

FAO's support to countries facing climate change effects on animal diseases

by Mona Chaya

In the next 30 years, the consumption of meat, milk and eggs in large parts of Asia and Africa is expected to grow between 200-600 percent, placing huge responsibility on some 500 million poor livestock keepers to significantly increase production efficiency. Livestock contribute to 40 percent of the global value of agricultural output and support the livelihoods and food security of almost a billion people¹.

One of the major challenges in filling the large productivity gap is the burden of disease. Both, in Asia and Africa, livestock are exposed to a range of high impact diseases that include zoonotic and non-zoonotic transboundary animal diseases, tuberculosis, brucellosis, chronic parasitoses and numerous vector-borne infections. Multiple infections with these diseases cause death and production losses, estimated to be as high as 40 percent (FAO and OIE). Unless governments, farmers and the private sector get the necessary information and tools to prevent and control these diseases, achieving a number of Sustainable Development Goals such as poverty eradication, food and nutrition security, and global health security will be compromised.

There is increasing evidence that major driver of emerging and re-emerging infectious diseases of animals and humans are rooted in human behaviour that include population growth, economic development, rapid urbanization, unsustainable exploitation of natural resources (e.g. water and forests), the increasing demand for livestock products and evolution of intensified and often poor biosecure farming systems. These trends exert pressure on the earth's natural resources and propel a transformation of farming and land use systems, creating complex interactions between people, animals, and the environment and more opportunities for the spill-over of new diseases

from animals to people. In addition, globalization of trade in animals and animal products enhances inter-regional and inter-continental spread of diseases – hence their *transboundary* nature.

Climate change is likely to be a major contributor to alterations in animal production and human disease dynamics. While there is dearth of knowledge on the impact of climate change on animal diseases, it is known that a number of biophysical factors such as temperature, land use, humidity, vegetation cover, host abundance and range can significantly alter disease vector behaviour, habitat and geographical distribution. There is evidence that global warming has resulted in the spread and adaptation of certain fly and mosquito populations to thrive beyond their existing geographical range spreading diseases such as bluetongue virus, West Nile virus and malaria in hitherto non-infected places. There is also information that shows increased incidence of several vector-borne diseases such as dengue, trypanosomosis, leishmaniosis, Lyme disease, tick-borne encephalitis, Rift Valley fever and blue tongue. However, it is difficult to single out changes brought by climate alone².

Not fully explored or understood are the impacts of climate change on human settlement, urbanisation and the availability of arable land, including deltas and pastoral areas. Land pressures will accumulate also because of other constraints such as soil erosion, land degradation, water shortage and pollution and together this will translate in high concentrations of animals and humans, breeding grounds for pathogen emergence and reassortments. In addition, migratory routes of transhumance populations and pastoralists are expected to change depending on the availability of pastures for their animals.

¹ FAO. 2009. The State of Food and Agriculture. Livestock in the balance. Rome. (<http://www.fao.org/docrep/012/i0680e/i0680e.pdf>)

² FAO. 2016. Climate change, agriculture and food security (<http://www.fao.org/3/a-i5349e.pdf>)

Thus there is an urgent need to better understand the complex interaction between climate change, disease ecology and their impact on disease incidence and spread³.

In this context, FAO has invested resources through its Emergency Prevention System (EMPRES) to provide timely support to at risk countries to heighten their level of surveillance for animal and human disease threats, increase their level of preparedness, and implement targeted and timely control interventions. Three major initiatives in recent years have been active

in developing and disseminating early warning messages about the risk of occurrence climate sensitive diseases: the FAO/OIE/WHO - Global Early Warning System (GLEWS), Climate-based forecasting models and early warning systems (EWS) and the Global Animal Disease Information System (EMPRES-*2*).

FAO will strive to enhance robustness in climate change modulated animal health impacts, and safeguard the associated livelihoods, in particular regarding the pandemic risk arising from animal sources.

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³ FAO.2013. *World livestock 2013 – Changing disease landscapes*. Rome
(<http://www.fao.org/docrep/019/i3440e/i3440e.pdf>)