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**DISASTER REDUCTION PROGRAM FOR LIVESTOCK IN CENTRAL  
AMERICA**

**Suggested plan for development of model program**

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## **SUMMARY STATEMENT ON THE IMPORTANCE OF A DISASTER REDUCTION PROGRAM FOR LIVESTOCK IN CENTRAL AMERICA**

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Central America has a high predisposition to natural disasters. For example, in the last 10 years nearly 40,000 people have died as a result of earthquakes, floods and hurricanes in Central America, at an estimated cost to these countries in excess of US\$ 8.5 billion. Catastrophic events also have a great impact on agriculture. In 1994 the direct losses in grain production in Central America as a result of droughts, alone, were estimated to be approximately US\$ 44 million.

The estimated value of the Central American livestock agriculture is US\$ 3.3 billion, and employs nearly 10% of all people. Therefore, animal husbandry systems contribute significantly to the economic and political strength of Central American countries, and represent a large portion of each country's standard of living, cultural heritage and identity. In many areas of Central America, the long term stability of the environment also depends heavily on sustainable agriculture, which is based on traditional livestock husbandry systems and social structures.

In most natural disasters in Central America the likely victims will farm laborers and dependent families in rural communities. The most likely farm types affected will be subsistence and small farms, which are owned, with improved or natural pastures. Because in some countries over 60% of their entire livestock industry may be at risk of natural disasters, disasters also represents a threat to the local human food supply. Children are likely to be the first to suffer the effects of such events. Damages to the livestock agriculture from natural disasters or epidemics are, therefore, likely to bring with them serious long lasting impacts on countries' economies. Without carefully planned interventions, natural disasters affecting livestock may have only poor potential for complete recovery.

For the countries of Central America the Organismo Internacional Regional Sanidad Agropecuaria (OIRSA) and the Center for the Coordination of Disaster Reduction in Central America (CEPREDENAC) have ideal credentials to combine their expertise and resources to develop and implement a disaster reduction program for livestock in Central America. Because the recovery costs from disasters are estimated to be 200 - 1000 higher than the costs of prevention, a disaster reduction program for livestock in Central America should be seen as a cost effective venture, that can reduce losses, expedite recovery, enhance regional trade and stimulate economic development.

A disaster reduction plan for livestock in Central America would define the authority with which to gather information and suggest actions to resolve agricultural issues that arise in disasters. It would further provide a recognized program that legitimizes and stimulates future funding for research and development. Finally, it could be a model for other nations in the world to follow, as it offers potential solutions to complex disasters in the Americas and other continents.

## **DISASTER REDUCTION PROGRAM FOR LIVESTOCK IN CENTRAL AMERICA**

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**Name of Project:**

Model Disaster Reduction Program for Livestock in Central America

**Location of Project:**

Member Countries of Organismo Internacional Regional de Sanidad Agropecuaria  
(OIRSA)

**Program Executives:**

OIRSA and the Center for the Coordination and Prevention of Natural Disasters in  
Central America (CEPREDENAC)

**General Objectives:**

To develop a disaster reduction program for livestock in Central America that

- provides for improved public health and prosperity of people of Central America,
- supports the regional political, economic and cultural missions of the governments of Central America, and
- builds on existing expertise within Central America.

**Origin of Project:**

The Organization of American States (OAS) sponsored Sebastian Heath to come to Central America and evaluate the potential for a disaster reduction program for livestock in Central America.

**Duration of project:**

Suggested: from October 1995 to December 31, 1999.

## **GOALS OF THE DISASTER REDUCTION PROGRAM FOR LIVESTOCK IN CENTRAL AMERICA**

- 1. To identify organizations within Central America and the Americas that are willing and able to help in the development and implementation of a disaster reduction program for livestock.**
- 2. To enter into an agreement between CEPREDENAC and OIRSA that OIRSA will be the regional lead agency in Central America for disaster reduction program in livestock.**
- 3. To create the awareness of the importance of disaster reduction programs for livestock agriculture among government officials, responders and potential victims of disasters.**
- 4. To develop the concept of a disaster response plan for livestock based in OIRSA.**
- 5. To train disaster coordinators to become qualified as competent responders.**
- 6. To train responders in selected areas of need.**
- 7. To test the disaster reduction for livestock plan.**
- 8. To review progress and identify areas for improvement.**
- 9. To secure long term implementation for a disaster reduction program for livestock.**
- 10. To develop an international training program on disaster reduction for livestock.**

