

# Energy and Development

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# Introduction

- The presentation is shaped by - my understanding of the audience – researchers and policy makers, with different perspectives but with a common concern for development.
- I assume that ideas of inclusive and sustainable growth are the core and common goal. Achievements along this goal in Tanzania require that Tanzania acts upon the factors, challenges and improved understanding of the processes that help and hinder growth in their specificity in this region.
- What are some (old and) new facts, issues, ideas - that are most relevant and I also know something about form the basis of my talk.
- That is limited to 10 minutes and some discussions after that.

# Energy and Growth

Farmers, Business enterprises, political leaders, sectoral analysts and engineers pay great attention to the availability and prices of energy inputs and to their impact on economic activity.

BUT it may surprise some that the mainstream theory of economic growth pays little attention to the role of energy and other natural resources in promoting or enabling economic growth.

The theory of production and growth examined from the natural sciences leads to the position that energy is tightly coupled to production and growth.

# Tanzania

- The planning document 2011-2015 lists energy ( and electricity) as the first priority of “drivers” of growth in manufacturing in the country.

The primary energy supply in 2013 – biomass (90%) primarily for cooking; with only 10% of energy supplies consisting of petroleum products, electricity and others, used for production.

Only about 18% of the country's population has access to electricity.

# Tanzania (continued)

- Priority Areas in energy
- 1. new power plants;
- 2. renewable energy supplies;
- 3. rural electrification;
- 4. Expanding the National Grid;
- 5. Promoting RE projects for carbon credit;
- 6. Promoting participation of local land owners in generation

# Natural Gas

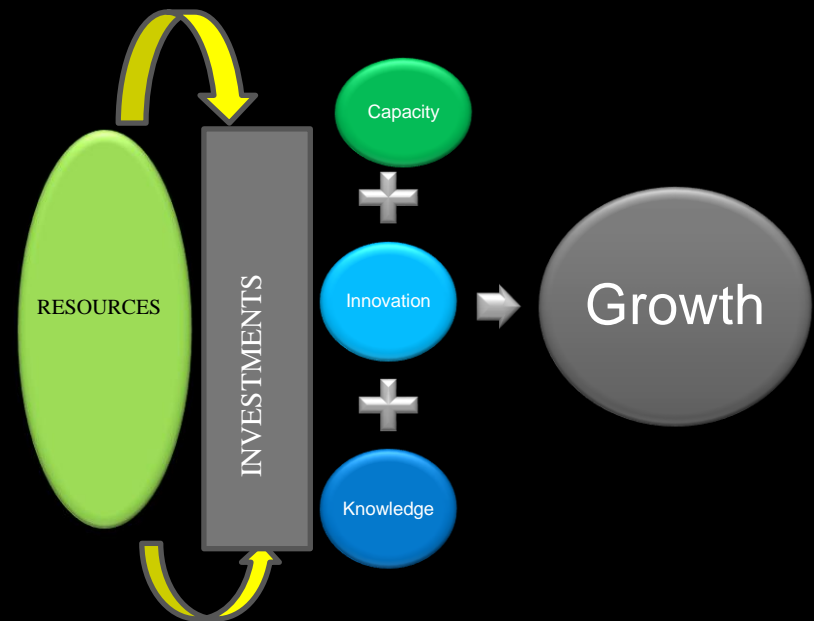
- The most important energy project in Tanzania at the moment is the Mtwara Dar gas pipeline project costing 1250 million USD, leading to significant expansion of electricity, and gas for industry and households.
- While the gas discovery, investments and use are very important Tanzania is also endowed with significant RE resources – solar, wind, biomass, hydro and geothermal.

