



Transforming National
Health Systems

Introducing The Thanzi Model



Innovative Insights
for a Healthier
Future



EAST, CENTRAL AND SOUTHERN
AFRICA HEALTH COMMUNITY
Fostering Regional cooperation for Better Health

01

About Thanzi Project

02

What is Thanzi Model

05

Thanzi Model and Other Tools

06

How Does The Thanzi Model Work?

08

Thanzi Model Use

11

Success Stories

12

Partners

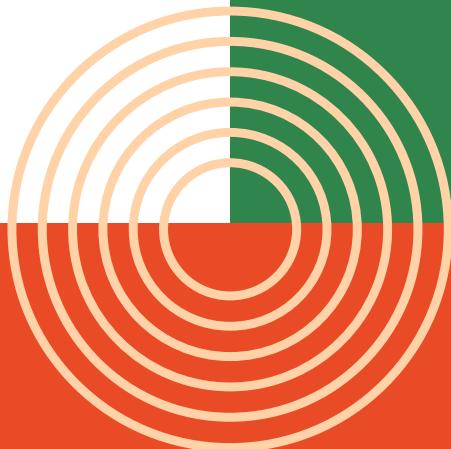


TABLE OF CONTENTS

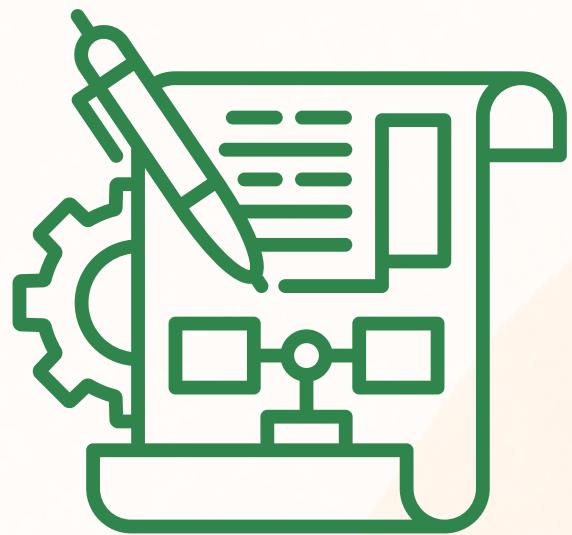
ABOUT THANZI PROJECT

The Thanzi Programme is dedicated to advancing and implementing high-quality health economics research to guide resource allocation decisions within the ECSA region and to foster policy environments that effectively utilize this research. The programme is founded on three core pillars: *generating research evidence, engaging with policy, and building capability*.

The activities of the Thanzi La Mawa Programme align with the commitments outlined in the **African Leaders Meeting (ALM) Declaration**, which calls for increased investments in health and improved allocation and utilization of resources to achieve better health outcomes. These commitments are also reflected in the resolutions adopted by ECSA Health Ministers regarding health financing and more effective resource use.

Among the key objectives of the Thanzi La Mawa Programme is to enhance the use of economic and epidemiological modeling as a tool for informed resource allocation decisions. The programme has developed an all-diseases model that simulates the functioning of a typical health system. This model can be used to evaluate how resources might be allocated to optimize population health. The Thanzi La Mawa project aims to promote and support the application of this model across ECSA Member States and beyond.

WHAT IS THANZI MODEL?



Understanding The Thanzi Model



The Thanzi Model represents a groundbreaking advancement as the world's first comprehensive simulation tool designed for a national health system and its population. This innovative model integrates epidemiological data, healthcare utilization patterns, and health resource metrics to allow users to assess the impact of various investment decisions on a country's health system and population dynamics. By providing valuable insights into optimizing health outcomes and resource allocation on a national scale, the TLO Model offers a pioneering approach to understanding and improving health systems.



To effectively allocate resources and maximize population health, it is crucial to evaluate the potential impact and costs of different options, including the opportunity costs of alternative health improvements. Diseases and interventions are interconnected at biological, behavioural, and systemic levels, and neglecting these interactions can lead to missed opportunities for enhancing health.

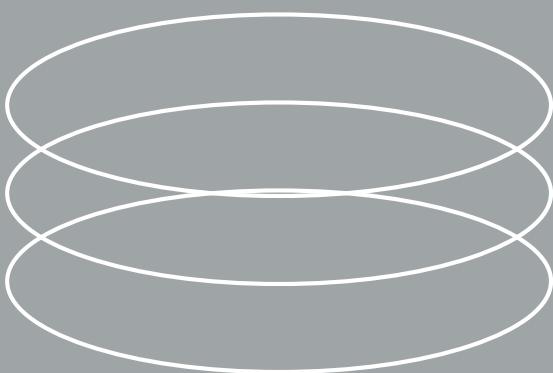
Therefore, comprehensive analysis of these interactions, considering the health system, can significantly benefit health system planning and resource optimization.

