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COMPENSATION PROGRAMS FOR THE SANITARY EMERGENCE OF HPAI-H5N1 IN LATIN AMERICAN AND THE CARIBBEAN



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COMPENSATION PROGRAMS FOR THE SANITARY EMERGENCE OF HPAI-H5N1 IN LATIN AMERICAN AND THE CARIBBEAN*

* Emergency assistance for early detection and prevention of avian influenza in the Caribbean (TCP/RLA/3103); Central America (TCP/RLA/3104); Andean Region (TCP/RLA/3105) and Southern Cone (TCP/RLA/3106)

**Emergency Centre for
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Preface

Up to October 11th, 2007, 5,234 cases of Highly Pathogenic Avian Influenza (HPAI) by the virus H5N1 Asian lineage in the commercial poultry flocks of 44 countries were registered, a fact without precedent that has extended from Asia to Europe, Middle East and Africa with implications to public health, since it has meant the infection of 331 persons in twelve countries, 203 of whom died. Faced with the threat that the disease becomes an epizootic, and with it the possibility that the virus becomes pandemic, the strategy adopted by most of the affected countries to control its dissemination has been to slaughter and destruction around 250 million birds with the economic losses that this represents to both the owner and the country; this makes it indispensable to establish a compensation strategy that benefits both.

The gained knowledge from disease outbreaks show that the immediate detection of its introduction and killing and destroying the affected birds, as well as their contacts and nearby birds is the best way to prevent its dissemination. In Central and West European countries the notification of suspicious cases made by the producers, has contributed to avoid the establishment of the disease in spite of being constantly identified in wild birds.

The best way to encourage notification is by means of a compensation program in which the government pays to the bird owner the right price for the goods destroyed in benefit of the society, with the purpose of avoiding the dispersion of easily transmissible diseases. As compensation in Latin American countries has been an issue difficult to approach, FAO financed and prepared, with World Organization for Animal Health (OIE) cooperation, the present document containing a review on the subject, an analysis of the current status in Latin American and Caribbean countries and recommendations for the design of an appropriate national strategy. FAO thank the author of work Dr. Claus Köbrich, Professor at the Universidad de Chile and the valuable contributions of Dr. Luis Barcos, OIE Regional Representative for the Americas, Dr. Francisco Muzio, Head of the Veterinary Services of Uruguay. FAO also thanks the contributions made by Dr. Ana Riviere, FAO Official for Livestock Policy and Dr. Juan García García FAO International Advisor on avian influenza.

The present document wants to motivate the Agriculture Ministries and the Official Veterinary Services of Latin-American and Caribbean countries to develop a compensation strategy based on the lessons and experiences made at world-wide and regional level.

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Executive summary

Compensation for animals and goods destroyed as part of an eradication or control program for an exotic and highly contagious disease, as it is the case of Highly Pathogenic Avian Influenza (HPAI), has two theoretical foundations: to reduce the asset loss produced and to promote notification. The problem is that this requires high compensation levels, equal or even higher than the value of the destroyed good, outbreak this not only increases public expenses, outbreak that can strongly reduce biosecurity of the farm. In addition, the significant impact that this or another disease can have on the quality of life, particularly of the small farmers, gives the compensation programs a social dimension.

Issues that must be considered in the design of a compensation program, in addition to the legal framework in which they are implemented, relate to the amounts and the persons to compensate, as well as the procedures and the financing of the compensation. The decisions relating the first three issues are very important, since they affect the success of the program directly, in terms of the control of the disease. The amounts of compensation can be defined as a proportion of market prices or production costs, considering different bird species or categories. After defining the bird's base value, it is necessary to define on what a percentage of this value the birds will be compensated. A low percentage discourages notification, however a high percentage, even above market price, which means consequent losses are compensated, increases sanitary risk and unlawful claims. To define who will be compensated, not only implies to decide on compensating ill or dead animals, outbreak also the option of differential compensation schemes according to flock size and what that to do in cases of shared stockbreeding systems. The topic of compensation procedure must take into account the institutional and local arrangements, since it is fundamental that the payments are timely and clear. Finally, the program's financing has to be addressed. The funds can come from private or public sources. For the former, the challenge is to get funds proportional to the size of each producer, specially when the great majority are small farmers. For the latter, the greatest problem is its provision, because normally they are not used every year, and thus it is likely that the budget item will be diminished or removed. Also it is necessary to estimate the required amounts available, which will depend on the sector's size and characteristics, as well as the expenses which will be allocated to management, communication, etc.

In the previous context, the document makes a review of the sanitary legislation and the existence of programs of compensation in 19 Latin American and Caribbean countries, as well as of some regional initiatives. The document shows that countries which that have used compensation programs, did it to restore a destroyed good, outbreak not to stimulate notification. The amounts given only compensate the animal's value outbreak do not differentiate between types of producer. Outbreak, many of these countries have other public services that could aid small producers emergency funds. The compensation programs are publicly funded, and some receive private contributions. In either case the funds are man-

aged by the state and thus subject to regulations which slows down payments. The feeling remains that compensation is not seen as a right, and thus affected stockbreeders must show that they deserve it. In synthesis, the compensation is not perceived as an important tool for early detection and control of diseases.

These results show that is necessary to count with compensation programs as a tool which is part of a early detection, control and eradication strategy against HPAI. To attain this, requires a legislative effort to modify the existing legislation or to adopt laws and regulations.

Grounds for a compensation program

THE IMPACT OF THE DISEASE AND ITS CONTROL

Faced with the risk of a world-wide dissemination of Highly Pathogenic Avian Influenza (HPAI), of subtype H5N1, Asian lineage, many decision makers ask themselves what to do to prevent its entrance to the country or how to avoid that it becomes endemic in countries where it is already present. The emergency control measures to avoid new outbreaks and to stop its dissemination are based on stamping out, which entails the large scale destruction of infected birds or birds which had contact with them (Jutzi and Doménech, 2006). The outbreak of the disease and the control measures can have huge impacts at all levels. For large scale producers, the high concentration of poultry has led to the destruction of millions of animals, with loss of working capital and losses due the costs related to the destruction and sanitization of animals and facilities. For the small producers, these same measures can imply closing their operations and a serious threat for their survival. In both cases, these losses are increased by a fall in consumption and product prices, caused by the disturbing news spread by mass media. For backyard producers, many on which live in poor conditions, the destruction of their animal seriously affects their nutrition and means of subsistence. In addition, the whole country is affected, since poultry and eggs are fundamental in their diet.

Beyond the ethical or epidemiological issues related to killing animals to prevent the dissemination of a disease, we have to keep in mind that in search of superior good (represented by the control and the elimination of the disease) an agent (the state) destroys the goods of another agent (the owner or keeper of the animals). This immediately raises the question of the obligations the former has to indemnify or compensate the latter. This does not mean that killing followed by compensation are justified in all the diseases. According to the World Bank *et al.* (2006) diseases eligible for compensation should:

- Be highly contagious, possibly zoonotic diseases, and producing huge losses
- Affect animals important to commercial agriculture
- Have public and private compensation funds
- Be exotic (i.e. less frequent for endemic diseases)

It must also be taken into account that sacrifice and compensation affect, positively or negatively, the notification of diseases, the time span between the identification of the index case and the taking of containment measures, and the prohibition of the movement (sale) of healthy or infected animals from and towards the control zone (World Bank *et al.*, 2006). The producers themselves recognize that, as it has happened in many countries, "if there is no compensation mechanism, the owner tries to remove quickly his animals,

whatever the cost, with the consequences we can all imagine, scattering the disease to all places¹". In any case, compensation expenses are not a social cost, since they implies a money transfer from the treasury to the owners of birds. Outbreak, collecting the compensation funds does has an impact on the society, since the taxes necessary to finance this fund reduce the added product. Some estimates are that for each collected dollar the product diminishes diminution in USD\$ 0.30 in the European Union, USD\$ 0.50 in the Southeast Asia and up to USD\$ 1.00 in African countries (Tuan Dinh *et al.*, 2005).

Summing up, compensation programs are necessary, particularly with governmental support, because destruction of birds is compulsory and it causes losses to the producer, they may encourage notification and reduce the transport of ill animals, and with it, in the case of HPAI, the threat to the public health (Riviere-Cinnamond, 2005). In addition, if the disease spreads it will call for trade restrictions and affect productivity of the complete sector (World Bank *et al.* 2006).

THE PURPOSE OF COMPENSATION

As already mentioned, from a legal point of view, it would be relevant to compensate because private goods have been destroyed to reach a public end. Nevertheless, many authors also mention that compensation would have effects that go beyond the partial or total restitution of the destroyed good. Riviere-Cinnamond (2005), McLeod (2006) and World Bank *et al.*, (2006) mention the following:

- They stimulate the notification of diseases, reducing the time span from the first finding and the onset of control measures;
- They foster the handover of sick animals, instead of their consumption or sale;
- They provide a safety net that protects the farmers until they can repopulate.

The problem is that the real effect of compensation programs on notification and sick animal hand over delivery of ill animals is much unknown. Only a few studies have analyzed the issue from a theoretical perspective (for example Gramig *et al.*, 2005). Further, the existence of compensation funds can also call for unwanted behavior, and thus, in the long run the social welfare will be lowered due to this program (Hannesty, 2007). One unwanted behavior is opportunism and a second a greater propensity to take risks. Opportunistic behavior is a risk that always is present when public resources are involved, either through unscrupulous use or directly abuse. There are at least two possibilities to control this behavior, originated by the fact that the veterinary service can not know with certainty what measures (appropriate or inappropriate) has taken the owner to prevent or control infection. One option is to give a compensation that is smaller than the farmers loss outbreak greater than the gains he has, if he does not notify. In other words that simultaneously notifying is not a good business and not-notifying becomes a bad business. The latter one can be achieved, for example, if the farmer loses all possible benefits if he does not

¹ Statement made by Dr Isidro Molfese, Executive Secretary of the Latin American Poultry Association (ALA), observer at the Avian Influenza Seminar and Drill held in Paraguay (www.abc.com.py/especiales/gripeaviar/articulos.php?pid=335527)

notify. The second option directly aims to improve the information flow through the appropriate control and auditing systems. Although this option seems simple and direct, under the conditions of an animal health emergency, it will cause that compensation programs become bureaucratic and slow, reducing the effectiveness of notification.

The second unwanted effect of compensations, and more difficult to deal with, is a possible reduction or absence of an increase on the farms bio-security levels. As a rule, the actions of a private agent depend on the perception of the benefits and costs associated to his decisions. In this case, the decision to adopt more or less measures to control or prevent a disease (to invest or not in biosecurity), will depend on how he/she perceives the risk that his animals get sick or infected and the losses associated to the disease or infection. In general, the risk of getting infected with an exotic disease is perceived to be very low. If we add to this the existence of compensations in case that the disease affects its animals, then he/she will perceive that the financial returns to risk reducing measures (biosecurity) are negative. Many factors explain the negative perception of these returns, including insufficient information on the losses produced by the disease, a low perception of the disease risk, the fact that the health is a public good and therefore a responsibility of the health services, etc. Thus, informing private agents is a way to support the implementation of eradication programs (Wolf, 2003). The problem is that lack of information increases risk propensity, which not only affects the producer himself, outbreak also other stockholders as he does not assume (internalize) the costs of the enzootic consequences of his careless behavior.

Therefore, the compensation programs must balance these two producer behaviors, i.e. the propensity to notify and the investment in biosecurity. This means, from the economic point of view, that the compensation program must have compatible incentives, obtaining an appropriate behavior on biosecurity and notifications under all circumstances. Thus, the extent of the economic and social consequences of a disease outbreak will depend largely on the behavior of each actor. In this sense, it is also very important that governments are willing to compensate the harm done. The problem is that in most countries farmers do not believe that the government is prepared to compensate, not because lack of funds, outbreak by lack of political will.

