This edition of empres360 reports on African human and animal trypanosomoses. In many ways, the Programme Against African Trypanosomosis (PAAT) represents a forerunner of the One Health initiative. PAAT works across sectors, disciplines, scales and geographic boundaries, while focusing on a composite of sustainable development goals. It is somewhat unusual for an animal health bulletin that concentrates on “emergencies” to pay attention to parasitic or protozoan diseases. After all, infectious diseases are the ones that cause major disease outbreaks and call for immediate attention, while parasites are more likely to be responsible for endemic disease burdens. This situation calls for reflection on the setting of priorities in disease management, within the Food and Agriculture Organization of the United Nations (FAO) and beyond. FAO always seeks to balance emergency response and the need for long-term development efforts. The FAO animal disease portfolio has always featured a mix of infectious disease initiatives, such as those against rinderpest, peste des petits ruminants or foot-and-mouth disease (FMD), along with programmes against African animal trypanosomosis and other parasitic diseases.

In retrospect, the fight against classical infectious livestock diseases has been relatively successful for some time, arguably more so than the efforts against parasitic diseases. A parallel development occurred in the fight against human diseases: the availability of vaccines against well-researched viral and bacterial diseases probably formed a main factor in this success. Rinderpest, contagious bovine pleuropneumonia, FMD, sheep and goat pox, bovine brucellosis, glanders, Newcastle disease, classical swine fever, anthrax and blackleg are among the classical livestock diseases that have started to disappear from a growing number of countries around the world. Gradually, new tools for combating macro-parasites and arthropod vectors have become available, in both the veterinary and human medical fields. The control of river blindness in West Africa, the Roll Back Malaria partnership, and the new world screwworm emergency campaign in North Africa are among the noteworthy late-twentieth-century achievements in both sectors.

However, towards the end of the twentieth century, a counter-force to these achievements became more prominent, changing the global disease landscape forever. A growing number of animal-origin viruses started to infect and spread in humans as viruses were exchanged among the wildlife, livestock and human host domains. With a wildlife sector of more than 5 600 mammal species, 17 or so livestock species and only one human species, the predominant direction of this interdomain virus flow is obvious. Non-human primates, bats, rodents and birds form reservoirs of viruses that cause only inapparent infection in their primary hosts. Humans become infected and clinically ill after direct contact with infected animals, through bushmeat-related practices, bloodsucking arthropods or food and agriculture. The drivers of global disease dynamics are believed to comprise human demographics, pressures on land and water resources, increased mobility, trade and transport volumes, climate change, deforestation and general degradation of natural ecosystems.

Agricultural expansion is a main cause of ecosystem damage, particularly in places where forest is replaced by rainfed crops. The replacement of forest by cropland peaked during the 1990s in Latin America and around 2010 in Asia; in Africa it is projected to peak around 2020 but to remain important until at least 2050. In Asia, livestock or farmed wildlife were involved in most recent virus spillovers from animals to humans: severe acute respiratory syndrome, Nipah, H5N1 avian influenza and other influenza A viruses. The spill-over of influenza is facilitated by the explosive increase in poultry and pig production in China and other Asian countries. An ever-more diverse pool of influenza A virus genes is building up and circulating in humans, swine and poultry. In Asia, food and agriculture systems play an important role in disease emergence, with zoonotic viruses circulating in livestock prior to the jump to humans. In Africa, in contrast, the human immunodeficiency, Ebola, dengue, yellow fever, chikungunya and Zika viruses have all come directly out of the forest to infect humans, so the transmission and disease ecology are accordingly different.

The continuing emergence of animal-origin viruses in humans presents a global health and security risk. For FAO, reducing pandemic threats is a main target, and efforts are currently supported by the United States Agency for International Development. The priority is to build up core veterinary capabilities in the less developed countries where they are most needed, in terms of staff, laboratories and surveillance. In addition, sustained pandemic risk reduction in these settings requires that health protection, food security, natural resource management and opportunities for securing basic income are addressed together. Although international efforts are moving towards global early warning and response mechanisms, novel pandemic threats will continue to emerge unless the livelihoods of the people directly concerned are improved. In many countries the burden of persisting classical diseases is compounded by tropical, arthropod-borne and other infections, helminths and other parasites, which together are responsible for ill-health, hunger and poverty. Hence the need for all development and technical assistance agencies and actors to broaden the scope of their programmes...