurs, the disease can spread to other animals through infection. Accumulation is a typical feature of catastrophe risk. Despite a large number of individual risks, e.g. animals or herds, there are no pooling effects when individual risks are aggregated in a portfolio of risks, i.e. costs and losses of the risk portfolio would be highly volatile. That means the probability is high that global animal disease risk realisation is moderate compared to what could happen in a worst-case scenario. However there is a small probability that the realisation of animal disease risk is catastrophic, i.e. that numerous large-scale disease outbreaks or even global animal disease crises happen.

Implications of the characteristics of epidemic livestock disease risk

Epidemic livestock disease risk has two main characteristics; both of them have far-reaching consequences for risk financing. Firstly, there is a strong interference of stakeholders' behaviour and risk, which causes

externalities of risk management. In order to induce efficient animal disease risk management, a system for financing costs and losses of epidemic livestock diseases has to provide incentives for individuals and national institutions to enhance risk management.[254] The second key characteristic is the cumulative nature of animal disease risk. This complicates the subject of financing costs and losses of epidemic livestock disease outbreaks, since the need for funds is highly volatile. A system for financing costs and losses of epidemic livestock diseases should provide a mechanism to cope with this problem.[255]

[254] This issue is further discussed in sections 6.3 and 6.4

[255] Relevant strategies are analysed in section 6.8 and Annex 1

Annex 3: Glossary

Ad-hoc grants: Ad-hoc grants, contrarily to ex-ante contingent agreements, are grants which have not been negotiated prior to an outbreak or other emergency, and that are given according to necessity.

Alternative risk transfer: Alternative risk transfer comprises instruments enabling the transfer of risk on capital markets and the financing of risk through capital markets, other than reinsurance and traditional insurance, which provide risk transfer and financing on insurance markets. Such instruments include catastrophic-loss (CAT) index-based derivatives or securitizations, which secure losses from catastrophic events such as hurricanes and earthquakes.

Basis risk: Basis risk is the risk of an imperfect hedge, which means that the payments associated with a hedging instrument do not perfectly compensate the risk that was supposed to be hedged. Hedging instruments can be commodity futures contracts to hedge price risks for example, or CAT Bonds to hedge the risk of losses from catastrophes.

Earmarked (national) contingency funds: The term earmarking refers to funds or capital specifically planned for a particular purpose. Earmarked national contingency funds are funds that are set aside by a national government body in the case of eventual emergencies.

Ex-ante contingent agreements: Ex-ante contingent agreements refer to agreements specifying the terms and conditions for the provision of funds before fund-requiring emergencies occur, as opposed to negotiating agreements once disasters have happened.

Expenditure risk: Expenditure risk is the risk regarding the sum of all payments in a certain period.

Global public goods: Public goods are characterised through non-rivalry and non-exclusiveness of their consumption. Thus public goods per definition involve public benefits. They are goods that are in the public domain — goods that are there for all to consume, either because they cannot be excludable, they are made public by design, or they are public by default. Global public goods are public goods that have a fairly universal impact, on a large number of countries, on a large number of people, or on a large number of generations.[256]

Index: The mechanism that activates contingent funds requires a variable, called the index, and a determination of a value for the index, called the trigger. Further explanations on the selection of a trigger and an index can be found in Annex 1 of Part II of this report. An aggregated index is an index derived from a combination of factors. An expenditure index is an index of payments to be made.

Monte-Carlo Simulation methodologies: The Monte-Carlo simulation methodology, also known as stochastic simulation, is a method used to evaluate an entity's exposure to risk. It allows an assessment of risk, despite uncertainty about several factors determining risk, and can take into account correlations between these risk factors. It involves replacing single entries with probability distributions of possible values for key inputs.[257]

[256] The Global Network on Global Public Goods, UNDP (2005) http://www.sdnp.undp.org/gpgn/

[257] The Green Book, HM Treasury (2003) http://greenbook.treasury.gov.uk/annex04.htm

Real-time index: "Real-time" refers to a current value as opposed to historical data. Real-time indices refer to information that is collected following a particular event or a set of events, and will be used for management decisions.