## **BUDGET (guidelines only)**

Although a specific budget cannot be determined at this stage, some principles of budgeting can be proposed. For example, it should be understood that funding will be essential to progress with the development, implementation and maintenance of a disaster reduction program for livestock in Central America. Each step of the strategic plan must be completed before the next can be made. Sequential progress through the steps of the strategic plan is also necessary to build credibility for higher levels of funding in the future. In the following, only tentative guidelines for sponsorship are given by suggesting a level of funding and potential areas which each agency may consider supporting.

- OIRSA administrative costs for making contacts, setting path, coordinating first meeting (US\$1,000s, funding is likely to be only in kin)
- OAS cost of transport for arranging first meeting, sponsor for first meeting (US\$10,000s)
- PAHO cost of training veterinary responder and coordinator personnel (US\$100,000s)
- NGOs for response operations (US\$1,000,000s)
- Development banks and foreign governments for education, prevention and mitigation projects (US\$10,000,000s)

## **BACKGROUND INFORMATION**

Large scale disasters affect many people's lives through disruption of the infrastructure and personal suffering. Disasters can have a long lasting impact on the stability of a country's economy and leadership. Effective preparedness and intervention in disasters is associated with effective prevention and resolution of many of these concerns. A lack of disaster preparedness can lead to a chaotic response, economic recessions and civil unrest. The recovery costs to disasters are estimated to be 200 - 1000 fold greater than the costs of prevention.

Agricultural and domestic animal husbandry systems contribute significantly to the economic and political strength Central America. Agriculture also represents a large portion of each country's cultural heritage and identity. Also, in many areas of Central America, the long term stability of the environment depends heavily on sustainable agriculture, which is based in traditional livestock husbandry systems and social structures.

Disaster preparedness for agriculture plays a significant role in disaster preparedness and response, because, after a disaster, a country's agriculture has to be reestablished before the affected country can expect to return to a normal, independent economy. Therefore, disaster preparedness programs for agriculture should form an integral part of a country's disaster preparedness program.

Central America has a high predisposition to natural disasters such as droughts, floods, earthquakes and volcanic eruption (Annex 1). For example, in the last 10 years nearly 40,000 people have died as a result of earthquakes, floods and hurricanes in Central America, at an estimated cost to these countries in excess of US\$ 8.5 billion. Catastrophic events also have a great impact on agriculture. In 1994, the direct losses in grain production in Central America as a result of droughts, alone, were estimated to be approximately US\$ 44 million.

Indirect losses that result from disasters often exceed the direct costs of recovery by many fold. Examples of indirect losses include decreased food production and supply from animals; an impairment of public health; contamination of safe food and water; a breakdown in social structures that are maintained through traditional animal care systems; and heavy impacts on the environment as people and animals invade previously protected areas. For example, in the case of droughts the large losses in body condition of grazing and browsing animals also result in significant decreases in the amount of food available to people. Following floods, livestock seeking higher ground may invade human habitations and fragile environments. Also, pastures can be rendered useless for many years after a flood due to the deposit of debris and silt with low water holding capacity. Previously flooded pastures are, therefore, highly susceptible to droughts in subsequent years.

