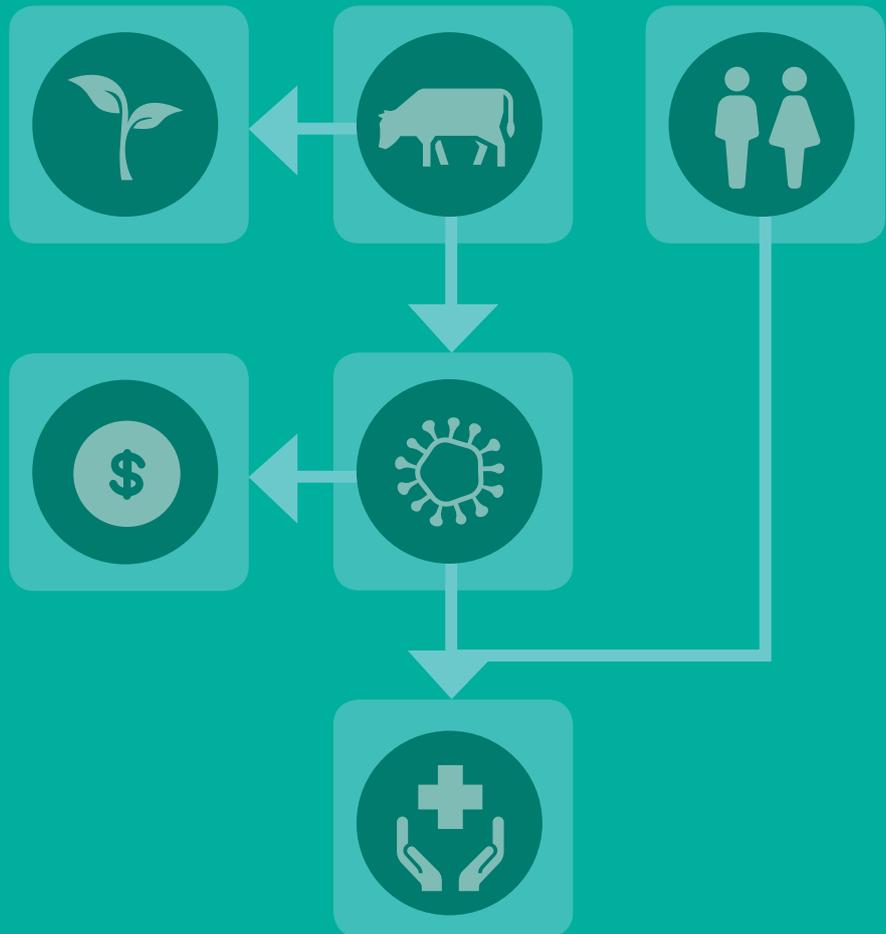




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Preparedness&Response
ONE HEALTH IN ACTION

One Health Policy Model Toolkit



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INTRODUCTION

Livestock is an important source of household income for millions of people, especially in developing countries. It provides an important source of protein and micro-nutrients for subsistence farmers. Livestock also serve as an important source of insurance, as well as an investment instrument that can be liquidated to cover payments for routine and extraordinary costs.

As Africa continues to experience economic growth, nations are likely to see an increasing demand for and structural changes in the livestock sub-sector. As Africa develops, the increase in demand for livestock products will be linked to the substantial growth and expansion of industrialized production systems. Also, an increasingly urban and more affluent population throughout the continent will demand a more diverse diet, including a larger intake of meat, milk, and eggs. Poultry is expected to be the main source of livestock growth, with other sub-sectors (e.g., bovine, ovine, and porcine sub-sectors) showing similar growth patterns, but at a lower level. Exports to regions—for example, the Middle East—are also expected to grow, relying on high-quality livestock products.

However, several disease-related factors could influence the expected growing demand for livestock. Recent outbreaks of diseases, such as avian influenza, focused attention on the negative aspects of intensive livestock and poultry production. These outbreaks show the need for a policy and regulatory environment that anticipates and responds to these types of disease threats. Newly emerging diseases can have substantial economic and social costs. These outbreaks highlight the need to have a policy and regulatory environment that anticipates and responds to these types of disease threats. In addition, it is estimated that 61 percent of recently emerged diseases have been zoonotic.¹ As part of managing this environment, decision-makers need to understand the relationship between animal production, veterinary public health, human public health, and the impact that zoonotic outbreaks could have on economies and societies.

A One Health approach to these issues seeks to understand the complex inter-relationships inherent between increased demand and supply for animal protein and public health risks to humans and to devise strategies and programs to mitigate those risks. This requires a multi-sector approach that brings together public health specialists and authorities, veterinary specialists, and livestock and agricultural ministries.

OVERVIEW

The One Health Policy Model (OHPM) is designed to help decision-makers understand the nature and scale of how changes in the livestock and human populations might impact veterinary, human, and environmental health, including some of the available policy options. The model can generate analytical and scenario-based evidence that will help gain traction with country-specific stakeholders. Because the model takes a tripartite approach to modeling the human population, livestock population, and the environment, it takes a One Health approach and shows the linkages between these three sectors.

The OHPM is intended to be used by technical staff in the relevant ministries and/or donor staff. One should anticipate approximately two weeks to assemble and enter the relevant data into the model.

¹ Taylor, L.H., S.M. Latham, and M.E. Woolhouse. (2001). "Risk factors for human disease emergence." *Philosophical Transactions of the Royal Society B: Biological Sciences*. 356 (1411): 983–989.



The [One Health Policy Model Technical Guide](#) describes the OHPM—a policy modeling tool that can be useful in understanding the complex dynamics at the country level between livestock and human populations in terms of zoonotic disease transmission and its implications. The [One Health Policy Model](#) is an Excel-based tool that comprises inter-related modules for the animal population and the human population with key parameters that govern the progression of zoonotic diseases.

The model has been populated with data from Kenya, but can be customized with your own data.

The dynamic model can be configured for a specified animal species, up to two diseases, five production systems, and three affected human populations. Users define several parameters that govern the dynamics of disease transmission. An important feature of the model is that users can design scenarios that focus on interventions that affect spill-over, human-animal interface, and amplification. Major outputs of the model include the number of cases of the zoonotic disease in animals and humans, deaths due to the disease, disability-adjusted life years (DALYs), and the economic burden of the zoonotic disease. The model also projects the impact of the animal population on greenhouse gas emissions and water use. The model's results could be used to explore policy options via alternative scenarios. There are a whole host of parameters that can be manipulated within the model to mimic possible program or policy interventions.

ONE HEALTH POLICY MODEL TOOLS

This toolkit contains the following tools and resources:

- One Health Policy Model Technical Guide
- One Health Policy Model (Excel)
- One Health Policy Model Example (Excel) – populated with Kenya data
- One Health Policy Model Webinar (PPT)
- One Health Policy Model Webinar recording

The [One Health Policy Model Technical Guide](#) presents a comprehensive overview of the OHPM. The OHPM is designed to address the following questions:

- What is the expected burden of zoonotic disease among animals and humans, if there is “business as usual?”
- What are the environmental effects of rapid livestock growth and intensification?
- How will the zoonotic disease burden in animals and humans change if the country undertakes interventions to control zoonotic diseases?
- What are the impacts of zoonotic disease on livelihoods?
- What are the costs (healthcare, as well as other) as a result of animal and human disease outbreaks under different investment or development strategies?

The [One Health Policy Model Technical Guide](#) is divided into two parts. Part I—a User’s Guide—is an instruction manual for creating an application of the OHPM. Part II includes technical documentation that describes the calculations that underlie the model.