STUDIES ON COMPENSATION MECHANISMS

The purpose of compensation or indemnity programs, as they are used today, is to pay reasonably for the goods that the public agent took from a private agent, and thus to stimulate the notification of a disease. So the program restores producers equity, destroyed by public action, and simultaneously stimulates a quick notification of the disease to reduce the time span between the outbreak and the start of control and eradication actions. The importance of the latter is that the span between the initial infection and its recognition affect the duration and severity of the outbreak (FAO, 2002a). As already mentioned, only a few empirical or theoretical studies have analyzed the effect of compensation programs on producer behavior, either in terms of notification or investment in biosecurity. In any case, there is no empirical evidence showing that increases in the indemnity payments lead to changes in the notification attitude of bird holders (Nin Pratt and Falconi, 2007). Kuchler and Hamm (2000) studied the effect of the prices coupled with governmental

compensation programs on the control program of Scrapie in the USA. They show that case notification was elastic with respect to the amount of compensation paid, i.e. higher compensations increased notification.

Bicknell *et al.*, (1999) found that in New Zealand policies and existing eradication programs combined with the private control actions have a greater effect on disease prevalence, compared to private actions alone.

Gramig *et al.* (2005) analyzed theoretically the incentive compatibility of different compensation schemes designed to promote notification in case of a disease outbreak. They concluded that compensations alone are insufficient to stimulate both notification and higher biosecurity. They conclude that the low indemnities do not favor notification and very high indemnities reduce biosecurity measures. They propose two solutions to this problem. One is to set the compensation at a level such that it determines optimal biosecurity levels, combined with a system of penalties that force the immediate notification of diseases. Unfortunately, it is not easy to compute the optimal compensation level. The other option is to use only compensations, outbreak with values set higher than market prices, compensating therefore also for consequent losses. So notification is encouraged. To get incentive compatibility, payments are reduced as the prevalence of the disease increases, i.e. a decreasing marginal compensation. As the disease spreads, losses caused by the disease increase (there is less compensation) and the returns to investment in biosecurity also increase. In both cases, it will always be important to encourage notification at all levels of prevalence, to limit the possibility the disease spreads and to reduce social losses.

Another way of getting compatible incentives, is to give compensations conditional to self-notification. In other words, there is no payment if, being the producer able to detect the disease, it was found by a third party (e.g. notified during the sale or slaughtering, infection of neighboring farms, etc.). These incentives are very strong, and although only confirmed cases are compensated, the incentives for good management would not have to be distorted. When a compensation scheme with penalties is applied, surveillance costs may be reduced (Gramig *et al.*, 2005). These schemes, although interesting, can be difficult to put in practice in many countries.

There is an evident information asymmetry between producers and the veterinary service responsible for disease control and eradication. Therefore, it becomes critical to have compatible incentives during the implementation of risk management policies which help dealing with the problems caused by farmers' concealed actions both ex-ante (biosecurity) and ex-post (notification). Two mechanisms are required to simultaneously solve both moral risk problems. The theoretical model predicts that if optimal penalties can be used to assure notification, then total compensation must exceed direct losses and marginal compensation must increase to a lower rate than marginal costs, so that private biosecurity reaches the levels wished by the planner. Complete insurance is not recommendable when the conditions for incentive compatibility are satisfied, as risk adverse producers should always bear some risk (Gramig *et al.*, 2005).

Finally, the notification versus biosecurity problem can also call for a compensation program which provides subsidies for biosecurity (Hannesty, 2007).

Compensation programs

Once agreed on the need for an agent, to compensate other actors whose rights have been affected through his action, it becomes necessary to define the guidelines for a compensation program. In addition to the programs' objective, the topics that have received more attention are those related to amounts, actors, mechanisms and financing. FAO's recommendations on the design of compensations programs include these and other aspects (Riviere-Cinnamond, 2006b)².

Before approaching these issues, it must be borne in mind that the legal framework is very important when fighting diseases. First, a distinction has to be made between existing legal systems. The legal systems in the world are **Continental Law**, which is used most of Latin-American and Caribbean countries, except the English speaking ones, where the **Anglo-Saxon right** (or common law) is used, and Argentina where both systems coexist. The great distinction between Continental and the Common Law are that first is based on more on written laws than jurisprudence, whereas in Common Law jurisprudence is more important as written laws. This distinction is not minor, as within the countries using a Continental legal system we can distinguish between a) those where the obligation to repair the caused damage has been written down, b) those in which the legislation specifically denies compensation, and c) finally, those where that nothing is said on the matter (de la Sota, 2007). However, the Common Law recognizes that a civil wrong ("tort") gives right for legal action. In other words, even if there is no written law each person has the right to demand a compensation.

Within the different topics which must be considered in animal health legislation, there are two relevant the point of view of compensations. First, the sanitary authorities must be able to declare a sanitary emergency, which implies the access to sufficient and immediate funds for its control or eradication. This ability must be subject to a list of diseases all of which may be subject to quarantine. In certain cases it must also allow killing sick animals and their contacts. Second, it is of very important to compensate quickly the producers whose animals have died or have been killed, so to stop the spread of the disease. Thus the laws and regulations have to state if and under what circumstances compensation, and how these payments will be authorized and made. The basic issue relating to compensation should be regulated through laws or decrees (FAO, 2002b).

HOW MUCH SHOULD BE COMPENSATED

It was mentioned before, that the question of how much to compensate is not irrelevant, as it affects directly the behavior of private agents. Outbreak defining the amounts to compensate has difficulties that go beyond the issue of encouraging or not notification.

² Annex 1 "Compensation strategy checklist" includes the full document (page 43).

These include what must be compensated for and how will the amounts to compensate be defined. From an economic point of view killing birds produces three types of losses which can be compensated. The first one is the direct cost of destroying the animals and disinfecting the premises, the second is the value of the destroyed animals and the third one the consequential losses, i.e. those caused by failing to meet business agreements. To this indirect losses can be added, these are costs suffered by actors in other sectors or other parts of the market chain (World Bank *et al.*, 2006).

The cost of destroying and disinfecting is probably the easiest to establish, since those are real costs sustained during the application of the sanitary measure. Outbreak it must be kept in mind that as a result of a disease outbreak, these costs will increase as the disease spreads.

To determine the value of each destroyed animal is difficult for several reasons. The most relevant relate to bird types or categories, the value for each type and regional differences that could exist within a country. In general it is recommended to have values differentiated by type of bird and age, outbreak taking care not having too many categories, which is difficult to manage (Lasley, 1986; Riviere-Cinamon, 2005, McLeod, 2006). For example, Canada's Compensation for Destroyed Animals Regulations³ establishes maximum amounts for each birds species (hen, turkey, duck and goose). The 2006 modification proposal considers up to four categories in each one of them: for egg production, for meat production, parent breeders and grandparent breeders⁴. Once the categories have been defined the value of each one has to be established. There are several ways to establish the compensation level:

- **Production costs:** The value is given by the average cost of producing a bird of that category and age, which includes capital, work, feed and technology (World Bank *et al.*, 2006). It can be used when markets are not developed and there is no pressure to determine these costs (i.e. there is no disease). Once determined the costs, it is relatively simple to set the value according to the age of the bird. The problems are that it costs are sometimes difficult to measure and can result in overestimating the value market, and that high estimates can favor inefficient producers.
- **Market value:** The value is given by the price of the product in the market, discounted to the point in which the sale decision is made (farm). This discount can be a fixed rate, which usually varies between 50 and 90 % of the value of market (World Bank *et al.*, 2006). The problem is that market values do not exist for all bird categories or ages. The age issue is not unimportant, as the value of a few day old chicken is quite different from a chicken which is due to be slaughtered or that of a hen beginning or finishing to lay. Further, market prices are strongly affected during a disease outbreak. So far, several projects of the GPAI⁵ have defined the compensation base price as the price observed 2 to 3 months before the outbreak. Also, the base price had to be redefined each 4 to 6 months.

³ SOR/2000-233, www.canlii.org/ca/regu/sor2000-233/whole.html

⁴ Regulations Amending the Compensation for Destroyed Animals Regulations Vol. Canada Gazette 140, No. 46 – November 18, 2006. www.canadagazette.gc.ca/part1/2006/20061118/html/regle1-e.html#avis

⁵ Global Program for Avian Influenza, (World Bank).

- **Bird value appraisal:** The value is appraised by a commission, made up by representatives from the private and public sectors, the birds' owner, the poultry associations of producers or, independent experts. The manner how these commissions works varies between countries. Such Commissions have been used, for example, in Rumania (Sa'idu; 2006) and Uruguay (against Food and Mouth Diseases - FMD). These Commissions can consider the number of birds, their age, status, genetic value, regional price differences, etc, when setting the flocks value. But, in addition to problems which may arise from the subjectivity of the appraisal, it is operationally difficult to use these commissions when the affected producers are many or very small, for example backyard farmers.

When the birds or their products show large price differences within the country, most frequently due to differences in production costs, then these differences should also reflect in compensation payments. Setting the base price would have to consider the seasonal and geographic price changes, as well as differences according to producer type (World Bank *et al.*, 2006). Not considering these price differences, can determine differences in notification rates (less notifications where the costs are higher and more where they are lower). At this point it is necessary to insist on the issue of the animal displacement, between zones of a country or even between countries, mainly when the sanitary barriers at the border are deficient. Naturally a farmer with birds inside an affected area, will do all the possible to remove his animals, even when the risk of getting infected is minimum. His incentive is to take advantage of the better market conditions outside the quarantine area (Lasley, 1985). Thus, when defining a compensation scheme with different payment rates between zones, care has to be taken to avoid the transport of sick birds from infected to clean areas and vice versa (to sicken them intentionally to get compensation). Some authors recommend that the payment rates should be similar in all the country and that this corresponds to a percentage of the market price, according to the financial condition and the willingness to receive the payment (Riviere-Cinamond, 2005, McLeod, 2006; Sa'idu, 2006). As an example, in Thailand payments represent from 70 to 100 % of market price and Vietnam includes a payment for repopulation. A view shared by all the authors is that both the amount to pay and payment procedures must be settled before a disease breaks out.

The third losses are called consequential losses, i.e. those that arise after stamping out. They include for large poultry farms not being able to use the premises, loss of genetic material, higher surveillance costs, the business interruption, market loss, etc. Appraising these losses is very difficult because of the diverse consequences of HPAI on consumption, markets, trade, and consequently, prices. For small and backyard flocks, stamping out and quarantine can imply a serious threat to their quality of life, due to a total loss of their business or a reduction in the consumption of proteins of animal origin. In this case, it can be advisable to grant a compensation that provides a sustenance (acting as a safety net), implying that losses caused by lower production or death of the birds were covered. Given the condition of small producers, the number of killed birds and the losses caused will be small, and therefore the total amount to compensate will surely not be very high. This makes such a compensation strategy feasible.

Next, and related to the total compensation expenses, the question has to be addressed

of the sanitary condition of the animals to compensate for. In other words will only exposed birds and contacts be compensated or will payment include sick or even dead birds. Again, this is a definition that directly affects notification. If only healthy animal are compensated, then notification will be lower in farms that have the disease, since it is better to try to sell the animals. But, if all birds will be compensated, then there will be a smaller incentive to maintain better biosecurity conditions. In this issue, the speed of response to notification is important, as a greater lapse between notification, inspection and stamping out, makes it more probable to find ill or dead birds. In other words, it becomes important to determine the status of the animals at the time of notification and not when the officials arrive (World Bank *et al.*, 2006).

The existing programs, usually focus their action in compensating the value of killed or destroyed birds. But costs arising from cleaning and disinfection normally are assumed by the own veterinary services in case of small estates and by the producers himself in larger enterprises. For the latter, it seems not to be advisable to compensate for cleaning and disinfection, since they are normal biosecurity measures. Animals which have to be killed as a result of a problem in their well-being (the so called “welfare culling”⁶), i.e. in areas where transport or movement has been restricted, should also be compensated for. So far, Vietnam recently introduced a payment equivalent to 2/3 of the rate used under stamping out (McLeod, 2006). Consequential losses are almost never compensated, as they can take insurances. There are experiences of no compensation for indirect losses (World Bank *et al.*, 2006).