The United Nations has declared the 1990s as the International Decade for the Reduction of Natural Disasters. Consistent with this program the leadership of Central America is developing disaster reduction programs. The most notable is the "Center for the

**Coordination and Prevention of Natural Disasters in Central America” (CEPREDENAC), which is commissioned by the presidents of Central America. The goal of CEPREDENAC is to develop effective disaster reduction programs throughout Central America, that build on existing expertise and resources in these countries. Because of the extensive rural economies disaster reduction programs for agriculture have a high priority with CEPREDENAC.**

**The potential role of veterinarians and other agricultural experts in disaster reduction is during the planning, education and response phases of disasters (Annex 2). In each of these phases, appropriate and culturally sensitive veterinary care of animals can support the unique ways in which humans and animals relate to each other. Veterinarians are already experienced in public health and at the prevention and control of large scale epidemic disasters. Public health issues veterinarians commonly deal with include the safety of human food and water, and diseases such as rabies, leptospirosis, cryptosporidiosis, campylobacter, salmonellosis, and equine encephalitis. In addition, veterinarians have supervised the control of foreign animal disease, which are a threat so great that they could potentially destroy the entire region’s livestock production. Additional support functions of veterinarians in disasters are humanitarian assistance, because the care of animals ultimately always aims to restore and maintain a country’s safe food supply, economic and social structure, as well as its cultural identity. The “Veterinary Service and Animal Care Annex” to the Indiana State Emergency Operations Plan is an example of effective emergency management planning for animals. A copy of this plan accompanies this proposal.**

**The missions of SICA, OPS, PAHO, Organization of American States and other high level administrative, political and economic organizations and the expertise and resources that are available in OIRSA set the ideal stage for the countries of Central America to develop a model disaster reduction program for livestock. For example, a disaster reduction program for livestock in Central America is consistent and offers practical implementations of several resolutions of the Inter-American Institute for Cooperation in Agriculture (IICA). These include:**

- Resolution No. 268: Conservation of Genetic Material in the Americas**
- Resolution No. 269: Actions in Rural Development**
- Resolution No. 270: Support for the Work of Rural Adolescents**
- Resolution No. 275: Participation of Women in Rural Development.**

**In the context of these resolutions, OIRSA could function as a “Center of Excellence” in disaster reduction programs for livestock in Central America. In support of this concept, CEPREDENAC has already identified OIRSA as the regional lead agency for animal health in disaster reduction. A disaster reduction plan for livestock in Central America would define the authority with which to gather information and suggest actions to resolve agricultural issues that arise in disasters. It would further provide a recognized program that legitimizes and stimulates future funding for research and development. Finally, it could be a model for other nations in the world to follow, as it offers potential solutions to complex disasters in the Americas and other continents.**



## **THE RISK TO LIVESTOCK AGRICULTURE IN CENTRAL AMERICA**

Although there are currently no specific survey data that describe the risks of disasters to livestock in Central America this information can be derived from national statistics on animal agriculture and hazard analysis maps, such as available from OIRSA and the Comité Nacional de Emergencia (NCE) in Costa Rica. From this information a number of important facts can be derived that clearly indicate that the risks and costs of natural disasters to agriculture in Central America are very large. Some indicators of high risk in agriculture in Central America to natural disasters are summarized in Annex 3.

The information in Annex 3 indicates that In most natural disasters in Central America the likely victims will farm laborers and dependent families in rural communities. The most likely farm types affected will be subsistence and small farms, which are owned, with improved or natural pastures. Because in some countries over 60% of their entire livestock industry may be at risk of natural disasters, disasters also represents a threat to the local human food supply. Children are likely to be the first to suffer the effects of such events. Damages to the livestock agriculture from natural disasters or epidemics are, therefore, likely to bring with them serious long lasting impacts on countries' economies. Without carefully planned interventions, natural disasters affecting livestock may have only poor potential for complete recovery. Therefore, restoration of livestock industries, including replacement of livestock for subsistence farmers, should have a high priority in disaster management.

### **Estimation of the number of cattle at risk from natural disasters**

Some of the best data to calculate the risks and costs of natural disasters to livestock can be derived from statistics on the cattle industry. For details see Annex 4.

### *Ratio of number of cattle to people and area affected*

By dividing the number of cattle by the number of people or the total area affected it is possible to estimate the approximate ratio of cattle to people and per area affected that can be expected in a disaster. The following table gives estimates of these:

**Table 1.** Ratio of the number of cattle per person and area affected in natural disasters.

<b>Disaster Type</b>	<b>Number of cattle per persons affected<sup>a</sup></b>	<b>Number of cattle per square kilometer affected<sup>a</sup></b>
<b>Floods</b>	1.62 - 3.64	33.64 - 69.99
<b>Droughts</b>	3.64	69.99
<b>Landslides, earthquakes, volcanoes</b>	.48 - .98	20.84 - 68.63

<sup>a</sup> based on hazard analysis maps from Costa Rica and agricultural statistics compiled by OAS.