1. Healthcare System Model

The model integrates a detailed representation of the healthcare system, including healthcare workers, consumables, facility equipment, and the services provided. This comprehensive approach allows for an in-depth analysis of how different components of the healthcare system interact and impact overall health outcomes.

2. Disease Modules

It includes specialized modules for various diseases, enabling the simulation of disease dynamics and the evaluation of intervention strategies across a range of health conditions.



KEY FEATURES

The Thanzi Model boasts several innovative features that set it apart as a comprehensive tool for national health system simulation:

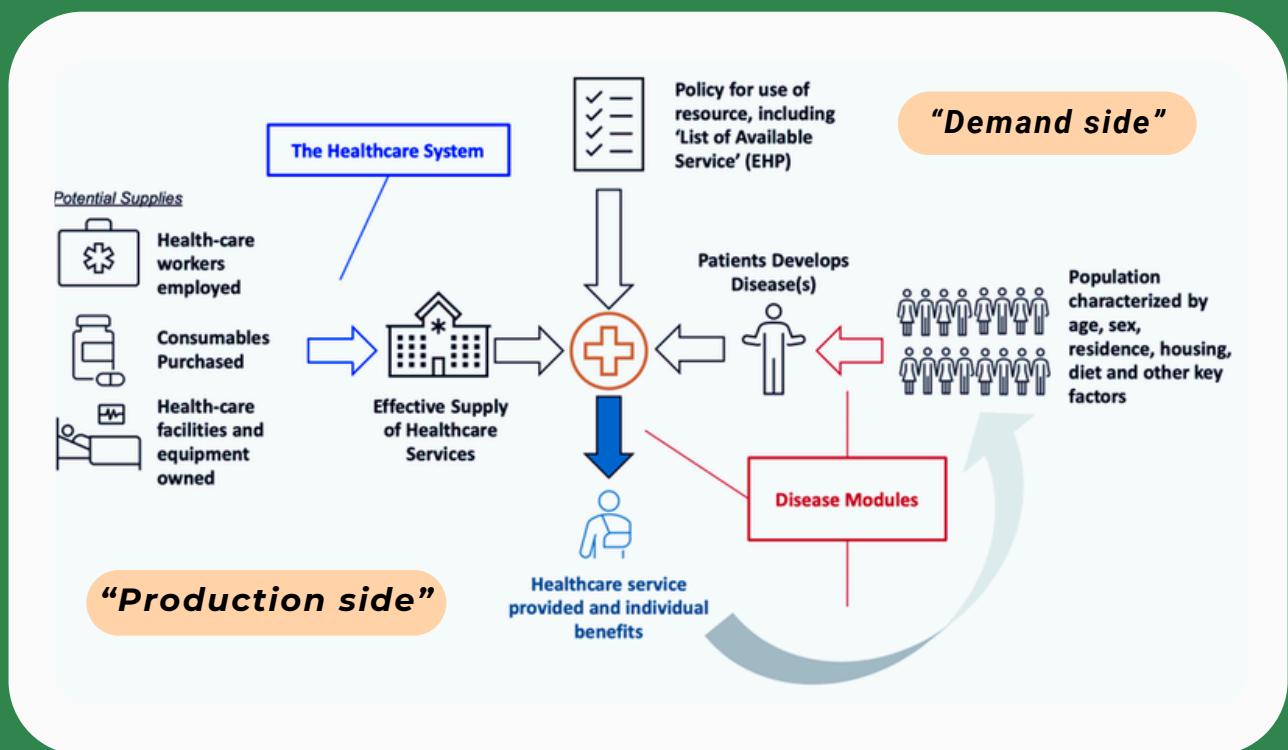
3. Resource Allocation Policies

The model incorporates policies for resource use, including a detailed list of available services (Essential Health Packages - EHP), to assess how different policy scenarios affect resource distribution and healthcare delivery.

4. Population Characteristics

The model incorporates policies for resource use, including a detailed list of available services (Essential Health Packages - EHP), to assess how different policy scenarios affect resource distribution and healthcare delivery.

THANZI MODEL FRAMEWORK



The framework

How does THANZI Model complement other tools



01. Cost-Effectiveness Ratios

While **Databases of Cost-effectiveness Ratios** provide valuable information, they often focus on marginal gains from individual interventions in isolation. The Thanzi Model complements this by offering a holistic view of how various interventions interact within the broader health system, providing a more integrated perspective on their overall impact.