WHO SHOULD BE COMPENSATED

The issue of who should (or should not) be compensated must address at least two problems. First is the issue of property of the birds and second their sanitary condition, i.e. if they are ill or even dead. Further, given spending or political restrictions, the compensation program can have different tools according to the type of producer. With respect to the property of the birds, the problem arises from contract⁷ and shared poultry breeding⁸. In these cases, if the birds’ owner or contractor is compensated, the intermediary or bird keeper will not notify and the bird keeper is indemnified, then the contractor will have less stimuli to work with intermediaries. The solution to this problem is not simple and will depend, among others, of the characteristics and formality of the relation between both. Although it seemed advisable to leave the solution to this problem to the contractor and intermediary themselves, this can generate inadequate incentives.

The decision with respect to the condition of the birds to be compensated, is mainly determined by the purpose of compensation (notification or repair). If it is a tool to stimulate notification, every person notifying should be entitled to compensation. This includes a payment for ill or even dead animals. Normally, to stimulate early notification dead animals

⁶ This is the killing of animals whose well-being is deteriorating due to movement restriction, e.g. caused by lack of foods.

⁷ These do not necessarily involve a formal contract.

⁸ For example in Uruguay and Mexico, chicken fattening is done by share-breeders called “fasoneros”, “aparceros” or “medieros”.

are not compensated for. Nevertheless, it generates an incentive to sacrifice and to sell or to consume birds in very bad conditions, specially for smaller producers (World Bank *et al.*, 2006).

In this sense, for example, the European Union compensates poultry keepers who must sacrifice their birds, because they are under risk, destroy contaminated foods and products, or disinfect their facilities and equipment. Other countries, e.g. Afghanistan, award the poultry keeper, veterinarian or sanitary official who notifies a suspicious case and which is later confirmed as positive (McLeod, 2006). Another issue relates to who or what does not have the right to compensation, even having fulfilled the conditions mentioned before. Some reasons no to be entitled to compensation include (World Bank *et al.*, 2006):

- Producers that have contributed to scatter the disease;
- Killings made outside the official program;
- Losses of businesses due to movement restriction;
- Losses caused by lower demand or market prices (since they affect all the producers); and
- Other agents of the market chain, even if their businesses were seriously affected, specially in less formal chains.

Regarding differentiated compensations, FAO/OIE (2005) classify the bird-raising systems in four sectors:

- Sector 1: Integrated industrial system, with high technology and biosecurity;
- Sector 2: Commercial system, with lower biosecurity levels;
- Sector 3: Not integrated commercial system, with low biosecurity levels; and
- Sector 4: Small scale or backyard producer with none or deficient biosecurity.

According to this classification, World Bank *et al.* (2006) indicates that Sectors 1 and 2 can be compensated with the same scheme. Sector 3, although he has similarities with sector 2, it frequently deals with multiple buyers and changes his commercial strategy from season to season. This makes it makes the define compensation values. Sector 4 is far more complicated. The bird owner or keeper is generally a woman (not necessarily the house or land holder) who feeds her family with eggs and meat, keeps no records, does not participate in development programs, has no veterinary assistance and when selling poultry products she does it informally. Marketing chains are complex and sick animals easily take part in it. In all cases, and specially in sectors 3 and 4, compensation must be made with a record of killed birds.

A very important point is that compensation aimed at controlling the disease must always be kept, both from the conceptual and the operative perspective, separate from pro poor programs, which were designed to compensate or retribute damages inflicted to poorer households. Although compensation can smooth political and social impacts of outbreaks, it must be reminded that mixing social with disease control purposes typically reduces the effectiveness of the instrument, i.e. compensation (World Bank *et al.*, 2006).

COMPENSATION PROCEDURES

One issue that must be kept in mind before dealing with compensation procedure is that government credibility is a key factor for the success of any compensation program (Nin Pratt and Falconi, 2007). Other issues relevant in the definition of the procedures which will be followed in a compensation program are how the compensation will be established and which payment system will be used. One of the most important definitions is the number of animals, their value (in case they have not been defined a priori) and the way and opportunity of payments. It is important to know clearly that from the moment the birds were killed, there will be pressure and actions from the bird keeper or owner, trying to increase, and from the paying institution, trying to reduce, the total amount of money involved. Therefore, any operative procedure that aims to reduce a priori these pressures will increase the success of such program.

To determine the amount of compensation, the procedures to get the compensation and to determine their amount must be defined previously. The existence of different production systems make it advisable to design a flexible or differentiated procedure for each sector. First, one must know which are the farms, estates or units that could apply for indemnity. Although this information is extremely valuable, also for surveillance and control programs and, it does not always exist. For the previously mentioned sector 1 and 2, i.e. production system of a large enough size to be registered through a census or in a producers' registry, so that it becomes feasible to have basic information on them (species, breed and number of birds). For the other sectors it is more difficult to get this information, although the agricultural censuses can be of some help⁹.

The number of killed birds must be recorded by the team in charge of this task, for which it is advisable to have official killing forms (Riviere-Cinnamond, 2006a). Again, a quick action is important as to avoid the death of birds (that will not be compensated or compensated at a lower rate) and the movement or killing of animals by the owner or holder. If there are no previously established indemnity payments, it is advisable to have independent appraisal committees, in which representatives from the public and private sector take part.

The topic of the way and time of payment is not lesser, since the experience shows that they generally become slow and complexes (see for example Komnas FBPI, 2007). Opportunity and quick payments are necessary to build trust and to be transparent (Sa'idu, 2006). It is even very advisable to indicate beforehand the payment dates (Riviere-Cinnamond, 2006a). Speed and good financial control have to be balanced with responsibility and simplicity. For the following reasons it is very important to have an efficient financial control, defined in the operational plan (World Bank *et al.*, 2006):

- To get funds which are quickly assigned and mobilized
- To have a suitable separation of tasks and responsibilities
- To compensate quickly with the appropriate amount and the right people
- To have with financial and social control and complaint mechanisms

⁹ Censuses are held each 10 years or more, thus data is frequently out of date.

Delays due to burdensome bureaucracy or procedures (including complaints) only discourage notification, as they increase the losses. This situation can be particularly complex in sectors 3 and 4, as they cannot finance or have no access to the financing necessary to resist large time periods without birds. Overall, it is recommended to use the existing institutions to make the payments.

FINANCING COMPENSATION

At least issues must be taken into account when the programs financing is defined, i.e. compensation program budget and the source of these funds. There is no doubt that the problem of how much funds are needed is a real issue for almost all the region's countries. The high pathogenic of HPAI implies that the number of affected producers and killed birds can easily reach very significant figures. For example, although Chile's 2002 influenza outbreak (subtype H7N3) was quickly controlled and eradicated, it meant the destruction of 560,000 birds. The breeders had to bear all the consequences, as there was no compensation program. Another example is the influenza outbreak also make haste happened in Canada the year 2004, with a virus of the subtype H7N3. It infected 42 commercial farms and almost 1,160,000 birds had to be killed. In addition, to diminish the risk of spreading the disease to other birds in the zone, 17 million birds of 410 surrounding farms were sent to slaughterhouses, before they finished their production cycle. Following the existing regulations, a total of 30 Canadian dollars for each destroyed bird was given¹⁰. This caused unrest to holders of parent and grandparent breeders, leading to a review of the regulations and a proposal for differentiated indemnity values for meat birds and parent and grandparent breeders¹¹. Now producers demand also compensation for the time it took them to recover production and sale. It is clear that the social cost of compensation depends directly on the success of the control strategy (Nin Pratt and Falconi, 2007).

There are some parameters that can be used to estimate a compensation program's financial requirements. According to the World Bank *et al.* (2006), during a HPAI outbreak between 1 and 10% of the stock has to be killed. But hey the killing reaches figures close to 5%, then it would be necessary to implement immunization programs and stop compensations. In any case, this figure will depend on the importance of exports for the industry (in which case it could reach 10%), the amount of smallholders and the levels of biosecurity. This percentage, multiplied by the number of birds and their average value allows to estimate the budgetary requirements for compensation. Moreover, the same authors suggest that the total value of compensation represents about 35% of the total costs of a control program.

Nin Pratt and Falconi (2007) estimate that Latin America needs nearly USD\$ 275 millions to be better prepared to cope with HPAI. Of this total, 20% is for the compensation program. However, if this investment is not done, the cost of compensation would rise to USD\$ 250 million. But it is more important to have always a consistent and sustainable funding. Riviere-Cinamond (2005) recommended creating for this purpose a "fund for

¹⁰ Compensation for Destroyed Animals Regulations SOR/2000-233. www.canlii.org/ca/regu/sor2000-233/whole.html

¹¹ Regulations Amending the Compensation for Destroyed Animals Regulations Vol. Canada Gazette 140, No. 46 – November 18, 2006. www.canadagazette.gc.ca/partI/2006/20061118/html/regle1-e.html#avis

the prevention, treatment and control of epidemic diseases of animals,” centralized and easily accessible, with funding from both the government (central, federal or regional) and the private sector.

Financing can be obtained from public, private or mixed sources. In case of public funds, they should be part of the normal budget. However, as outbreaks and need for compensation rarely occur, along with the usual budgetary constraints, the compensation item is quickly reduced to very low amounts, and thus in the case of outbreaks emergency funds will have to be used. This implies a delay in the release of funds. Delays will be even larger if these emergency funds come from foreign sources. The second option is private contribution to an emergency fund, which then serves as an insurance against HPAI. From the economic perspective it is reasonable that the producers cover themselves against a disease that affects them directly. However, as stamping out is done to preserve a public good, it is also reasonable that the public sector contributes with. This mixed funding would also help to improve their preventive measures, stimulate notification, helps to insure themselves against losses, and share the financial risk between the public and private sectors (Riviere-Cinamond, 2005). For example, in Australia Animal Health Australia is an organization with 25 members (Australian Government, State and Territory governments, industry groups and other organizations). Each member contributes to it according to the gross value of its territory's or sector's production.

Compensation fund is not the only item of public expenditure that can be justified. When the social costs of the disease are relatively high, it is necessary to inform the producers, so they can properly assess the full benefits of biosecurity and support the decisions taken to control as disease. Public spending can also be used to support prices and pay for increased sampling, maintaining the reliability of the results of diagnostic tests (Wolf, 2005).

One mayor difficulty of setting up this fund is determining the way and amount of everyone's contribution, particularly from private enterprises. The optimum would be that each poultry holder gives a fixed amount per bird, but this leaves the problem of determining the number of birds (how and when). Practical options would be to pay a value for each incubated egg, processed animal or marketed egg. In any case, sectors 3 and 4 would probably not contribute to the fund, due to the informality of their businesses¹².

¹² Although this would not necessarily be perceived as a major problem for producers in sectors 1 and 2.

Situation in the regions' countries¹³

Following is a description of the current situation of legal frameworks and compensation programs in most of Latin America and the Caribbean. Overall, a few compensation programs do exist, there are no compensation rules defined prior to the outbreak of the disease, the budgetary requirements are allocated according to the perceived needs and the compensation itself does not take into account any consequential losses resulting from the compulsory killing of animals. Nevertheless, this is also the situation for the vast majority of developing or less developed countries. For example, with the exception of Thailand, outbreaks of HPAI in Southeast Asia generated only small payments in terms of compensation. But perhaps most troubling is that the producers and owners themselves mention the need for soft loans (without interest) more frequently than the need for compensation for the loss of animals (Dolberg *et al.*, 2005). Furthermore, when these programs exist, the amount paid in some cases barely covers between 10 and 20% of the birds' value.

