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Saving animal lives in natural disasters: Preparedness before, action during and recovery after

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Intricacies of the subject

Floods, cyclones, wildfires, landslides, avalanches and droughts are no longer once-in-a-generation events. They now return often enough that farmers in many districts plan their year around them. Every such event carries a second story that rarely reaches the headlines: the story of the animals. Cattle drown in tied sheds. Poultry houses collapse. Goats are swept away from grazing land. Families lose the single buffalo that paid for their children's schooling. The flash flood that struck the Nepal–China border region in August 2026 is a recent and painful reminder. A glacial collapse in the high Himalaya sent a wall of water, mud and boulders down the Trishuli valley, destroying settlements, roads and hydropower structures. Alongside the human toll, large numbers of livestock were lost, and observers on the ground warned early that decomposing carcasses in the debris could create a disease risk for the surviving community. The same pattern repeats elsewhere. The 2025 floods in Punjab, Pakistan, forced the evacuation of hundreds of thousands of animals. The 2025 wildfires in Southern California turned equestrian centres and animal shelters into emergency evacuation sites for horses, donkeys, goats and dogs. The 2024 floods in Valencia, Spain, killed roughly three thousand farm animals and left veterinary teams with the difficult task of carcass removal and disease control. Animals are not simply passive victims in these events. They are vulnerable in specific, predictable ways, and predictable vulnerabilities can be planned for. This article sets out what animal owners, veterinarians and district authorities can do before, during and after a natural disaster, using simple measures that work in ordinary village conditions.

Why animals suffer more than they should

The first reason is communication. A farmer receives a flood warning by mobile phone, radio or loudspeaker. A cow does not. Every warning issued for an animal is really a warning issued to a human being, and it only saves the animal if that person converts it into action. A message received six hours before the water arrives is worth a great deal; the same message received when the water is

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already at the doorstep is worth almost nothing. The second reason is location. Animal sheds are usually built where it is convenient: beside the house, close to the field, near the canal or pond. These are often exactly the places that flood first. Worse, animals inside those sheds are frequently tied. A tied animal cannot climb, cannot swim away and cannot make its own decision to leave. Confinement is one of the most preventable causes of livestock death in floods. The third reason is transport. Twenty chickens can be moved in crates on a motorcycle. Twenty buffaloes cannot. Large animals need vehicles, ramps, ropes, handlers, space, feed, water and a destination that will accept them. Every one of these takes time to arrange, and time is the resource a disaster removes first. The fourth reason is economic. In most rural households' livestock are not pets but working capital. Sen and Chander (2003), reviewing disaster management for livestock and poultry in India, noted that animals often suffer proportionally greater losses than people, and that the resulting damage falls hardest on small, marginal and landless keepers who have no other asset to fall back on. A study of flood-affected districts in northern Karnataka reached a similar conclusion, reporting that farmers faced not only animal deaths but also fodder shortage, reduced milk yield, disease outbreaks and difficulty in reaching veterinary services (Anitha *et al.*, 2023). An analysis of the 2011 Thailand floods in Nakhon Sawan province likewise showed that losses were not spread evenly: they clustered in identifiable hot spots, which means they could in principle be anticipated and targeted (Inchaisri *et al.*, 2013).

Before the disaster: preparedness is the real rescue

The most effective animal rescue is the one that never becomes necessary. Preparedness costs little and can be organised at the level of a single village.

Know where the animals are

Before the monsoon, the cyclone season or the dry fire season, a village or block can prepare a simple animal vulnerability map. It does not need software. A hand-drawn sheet is enough, provided it answers six questions: how many animals are there, of which species, where are they housed, which of those locations flood or burn first, which roads stay usable, and where is the nearest veterinary facility. Once this exists, an evacuation decision takes minutes instead of hours.

Write a one-page evacuation plan

Every farm plan should answer five practical questions. Where will the animals go? The answer should name a specific high-ground site, school, community hall, livestock market or government shelter. How will they get there? Name the tractor, trailer, truck or boat, and its owner. Who will move them? Name the people, with telephone numbers. Which animals go first? The young, the pregnant, the injured, the sick, animals on daily medication, confined poultry, breeding stock and companion animals? And where will feed and water come from? An evacuation site without fodder and clean water is not a shelter; it is a holding pen where animals slowly deteriorate.