Reinsurance: Reinsurance is the insurance of insurance companies. It is a way for the insurance company to transfer a part of the financial risks associated with insurance to another company. Reinsurance is a way of insurers to accessing additional capital, allowing efficient transfer of risk and expansion of risk acceptance capacity beyond the scale which would be allowed by the internal capitalisation and reserve accumulation of the insurer.

Risk mitigating: Risk mitigating refers to actions taken to diminish the risks. A number of approaches can be taken to mitigate risks, for example risk management, early consultation, etc.

Risk transfer solutions: Risk transfer solutions are solutions put in place to transfer the risk to another party. For example, in the insurance field, the term "risk transfer" can refer to transferring part of the known risk to the reinsurance sector.

Risk: Risk refers to the possibility of the economic consequences of loss events. Risk is unambiguously characterised by the overall economic consequences, i.e. losses, possible loss events, and the probabilities associated with different losses of these events, i.e. the probability distribution of losses. In insurance, risk refers to insured losses only.

Stochastic variants: "Stochastic variants" describes the methodology of using probability distributions instead of deterministic values in functions or models, e.g. for calculating risk (see Monte-Carlo simulation methodology, above).

Transboundary animal disease: Transboundary animal diseases are "those [diseases] that are of significant economic, trade and/or food security importance for a considerable number of countries; which can easily spread to other countries and reach epidemic proportions; and where control/management […] requires cooperation between several countries".[258]

Trigger: The mechanism that activates contingent funds requires a variable, called the index, and a determination of a value for the index, called the trigger. Further explanations on the selection of a trigger and an index can be found in Annex 1 of Part II of this report.

Zoonoses: Any disease and/or infection which is naturally transmissible from vertebrate animals to man.[259]

[258] Otte, M.J., Nugent, R. and McLeod, A.

[259] The World Health Organisation (2007) http://www.who.int/zoonoses/en/

Annex 4: Executive summary of report *Enhancing control of highly pathogenic avian influenza in developing countries through compensation: issues and good practice*[260]

[260] World Bank (2006a)

Executive Summary

Highly pathogenic avian influenza (HPAI) under current conditions poses a major risk to human and animal health. Efforts to contain the disease are therefore in national and global interest. As the most widely practiced control methods for poultry involve culling birds that are infected or in regions immediately around infected animals, the most common practice to ensure the cooperation of owners of birds is to compensate them for the culling of their animals to achieve this public goal. Early identification of HPAI and the immediate culling of diseased or suspected animals are critical elements of reducing the risk of the disease spreading. The international community and national governments have responded to this challenge by establishing funding mechanisms to enable compensation to assist in this strategy.

Payment of compensation to farmers whose animals are being culled enhances producer cooperation through better motivation to comply with the disease reporting and culling requirements of disease control packages. It reduces the time lag between an outbreak and containment actions, and hence diminishes the overall cost of control. To the extent that it reduces the virus load, it also reduces the risk of the virus mutating to becoming transmissible from human to human. Enhancing early reporting and complete culling of diseased or suspected birds is thus the first objective of compensation schemes. A second objective can be to reimburse losses of private citizens who have complied with a disease control process for the public good. This is compatible with the first objective.

While the imperative of disease containment drives compensation schemes, the reality of the severe impact of culling on very poor people cannot be ignored. However, a compensation scheme cannot cover all livelihoods losses caused by livestock disease control and it cannot replace social safety nets. This requires other measures, outside the scope of this paper.