ARGENTINA

Current sanitary regulations in the Republic of Argentina include a compensation system for damages caused by the application stamping out. The Basic Law for the Animal Health Police (Act 3959 enacted in 1900) indicates that animals affected by exotic diseases (Art. 4) may be killed (Art. 17). It defines that the owners of animals, objects and buildings destroyed under this Act shall be entitled to demand compensation in cash, equal to the value of what was destroyed (Article 24). However, it establishes two rules:

- It compensates the damage actually borne by the individual, but compensation can not become a source of profit.
- Compensation should be limited to damages, without taking into account the so-called lost profits

The National Service for Health and Food Quality (SENASA) is responsible for killing and compensation. Funding for this compensation, in case of FMD, is provided by the state and considered in the annual nation's budget¹⁴. For other diseases, resources come from the budget of SENASA. According to SENASA, it would be extremely difficult to cull before assessing the animals value and finishing administrative procedures for payment¹⁵. **Resolu-**

¹³ The information was collected between July and August 2007 from the official websites of Ministries and Official Veterinary Services of each country, as well as from qualified informers.

¹⁴ Dr. Francisco Muzio. 2007. Compensation mechanisms for ranchers due to health reasons. OIE Meeting, Buenos Aires, 2007

¹⁵ Presentation made by Dr. Marcelo Daniel de la Sota, Dirección de Luchas Sanitarias, SENASA, OIE Meeting, Buenos Aires, 2007

tion 1078/99 incorporates the highly pathogenic avian influenza in the Sanitary Police Act and identifies all actions and measures to be taken in and around an outbreak. Although the resolution addresses the need of killing birds, compensation is not explicitly mentioned. The Procedures Manual for Highly Pathogenic Avian Influenza (2006) indicates that the owners of animals, objects and buildings that are killed or destroyed by SENASA under the Basic Law for Animal Health Police, will be entitled to compensation as established by this law in articles twenty-four to twenty. However, there is no program or regulations for the particular case of AI. During the HPAI drill (August 25), an appraisal group produced a double-entry table which enables to appraise the value of chickens slaughtered according to age as well as that of hens and eggs which were seized.

With regard to the information required to estimate the values to compensate, the Institute of Statistics and Census (INDEC¹⁶) has a series of monthly consumer and wholesale prices for dressed chicken and eggs, estimated from a sample of 300 outlets (Federal Capital and Greater Buenos Aires). Similar information is also available for the provinces. Additionally, INTA built a “profile of Argentina’s Agricultural Production Technology¹⁷”, which estimates variable and average production costs for laying hens and broiler chickens for various areas and technological levels. This information could be used to estimate the value of the birds at different ages.

Argentina routinely uses a compensation program for FMD¹⁸. The Eradication of Foot and Mouth Disease Act (Act 24,305 of 1994) states that the owners of killed animals will be compensated. These expenditures are financed through a regular item of the National Budget (Article 14.). The indemnity value is equal to the value of animals, objects or buildings, at the time they were destroyed, minus the value of the party which could still be used. If the disease is fatal or if the owners had not fulfilled some of the requirements of the applicable norm, there will be no compensation. Resolution 779/99 establishes the National System of Health Emergencies (SINAESA) and within it the Taxation Commission, with a representative from SENASA, a local producers and an official of local entity (Nations Bank, Provincial Livestock Directorate or a similar institution). This is similar to the provisions in the 1994 Act 24305 (FMD). The responsibilities and duties of this Committee are:

- Appraise the value of killed animals and/or destroyed property.
- Value according to current market values without considering the physical condition of the animals caused by the disease, but taking into account, if appropriate, its replacement value and lost profits.
- Fill properly the appraisal sheets.

¹⁶ www.indec.gov.ar

¹⁷ www.inta.gov.ar/ies/info/rubros_2001.htm

¹⁸ There are other tools, such as Resolution 319/2007 of the Ministry of Agriculture, Livestock, Fisheries and Food (SAGYPA), which regulates compensation scheme for producers adversely affected by cattle business conditions, and only for the sale of fattening calves from January 1 to June 30, 2007. But in fact it is a subsidy, and not a compensation.

If there were discrepancies on the appraisal or the owner of killed animals and/or destroyed property does not accept the appraised value, the killing and destruction will be done and the Provincial Federal Court will be settled briefly the dispute. The owners right to seek compensation prescribes three months after slaughter and payment should be done within 30 days. However, in the FMD outbreak in Corrientes, February 2006, where 4,500 animals were killed, the process of assessing and paying compensation took nearly 12 months, because the farmer had to prove there was no malpractice.

BARBADOS

Although Barbados has no established compensation scheme, the Animal Diseases and Importation Act of 1951 allows to slaughter sick, suspects or contact animals to prevent the spread of the disease. At the discretion of the Minister of Agriculture the owner of the animals can be compensated with resources provided by Parliament for this purpose in an amount not exceeding the value of the animal prior to slaughter. However, in practice this has never happened and there are no budgeted amounts.

According to reports provided by informers, it is being considered to create a mixed insurance.

BOLIVIA

The veterinary authority has legal backing to implement stamping out, but the legal framework makes no consideration whatsoever over compensation to owners of destroyed animals and property. PRONESA¹⁹ (National Poultry Health Program) indicates the need to have mechanisms for compensation. In this regard, the National Poultry Association (ANA) has been pursuing the adoption of the Poultry Promotion and Development Act, through which poultry producers in Bolivia are forced to provide financial resources for the creation of a Compensation Fund.

BRAZIL

The regulations of the Animal Health Protection Service (Decree No. 24,548, 1934) states: "The health authority may sacrifice sick or exposed animals and compensate their owners." The Federal Act No. 569 (21/12/1948) determines that whenever it is necessary to destroy animals, property or buildings, in order to safeguard public or animal health, the rightful owner should be compensated with money. This is valid to prevent the spread of exotic diseases, as long as these are not fatal. The Decree No. 27,932 (28/3/50) regulates the application of these sanitary measures and defines the basis on which compensation will be appraised:

- It will be the total value of the animal if the diagnosis is not confirmed, 25% for tuberculosis and 50% for all other cases; rural goods (things or buildings) will be compensated by 100%.

¹⁹ Programa Nacional de Sanidad Avícola. It was created in 2002 to control and eradicate salmonellosis and paratyphoid fever

- Goods are valued by a commission composed of a federal, a state and a private representative. Deadlines are very large (90 days).

It compensates with funds available in the annual Nation's budget, as well as emergency funds from of state organizations. Decree Law No. 24.654/34 allows to stamp to contain exotic diseases. In the particular case of birds, the Ministry of Agriculture Livestock and Supply (MAPA) has the Contingency Plan for AI and Newcastle, which gives the private sector the responsibility to create funds for financial compensation. Its aim is to support the action of the Official Veterinary Service in the surveillance, control and eradication of AI and Newcastle, in order to compensate landowners in cases not covered by compensation according to the law or through public funds. Accordingly, the Brazilian Poultry Union ("União Brasileira de Avicultura", UBA) has been pushing since the 2005 creation of a Compensation Fund for Poultry Health ("Fundo de Indenização Sanitário da Avicultura" or FISA). Further some poultry companies in the federal units seem to have compensation systems for their associates.

It is noteworthy that most of the Brazilian states have compensation funds with resources generated by the producers themselves through the payment of rates. In some states these funds are available for more than one species. For example, in Santa Catarina, Act No. 204²⁰, (8/1/2001) creates a compensation fund called FUNDESA, which is managed by a joint commission (public and private). Its use is to compensate stamping out of animals with or suspect to have FMD or other contagious disease and to finance actions relating to surveillance and health education: 50% of the budget for FMD, 30% for other diseases, and 20% for other actions. It is financed through the State budget, agreements, federal resources, health monitoring rates and other sources. Rio Grande do Sul developed the so called FESA (Act No. 11,528²¹, 19/9/2000), also with public financing (the law defines the amounts) and fees.

The pig breeding sector has also public-private initiatives. There is a fund in the state of Santa Catarina supported by the industry to help producers against possible health problems. Producers having to stamp out or his animals receives some sort of compensation. There is a similar program in Mato Grosso do Sul.

Finally, the Ministry of Agriculture of Brazil promotes the **"Rural Insurance"** which insures livestock, forestry, agriculture and others. They are looking for producers to ensure their properties in traditional insurance companies which work with the program. If they do so, they receive cash assistance by the government to finance the premium for a protection against losses from natural disasters, stamping out, and so on.

CHILE

The Law on Animal Health (Decree Act No. 16, 1963) states that the owners or holders of animals have a duty to prevent and fight diseases with treatments, measures and deadlines according to guidelines of the Agricultural and Livestock Service ("Servicio Agrícola y Ganadero" or SAG). If they were unwilling or unable to carry out treatment, or do not undertake

²⁰ www.agricultura.sc.gov.br/fdr/lei.php?id=5

²¹ www.saa.rs.gov.br/admin/docs_legis/1178715885LEI_11_528_FESA_1.pdf

it with necessary efficiency or timeliness, the Agricultural and Livestock Service will do it, with the help of security forces if necessary. The costs arising from such actions have to be paid by the owners or holders of the animals. Whenever sanitary or technical measures are implemented by the Agricultural and Livestock Service, the service shall determine the costs and these must be made known and settled by those affected. However, under justified causes, the Agricultural and Livestock Service can determine that all or part of the expenses incurred through implementing sanitary measures or techniques will be borne by the Service.

In addition, the act creating the Agricultural and Livestock Service (Act No. 18,755, 1989) indicates that one of its functions is to pay compensation to owners of property or products which not being contaminated or being healthy, have to be killed, processed or destroyed, as well as when the use of farms has been restricted by the Service, to prevent, control or eradicate a disease or pest, with a previous authorization granted by decree from the Ministry of Agriculture, which also bears the signature of the Minister of Finance. The compensation is only for damage caused effectively to private property. This authority is rarely used and only in cases of Foot and Mouth Disease (FMD). Following the outbreak of FMD in 1987, the Act No. 18,617 was signed which lays down rules for compensation for the slaughter of animals for the control of FMD. It states:

- This compensation will be received by any person who has sacrificed one or more animals
- Compensation will only cover the market value of killed animals, according to species, type and condition. The value will be set by the SAG through an appraisal by expert opinion. From this value the incurred costs will be deducted. This amount can be reduced according to economic capacity and diligence.
- Each person must request this compensation to SAG within 120 days and it should be resolved within 60 days.
- The funding is public. SAG spent the year 87 an equivalent of USD\$ 7.7 million.

However, there is currently no such budgetary item, and no emergency funds available at the Ministry or SAG.

The Early Response and Contingency Plan, part of the **Action Plan for the Prevention and Response against Avian Influenza** (SAG, March 2006), considers development or implementation of compensation mechanisms. SAG and "others" are responsible for this activity. Moreover, the handbook for Biosafety Measures for the Control of Avian Influenza (2002) states:

- The Head of Campaign must give its approval for the payment of compensation in cases of depopulation and euthanasia.
- One of the procedures when dealing with AI outbreaks is to appraise all birds and goods for possible compensation.

However, the funds to implement these measures, regulations and procedures do not exist in practice.

COLOMBIA

The Colombian Agricultural Institute (“Instituto Colombiano Agropecuario”, ICA) created in 1962 (Decree 1562), supports national policies on science and technology, health protection for agricultural production, control and monitoring of inputs and register breeders of plant varieties. In other words, support the agricultural health of Colombia. Within this framework it may slaughter in case of TB and other diseases (previous official resolution).

Colombia has compensated in cases of FMD and tuberculosis, the values were appraised according to the disease, but only if there was no negligence from part of the owner. In case FMD, although the eradication act (Act 395 of 1997) does not explicitly mention stamping out as a control measure, a subsequent resolution (Resolution 098 in 2005) indicates that the animal positive for FMD and his contacts will be killed as soon as possible. Prior to being compensated by the Livestock Federation (“Federación de Ganaderos”, FEDEGAN), the animal should be valued by FEDEGAN, ICA and the cattle owner. In case of bovine tuberculosis the appraisal is carried out by the Ministry of Agriculture, ICA and the cattle owner (resolution 0043, 28/03/2002, Ministry of Agriculture and Rural Development). Overall, the value depends on the animal productive condition and compensation is paid according to live weight. The payment is carried once the account is settled, which is usually immediately or maximum a week later. Funding for this compensation is primarily public. ICA's budget of 2006 considered USD\$ 214,000 for compensation, plus about USD\$ 100,000 for emergencies. Farmer's Unions also manage resources for this activity, and have used them in previous occasions.