Build a fodder and water reserve

Animals that survive the water often die of what follows it. Floods destroy standing fodder, cyclones flatten feed stores and fires remove grazing land in a single afternoon. A modest village reserve of dry fodder, hay or silage, concentrate feed, mineral mixture, poultry feed, drinking water and containers can carry a herd through the critical first week. The principle of one village, one emergency fodder bank is simple enough to be

adopted by a panchayat without external funding. Feed, water and veterinary support are also among the core interventions recognised internationally for protecting livestock in emergencies (LEGS, 2023).

Make every animal identifiable

Disasters separate animals from owners. Dogs run, horses bolt, cattle are trucked to relief camps and goats mix with other herds within hours. Ear tags, collars, microchips where available, farm identification numbers and, most usefully, clear photographs on the owner's phone make reunification possible. A short-written record for each animal (number, species, breed, sex, approximate age, vaccination status, medical history, owner's contact) is equally valuable when claiming compensation.

Vaccinate and stock the kit before the season

Displacement mixes animals from different farms, concentrates them in temporary shelters and exposes them to contaminated water and mud. Routine vaccination should therefore be completed before the hazard season, in line with the local veterinary programme, rather than attempted in the middle of a relief operation. In parallel, each veterinary institution in a vulnerable district should hold a ready disaster kit: wound dressings, antiseptics, bandages, syringes and needles, basic emergency medicines, intravenous fluids, disinfectants, thermometers, restraints, protective equipment and portable lighting. Sites for temporary treatment camps should be identified in advance, not searched for on the day.

During the disaster: move early, and keep people safe

One rule matters more than any other: do not wait for the hazard to arrive at the shed. Evacuation must begin while the road is still passable and the animals are still calm. Livestock become harder to load as weather worsens, and a herd that could be moved comfortably at noon may be immovable by evening. Animals should never be left tied in a low-lying shed. If transport cannot arrive in time, the next best option is to release the animals towards higher ground, provided this does not create a hazard on a road or a canal bank. It is far better for an animal to be loose and alive than tied and drowned. At the same time, no animal is worth a human life. Owners should not enter fast-moving floodwater, burning vegetation or a structurally damaged building to reach an animal. A rescuer who is injured or killed converts one emergency into two and diverts the response team from everyone else who needs it. Heath and Linnabary (2015), reviewing animal management in disasters, made a related point that deserves wider attention: pet ownership is one of the strongest predictors of human evacuation failure. People refuse to leave without their animals. This is not sentimentality to be argued away. It is a fact of human behaviour that emergency planning must accommodate, which is why shelters that accept animals protect people as much as they protect pets. The specific hazards differ. In floods, the dangers are drowning, hypothermia, contaminated water, electrical hazards, snakebite and feed spoilage; animals should be kept away from live wires, sewage-contaminated ground, chemical stores and fast channels, and should not be returned to pasture until fences, buildings and water sources have been checked. In cyclones, the risks are collapsing sheds and flying debris, so loose objects should be secured, feed stored above the expected water level and animals moved out of coastal and low-lying zones early. In wildfires, conditions change fastest of all; trailers, halters and transport crates must be ready in advance, because there

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is rarely time to borrow them. After earthquakes and landslides, damaged buildings should not be entered immediately, and mountain communities should identify a second evacuation route, since the main road is often the first thing to disappear. Districts that are repeatedly affected should consider a standing Animal Disaster Response Team drawing on veterinarians, para-veterinary staff, animal husbandry officers, trained handlers, welfare organisations, transport operators and local volunteers. Training need not be elaborate: safe handling of frightened animals, basic first aid, loading and unloading, infection control between rescued and resident animals, and personal safety around water, fire and electricity.