The report seeks to provide guidelines on good practice for payment of compensation as part of HPAI stamping-out strategies. It is meant for national and international managers and project staff involved in containing HPAI. It responds to a request of the Senior Officials Meeting on Avian and Human Influenza held in Vienna, June 6–7, 2006, and the result of the work of a multidisciplinary team from the World Bank, FAO, and IFPRI. The report is based on review of the well-established literature of compensation practices in the developed world, staff interviews, experience, and newly emerging gray literature (project documents, mis-

sion reports, and so forth) on compensation in the developing world, and specific field visits to Egypt, Indonesia, and Vietnam.

Preparedness Is Key

An effective and efficient compensation scheme will compensate the appropriate beneficiaries for the appropriate losses and at an appropriate level, with only a short interval between culling and payment of the compensation. This will only be possible if a number of elements are already in place before an outbreak. There needs to be appropriate legislation for the control of animal disease in force that spells out clearly the rights and responsibilities of government, livestock sector and marketing personnel, and farmers in animal disease control. There needs to be widespread awareness of the dangers of the disease and how to mitigate them. Funds have to be readily available and the procedures and sequencing of actions to be followed for compensation need to be agreed in advance. Preparations for the implementation of expedient and transparent payment schemes need to be in place.

Procedures and sequencing of compensation require knowing who to compensate, when, how much, and how, and all the stakeholders have to be aware of and have faith in the system. Widespread knowledge in advance of what the stakes are (including poultry holdings) and identification of the stakeholders are key elements in improving the governance of the use of compensation resources, which is especially difficult in emergency situations.

Because preparedness is essential to using culling and compensation effectively and efficiently for disease control, countries need to make a host of arrangements without necessarily having national precedents to guide the way. The present document tries to illustrate key lessons from countries such as Thailand and Vietnam (and others) that have learned by doing and incorporated many of the lessons in revised strategies. Even with guidelines from elsewhere, national avian influenza committees will still need to negotiate specific arrangements with national stakeholders in a way that fits local conditions, and this takes time and effort.

Countries faced with outbreaks before they have their contingency plans in place will need to adopt the most basic measures. Even so, the same issues of who to compensate, when, for what, how, and how much still apply. However, the need to move quickly for disease control will force many of the normal oversight tasks to a later date and is likely to make governance issues even more difficult.

Finally, it will be difficult to delink compensation practices from both changing needs for effective disease control and the issue of equitable production systems change as the disease becomes endemic. This aspect is also introduced briefly in the concluding chapter.

Identification of Beneficiaries

As a general rule, the beneficiaries of compensation are the owners of the animals. Other supply chain participants, such as feed suppliers and market operators, may also incur losses when livestock production and sales are disrupted by disease, but they have not normally benefited from compensation schemes. The type of production system significantly shapes feasible identification procedures. Large, highly biosecure poultry farms (the so-called sector 1 and 2 under FAO/OIE nomenclature) have generally good inventory records and culling is well controlled. Farmer documents are then a basis for compensation.

Under conditions of contract farming in these systems, ownership of the birds decides the beneficiary. If the contractor is the owner, he/she would be compensated, and takes the responsibility for reimbursing the integrator. If the integrator owns the bird, he/she will receive the compensation. In a few cases, arrangements have been made to pay the contractor for lost income on a wage per day basis, with funds subtracted from the integrator share before payment. The issue of how to incorporate contract growers into compensation process remains a problem that many countries are only now beginning to look into. More attention needs to be addressed to this issue lest it becomes a loophole limiting effective control of the disease.

Identification of the beneficiaries for small enterprises and back yard systems (the FAO/OIE denominated sectors 3 and 4) is more complex, as records are normally not available, and factors such as differential ownership by gender come into play. Surveys as part of the preparedness planning (not after the disease emerges), including the identification of ownership patterns, broad awareness of the existence of compensation and payment as an integral part of the stamping-out process, are then key factors to ensure a broad participation of the sectors 3 and 4.

