In all regions of the world, livelihoods of people are sustained partially or entirely by the livestock sector. Livestock contribute approximately 40 percent of the global value of agricultural output and support the livelihoods and food security of almost 1.3 billion people.

Increased concentration and intensification of animal production, globalized trade of animals and their products, and rapidly changing animal health systems, climate dynamics, and greater urbanization are raising the risk of animal health threats. Over 70 percent of new diseases of humans have animal origin, with the potential of becoming local and major public health threats.

Supporting efforts to reduce the risk of those threats to animal and public health is critical.

Global disease intelligence and early warning, supported by science-based risk assessment, are key to inform decisions, actions, and timely communication between agencies and sectors responsible for human health, animal health, wildlife, and food safety. This better guides policies and strategies to prevent, detect, and respond to animal and public health risks.

The FAO’s contribution to the Global Surveillance and Early Warning System (GLEWS) is to perform global surveillance and intelligence of health threats and to help regions and countries enhance their capacities in surveillance, risk assessment, prevention and risk management of animal diseases, including zoonoses, and to support rapid response mechanisms in partnership with the World Health Organization (WHO) and the World Organisation for Animal Health (OIE).

**ANIMAL DISEASE SURVEILLANCE AND INTELLIGENCE**

FAO/GLEWS performs disease event-based surveillance by the hour, and intelligence globally on a daily or weekly basis. It invests into data collection, verification, integrating expertise and local knowledge, and providing analysed information for decision makers. FAO/GLEWS provides global information through early warning, foresighting and forecasting activities. It routinely monitors information on priority and emerging animal diseases from different sources (epidemiological networks, regional projects, field missions, NGOs, cooperating institutions, ministries, FAO in-country representations and other United Nations agencies, public domains, media and web-based health surveillance system).

**RISK ASSESSMENT**

Conducting risk assessment at the human–animal–environment interface for emergency response or longer term strategic planning for prevention and control is pivotal to mitigate potential impacts. This support to countries is essential to prepare contingency plans, strengthen quarantine
procedures and laboratory diagnostic capabilities, plan training courses for veterinary staff and farmers, determine needs for vaccines, and identify areas for targeted surveillance.

FAO/GLEWS regularly assesses the likelihood and potential consequences of significant threats and distributes alert messages to regions and countries at risk.

HEALTH INFORMATION SYSTEMS AND NEW TOOLS

FAO/GLEWS supports member countries through the design, development and management of disease information systems and of digital tools to support early warning activities at global, regional and national levels.

The Global Animal Disease Information System (EMPRES-i) - a reference database for disease events - makes accessible to stakeholders data on animal disease outbreaks and surveillance. This system stores outbreak disease records, tracks and monitors disease events for provision of alerts and awareness on health threats.

Recognizing the multi-sector nature of disease and health information systems, and the need for real-time data exchange and analysis, FAO/GLEWS promotes open source technologies and development and inter-operability with other information systems at national, regional and global levels. Through official agreements with partners, FAO collaborates with digital disease surveillance organizations (e.g. ProMED and HealthMap) to improve data quality. Success in linking epidemiological data from EMPRES-i with a database for human and animal influenza virus (e.g. OpenfluDB) allows further investigation and accurate surveillance of the virus.

Field epidemiology training for veterinarians (FETPV) is actively promoted and implemented by FAO to enhance long-term and sustainable capacities of veterinary services for surveillance, risk assessment and epidemiological analysis. This approach is endorsed and supported by multiple international partners and donors.

A FRUITFUL COLLABORATION

FAO’s GLEWS unit, in collaboration with OIE and WHO, provides a unique One Health approach through the provision of technical expertise and training to strengthen veterinary systems and other stakeholders’ capacities. In particular on: i) early warning and surveillance; ii) risk assessment and risk modelling; iii) epidemiological networks; and iv) management of risks related to the interfaces among humans, animals, environment and the food chain.

Effective and sustained surveillance capacity is necessary for rapid forecast, identification and prevention of transboundary threats and for sustainable responses. Weaknesses in the veterinary services makes disease prevention, control and risk mitigation difficult.