Regarding Avian Influenza, in July 2007 a bill was sent to Congress to favor poultry production (FENAVI, 2007). The bill creates a National Poultry Commission, which is responsible for proposing and supervising Newcastle and AI control and eradication programs, and propose budgetary requirements. It also points out that ICA has to establish a compensation scheme to the owner of birds or products that were required to remove or destroy as a result of the presence of the influenza virus. The payment of this compensation must occur in less than six months once poultry have been killed or products destroyed. The compensation amount for slaughtered birds will be 75% of their commercial value at the time of slaughter for commercial poultry and 50% for backyard birds. Regarding the destruction of commercial poultry products, its compensation value will equal 75% of its cost. Although not explicitly mentioned, the financing of these compensations would be from the nations' budget.

It is also interesting to note that Colombia has a National Poultry Fund (FONAVI) funded through the Poultry Development Fee (“Cuota de Fomento Avícola”). This fee is collected by incubators and is the equivalent to 1% of the commercial value of a one day old chicken for meat production and 5% of its value in case of laying hens. The new bill raises those figures to 2 and 10%, respectively. FONAVI's purposes include to fund research, technology transfer, technical assistance and health programs, to promote consumption and to stabilize prices, but not explicitly to contribute to the compensation fund.

COSTA RICA

Amongst other, the National Animal Health Service (“Servicio Nacional de Salud Animal”, SENASA), which depends on the Ministry of Agriculture and Livestock, has to conserve, promote, protect and restore the health of animals, and implement the necessary measures

for the veterinary control of zoonoses. The bill Regulations for the Protection of Animal Health²² establishes that SENASA can use stamping out as a health measure, but the bill does not explicitly consider compensation for killed animals. However, the Act 4730 (Gazette, March 16, 1971) provides compensation from the state to the growers who are destroying their tomato, chili, potato, snuff, eggplant or other Solanaceae crops to eliminate the virus "Y". It is interesting to point out that there is a proposal to legislate with respect to the creation of a Administrative Health Court.

In 1997 Costa Rica established the National Committee on Sanitary and Phytosanitary Measures (Decree No. 26226-S-MAG), as a body for technical consultancy and advice to the offices of the Ministries of Agriculture and Health, for the implementation and monitoring of the obligations originally set out in the "Agreement on the Application of Sanitary and Phytosanitary Measures".

In the poultry sector, Decree No. 24583-MAG (11/9/95) created the National Poultry Commission ("Comisión Nacional Avícola", CONAVI). One of its aims is to prevent, control or eradicate endemic diseases. Later, Costa Rica stabled a Poultry Farm Regulation for all farms with more than 100 birds (Regulation No. 31088-S, 31/3/2003), which regulates facilities, infrastructure, permits and biosecurity issues. There is also the Regulation No. 29145-MAG-S-MINAE on dung management and control²³. Beginning in 2005 they implemented a series of measures to deal with HPAI, but none related to compensation.

ECUADOR

The Animal Health Act empowers the Ecuadorian Agricultural Health Service (SESA), to kill animals, but does not cover damages or compensation, neither does the Eradication of Foot and Mouth Disease Act (no. 8, 31/3/2000). But the latter states in Article 19 that persons who contravene the provisions are NOT entitled to any compensation for killing their animals. It does not indicate to whom, how or why it should compensate. Instead, Regulation 2004-10 (Art. 12) defines that in accordance with the Regulations to the Animal Health Act, whenever confiscation, slaughter and incineration has been ordered, there will be no case for compensation.

What is in mind, is to create compensation schemes based on an insurance, when Ecuador can achieve the status of FMD-free; as well as for poultry in areas covered within by contingency plans against HPAI.

EL SALVADOR

The goal of the General Directorate of Animal and Plant Health ("Dirección General de Sanidad Vegetal y Animal", DGSVA) is to protect livestock and aquaculture species of economic importance, through the prevention, control and eradication of diseases. One of its functions is to develop programs for the prevention, control and eradication of diseases. According to the Animal and Plant Health Act (Act 524 of 30/11/95) DGSVA can implement program and campaigns for prevention, control and eradication of animal diseases, taking

²² www.protecnecnet.go.cr/websaludanimal/legislacionpropuesta.htm, Versión 1.

²³ Manejo y Control de Gallinaza y Pollinaza (guano)

the actions that were necessary to fight or eradicate a disease. There is no explicit reference to stamping out or compensation arising from these actions.

According to informants, the veterinary authority may, for certain diseases, slaughter sick or contact animals. The compensation to the owners of killed animals requires an emergency decree which provides such compensation. There are no funds or other mechanisms available for this purpose.

GUATEMALA

The Ministry of Agriculture, Livestock and Food (“Ministerio de Agricultura, Ganadería y Alimentación”, MAGA) has the authority to kill animals, but does not have compensation schemes. In its policies for the development of production and trade (2004 to 2007) it mentioned strengthening the national system of Agricultural Health and Food Safety (SAIA). It does not indicate anything specific about compensation or early warning systems.

HONDURAS

The National Agricultural Health Service (“Servicio Nacional de Sanidad Agropecuaria”, SENASA) has the authority to kill animals, but not to compensate their owners. However, the Phyto-Zoosanitary Act (Decree no. 157-94, 1995) defines that in case of plan or animal health emergency which requires emergency actions, i.e. in the presence of explosive outbreaks of endemic diseases and pests or exotic pests, “terms for compensation, if any, and the special financing required to deal with the situation” will be defined. There is no background information on compensation paid in agriculture.

The Regulations for Epidemiological Surveillance of Animal Health states that agribusiness, the herd owners and the Technical Branch of Animal Health, will arrange and govern, through the National Council for Agricultural Health (“Consejo Nacional de Sanidad Agropecuaria”, CONASA), a compensation fund. Its aim will be to support the owners of herds in which diseases were detected that require killing them. However, no other background information on the Council is given.

MEXICO

The Federal Act on Animal Health (June 1993) gives the Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (“Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación”, SAGARPA) the responsibility for establishing quarantines and campaigns, as well as the rules which governs them. It mentions nothing regarding restitution or compensation. It does allow SAGARPA, the state and Federal District governments, as well as individuals create contingency funds to deal with animal health emergencies caused by the presence of exotic or unknown diseases and pests. At the meeting of the OIE a strategy for the creation of the Agriculture, Fisheries and Aquaculture Healthcare Contingencies Fund (“Fondo para la Atención de Contingencias de Sanidad Agropecuaria, Acuícola y Pesquera”, FACSAAP). Its goal is to protect the country from the entry of pests and diseases of plants, animals and aquatic organisms by means of detection, quarantine, destruction and compensation.

Individual states also have the power to run health campaigns, in coordination with the federal authority. For example

- Durango: The Livestock Act of 2006 provides health measures, including stamping out which is part of the Federal Law. In addition, the Governor can strengthen the contingency funds to compensate in case of health and other emergencies (e.g. weather).
- Jalisco: The Livestock Enhancement and Development Act of 2003 authorizes the stamping out and stipulates that the authority must strengthen (keep operating and funded) a contingency fund.
- Queretaro: Health control is subject to the rulings of the federal authority and does not provide compensation (Livestock Act of 1990). The State can run campaigns.
- Puebla: Its health campaigns must be coordinated with the federal government, but it run state campaigns (Livestock Act, 1984).
- Veracruz: his State considers killing and destroying animals, providing the owners with compensation for the loss of animals, objects and buildings (Livestock Act, 1992).
- Nuevo León: The Secretariat of Industry may order the killing of sick or animals exposed to a causal agent in areas affected by contagious diseases. The owners of animals, objects and buildings that the executive branch has ordered to destroy are entitled to compensation.

The National Campaign Against Avian Influenza and its Normative Annexes (Norma Oficial Mexicana NOM-044-ZOO-1995) were amended in 2003 so that SAGARPA is now responsible for coordinating with the state and municipal governments, producers and others the schemes to repay in cash or in kind without adversely affecting the equity of the producer involved, caused by destruction of an AI outbreak in free or eradication zones. If the outbreak is not removed within six months from its identification, the control phase will start, which does not consider compensation.

NICARAGUA

The Animal Health Directorate, which depends from the General Directorate for Agricultural Protection and Health ("Dirección General de Protección y Sanidad Agropecuaria", DGPSA) aims to reduce the incidence of diseases affecting livestock production, aquaculture and beekeeping. To do so, the Basic Act on Animal Health and Plant Health (Act No. 291, 1998):

- Authorizes the Department of Animal Health kill animals applying the regulations to allow the effective isolation or disposal of infected animals, which pose a serious risk to human and animal health and to the environment overall.
- Defines a **state of sanitary and phytosanitary emergency** (Article 7) as the official statement on the presence of explosive outbreaks of pests and endemic or exotic diseases that require emergency action. Moreover, "the declaration of a state of emergency," will also define the terms of compensation and if there is special financing required to deal with the situation. These funds will be administered by the Ministry of Agriculture and Forestry.

The veterinary service agrees and convenes with unions and producers' associations, agricultural industry and municipal governments to create the contingency funds. In case of emergency will form an appraisal group will determine the amount to compensate; but this in practice has not yet happened. No record on the use of these schemes was found.

PANAMA

The National Animal Health Directorate ("Dirección Nacional de Salud Animal", DINASA) which depends from the Ministry of Agricultural Development (MIDA), is responsible for the promotion, regulation and enforcement of measures for the prevention, diagnosis, investigation, control and eradication of animal diseases and pests, in order to protect the countries sanitary status and to assist in public health and environmental protection²⁴. Executive Directorate for Agricultural Quarantine (Dirección Ejecutiva de Cuarentena Agropecuaria, DECA, established by Act No. 23, 1997) is responsible for implementing all measures in Agriculture Quarantine and in the control the animal movement.

The Centre for Sanitary and Phytosanitary Surveillance and Emergency Operations (COP) was established in 2001 to coordinate and implement actions against epizootic emergencies, taking measures necessary for the get the National Animal Health Emergency System running. As such it captures and delivers nationally and internationally information, but it does not have operational capabilities. There is also Agricultural Institute Insurance, offering insurance for cattle and swine, but no cover against exotic diseases, and also the National Council for Agricultural Health ("Consejo Nacional de Sanidad Agropecuaria", CONASA) established in 2005, who coordinates and advises on actions linked to agricultural health. None of these institutions has compensation scheme.

PARAGUAY

Act 2426 (July 2004), created the National Animal Quality and Health Service ("Servicio Nacional de Calidad y Salud Animal", SENACSA), which is the successor of the National Animal Health Service. This legislation creates a Special Fund that would, among other things, compensate in the event of compulsory slaughter or destruction of property, and subsidize an animal slaughtered before finished. Act 808 (20/1/1996) and Act 2044 (19/12/2002) and modifies the Permanent Compensation Fun, which can be used only in cases of slaughter or early sale of animals with FMD or exposed to it. The fund has a ceiling of USD\$ 1 million and is constituted by recoveries of 1 % of the proceeds from sale, import or export of live animals, and 0.25 % for each metric ton of meat exported or imported. The rules for compensation are defined by the Interdepartmental Commission for the Eradication of Foot and Mouth Disease, set up by SENACSA, the Ministry of Agriculture and Livestock (MAG) and farmers (Rural Association of Paraguay). The destruction of animals and capital goods will be indemnified according to market value, which is determined by an appraisal committee (SENACSA, MAG and producers). Payment will be made at the end of the emergency.

