Preparedness for Natural Catastrophes
Role of the Veterinary Authorities

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The Disaster Management Cycle

- Recovery Plan
- Gap analysis

- Implementation of Contingency Plans
- Prioritizing activities
- Gap analysis

Disaster Management and Risk Reduction Plan
- National
- Veterinary Services
- Private Sectors

- Mitigation and Prevention
- Recovery

- Event

- Preparedness
- Response

- Implementation of relevant command system
- Review availability of human and financial resources
Mitigation and Prevention Phase

• Disaster Management and Risk Reduction Plan
  • Harmonised with the national legislation for disaster management and plans of other sectors
  • Include:
    • **Roles and responsibilities** of the veterinary services, private veterinarians and animal owners
    • **Mechanisms for interaction** with other services, official institution and ministries, as well as private institutions and organisations
    • **Communication strategy** from government level to the general public
    • **Chain of command** and a job description for all key staff
    • **Disease surveillance**
    • **Information** related to animals

Mitigation and Prevention Phase

- **Risk Analyses**
  - Hazard identification, hazard mapping, risk assessment, vulnerability analysis, capacity analysis, risk evaluation and risk communication
  - To help prioritise risk-reduction activities and facilitate decision making

- **Contingency Plans and Standard Operating Procedures**
  - Develop contingency plan for each type of event, which cover animal health, animal welfare and veterinary public health

- **Human resources**
  - Ensure that different skills are covered

- **Financing**
  - Budgeting in advance will allow for rapid action

*Based on OIE’s Guidelines on Disaster Management and Risk Reduction in relation to Animal Health and Welfare and Veterinary Public Health.*
The Disaster Management Cycle

- Recovery Plan
- Gap analysis

- Recovery

- Mitigation and Prevention
  - Disaster Management and Risk Reduction Plan
    - National
    - Veterinary Services
    - Private Sectors

- Preparedness
  - Implementation of relevant command system
  - Review availability of human and financial resources

- Response
  - Implementation of Contingency Plans
  - Prioritizing activities
  - Gap analysis

- Event
Preparedness Phase

- Switch to emergency mode
  - Start implementing the relevant command system
  - Maximise the response capacity
  - Use early warning system to communicate with relevant partners
  - Review the availability of human and financial resources
  - Tailor the communication strategy to the specific disaster event

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- National
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- Disaster Management and Risk Reduction Plan

- Mitigation and Prevention

- Gap analysis

- Recovery

- Preparedness

- Implementation of relevant command system
- Review availability of human and financial resources

- Prevent mitigation and recovery

- Event
Response Phase

• Assess the impact of the disaster on the Veterinary Services themselves
• Carry out gap-analysis to identify the Veterinary Services’ needs
• Prioritise activities
• Carry out activities in cooperation with stakeholders
  • According to a contingency plan – if it exists

Recovery Phase

- Evaluate the efficiency and effectiveness of the response, in cooperation with stakeholders
- Develop a recovery plan, based on the gap-analysis and the evaluation

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- Mitigation and Prevention

- Recovery

- Preparedness

- Response

- Event
Earthquake - Hazards

- Ground rupture, avalanches, landslides, rockslides, floods etc. -> Injuries and deaths
- Damage to roads, bridges etc. -> Restrictions in tending the animals
- Damage to buildings -> Injuries and deaths
  - Damage to water pipes, electrical lines etc. -> Insufficient access to water and feed, inadequate ventilation, machine-milking impossible etc.
  - Fires, spill of hazardous chemicals etc. -> Injuries and deaths
Volcanic Eruptions – Hazards

• Ash
  • Darkness -> Injuries and deaths
  • Covering of pasture -> Lack of feed
  • Fluoride -> Dental fluorosis, calcium deficiency
  • Ash particles -> Mechanical effect on mucosal membranes, hooves and teeth
Volcanic Eruptions – Hazards

- **Gases**
  - $\text{CO}_2$ and CO -> Suffocation
  - $\text{SO}_2$ -> Respiratory problems
Volcanic Eruptions – Hazards

• Floods -> Injuries and deaths
Recent Natural Emergencies in Iceland

- Emergency vs Disaster
Recent Natural Emergencies in Iceland

• 2008 – Earthquake
  • 29 May at 15:45
  • Magnitude 6.3 on the Richter-scale
  • Close to inhabited area
  • Considerable damage of buildings and roads
  • No human casualties
  • A few animal casualties where a sheep stall collapsed
Recent Natural Emergencies in Iceland

• 2010 – Volcanic Eruption in Eyjafjallajokull
  • Relatively sudden onset
  • Lasted for 40 days (14 April – 23 May)
  • A lot of ash (0.27 km$^3$ of tephra in total)
  • Close to inhabited area (~10 km)
  • No human casualties and few animal casualties

• 2011 – Volcanic Eruption in Grimsvotn
  • Relatively sudden onset
  • Lasted for 4 days (21 May – 25 May)
  • Enormous amount of ash (0.7 km$^3$ of tephra in total)
  • Far from inhabited area (~50 km)
  • No human casualties and few animal casualties

• 2014 – Volcanic Eruption in Bardarbunga
  • Long prelude
  • Lasted for 6 months (31 August 2014 – 28 February 2015)
  • Little ash but enormous lava flow (1.6 km$^3$) and air pollution
  • Far from inhabited area (~50 km)
  • No human nor animal casualties
Recent Natural Emergencies in Iceland

• 2012 – Snow Storm
  • 10 September
  • Sudden onset
  • ~10 thousand sheep died
Emergency Response - Veterinary Services

- The Role of the Icelandic Food and Veterinary Authority
  - Generic contingency plan regarding animal health, animal welfare and veterinary public health matters
  - Specific guidelines for different kinds of events are gradually being built into the plan
  - The plan is a part of the Authority’s quality manual and is accessible on its website
Emergency Response – Animal Owners

• Contingency plan, including:
  • How to protect the animals from ash downfall and flooding (housing or evacuation)
  • How to provide the animals with adequate feed and clean water
  • Reserve power supply
  • Instructions for outsiders regarding feeding, milking etc.
Experiences

Problems/tasks

• Psychological stress / trauma
• Reluctance to leave the animals behind
• Housing of animals
• Movement restriction due to permanent disease protection zones
• Lack of scientific knowledge regarding effects of certain hazards on animals
• Geologists expressing their opinion in the media about effects on animal and human health
• Outside organizations and people volunteering to help when it is not needed

Successful

• Good cooperation between governmental agencies
• Efficient exchange of information
• Efficient early warning system
• People take initiative and think in solutions
Great emergencies and crises show us how much greater our vital resources are than we had supposed.

William James

Thank you for your attention

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