Type of Losses to Be Compensated

Normally, compensation covers only the so-called direct losses, which include the value of the animals,

and sometimes also (in richer countries) the costs related to the disposal of dead animals and cleaning and disinfection. So-called farm-level consequential losses, due to business interruption, movement control, and price effects are not compensated, although in many developed countries private insurance schemes exist for such losses. Dead animals before culling are often not compensated, however there may be a rationale to do so at least partially where either dead animals have market value (and thus there is the danger they will be sold) or disease control teams cannot respond within 72 hours of disease reporting by the farm in question. In all cases the accurate computation of losses is greatly aided by having adequate farm-level records of poultry holdings, and it will be important to promote such a database prior to disease outbreak. Finally, the lion's share of actual economic losses to the countries in question may be indirect: lost feed sales, diminished tourism, absenteeism at work, and so forth. These losses are never covered by public compensation schemes. In principle, they could be insurable under private sector contracts outside the livestock sector if risks are well known, but they rarely are.

Setting Compensation Rates

Compensation rates are variously set on the basis of (a) market value; (b) budget availability; and (c) production costs. Setting the cost on the basis of market value, wherever possible, is the preferred policy, as basing the cost on budget availability often leads to underpayment, and hence poor compliance with the culling operation, and production cost would favor inefficiencies, and is more complex to establish. Experience that emerges from the review in establishing compensation rates based on market values shows:

- Compensation rates as a percentage of a reference market price should be set before the disease emerges, as part of an overall preparedness plan, using average preoutbreak market prices at the farm gate, computed with due regard for seasonality and the transport costs from the local community relative to the reference market. For special category birds (rare breeds, indigenous poultry, fighting cocks, grandparent stock, other bird types), where market prices are not readily available, consultation with the stakeholders is required to set realistic levels.
- Uniformity of rates across the country and for different classes of birds improves the implementation efficiency of the program, and should be pursued in situations with good control. However, in situations of poor movement control, differentiation by type of bird (layer, broiler) and age/weight of the group might be needed to fit compensation as close as possible with prevailing market prices. An interesting intermediate solution might be to pay not on the basis of numbers but on the basis of the total weight of the flock.
- Compensation rates should be no less than 50 percent of the reference market value of suspected birds at the farm gate, and no more than 100 percent. The rationale for the preferred range of 75–90 percent of the reference price and multiple considerations for being closer to one or the other limit are discussed in the report. Rates should be considerably lower for diseased birds and even less, but positive, for dead birds, to provide positive incentives for early and complete reporting. Careful attention needs to be paid to bird movements during compensation to ensure that an incentive is not being created for the influx of healthy birds to disease zones or diseased birds to disease-free zones.
- In dealing with small farmers in developing countries, compensation should be paid within 24 hours of culling by cash (or possibly voucher where handling cash presents a security threat and credible local formal financial institutions such as rural post offices are available); any delay is likely to have a significant effect on reporting.

Establishing Awareness

Experience from on-going campaigns highlights the absolute necessity of communication on disease control and compensation, which when done properly may run from 10 percent to 20 percent of the total package cost. The package should contain components of consultation with the beneficiaries, advocacy, and information, using multiple media and channels. The specific messages on compensation should explain to affected farmers the need for mandatory culling in cases of suspicion of avian influenza as a necessary measure to protect the health of the entire human population. They should contain the principles, procedures and grid of compensation levels, precise information on the exact amounts, and payment procedures. Messages and media should be prepared ahead of time with inputs from both technicians and communication specialists. They should also be consistent over time, since frequent policy and message changes undermine the credibility of the campaign. Private sector operators, such as para-veterinarians, can play a critical role in awareness raising and overall support to the campaign, and their input on retainer fees should be more encouraged than is currently the case.

Payment Systems

To promote early notification of suspected outbreaks, compensation for culled birds must be paid promptly following the birds' destruction. Critical elements from an appropriate payment system follow.