²⁴ Based on Act N° 12 from January 25 1973, Act N° 23 from July 1997 and the Executive Decree N°39 from August 31 1999.

The Proceedings Manual for the Control and Eradication of AI refers to Act 2426/04 and Resolution No. 438/06 state the measures that can be taken in case of an outbreak of Avian Influenza in poultry stocks, including the slaughter of poultry and compensating owners, wherever it is appropriate. Nothing is said regarding compensation procedures.

PERU

The Base Act for Agricultural Health (Act No. 27322) and the Regulations of the Act (Supreme Decree No. 048-2001-AG), define that agricultural health is a priority for national agricultural development. Thus, the National Agricultural Health Service ("Servicio Nacional de Sanidad Agraria", (SENASA) proposes, dictates and enforces animal and plant health measures necessary to prevent the introduction, establishment and spread of pests and diseases as well as their control and eradication. However, neither the Act nor the Regulations Framework mention the stamping out as a health measure (except for the case of imported animals); it does also not mention compensation.

DOMINICAN REPUBLIC

The Act 4030 of 1955 states that the protection of livestock's health is of public interest and authorizes in this context the stamping out livestock. It allows to compensate the owners, but only through emergency funds. Although it was not confirmed, Dominican Republic hey would have implemented compensation schemes, but only for classical swine.

URUGUAY

Uruguay has possibly the largest experience using compensation funds and mixed financing schemes for activities related to animal health control. It has a Permanent Compensation Fund, Insurance against Brucellosis and a Fund for FMD Vaccine.

The Sanitary Police Act (No. 3,606 from 1910) authorizes to kill animals infected with certain diseases, including AI, and compensate the owners, although the costs of slaughter and disinfection are borne by the latter. The compensation is for slaughter, unless the disease is fatal, and the destruction of goods. If the owner and the Sanitary Police Office do not agree on the value to pay, the Ministry of Livestock, Agriculture and Fisheries will settle this dispute. The Act establishes amounts or percentages to pay for breeding stock, such the value per kg and species in case of meat animals, taking into account the cause for killing and the origin of the animal. For example, breeding animals are compensated fully if the autopsy does not confirm the diagnosis, a quarter of its value in tuberculosis and a half in other infectious diseases. There is no explicit reference on birds. It also provides mechanisms to complain.

The **Permanent Compensation Fund for the Control and Eradication of FMD Campaign** was created by Act 16,082 (December, 1989), and aims to compensate animals slaughtered due to FMD²⁵ or other exotic diseases. The Fund is financed with a tax of 0.21% on the value of exports of meat and meat byproducts from cattle and sheep, as well as dairy products and their derivatives and wool (Scarone, 2003). In other words, there

²⁵ Uruguay is free from FMD with vaccination since 2002.

is no funding from other animal breeders, which could easily lead to conflicts in cases of health emergencies which do not affect cattle or sheep. If there are insufficient funds for compensation, the deficit will be covered from the state budget. Compensation payments are determined according to market value of animals and destroyed property. The amounts are set by a committee (representatives from the Ministry of Livestock, Agriculture and Fisheries, the farmer and third party) and are resolved in a period not exceeding 30 days.

In particular, the Act 16,082 states:

- **Article 13.-** (Compensation).- The value of the animals slaughtered and of capital goods destroyed because of sanitary measures covered by this Act, will be compensated by the **Permanent Compensation Fund**. The valuation of the assets to indemnify will be carried out by departmental commissions set up by three members: a representative from the Ministry of Livestock, Agriculture and Fisheries, a representative from the farmers and a third party appointed by the Ministry of Livestock, Agriculture and Fisheries in accordance with the farmer. The regulation of this law shall determine the conditions and requirements for setting the amounts to compensate as well as its procedure. The compensation is paid in a period not exceeding thirty days after the Commission issued the Departmental valuation mentioned before, which must be issued within a period of less than thirty days after the killing.
- **Article 14.-** (The Permanent Compensation Fund).- It creates the Permanent Compensation Fund for the campaign aimed to control and eradicate of FMD and other exotic diseases, which will be used to meet the compensation provided in the preceding article. The absence of necessary funds will not impede or preclude compensation. The deficit will be covered through the General Revenue.
- This fund will be integrated through the application of a tax on all exports of meat, and meat byproducts derived from bovine and sheep, as well as the total dairy products and their derivatives and wools.
- Since its enactment and up to the moment when the campaign passes to a second stage, there will be a tax of 0.21% (zero point twenty one percent) on the declared value of the abovementioned exports. If more funds are required during the second phase, the executive branch upon a proposal by the Ministry of Livestock, Agriculture and Fisheries and the Ministry of Economy and Finance, may increase this tax up to a maximum of 1% (one percent).
- The collection of this tax is suspended when, at the discretion of the executive branch, the Fund has reached an amount deemed as necessary.
- The ownership and availability of that fund by the Ministry of Livestock, Agriculture and Fisheries will be exempt from the provisions of article 75 of law 15809, April 8, 1986 (Law Budgetary Enforcement Act).

The Permanent Fund would have raised from 1989 to 1999, when it was discontinued, about USD\$ 12 million, which were used in the campaign of 2000 and 2001, as well as for the purchase of vaccines. Although the National Honorary Committee for Animal Health ("Comisión Nacional Honoraria de Salud Animal", CONAHSa) approved in 2001 that this

tax should be raised again, this has not happened, as it has not been approved at the legislative level. At present vaccination against FMD is financed with a special fund, which is based on a rate for the slaughter of cattle and the reception of milk.

The Decree 82/004²⁶ regulates the **Insurance for the Control of Brucellosis** (SCB) to control the reemergence of the disease. It provides for a lump sum fee of USD\$ 250 for dairy cows and USD\$ 60 for cattle, as a complement to the price paid for animals slaughtered for being positive to Brucellosis (Act 12,937, September 9th, 1961). The insurance is financed by a fixed amount for each cattle slaughtered and every liter of processed or exported milk. The regulation defines the operation of the fund, its directors, etc.. The Fund is managed by a Joint Committee and has been renewed annually.

VENEZUELA

The Animal and Plant Health Protection Act (20.566 from 1941) authorizes the Ministry of Agriculture to kill and destroy animals and their products and packaging or containers that contain them, in order to prevent or fight diseases or pests harmful to agriculture or husbandry. Specifically, control and eradication programs for equine infectious anemia, brucellosis and tuberculosis mention stamping out in their legislation, but nothing related to compensation. No information was found if compensation has been paid with this purpose²⁷.

²⁶ Based on the Act 17,730 (31/12/2003)

²⁷ However, the Venezuelan Coordinator of the Avian Influenza Program said that if the virus enters the country and wreaks havoc, the Government would subsidy and compensation schemes for poultry producers. www.minci.gov.ve/entrevistas/3/5991/nuestro_pais_estlibre.html (19/6/2006).

Regional initiatives

Regionally, progress on the issue of compensation has not been very large. IICA²⁸ says in a document on Institutional Policy on Avian Influenza, that one of its short-term actions will be “Providing information on plans and contingency measures and compensation implemented by some countries to be used as a basis for structuring national plans by the countries of the hemisphere.”

There are two organizations that address animal health in Latin America and the Caribbean: the Regional International Organization for Plant Protection and Animal Health (“Organismo Internacional Regional de Sanidad Agropecuaria”, OIRSA) in Central America²⁹ and the Standing Veterinary Committee (“Comité Permanente Veterinario, CVP) in the Southern Cone³⁰. Only the CVP has ever mentioned compensation. OIRSA has an emergency fund, but only for expenses on logistics. Late 2006 OIRSA organized a videoconference with the involvement of the veterinary services and producer associations, among others, in which the private sector raised strategies for the establishment of compensation funds in case of an avian influenza outbreak.

In the Southern Cone, CVP made up by the Official Veterinary Services, prepared in January 2006 a “Regional Strategy on Prevention of Avian Influenza”, which considers four areas: Prevention, Surveillance, Control and eradication, and Diagnostic capacity. The actions to control and eradicate (avoid dissemination and regain health) the disease include to establish schemes for a timely financial compensation in case an AI outbreak is stamped out, considering tools to cooperate between member countries.” However, there has not been much progress in this line.

In most of the Caribbean, particularly the English-speaking countries, decrees and regulations for animal health mention compensation payments for state ordered destruction of animals. Even there are records that some have compensated for their livestock. For example, more than thirty years ago Barbados did compensate pigs killed during an outbreak of classical swine fever in 1989. In 2003 Trinidad and Tobago did indemnify a poultry producer suffering an outbreak of infectious laryngotracheitis. However, according to information given at the Workshop on Compensation Mechanisms in Case of Zoonotic Emergencies organized by OIE in Buenos Aires, Argentina (2007), none of the countries has actually compensation schemes³¹. At present, CARICOM is making a major

²⁸ Inter-American Institute for Cooperation on Agriculture, www.iica.int/AvianInfluenza/docs/Estrategia%20IA-IICA.PDF

²⁹ Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama and the Dominican Republic.

³⁰ Argentina, Bolivia, Brazil, Chile, Paraguay and Uruguay.

³¹ Including Antigua and Barbuda, Bahamas, Barbados, Belize, Cuba, Dominica, Grenada, Guyana, Haiti, Jamaica, Dominican Republic, St. Kitts and Nevis, Saint Vincent and Grenadines, Saint Lucia, Suriname and Trinidad and Tobago

effort to upgrade and harmonize the animal health legislation in the Caribbean, which include specific regulations on compensation and the establishment of a Compensation Fund for animal diseases, including AI. Specifically, the “Caribbean Regional Program for Food Security” includes resources to “develop modalities of compensation” for the specific case of HPAI (CARICOM, 2007). In addition, the Caribbean Poultry Association (CPA) has prepared a draft on compensation that would be revised by the countries. But, until any of this happens, compensations will be funded from state budgets³².

³² Information supplied by Dr. Cedric Lazarus, Regional Coordinator of FAO project TCP/RLA/3104

Design of existing programs

From the analysis of the situation in most Latin American and Caribbean countries it becomes clear that the funds to compensate animals killed for sanitary reasons are very low and have generally been designed for use in cattle, particularly FMD. While some compensation funds may be used against other diseases, in practice they have not done so, although there has neither been the opportunity to do so.

The checklist for the design of a compensation program against HPAI suggested by FAO indicates eight points to be addressed (Riviere-Cinamond, 2006b):

1. Determining the reasons for compensation
2. Decide who will be compensated
3. Agree on the price for compensation
4. Decide whether the costs of control measures will be refunded
5. Administer and enforce compensation
6. Funding strategy
7. Defining strategies for the medium and long term
8. The compensation strategy needs to be publicized as part of the awareness campaign/strategy for HPAI control

In what follows, these points are analyzed for the countries previously addressed, from the perspective of their regulatory frameworks (Animal Health acts, regulations and decrees) and the existing programs.

THE REASONS FOR COMPENSATION

Without exception, compensation programs were formulated as tools to partially restore an asset of a private agent that has been destroyed by the state. In this sense, as the damage suffered is significantly larger in livestock, compensation is mainly for cattle, either because of stamping out in FMD or because animals are slaughtered before planned³³, as in brucellosis or tuberculosis.

From this perspective it is difficult to think that compensation has some stimulating effect on notification; this option is probably just a little better than the alternative. In the case of FMD, it is feasible to think that the magnitude and severity of the disease is leading to the farmer to notify, as a way to reduce its losses. Further, none of the analyzed legal frameworks refers to the use of compensation as a tool to encourage notification. Moreover, overall the affected producer has to show that neither his behavior and action led

³³ It is a subsidy or grant given to farmers to offset losses resulting from slaughtering animals which are still producing or growing

or eased his animals to get sick. As these non-proper behavior or actions are not defined, there will always be the possibility of losing compensation because of doing or not doing certain actions, even if it is unintentional.

Programs make no differences between producers, thus it cannot be understood as a program to support the livelihoods of households with fewer resources.