02. WHO's OneHealthTool

The **OneHealthTool** provides useful insights but does not fully capture the interactions between diseases at the patient level. The Thanzi Model enhances this by simulating disease interactions and their combined effects on patient health, offering a more detailed understanding of how multiple health conditions interact within the same individual.



03. Cost-Effectiveness Thresholds

Traditional cost-effectiveness thresholds may not always reflect real-world resource constraints or their effects on healthcare delivery. The Thanzi Model complements this by incorporating a range of real-world variables and constraints, allowing for a more accurate assessment of how resource limitations impact health system performance and service delivery.

The Thanzi Model boasts several innovative features that set it apart as a comprehensive tool for national health system simulation:

HOW DOES THE THANZI MODEL WORK?



Input of queries that lead
to the generation of
analytical results

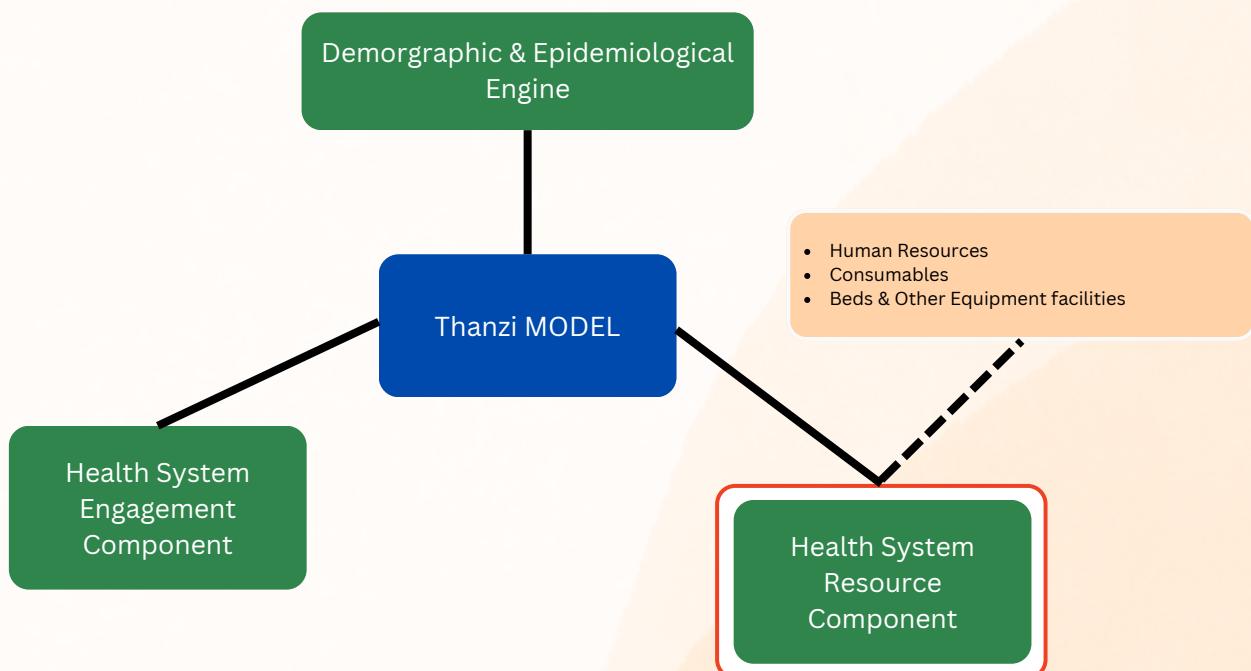
The THANZI Model In Action

Methodology

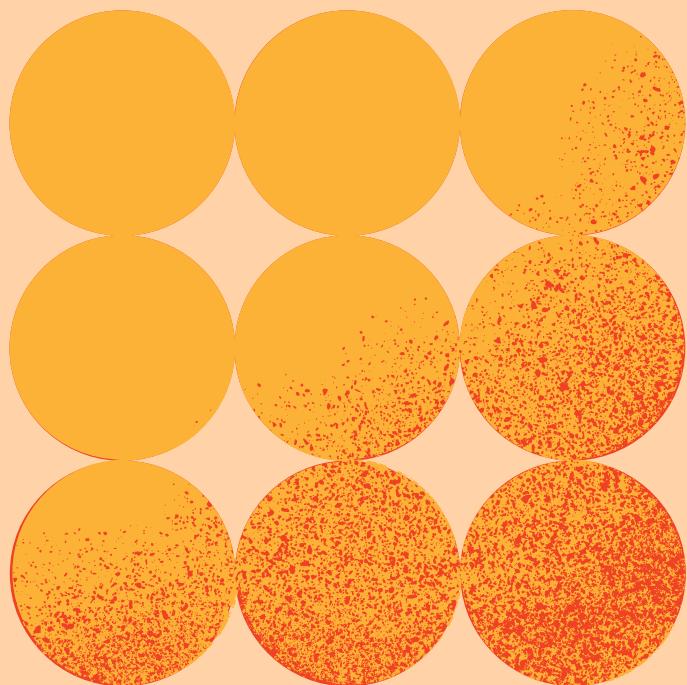
The Thanzi Model integrates epidemiological data, healthcare utilization patterns, and resource metrics to provide a comprehensive simulation of the health system. It operates across various levels, from local health posts to the policy-making bodies at the ministry