*Extent of cattle industry at risk and the potential recovery costs for these.*

The following table summarizes important figures on the extent of cattle industry at risk and the potential recovery costs for these.

**Table 2.** The risks of natural disasters to the cattle industries of Central America.

<b>Disaster Type</b>	<b>Cattle at Risk (% total industry, by region)<sup>a</sup></b>	<b>Land areas with risk (% of whole country, by region)<sup>a</sup></b>	<b>Replacement value at risk (in US\$ million)<sup>b</sup></b>
<b>Floods</b>	64	62	1,634.8
<b>Droughts</b>	58	36	1,481.5
<b>Earthquakes</b>	55	62	1,404.9
<b>Volcano</b>	44	40	1,123.9
<b>Landslides</b>	36	38	919.5

<sup>a</sup> figures based on Costa Rica hazard analysis maps.

<sup>b</sup> based on industry value statistics supplied by OIRSA. (The replacement value of the cattle industry in Central America is approx. US\$ 2.6 billion).

Using conservative estimates of US\$ 200.00 replacement cost per cow, a factor of 3 to calculate the costs of indirect impact of the disaster (see Annex 5), and an estimate of 250,000 persons affected by natural disasters in Central America in the last 10 years it can be seen that the immediate cost of natural disasters to the cattle industry alone in Central America are likely to have exceeded US\$ 150 million in the last 10 years (average US\$ 15 million per year). This figure under represents the actual costs of natural disasters, since there are additional indirect and intangible costs that need to be added into this equation. Also, the cattle industry represents only a portion of the livestock industries in Central America.

## **GENERAL CONCEPT**

**An example of how a disaster reduction program may work: A theoretical disaster!**

### *Introduction*

Floods are a common occurrence in Central America. Floods commonly affect livestock, because many livestock farms are in low lying plains that are prone to flooding. Floods can cause significant losses to livestock owners and their dependents, because of flooding of pastures, animal drownings and increased disease in livestock. All of these factors contribute to a decrease in livestock production efficiency and reduced potential for competition in the open market. These losses can represent a significant loss of food supply for people, and increases unemployment by putting livestock owners out of business. When large number of animals are drowned, carcasses and displaced cattle searching for new and safe pastures can cause serious detrimental impacts on the environment. Because previously flooded pastures are very susceptible to droughts in subsequent years, many thousand livestock owners are worried about their current and future source of income. Also, theft and crime among disaster victims may increase as competition for resources, such as food, livestock and land, increase. In the following an example of an ideal response to such a typical disaster is described.

### *Background (real)*

In the low plains along the Pacific Coast of Guatemala there are many cattle raising farms. The traditional farm is a "partella" (approximately 40 acres) with 60 - 70 head of cattle. Most of the cattle will be used for beef production, but about one quarter of them also produce milk. There are also some very large farms in this area, with several thousand acres and cows. Each partella usually has one owner and supports 2 other families and their children. Hence, each partella supports about 12-15 people. The main sources of income are from the sugar cane and livestock industries. The sources of food are from earnings and subsistence agriculture, where each family grows their own corn and beans and keeps two or three pigs and a few chickens.

### *Circumstances (real)*

In 1966 Volcan de Agua erupted, which is near the source of the Guacelate and Achiguate Rivers. Initially the impact on agriculture was from the ash fall, however, much greater, long term problems started about 5 years later in areas remote to the initial impact area. Downstream from the volcano the village of Cuyuta comprises about 380 partellas and several very large farms. Much of the village had thrived for many years on a flourishing agriculture. In the early 1970's the Achiguate River started to deposit large amounts of volcanic ash from Volcan de Agua in its bed, resulting in large scale and repeated flooding every year between May and October. Typically the river would change course every year and flood many thousand acres of farms, drowning cattle and forcing owners to move their cattle to higher pastures. Pastures that had been flooded in preceding years were rendered infertile due to the large amounts of volcanic ash deposited on them. The river became several kilometers wide in places and created whole areas where the soil never completely dried out. The village of Cuyuta is one such place.