WHO WILL BE COMPENSATED

In all countries, regulatory frameworks relating to animal health make no difference between types of producers. Therefore it seems difficult to establish a program that discriminates them. However, several countries have services, which are generally run by the Ministry of Agriculture, in charge of promoting or supporting rural development or farmers and livestock producers with fewer resources. It is quite possible that these services can discriminate producers, and therefore establish differentiated compensation schemes. The existence of these services and their regulation was not discussed.

Another important point is related to compensation for sick or dead animals. Several laws, sometimes explicitly exclude payment for sick or dead animals. As indicated by Riviere-Cinnamond (2006b), this may be particularly sensitive because it can induce the displacement of infected animals.

THE VALUE OF COMPENSATION

There is a clear difference between compensation for stamping out or early slaughter. In the case early slaughter (TB and brucellosis) the amounts of compensation (or subsidy) are pre-defined. In the case of stamping out, the compensation payment is determined by an appraisal committee after slaughter. Although it is advisable to establish compensation payments to an outbreak, the reality is that there are not always sets prices for all categories of birds or products (eggs), or standards to estimate production costs. This can make it very difficult to have pre-outbreak payment schemes. Having appraisal commissions allows to set different payments according to the type of animal and his genetic value. It is also likely that the commissions appraise different values by geographic areas, which could incentive the transport of animals. The appraisal committees have representatives from the public (Ministry) and private sectors (poultry producers). They sometimes include independent actors (specialists).

The programs only compensate for the destruction of assets, with no consideration of consequential losses. This is especially difficult for producers in sectors 3 and 4. Again, these producers can be subsidized through other mechanisms, not necessarily compensation.

THE REFUNDING OF CONTROL MEASURES COSTS

These costs should be assessed estimating the costs arising directly from **control measures** associated with disposal activities such as disinfection, protection of the disposal teams, and so on. It is suggested that these costs should be shared, e.g. according to the number of birds removed by producer or farm. At this point, there are significant differences between countries, some consider the payment of these actions and others state that these will not be covered by the state. The issue to discuss is what costs should be borne by whom. It

seems reasonable that producer of sector 1 and 2 should pay for their own cleaning and disinfection, as they are part of their normal expenses. Sectors 3 and 4 probably will not do so routinely and should probably be helped. But slaughter and elimination are direct and marginal costs and should therefore be compensated³⁴.

THE ADMINISTRATION OF COMPENSATION

Important issues consider the design of recording and registering procedures, deadlines to be met, data verification and payment system. This is probably the most difficult point to address, particularly because there is a tendency to assume that people are not being honest. Therefore, usually producers have to prove that they have taken the right measures and that they comply with all the requirements and conditions. This makes the compensation procedures slow and extends the deadlines far beyond what is reasonable. Even the legislation states in some cases vague conditions and thus difficult to prove. This problem is even worst for sectors 3 and 4, for whom timeliness of payment may be more relevant than the payment itself. But to ensure timely payments countries have to be prepared (World Bank *et al.*, 2006).

Another problem, which is not minor is the frequent absence of banking institutions in rural areas, impairing payment procedures. It is important to bear in mind that in the majority of cases compensation will be given to producers in sectors 3 and 4, and thus the payment will be very low, sometimes even just a few dollars. The inflexibility of the regulations and institutions will surely lead to cumbersome and slow procedures.

Compensation fund management must also be addressed. In the analyzed countries they are managed by the state, even when the funds are compulsory private contributions (e.g. Uruguay and Paraguay). This helps to reduce the costs of managing the funds and be more transparent in its administration and release.

THE FUNDING STRATEGY

Existing compensation programs have used several financing systems: Public budgetary funds, public emergency funds, mixed funds, private funds managed by the state, and private funds. The only characteristic almost all share is their little persistence over time. Public funds often are released during outbreaks and then maintained, if, for a couple of years. Collection of private or mixed funds is suspended after they accumulate a certain "sufficient" amount. Again it seems that the strong relation between compensation and FMD determines that, once the outbreak has been controlled or eradicated, the perception of the need for funds disappears.

From a theoretical perspective, the mixed funds should be preferred because they are used to deal with a social and private problem. Public contribution can be fixed or proportional to private contribution. The latter should depend on the size of the producer. The way to establish the size of the producer depends on the particular conditions of each country.

³⁴ Although sooner or later all birds are slaughtered, the costs of slaughter on the farm or in a processing plant for early slaughter are not comparable. Moreover, the private sector must cover the fixed costs of running the facility.

Data which can be used is the poultry producer registry, the number of chicken produced or eggs sold by farm, or even the import of fertile eggs. In all these cases, it is difficult for sectors 3 and 4 to contribute to the fund.

There are other topics in financing that should also be taken into account. International contributions via grants or loans, can also be used to finance these compensation programs. In this case, for example, the Global Program for Avian Influenza Control and Human Pandemic Preparedness and Response of the World Bank, considers delivering resources for compensation programs, as well as additional funds to support control programs specifically aimed at the poorest sectors. This helps to separate the objectives of a compensation program social ones.

THE MEDIUM AND LONG TERM STRATEGY

From the analysis of acts, regulations and programs, it appears that once the index case of the disease is declared, the strategy in each country is the same. Response mechanisms to the entrance of an exotic disease are established (i.e. stamping out, isolation, etc.), and this is kept over time. Overall, it looks like this can only change if a bill withdraws the disease from the list of exotic diseases, something quite unlikely, or if a program to intensify actions to control and eradication is designed. In the case of HPAI, many countries have a response plan, but it does not consider the possibility of different scenarios, including the introduction of other subtypes, different from H5 or H7. However, it should be noted that it is not easy to have different medium-term strategies, which take into account the evolution of the disease. The case of the United Kingdom and FMD is, in this regard, illustrative. Faced with the entry of the disease in 2001, the (single) strategy to follow was founded on stamping out. The severity and spread of the outbreak caused losses estimated to be about 6 billion dollars. Faced with this fact, the authorities assessed alternative strategies, with combinations of culling and vaccination, depending on the spread of outbreaks (Risk Solutions, 2005). As a result, the way to deal with the outbreak of 2007 was different. DEFRA (2007a) said that "The Decision Tree for FMD control strategies will be followed in deciding what action to take".

Referring specifically to compensation, a flexible compensation scheme can be designed, where the payments depend on the number of outbreaks. Empirically, it may be desirable to heavily compensate those who notify first and actually have the disease. Even with payments higher than the value of the birds. This would act as a powerful incentive to notification. A progressive reduction of the indemnity payment can act as an incentive to increase biosecurity, as both the awareness of the existence of risk and the perception of the potential losses rise. Penalties or loss of benefits can be implemented to prevent failure to notify.

Clearly, building scenarios and alternative responses requires a major effort, and for now, it seems more feasible to have flexible laws and regulations, that allow changes of strategy as the epidemiological situation changes, than having alternative strategies to deal with different scenarios. The most important thing, is that health authorities must keep in mind that it is essential to have a strategy, which can, and probably should, change according to how circumstances develop.

COMMUNICATION OF THE COMPENSATION STRATEGY

On this issue there is no progress, as none of the documents analyzed refers to communication strategies. Overall the answer in countries with compensations schemes was “producers are aware of the existence of compensation”. This is not surprising, since all important compensation programs, in terms of money and number of animals, are for cattle owners. Therefore, the information is most probably disseminated through the media or producer associations and shared among neighbors. However, this form of communication has no effect on early warning and less on diseases that do not affect the cattle. In other words, probably no bird holder of countries that contemplate the possibility of compensation, believes that there is an opportunity to be compensated if their birds are killed or slaughtered because of AI.

Adequate communication strategy, as part of the prevention and control program must take into account **the audience**, to generate greater awareness of biosecurity and describe emergency measures, and **the strategy's components**, to inform and seek changes in attitudes (World Bank *et al.*, 2006). The experience is that has been the threat to human health has been emphasized (avian flu), with little reference to issues like biosecurity and actions to take. It is estimated that initially the communication costs range from 10 to 20% of the program's total cost.

A comment on insurance

The compensation programs have usually two weaknesses which make possible the design of insurance schemes. On one hand, consequential losses are not compensated, although they always occur. On the other hand, the values paid are lower than the commercial value of the animals, because discounts were applied or because the animal's genetic value was not considered. But to have an insurance which covers the difference between market value and compensation, requires to know the compensation schemes when selling the insurance policy. In the majority of countries surveyed this is not possible. Evidence of Germany indicates that it is possible to develop policies that cover both types of losses and adequately complement existing compensation programs. Thus, insurance can complement the disease control and eradication programs. Besides, insurance also can assist as an endorsement for loans in the event of catastrophic diseases (Grannis, 2004).

According to Mexico's SAGARPA, insurers of Lloyd's offered in the past policies that would provide an additional payment, equivalent to 25% of compensation from the government, if flocks kept indoors had to be killed due to an outbreak of avian influenza in the area. The interest in these policies was seen as moderate, due to the low perception of risk (absence of fear factor)³⁵.

However, the availability of insurance against animal diseases in Latin America is reduced. According to the Latin American Association for the Development of Agricultural Insurance³⁶ the following insurance schemes exist (ALASA, 2007):

- **Argentina:** Death and lost productivity in dairy cattle by illness or accident. The province of Mendoza has state subsidies for agricultural insurance.
- **Brazil:** The Agricultural Activities Security Program (PROAGRO), run by the Central Bank, aims to relieve the farmers of the responsibilities arising from loans, in the event of a decline in production. There are no subsidies. There are private insurance schemes against death of animals during fattening, production, breeding and work.
- **Chile:** Has a Crop Insurance which subsidizes premiums taken by the farmers. It applies only to certain crops.
- **Colombia:** No specific insurance was found, but the government has funds to subsidize the producers who take an agricultural insurance³⁷.
- **Cuba:** Has an insurance against death, slaughter and production loss (cattle and horses) and lost productivity in bees. For poultry it helps to protect flocks of the same age ready, and covers diseases, accidents and weather.

³⁵ Síntesis Informativa. February 28, 2006. www.sagarpa.gob.mx/cgcs/sintesis/sintesis/2006/febrero/ss_28.pdf

³⁶ Asociación Latinoamericana para el Desarrollo del Seguro Agropecuario (ALASA)

³⁷ But it has not been used by livestock producers according to the statistics of the Fund for the Financing of the Agricultural Sector (FINAGRO, www.finagro.com.co)

- **Ecuador:** Wants to establish an insurance for livestock, horses, pigs, poultry, etc., which covers theft or death of animals for specific diseases, accidents and early slaughter. The state will grant a credit on preferential terms to those who hire this scheme.
- **Mexico:** The Federal Government supports and subsidizes both policyholders and programs which assist the Agricultural Insurance Fund. Insurance policies are commonly offered for cattle, pigs, sheep, etc. Insurance specifically protects poultry farms that are engaged in the production of chicken and egg, as well as hen breeding, against the killing of animals as a result of a covered risk.
- **Panama:** The Agricultural Insurance Institute provides insurance, whose premiums can be subsidized by the Ministry of Agriculture. Only cattle, pigs and horses are ensured against death.
- **Paraguay:** Has only private insurance, but it is studying the regulation of agricultural insurance (grant). They have insurance for livestock, mainly cattle, which covers the death of the animals as a result of accident or illness.
- **Uruguay:** The state provides a subsidy to insurance premiums taken privately. Once the traceability system is fully running, farmers will be able to ensure cattle.
- **Venezuela:** There is no livestock insurance nor state subsidy. There is a Protection Policy for Farm Animals which protects against the death of livestock caused by illness, accident or slaughter due to humanitarian reasons. The policy covers cattle, horses, pigs, goats and sheep.

From this information it becomes clear that insurance for the poultry industry is scarce. Further where policies exist, it is not possible to conclude that AI is covered by them. Finally, insurance for consequential losses are more the exception than the rule.