After the disaster: the first seventy-two hours

Surviving the flood does not mean the animal is safe. The days that follow are frequently more dangerous than the event itself. A simple sequence helps a responder work through a crowded, chaotic shelter without missing steps:

Secure the site → assess the animals → rescue those trapped → water → feed → treat → monitor

Water comes first. Dehydration develops faster than starvation, particularly in calves, lambs, kids, poultry, lactating animals and the sick. Floodwater should never be assumed safe simply because it is available; containers must be protected from contamination. Feed comes second, and it must be introduced gradually. Offering a large quantity of unfamiliar feed to a hungry ruminant is a reliable way to cause digestive upset in an animal that has already survived the worst. Small, frequent, familiar feeds are safer, with priority to pregnant, lactating and young animals. Every rescued animal should then receive a basic clinical examination for wounds, fractures, lameness, dehydration, hypothermia, respiratory signs, diarrhoea, skin lesions, fever, exhaustion and pregnancy-related problems. Seriously injured animals and those showing signs of infectious disease should be separated from the rest before treatment begins. Disease prevention deserves particular attention, because a flood shelter concentrates every risk factor in one place: mixed herds, standing water, mud, poor drainage and carcasses. The Valencia experience showed how quickly carcass removal becomes both a veterinary and a public health task. Post-disaster control should therefore combine clean drinking water, waste management, isolation of sick animals, disinfection, vector control, indicated vaccination, veterinary surveillance and safe carcass disposal through the local authority. Farmers should never dispose of carcasses in rivers, ponds or open fields, however convenient it appears at the time. Two groups are consistently overlooked. Companion animals are often absent from district plans altogether, even though families will refuse to evacuate without them; pet-friendly shelters and simple pet kits (food, water, bowls, medicines, leash, collar, carrier, vaccination records, photographs) resolve much of this problem cheaply. Poultry are the other group. Thousands of birds may be housed in a single shed, where a few centimetres of water can cause mass mortality. Commercial units need elevated electrical fittings, raised feed storage, backup power, emergency ventilation, transport crates and a written contingency arrangement for both feed delivery and mortality disposal.

Who does what ?

The farmer is the first responder. No government team reaches every shed in the first hour, and most animals that are saved are saved by their owners. The three-part rule is easy to remember and easy to

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teach: before, prepare and vaccinate; during, move early and follow official warnings; after, give water, give feed, check for injury and call the veterinarian.

Fig 1: Animal disaster checklist for farmers. Key actions for animal preparedness, rescue, veterinary care, and recovery before, during, and after natural disasters

The veterinarian's role in a disaster extends well beyond clinical treatment. It covers preparedness planning, vaccination, animal identification, evacuation advice, emergency care, disease surveillance, zoonotic risk assessment, carcass management, food safety and the eventual rehabilitation of livestock production. In a disaster, the veterinarian is not only an animal doctor but a public health professional and a disaster manager. The district administration provides what individuals cannot: livestock population databases, vulnerability maps, designated animal evacuation centres, emergency fodder banks, response teams, transport arrangements, medicine stocks, surveillance systems and carcass disposal protocols. The essential shift is administrative rather than technical. Animal disaster planning should sit inside the district disaster management plan, not in a separate document that is consulted only after human relief is complete.

From response to resilience

Recent events point to the same set of lessons. Early warning has value only when it becomes early action. Telling farmers to evacuate is meaningless unless someone has decided where the animals may go. Feed matters as much as rescue, because animals that survive the water can still starve. Veterinary teams need to be deployed alongside human relief rather than after it. Disease control must begin immediately, before a disaster becomes an outbreak. And trained animal owners save more animals than any external team, simply because they are already there. The direction of travel is therefore from rescue

after the event towards preparedness before it; from individual effort towards community planning; from treatment alone towards an approach that links animal health, livelihood and public health; and from reactive relief towards anticipatory action. This is the practical meaning of One Health and One Welfare at village level.

Conclusion: every life counts

Floods will occur. Storms will intensify. Landslides and avalanches will continue to threaten mountain communities, and fires will continue to move faster than expected. What is not inevitable is the scale of animal death that accompanies them. A farmer who moves cattle to higher ground the previous evening saves lives. A veterinarian who completes vaccination before the season prevents an outbreak. A village that stores fodder prevents starvation. A district that designates an animal evacuation centre makes evacuation possible at all. A rescue team that arrives on the first day reaches animals that would be unreachable on the third. The disasters of the past two years, from Nepal to Pakistan, Spain and the United States, carry the same message. Preparedness must include every living creature that depends on us. Protecting animals in disasters is not a matter of sentiment. It is a matter of livelihoods, food security, public health and the survival of the communities that keep them.

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