*Initial Assessment (theoretical)*

Livestock producers recognize that they are being driven out of business and are worried that they will have to give up their livelihoods. They hear about a disaster reduction program and find out that OIRSA and CEPREDENAC have the authority and capability to investigate their problem with the assistance of the national emergency management office. A request is made to OIRSA and a team of veterinarians, agricultural economists and public health physicians is dispatched to identify and characterize the problems in Cuyuta. The OIRSA personnel specifically conduct field studies on animal health and public health as it relates to animals. This includes epidemiologic mapping of the affected areas, determination of disease problems in all species of animals, and an assessment of the economic impact of the flooding on livestock production.

A report is formulated by categorizing damages into areas that can be further prevented; those that can be corrected; and those which are beyond recovery. The team determines that many farmers face losses from drowned cattle and additional costs because of having to lease land to move their cattle to. Also, all animals suffer greatly increased internal and external parasite infestations. As a result of a disease associated decrease in livestock productivity, the food intake of the children in the village is also reduced in quality and quantity. This predisposes the children to other diseases.

Animal health information is presented to the “director of disaster response for livestock” at OIRSA. This director discusses this information with other experts in areas of Emergency Management, public health and agricultural development in Central America (and maybe abroad), where similar problems have occurred. Communications are electronically via modem and the Internet. The director then summarizes these findings in a collective decision and prioritizes the needs of the disaster victims using guidelines worked out in the disaster reduction program for livestock. For an immediate resolution of the animal health problems, the suggestion is made that the greatest benefits would be derived from farming subsidies (food and cash) for directly affected farmers and their dependents, and for vaccines and dewormers for the cattle and pigs. An immediate term response should include the replacement of lost cattle, and a long term response should involve controlling the flow of river and drainage of fertile flooded areas. The director submits this assessment to the Emergency Management Agency officials of the affected country.

*The immediate response (theoretical):*

The government of the affected country is a member of the disaster reduction program for livestock in Central America and knows that another member country can help provide these needed resources. The member states of the Central American disaster reduction program for livestock has also identified a supportive foreign country and several international non-government organizations that have expressed their commitment to financially support the disaster reduction program for livestock in Central America. With the information supplied by the director of livestock disasters at OIRSA, and the resources identified, the president of the affected country declares a national state of disaster. With this declaration it is now possible for the president of the country to request financial aid from previously identified foreign governments and NGOs to purchase cattle and pig

vaccines, dewormers, and feed, and replacement cattle from another member state in the disaster reduction program for livestock in Central America. Within days shipments begin and the restoration of normal community life can begin.

*The long term recovery (theoretical):*

Although improved animal health has been shown to improve, the repeated flooding of the villages for many months of the year bring other problems with them. Incidents of Dengue Fever and malaria are suspected, but in this hypothetical, yet reasonable, case, we face a sudden outbreak of wide spread acute disease in people, where several children die and adults have prolonged recoveries. An animal related disease (zoonosis) is suspected, and a team of OIRSA and Public Health disaster response personnel are alerted and investigate the problem. Field studies are conducted to identify the potential causes, with an emphasis on immediate intervention for public safety and long term prevention of recurrence. A diagnosis of leptospirosis is made. OIRSA disaster response personnel identify two major risk factors for human health. These are poor public education on water sterilization and common water supplies for people and animals. A specific vaccination program against leptospirosis in animals is started, together with the supply of appropriate medicines for the people.

After several years of repeated flooding and recurrence of all of the problems, it is becoming apparent that the situation needs a permanent solution. A cost-benefit analysis shows that over several years the average cost to the livestock producers in the Cuyuta area is approximately US\$ 2 million each year. There are now additional public health concerns that have arisen because of poor water sanitation. These losses can only be prevented if something is done to permanently control the randomly changing course of the Achiguate River.