Conclusions and recommendations

From the previous review it can be concluded that the situation of compensation against the possible entry of HPAI in the region is highly precarious. There is no specific program to compensate against the disease or sick/dead poultry. Only a few countries have compensation funds which could be used in poultry. Nin Pratt and Falconi (2007) conclude that it is possible that a high percentage of Latin American countries could operate some form of compensation scheme, particularly countries with a more industrialized poultry sector. Other countries would have more problems, because of the weakness of their veterinary services, the lower development of the industry and some institutional constraints. The paradox is that possibly the least prepared countries will be those requiring more compensation mechanisms, because of the importance of sectors 3 and 4 in these countries.

However, it is difficult to imagine that any of them will be able to have compensation schemes that encourage notification and thereby actively support control and eradication programs. Perhaps the most complex issue is that the existing legal frameworks, some of them very old, are very restrictive in terms of allowing to set up compensation programs that follow the experts' recommendations (e.g. World Bank and FAO) on the design of efficient and effective schemes. In addition, these legal frameworks are generally quite harsh and set out various situation under which there is no right to compensation, even if these occur without the intervention of the producer.

In this context, the entrance of HPAI to the continent will certainly trigger the establishment of schemes to compensate for damage, but that will have little positive effect on the disease's notification and control.

Reversing this situation requires a major effort from the expert community. The first step is to ensure that public and private institutions recognize that compensation is not a cost that must be avoided, but an investment that must be made. The social and private cost of generously compensating a quick slaughter of a small proportion of a country's poultry population is much lower than the private and social losses caused by the spread of the disease³⁸. Therefore it is essential to have studies that show, from an economic standpoint and epidemiological importance of these measures, so that both the Ministries of Finance and Agriculture have technical basis for designing a compensation policy in matters sanitary. Only on the basis of this belief technically and politically, it will be possible to develop flexible compensation programs.

With regard to the design of these programs some points deserve to be highlighted. First, it is desirable that the program's funding, and probably also its management, should

³⁸ Chile's and Canada's outbreaks involved killing less than 0.2% of the country's stock.

be public and private. The contributions of each depend on the production structure and the social impact of an outbreak of any disease. Second, the traditional compensation schemes based on fixed payments according animal type or age hardly encourage simultaneously high levels of biosecurity and notification. Just as an example, during the last FMD outbreak in England (August 2007), despite the high level of alert, biosecurity measures and the existence of compensation at nearly market prices, one of the infected sites showed a time gap of possibly a month between the probable date of first injury and diagnosis (DEFRA, 2007b). Although there are no empirical observations, a compensation scheme combined with other programs, e.g. biosecurity, or variable schemes could be an option for achieving compatible incentives.

Overall, theory and empirical observation point to the need of flexible compensation programs, which account for the different epidemiological and productive conditions and can attain the dual role to of restoring the damage done and promoting notification. Undoubtedly, these compensation programs are not only relevant for the control of HPAI, but for every exotic or high economic impact disease. The extension of these compensation schemes to other diseases only has the complication of how to ensure that private contributions are proportional to the value of each sector.

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Annex

Compensation strategy checklist – draft for testing and feedback*

This checklist is a general statement of the areas that need to be taken into account when trying to design a compensation strategy. The answers to each of these points will obviously differ between countries. It is therefore **not to be taken in a prescriptive manner**.

Steps to be taken in designing compensation strategy	Rationale / points to consider
1. Determine the reasons for compensation: Compensation may be considered for different reasons. The reason for compensation affects decisions about who should be compensated (see 2.) and how the process should work (see 3-5)	
1.1 Compensation reduces the disincentive to report.	These reasons justify a typical compensation process where any farmers whose birds are culled by "culling teams" (as decided by authorities) are compensated for the birds destroyed.
1.2 It is a government responsibility to compensate when private assets of citizens are destroyed for public purposes.	
1.3 Livelihood support: Provide a "safety net" to protect the different groups of farmers against the economic losses incurred by having to wait for restocking and/or when they cannot sell their birds anymore due to the enforcement of movement restrictions. This may take the form of insurance or some kind of social security. Strictly speaking this is not compensation, although it is often discussed at the same time that compensation is being planned, and in countries with a well-funded livestock sector, both compensation and livelihoods support mechanisms may be in place	
2. Decide who will be compensated	
2.1 Questions to be considered: Which actors or stakeholders? Should compensation be limited to farmers or also include processors and marketers? Should all sizes of farms/poultry production sectors be included? How will social biases (e.g., anti-poor, gender, ethnic group, etc.) be avoided? The aim is: <ul style="list-style-type: none"> • To encourage early disease reporting. • To encourage people to take part in official compensation schemes, everyone whose birds are culled needs to be included. 	If care is not taken in planning, certain key stakeholders (often the most vulnerable or those with least "voice") can be excluded from compensation programs. This can reduce the effectiveness of control programs and the bio-security status in affected areas. Especially at the beginning of the epidemic, if there is no compensation for dead animals there is the risk of animal movement (i.e. disease spread). However death might not be due to HPAI outbreak to similar diseases (e.g. Newcastle Disease)

* This is NOT PRESCRIPTIVE. The checklist is meant to help policy makers with the design of the compensation strategy. Needs have to be thought case by case since there will be differences for every country.

3. Agree on the price for compensation	
3.1 Several stakeholders need to meet to negotiate	
3.2 It is generally better to have uniform prices at national level to avoid people/farmers moving birds	To avoid movement of birds due to price differences, as this would increase disease spread nationally.
3.3 Different prices by species and category (age, broiler or layer) should be negotiated outbreak it is advised not to include too many categories	Keep the list short to make it administratively implementable.
3.4 Decide in advance what percentage of market price for each category will be paid. Percentage of market price needs to reflect how much can be afforded by the government and what people will accept.	If compensation level is too low farmers will not cooperate. A too high level is a disincentive for sharing the risks (between farmers and governments) associated to the presence of the disease. This measure is especially interesting in the case where there has already been an outbreak to encourage farmers to put in place appropriate/stipulated control and preventive measures
3.5 Decide in advance how market prices are determined. The average for the month or week? The price on the day of culling?	The occurrence of outbreaks has a significant impact on prices. The representativeness and availability of market price information may limit the variety of options to determine the compensation price.
3.6 State a date when the compensation will be received by the farmer (and stick to it)	For farmer compliance with the emergency contingency scheme
3.7 It may also be necessary also to include production losses from "downtime" or birds that die from HPAI.	If farmers are adequately compensated they are more likely to comply with culling schemes. Losses from downtime can be considerable. However, while estimating losses is quite simple for commercial flocks, it is more difficult for backyard flocks.

4. Decide whether the costs of control measures will be refunded	
4.1 Funds should be readily available through pro-rata estimates (e.g. amount per farm/household culled) for direct disease control measures associated to the culling activities such as disinfection, protection for culling teams etc.	A contingency or compensation plan will be less effective if it does not take into account the direct costs of culling and control measures that may be borne by farmers. Compensation programs might provide good opportunities for building capacity in biosecurity. Funds may be provided to allow upgrading of biosecurity (e.g. bird proofing farms etc)

5. Administer and enforce compensation	
5.1 Decide in advance on the way people have to register for compensation. The date of compensation needs to be clearly stated to farmers for compliance. Numbers of animals reported need to be checked for accuracy. Each production system presents a different kind of challenge.	To avoid "double compensation" or people missing out. An accurate and accountable registration scheme may be difficult to implement. State culling teams could register the number of birds culled, outbreak they need to work fast, otherwise infected birds might die or people cull their own birds before they can be registered.
5.2 The system to make payments needs to be simple and make use of existing institutions (e.g. veterinary services, financial institutions etc). Farmers might not have a bank account for receiving a payment.	To avoid high administrative costs of transferring the money. However, the efficiency of these institutions needs to be evaluated before engaging them.

6. Funding strategy	
6.1 Estimate how much is needed to set up the fund (from previous information, i.e. number of animals, categories and compensation levels)	The setting up, source of funding and management of the fund need to be planned in close collaboration with the ministry of finance and may require changes of legislation.
6.2 Sources of funding may be from national and/or local levels.	Depending on the structure of public finances of the country i.e. devolution levels.
6.3 Ideally, funding is from both public and private sources. With a well organized private sector, it is possible to set up a fund for livestock emergencies, to which the government and the private sector can contribute.	To encourage reporting, help to ensure against losses, share the financial risk between the public and private sector so that both will take steps to reduce the disease risk.
6.4 Commercial farmers may take out private insurance if a scheme is available.	Insured farmers will probably be asked to join a quality management scheme.
6.5 In case of international contribution, there is a need to agree on how the funds will be disbursed and the monitoring process.	HPAI being a Global Public Good (GPG) there is a rationale for international contribution.
6.6 Decide who is going to manage the fund and where it is going to be located (i.e. ministry of finance (MoF) / ministry of agriculture (MoA)) at both national as well as local level. Decide on fast mechanisms to disburse those funds to the local level.	MoA tends to have the technical expertise outbreak generally MoF does not allow other ministries to manage funds for what is labeled as “accountability reasons”.
6.7 Negotiation over setting up an initiative for compensation at regional level (for example within a regional trade block such as UEMOA, MERCOSUR, CAN).	In trade blocks, there is an economic rationale to set up a regional fund. Other activities could be envisaged within the fund, such as control of other transboundary animal diseases with trade implications. The value of the fund is likely to be considerably less than total contingency for several individual countries.
7. Medium/long term strategies	
7.1 Take a clear decision on what is the country's strategy when/if the disease becomes endemic with regard to the compensation scheme above stated.	When dealing with endemic HPAI and the possibility of poultry vaccination attention should be drawn to the interventions needed to modify biosecurity conditions associated to the existing poultry production system in the country (i.e. backyard raising and smallholder producers)
8. The compensation strategy needs to be publicized as part of the awareness campaign/strategy for HPAI control	

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1. Small-scale poultry production, 2004 (E, F)
2. Good practices for the meat industry, 2006 (E, F, S, Ar)
3. Preparing for highly pathogenic avian influenza, 2006 (E, S^e, F^e, M^e)
4. Wild Bird HPAI Surveillance – A manual for sample collection from healthy, sick and dead birds, 2006 (E, S^e, F^e, Ar^e, C^e, R^e)
5. Wild birds and Avian Influenza – An introduction to applied field research and disease sampling techniques, 2007 (E, B)
6. Compensation programs for the sanitary emergence of HPAI-H5N1 in Latin American and the Caribbean, 2008 (E^e, S^e)

Availability: July 2008

Ar	-	Arabic	Multil	-	Multilingual
C	-	Chinese	*		Out of print
E	-	English	**		In preparation
F	-	French	^e		E-publication
P	-	Portuguese			
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7. Manual on the preparation of rinderpest contingency plans, 1999 (E)
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12. Manual on procedures for disease eradication by stamping out, 2001 (E)
13. Recognizing contagious bovine pleuropneumonia, 2001 (E, F)
14. Preparation of contagious bovine pleuropneumonia contingency plans, 2002 (E, F)
15. Preparation of Rift Valley fever contingency plans, 2002 (E, F)
16. Preparation of foot-and-mouth disease contingency plans, 2002 (E)
17. Recognizing Rift Valley fever, 2003 (E)

In general, governmental compensation programs motivate the notification of animal diseases, indemnifying the producer with a fair price for the goods destroyed on behalf of the society. The objective is to avoid the dissemination of transboundary diseases of easy transmission as HPAI – H5N1.

The present report was financed and elaborated by FAO, in collaboration with OIE, and pretends to motivate the Ministries of Agriculture and veterinary services of Latin America and Caribbean countries to develop a compensation strategy before a possible outbreak of HPAI-H5N1 in the region.

The publication has a revision of the compensation subject, discussed at global level, regarding the HPAI-H5N1, and at regional level regarding others priority transboundary diseases, including an analyze of some situations in 19 countries of the Region and the recommendations to adopt the most convenient national strategy.