level. For instance, a hospital administrator might query the model about the health benefits of oxygen availability on health service delivery. Conversely, a Director of Planning at the Ministry of Health might seek insights into the potential benefits of strengthening policies, such as task-shifting, adjusting the mix of facilities, or improving the availability of equipment and medicines. These interactions can lead to missed opportunities for enhancing health.

Functionality

Users interact with the Thanzi Model by posing specific or general questions to planners or analysts. These professionals utilize the model to conduct detailed analyses and provide data-driven recommendations to decision-makers. This process ensures that decisions are informed by robust, evidence-based insights derived from the model's simulations.



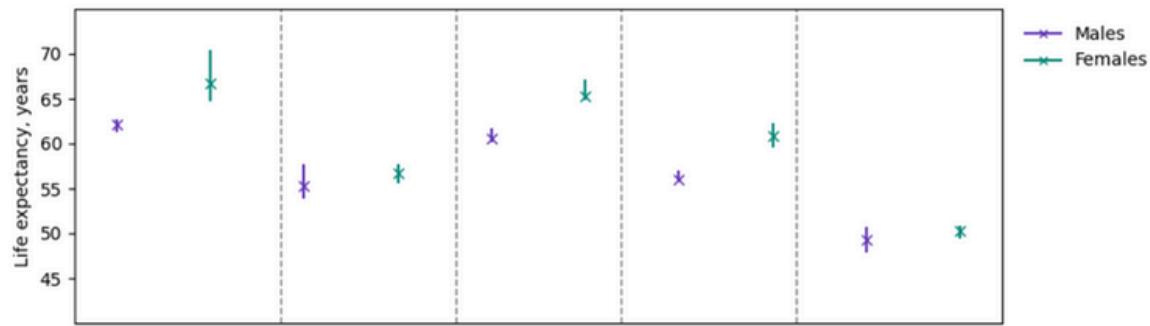
THANZI MODEL USE



BENEFITS AND APPLICATIONS OF THE THANZI MODEL

The Thanzi Model has been actively developed over the past five years, culminating in the release of a mature version. Throughout its development, the model has addressed a range of important questions and provided valuable insights, including:

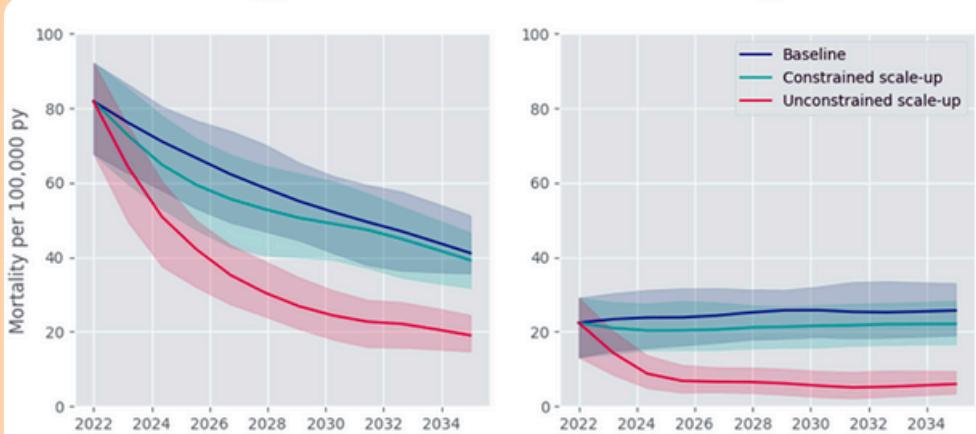
01. **Quantifying the Full Impact of Programs:** Evaluating the total impact of health programs by accounting for spill-over benefits and avoiding double-counting.