*Mitigation (theoretical):*

The results of the field studies are conveyed to public health and agriculture officials. These officials decide that further research is needed in two areas. These are to prevent recurrence of the problem, by finding a way to control the flow of the river, and to improve the infrastructure of the livestock agriculture in the area.

As assessment and response operations have proceeded over the last two years, an international bank has become impressed with the proficiency with which the disaster reduction program for livestock in Central America has proceeded. The Bank feels confident that the financial support for a research project is warranted. A year later the research results indicate that several levies and locks along the river and a series of draining ditches would control the flow of water to the Cuyuta area. Also, the construction of a milk pasteurization plant and cattle loading station is anticipated to provide a strong stimulus to the livestock industry in that area. Happy with the prospect of a real beneficial impact to the affected country, the Bank decides to support a development project, together with extensive public education on water safety. The disaster from four years ago has become a launching pad for extensive growth and prosperity in the affected country and effort of mutual support between several countries of Central America. .

## **COMPONENTS OF A DISASTER REDUCTION PROGRAM FOR LIVESTOCK IN CENTRAL AMERICA**

### **Authority, Lead Agency**

The major components of a disaster reduction program are on two levels, which are interdependent. The first level is at the highest level of a country's administration, who has to endorse the concept of a disaster preparedness plan, set priorities for what disasters to respond to and how to respond, and to designate the responsibility of a response to a lead agency within Central America. This high level group in Central America is CEPREDENAC, whose mandate is to develop and coordinate a regional disaster reduction plan. CEPREDENAC is commissioned by the presidents of Central America.

The second level is the agency that has the responsibility to respond to disasters. For animal health CEPREDENAC has identified the Organismo Internacional Regional de Sanidad Agropecuaria (OIRSA). OIRSA is highly suited to assume this role. OIRSA's mission to facilitate the development of agriculture, in order to promote human well being, though the supervision and protection of Central American animal and plant agriculture.

### **Existing components for a disaster reduction program for livestock in Central America** *Emergency Management*

CEPREDENAC has identified organizations throughout Central America that have competence in fields that relate to emergency management. The role of each of these is summarized in annexes to the Regional Plan for Disaster Reduction. In addition to regional organizations, each member country has national agencies that can coordinate and respond before, during or after a disaster strikes. Some of these are listed in Annex 6. In addition, the Executive Secretary of CEPREDENAC has expressed a desire to enter into an agreement with OIRSA to address animal health issues that arise in natural disasters in Central America.

### *Animal Health*

OIRSA has over 40 years of experience in the control of epidemic and foreign animal diseases that threaten the livestock of Central America. It was created under the banner of "Disease knows no boundaries" in response to the first locust plagues that threatened the plant agriculture of Central America. OIRSA now also provides public health expertise on human diseases that are related to animals. An attest to OIRSA's competence is its employment of nearly 100 experts, technical and support staff in offices in Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama and the Dominican Republic, with expertise in all aspects of animals and plant health and public health as they relate to the supply of food. Members of OIRSA have also worked in collaboration with administrative officials in major disasters in Mexico City, Managua, Honduras and Guatemala. All OIRSA offices will also soon be connected electronically via computers and the Internet.

A combined effort between the resources and expertise of Emergency Management and OIRSA would be a logical choice to develop and maintain a disaster reduction program

for livestock in Central America. This could be readily achieved at the regional level through an agreement between CEPREDENAC and OIRSA. Other organizations such as PAHO and OAS should be considered as partners in an agreement, because they both have extensive regional disaster preparedness programs in Central America and may wish to contribute programmatic support the development of a disaster reduction program for livestock in Central America.

### *Resources*

Central America has its own best resources to recover from disasters. For example, in areas where large numbers of livestock need to be replaced it would be best to use Central American stock for this purpose. When this has not been the case, imported cattle have had very poor fertility, many problems with disease and mortality, and have generally only had short life spans with poor productivity. A disaster reduction program for livestock could identify trade partners within Central America as a source of replacement stock after a disaster, which would act as a stimulus to regional trade.

### **Components needed to implement a disaster reduction program in Central America**

The requirements to make OIRSA a functional disaster response operation for Central America are minimal, and involve the appointment of a supervisor/plan coordinator; the education of veterinary responder personnel in damage assessment, disaster coordination, epidemiological investigations and the control of public health threats that may arise from animals in disasters.

