



Photo courtesy of C.A. Zepeda Sein, Organismo Internacional Regional de Sanidad Agropecuaria

Fig. 4

Carcass disposal becomes a very difficult task during floods

An attempt is made to burn a drowned cow carcass

Animal welfare considerations

An important emergency response consideration in natural disasters is the alleviation of suffering and humane destruction of moribund animals. This includes the provision of feed and water in episodes such as fire, drought and floods. Veterinarians are best qualified to ensure the welfare of animals, including the decision and recommendations on methods for euthanasia (19). Euthanasia programmes are intended to prevent animal suffering and the spread of epizootics. However, the methods used and their intended effectiveness will also need to be justified to an international public who may have a poor understanding of the issues and benefits of such practice. Effective communication is probably only possible as part of a co-ordinated emergency management effort.

Recovery

An effective recovery phase from disasters commences with effective mitigation programmes which include the establishment of trade and mutual aid agreements between countries to supply goods and to restock livestock populations following a disaster. These agreements are implemented in the recovery phase and provide an opportunity to improve on existing systems. Appalling results can be seen if livestock are replaced without prior

consideration of local needs following a disaster. There are too many examples of *Bos taurus* cows being sent to tropical countries, where they succumb to endemic diseases to which *Bos indicus* breeds are resistant. Furthermore, animals that are not adapted to heat suffer greatly from climatic change, resulting in extremely low fertility rates and virtually no milk production. These secondary disasters can be prevented through planning.

Development of international disaster reduction programmes for livestock industries in developing countries

The process of developing an international disaster reduction programme is similar to other emergency management planning processes. The following recommendations have been adapted from those made by the FAO (3) and are very similar to the four phases of plan development used in emergency management in the USA. To emphasise this

similarity, the terms from 'Project Impact' (United States Federal Emergency Management Agency) are used to summarise this process

Building community partnerships

The four elements which comprise the building of community partnerships are as follows:

- Establish a national committee for veterinary disaster management. This committee should have the expertise to address contagious disease and geophysical disasters.
- Review existing national and international laws, regulations and policies and determine how these can be adapted to meet the needs of a national disaster reduction programme.
- Develop a matrix that clearly defines the relationship between Veterinary Services, and public health and environmental impact agencies.
- Establish a chain of authority and a chain of command to determine how the members of the disaster response force communicate with one another and with all other agencies active in all stages of the emergency management cycle. Examples of such agencies include emergency management, military services, and those with diplomatic ties, international trade partners, and departments of finance

Identify hazards and community vulnerability

Hazards need to be identified and the vulnerability of the community assessed, by performing the following tasks:

- Establish a committee which reviews the impact of disasters and assesses the potential impact of disaster on the livestock industry of the country. This group should also develop and maintain disease surveillance methods using epidemiology, geographic information systems (GIS) and risk assessment methodology to enhance their efforts.
- Identify resources (laboratories, veterinary schools, animal and human health departments) that could play a role in the response to disasters and characterise the function of these resources in the cycle of emergency management

Prioritise hazard risk reduction actions

The reduction of hazards needs to receive priority, through the following activities

- Identify and make arrangements with national and international organisations which could provide resources and immediate and long-term response and recovery funds after a disaster.
- Establish a network of private resources willing and able to assist in recovery from disasters.
- Establish a committee that oversees the development and maintenance of resources through written and verbal agreements in non-disaster periods

- Maintain census data and maps on livestock populations and public health indices that are related to food production (child mortality, infectious disease, per capita protein consumption).

Communicate success

Effective communication needs to be developed with farmers and their representatives in the livestock industry. Finally, plans should be rehearsed and practised at least once annually

Disaster relief

International disaster relief can play an important role in recovery from disaster and subsequent development of a country. The World Health Organization recognises that disaster 'relief must be integrated into long term plans for health and social development' . . . because . . . 'there is a clear link between emergency, rehabilitation and development. Humanitarian assistance should be accompanied by a renewal of commitment to economic growth and sustainable development of developing countries' (23) In an ideal world, disaster-relief funding to support, rebuild and develop the livestock industry in a country should also be seen as a form of humanitarian assistance which benefits public health, and the social and economic power of a country.