The estimated life expectancy in years from birth in 2019 for males and females by scenario (top figure) and the numbers of death due to HIV/AIDS, TB, Malaria and all causes by scenario (low figure). The error bars show the 95% uncertainty intervals across the 5 runs of each draw

02. **Constraints in Healthcare Systems:** Identifying how limitations within healthcare systems can restrict the health impact of ambitious program scale-ups and potentially render aggressive scaling efforts counterproductive.

REDUCED IMPACT OF HIV / TB SERVICES



OTHER QUESTIONS BEING ADDRESSED BY THE MODEL



Ideal Contents of Care Packages for Persons Living with HIV (PLHIV): Determining the most effective components for care packages tailored to PLHIV.

Health Benefits of Oxygen Availability: Assessing the impact of oxygen availability on health outcomes.

Health Burden of Under-Nutrition: Analyzing the impact of under-nutrition and the benefits of routine screening on health.

Eliminating Schistosomiasis and Other Non-Communicable Diseases (NCDs): Exploring the feasibility and health/resource impact of eliminating diseases such as schistosomiasis and other NCDs.

Impact of Maternity Services: Evaluating the effects of current and enhanced maternity services on health.

USER EXPERIENCE AND SUCCESS STORIES

Real-World Impact and Success Stories

In Malawi, the Thanzi Model has been instrumental in addressing key questions emerging from the Health Sector Strategic Plan III through the efforts of **Health Economics Policy Unit (HEPU)** and various think tanks. The model has been applied to explore different dimensions of health system challenges, including:

- 01. Evaluating Epidemiological Impact from a Holistic Perspective:** Providing comprehensive insights into the overall epidemiological effects of health interventions.
- 02. Understanding Health System Strengthening:** Assessing strategies for enhancing the effectiveness and resilience of the health system.
- 03. Resource Allocation:** Analyzing and optimizing the distribution of resources to improve health outcomes efficiently.

These applications of the Thanzi Model demonstrate its significant contribution to advancing health sector planning and decision-making in Malawi.

PARTNERS



EAST, CENTRAL AND SOUTHERN
AFRICA HEALTH COMMUNITY

Fostering Regional cooperation for Better Health



KAMUZU
UNIVERSITY
OF HEALTH SCIENCES

Imperial College
London



UNIVERSITY
of York



MORE ABOUT THANZI

Thanzi Model

The Thanzi Model is the first of its kind in the world; it simulates an entire national health system and population. By integrating epidemiological data, healthcare-seeking behavior data, and health resource data, it allows users to model how various investment decisions will impact the country's overall health system and population.

<https://www.thanzi.org/>

Thanzi Project

The core objective of *Thanzi la Onse* (Health of All) is to improve population health and reduce health inequities in Malawi, Uganda, Southern and East Africa, and beyond.

<https://www.thanzi.org>

Global Health Economics Hub

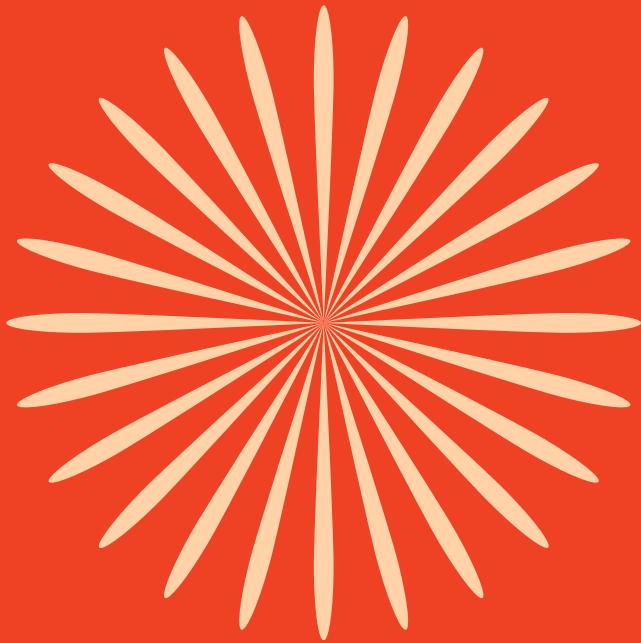
Established in 2020 by *Thanzi la Onse* and hosted by the Global Health Network online community. The GHE Hub was the first Network hub dedicated to health economics. Currently has 2,500+ members.

<https://www.globalhealtheconomics.tghn.org>

Publications

The link below will allow you to access a page featuring all the publications generated during the model's development or application.

<https://www.tlomodel.org/publications.html>



Get In Touch

ECSA-HC

Plot No. 157 Oloirien, Njiro Road,
P.O Box 1009
Arusha-Tanzania

Tel : +255-27-2549362/5/6,
+255-27-2973677/8

Website : www.ecsahc.org

Email. : thanzi@ecsahc.org