This knowledge could be readily acquired through a joint venture between each OIRSA office and its country's national Emergency Management office, and by sending designated personnel from OIRSA for participation in Emergency Management courses relevant to agriculture in Central America and abroad. Institutions that may provide high quality educational programs in these areas in the USA include the Federal Emergency Management Agency (FEMA), the Center for Disease Control and Prevention (CDC), the US Department of Agriculture (USDA/APHIS) and the University of Wisconsin, Extension, Disaster Management Center. (The latter provides resident and distant learning degree program in Emergency Management in Spanish). The exchange of personnel between the countries could facilitate a better understanding and appreciation for each other's needs and capabilities. This exchange would, therefore, in addition to adding great skills to Central American Emergency Preparedness and Agriculture, may greatly facilitate the potential for mutual aid should it ever be needed.

## **STRATEGIC PLAN FOR THE DEVELOPMENT, IMPLEMENTATION AND MAINTENANCE OF A DISASTER REDUCTION PROGRAM FOR LIVESTOCK IN CENTRAL AMERICA**

The need and concept for a disaster reduction program for livestock have been described above. Unfortunately the understanding of disaster reduction for animals is still poorly appreciated. In the following, the stages needed to implement a disaster reduction program for livestock in Central America are summarized. The budgetary constraints on this plan have been described above..

### **DEVELOPMENT PHASE**

#### **Step 1**

##### *Goal:*

To identify organizations within Central America and the Americas that are willing and able to help in the development and implementation of a disaster reduction program for livestock.

##### *Background:*

At the outset of any new program it is imperative that the awareness of the needs, level of significance and scope are discussed, defined and prioritized. This has to occur at all levels of intervention of the program.

##### *Strategy:*

Each OIRSA office should contact the national Emergency Management office in their country (Annex 6) to establish the intention to collaborate in future in a disaster reduction program for livestock in Central America.

##### *Schedule:*

Complete before meeting of SICA in November 1995

#### **Step 2.**

##### *Goal:*

To enter into an agreement between CEPREDENAC and OIRSA that OIRSA will be the regional lead agency in Central America for a disaster reduction program in livestock.

##### *Strategy:*

For CEPREDENAC and OIRSA to attend the SICA conference in November 1995 and to announce their intention.

##### *Schedule:*

Complete at the SICA meeting in November of 1995 or no later than by the end of 1995



### **Step 3.**

#### *Goal:*

To create the awareness of the importance of disaster reduction programs for livestock agriculture among government officials, responders and potential victims of disasters.

#### *Background:*

One of the best formats to generate interest and disseminate information is to hold a conference. At a conference much new information can be presented in a concise form, as well as potential participants in a disaster reduction program can meet each other. The participants can also enter into preliminary discussions on how they may integrate their resources and expertise in the event of a disaster.

#### *Strategy:*

Hold the First Central American Conference on Livestock issues in Disasters (Annex 7).

#### *Schedule:*

Plan to hold conference in Spring/Summer 1996

### **Step 4**

#### *Goal:*

To develop the concept of a disaster response plan for livestock based in OIRSA

#### *Background:*

At present the expertise of veterinarians and emergency management agencies is not knowledgeable of each other's capabilities, nor integrated. To overcome these issues, representatives from the two groups need to exchange ideas and get to know each other.

#### *Strategy:*

For the supervisor of the disaster reduction program for livestock in OIRSA to coordinate a series of meetings in each member country between OIRSA and the organizations in Annex 6. The purpose of these meetings should be for each party:

- 1). to exchange an inventory of their expertise, experience and resources;
- 2). To use specific examples of natural disasters and epidemics to describe the major problems encountered and to discuss how these problems could be dealt with in future; and
- 3). To identify specific training requirements that would be needed to qualify the responders. The emphasis should be on damage assessment; the structure of disaster response (e.g., the Incident Command System of FEMA); public education of

potential disaster victims; resource recruitment; exercise planning; and epidemiological research.