## A Diagram

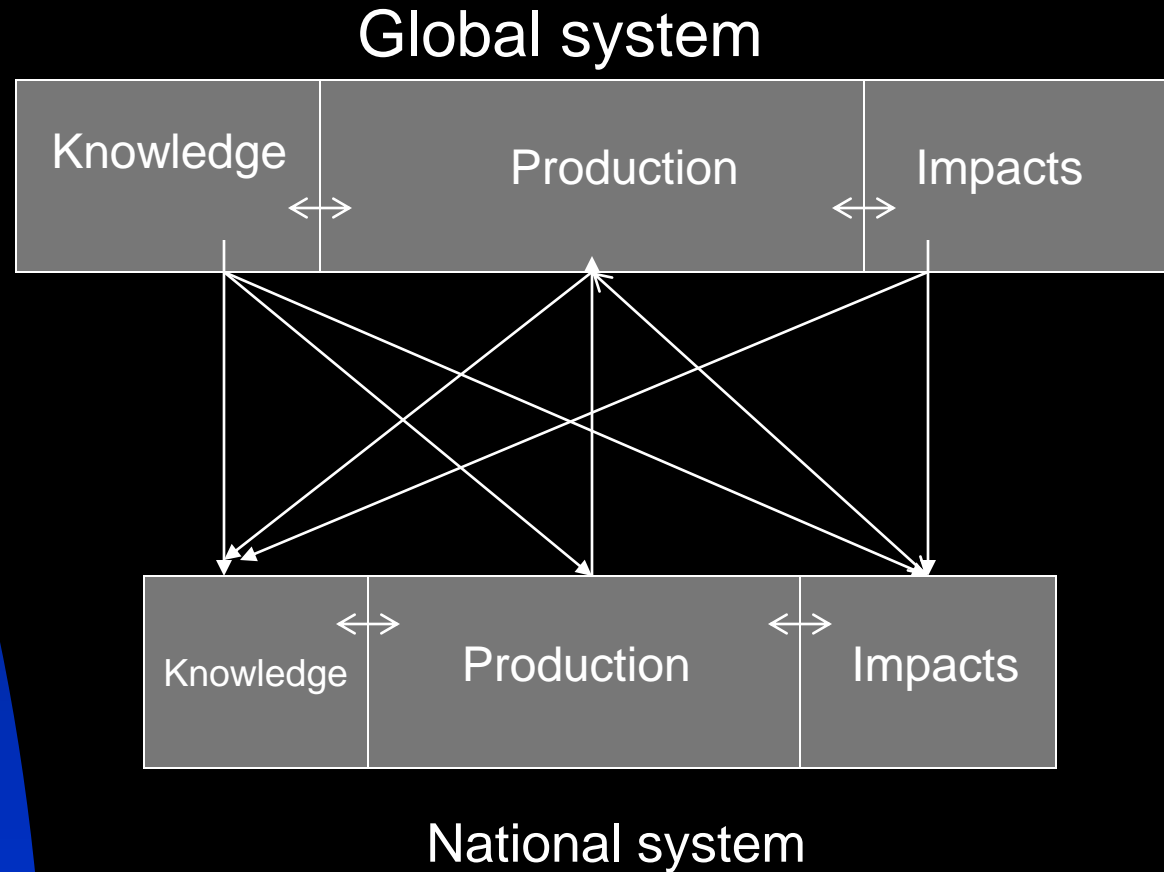
- At the highest level – Local Resources combine with:
- Capacity + Knowledge  
➔ Innovation
- Growth ➔ Reduced Poverty
- There is also a positive feedback loop – from growth and reduced poverty to increased demands and resources, investments, capacities and new innovations and new growth.

**Innovation = New *applications* of knowledge.**

## ■ A picture



# A Picture





# A Rapidly Changing Knowledge Technology and Policy Context

- Accelerated changes in science & technologies - examples include IT, bio technologies and others, that affect- Generation, Dissemination and Use of knowledge; the actors and their roles in the knowledge system.
- Systemic changes include - new multiple locations, greater applications orientation, transdisciplinary, globally networked, and heterogenous.
- Rapidly changing global policy context with regards to energy and climate change
- Appropriate national strategies on mitigation and adaptation together with technology choices given rapid changes in some technologies such as Solar Photo Voltaics and Wind and potentials for decentralized generation
- Increased monitoring and controls in energy systems

# Capacity

- Capacity challenges to Tanzania Energy Policy (Mnzava, A 2011) –
- No clear goals for technologies & laws
- Lack for specific policies, strategic implementation plans - short, midterm and longterm
- Lack of monitoring and evaluation with measurable indicators on implementation;
- Lack of policy review and research;
- Lack of depth in local level capacities