- Rapid access to adequate funding for immediate deployment as needs arise is essential. Sources typically are government's own funds from the National Treasury, farmer's contributions, and those of donor partners. National budgets need contingency funds of at least 3–5 percent of total budget to facilitate a rapid central contribution in the event of an outbreak; alternative contingency planning will be necessary where this is not available.
- The share of compensation payments in total animal disease control expenditures under outbreaks ranged from 0–45 percent in the cases studied, with a central tendency of about 35 percent. Holding large sums as contingency reserves to allow a rapid response engenders a considerable cost. For compensation planning purposes, the upper range of foreseen culling during a severe outbreak should be capped at 10 percent of the national flock. Many outbreaks are controlled with culling of less than 1 percent of the national flock. Once the share of infected and closely associated birds exceeds 5 percent of the total national flock, vaccination typically starts substituting for culling and compensation. These percentages, multiplied by the size of the national flock and again by 75 percent of the average farmgate poultry price, provides a rough estimate of the range of funds that need to be accessible for compensation payments per se on short notice. Countries that are important poultry exporters and wish to avoid vaccination (such as Thailand under its 2004 outbreak) should plan at the 10 percent (high) limit, countries with little in the way of poultry exports and a large percentage of smallholder poultry producers at 5 percent, and countries with little trade concern, a high degree of biosecurity, and a creditworthy public finance system at 1 percent.
- The system should be simple enough to be used in difficult field situations and should make use of existing institutions (for example, line ministries, veterinary services, financial institutions). It is important to clarify responsibilities in advance, make provincial cross-agency coordination arrangements, and establish local contingency funding. If no system is in place when the disease emerges, the focus will need to shift to a greater reliance on ex post independent scrutiny to avoid inordinate delays in paying compensation.
- Eligibility databases and emergency payment (see above) procedures should be prepared as part of the emergency part preparedness plans; where lacking, they will both need to be set up when the disease emerges, posing considerable difficulties.
- The veterinary services (assessing the need and reliability of the culling), the Ministry of Finance (payment), civil authorities (security), and community leadership (transparency) should all be directly involved in the payment process.
- For sectors 1 and 2, bank transfers are the most adequate instrument; cash payments are the preferred method for those farms of sectors 3 and 4 without banking access. Vouchers are often less credible for immediate motivation of rural households, but may work where they can be integrated with a dense local network of trusted financial institutions, such as rural post offices.
- To the extent possible, maximum use should be made of local banking entities, producer's organizations, veterinary services, and nongovernmental organizations (NGOs). Their fiduciary assessment should be part of the preparedness planning.

The Way Forward

While over time the international public good argument regarding the risk of human-to-human transmission of HPAI might diminish, transmission between animal populations of different countries will continue to be a main reason for international funding of disease control in developing countries. Moreover, in the likely event of the disease becoming endemic within certain countries, this will have major effect on the poor, and interventions under those conditions therefore deserve international support from an equity perspective. Stricter disease control requirements will have a major effect on the structure of the industry, with implications still to be clearly identified for the future viability of the sectors 3 and 4. Nonetheless, compensation is likely to remain necessary for many years to come to promote the early eradication of outbreaks and to avoid the spread of transmissible animal diseases.

Under such conditions, compensation will:

- Become part of modified stamping-out strategies, with probably a lower priority to culling. Clear principles of how stamping-out strategies should evolve, and how compensation fits into such evolving strategies are needed.
- Have to become more dependent on the countries proven political will to improve the key institutions for animal health, in particular for early alerts and independent disease reporting. The OIE tool for Performance, Vision and Strat-

egy (PVS) is a useful instrument to assess government capabilities.
- Be restricted to sectors 3 and 4, and be funded from a mixture of national and international public funds, the latter in particular for the poorer countries.
- Be funded for the large commercial sectors through private initiatives, probably as a mix between mandatory levies and voluntary insurance; in many cases the public sector needs to work with the private sector to find equitable ways to develop these systems.