*Schedule:*

Aim for completion by the end of 1996

## **IMPLEMENTATION PHASE**

### **Step 5**

*Goal*

To train disaster coordinators to become qualified as competent responders.

*Background:*

Because veterinarians are not trained in disaster response, nor are emergency management personnel trained in animal health each groups' responders should become familiar with the priorities of each others' operations.

*Strategy:*

Select training modules from Emergency Management Agencies, Public Health and Non-Governmental Organizations and universities for responders and their supervisors to attend.

*Schedule:*

Complete by middle of 1997.

### **Step 6**

*Goal:*

To train responders in selected areas of need.

*Background:*

Because veterinarians are not trained in disaster response, nor are emergency management personnel trained in animal health each groups' responders should become familiar with the priorities of each others' operations.

*Strategy:*

Use sponsorship for OIRSA and other groups' representatives to attend workshops and training sessions in Central America and abroad.

*Schedule:*

Complete by middle of 1998.

## **MAINTENANCE PHASE**

### **Step 7**

#### *Goal:*

To test the disaster reduction plan for livestock in Central America.

#### *Background:*

The best training is emergency management is constant exercising on realistic examples or real incidents.

#### *Strategy:*

Hold full scale exercise involving all potential participants.

#### *Schedule:*

Hold exercise at end of 1998.

### **Step 8**

#### *Goal:*

To review progress and identify areas for improvement.

#### *Background:*

With the approach of a new funding cycle and new century, the progress and value of the disaster reduction program for livestock in Central America should be reviewed.

#### *Strategy:*

- 1). Hold regional meeting to review and critically evaluate progress. This may be based on the full scale exercise or on actual incidents that have occurred.
- 2). Request external review by e.g., United Nations, Pan American Health Organization, OAS, PARLATINO, OFDA/USAID and others
- 3). Review results of scientific reports to identify areas in greatest need for improvement and which have the greatest potential for effective mitigation programs.
- 4). Identify areas of needed research (livestock census, Geographic Information Systems (GIS), risk and impact assessment, cost-benefit analysis, economic-anthropomorphic studies)
- 5). Identify potential sponsors for mitigation programs.

#### *Schedule:*

Hold meeting at end of 1998, following full scale exercise.

## **Step 9**

### *Goal:*

Secure long term implementation of disaster reduction program for livestock.

### *Background:*

The commitment to recurrent funding is the only method by which a permanent benefit from disaster reduction program can result.

### *Strategy:*

- 1). Seek written endorsement of the disaster reduction program for livestock in Central America by United Nations, Pan American Health Organization, OAS, OFDA/USAID, international NGOs and others.
- 2). Seek financial commitment towards the disaster reduction program for livestock in Central America by United Nations, Pan American Health Organization, OAS, OFDA/USAID, international NGOs and others.
- 3). Secure funding for research that will enhance future progress and improvements

### *Schedule:*

Beginning of 1999

## **Step 10**

### *Goal:*

To develop an international training program on disaster reduction programs for livestock.

### *Background:*

There is increasing evidence that for countries to recover from complex emergencies they must have a functional agriculture. It is likely that future recovery programs for disaster relief programs will include a component that addresses the restoration of agriculture in the affected countries. Associated with the need to address the recovery of agriculture following disasters will come the need for basic and advanced education in this area. If the Central American countries pursue the development and implementation of a disaster reduction program for livestock they will be looked upon as the world's leaders in this field. It would be natural to assume, then, that Central America would emerge as the reference center for agricultural recovery programs in disaster struck countries, and as a source of livestock that are highly adapted to tropical and subtropical environments, where many disasters occur. This should be considered as one of the potential programs to consider beyond the year 2000.

*Strategy:*

- 1). Summarize expertise and experiences from the disaster reduction program for livestock in Central America 1995 - 1999 in a format for other countries and regions to follow.
  
- 2). Compile expertise and experiences from the disaster reduction program for livestock in Central America 1995 - 1999 in a format for other countries and regions of the world to use as educational modules to learn from.
  
- 3). Seek financial sponsorship for this venture (Annex 8).

*Schedule:*

Year 2000.