The Pan American Health Organization has published guidelines on how to make international disaster relief effective. Although these guidelines were originally developed to address the needs of human disaster victims in Central and South America they also apply to animal health in many countries throughout the world (15)

Of particular importance is the emergency intervention fund which exists at the OIE; this 'shall be used for the sole purpose of a Member Country to deal with an animal disease emergency (e.g. following national disasters), while awaiting the provision of aid by other national or international institutions'

Acknowledgement

Sections of this paper have been adapted from Chapters 31 and 32 of *Animal management in disasters*, published by Mosby-Year Books, St Louis, Missouri (USA) (4)

Gestion des catastrophes naturelles et de leurs conséquences sur la production animale dans les pays en développement

S.E. Heath, S.J. Kenyon & C.A. Zepeda Sein

Résumé

Les catastrophes naturelles, quelle qu'en soit l'origine, ont toutes des conséquences similaires sur la santé et le bien-être des animaux d'élevage. Les catastrophes d'origine géo-physique favorisent les épizooties, accroissent la mortalité animale et limitent la productivité. Ces catastrophes peuvent également altérer la qualité des produits alimentaires, ce qui représente un danger pour la santé publique. À terme, les catastrophes de grande ampleur affectant la production animale ont également un impact sur l'équilibre des économies nationales, sur l'environnement et sur les structures sociales.

Les auteurs décrivent la vulnérabilité du secteur de l'élevage devant les catastrophes naturelles ainsi que les conséquences des inondations, des sécheresses et des maladies et ravageurs transfrontières sur les économies nationales. Des exemples sont présentés, qui permettent d'éviter certaines pertes, de les évaluer ou de les compenser. Les auteurs définissent le rôle du vétérinaire et sa relation avec le travail mené par d'autres équipes de secours en cas de catastrophe.

Dans les pays en développement, les programmes visant à réduire les effets des catastrophes doivent se fixer pour objectif prioritaire le renforcement global des services de santé animale. La préparation doit être conduite en intégrant l'ensemble de la population, dûment formée à cet effet. La réhabilitation et le soutien après une catastrophe doivent se fonder sur de tels programmes, avec notamment la prise en compte du commerce international et des accords d'aide mutuelle entre pays voisins pour l'approvisionnement de marchandises et le transfert d'animaux acceptables sur le plan culturel et écologique.

Les soins d'urgence aux espèces animales domestiques doivent être considérés comme un aspect de l'aide humanitaire apportée après une catastrophe, compte tenu des bénéfices qui en découlent pour la santé publique et des effets socio-économiques d'une intervention réussie.

Mots-clés

Approvisionnement de denrées – Catastrophes naturelles – Gestion des urgences – Impact économique – Pays en développement – Préparation – Réponse – Santé animale – Santé publique – Secours – Sécurité alimentaire

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Manejo de desastres que afectan al ganado en los países en desarrollo

S.E. Heath, S.J. Kenyon & C.A. Zepeda Sein

Resumen

Los diversos desastres naturales tienen consecuencias análogas sobre la sanidad y el bienestar de los animales de granja. Los desastres de origen geofísico favorecen las epizootias, incrementan la mortalidad y reducen la productividad. Estos desastres también representan un peligro para la salud pública, debido al riesgo de deterioración de los productos alimentarios elaborados. Además, los desastres en gran escala que afectan a los animales suelen modificar la estabilidad económica de los países, trastornando también el medio ambiente y las estructuras sociales.

Los autores describen la vulnerabilidad del sector ganadero ante catástrofes naturales y el impacto sobre las economías nacionales de inundaciones, sequías, pestes y enfermedades transfronterizas. Dan ejemplos de cómo evitar ciertas pérdidas, evaluarlas o compensarlas. Definen el papel que asume el veterinario en casos de emergencia, y su relación con el trabajo de los demás equipos de socorro.

En los países en vías de desarrollo, los programas destinados a reducir los efectos de los desastres deben tener como objetivo central el fortalecimiento de los servicios de sanidad animal. La preparación debe incluir la participación de la comunidad, educada al respecto en tiempo oportuno. La recuperación después de un desastre debe basarse en tales programas, y tomar en cuenta el comercio internacional y los acuerdos de ayuda mutua entre países vecinos para el suministro de mercancías y el aprovisionamiento de razas de ganado adecuadas desde los puntos de vista ecológico y cultural.

Las operaciones de socorro a los animales de granja durante un desastre merecen ser reconocidas como parte integrante de la ayuda humanitaria, considerando los beneficios que implican para la salud pública y las consecuencias socioeconómicas favorables de las intervenciones.

Palabras clave

Aprovisionamiento de alimentos – Desastres naturales – Gestión de emergencias – Impacto económico – Países en desarrollo – Preparación – Protección alimentaria – Respuesta – Salud pública – Sanidad animal – Socorro ante desastres.

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