

# Investments in Large-scale Renewable Energy Projects in Kenya

## Findings and Experiences



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**Nachhaltiges Investieren in Afrika**

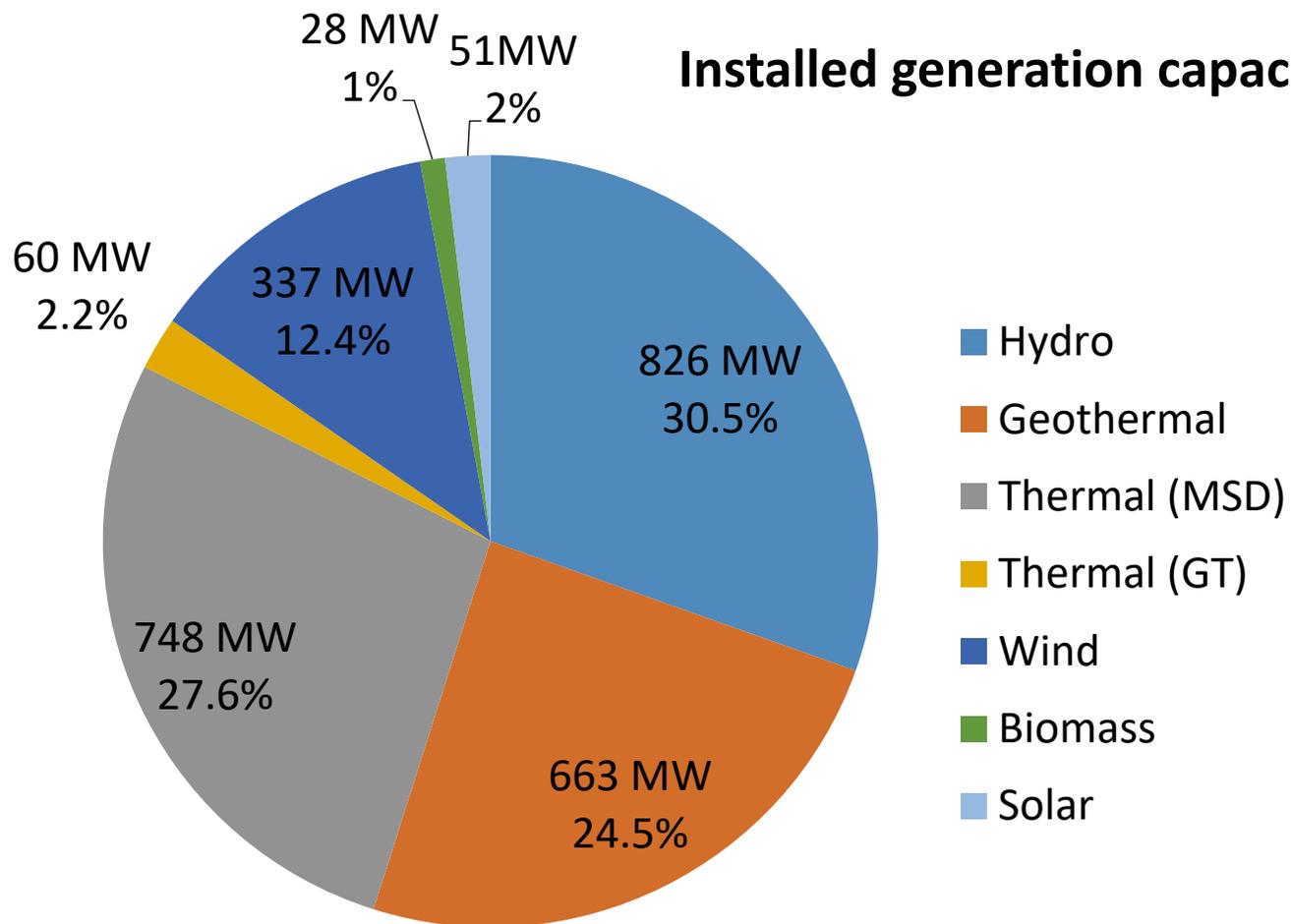
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**23. November 2021**

# The Kenya Context

**Current energy supply mix** in Kenya (mainly consisting of renewable energies, > 70%)

## Installed generation capacity



Source: MoE interviews 2019

**Population:** ca. 50 million (WB, 2019)

**GDP per capita:** 366 USD (WB, 2019)

**Current electricity access rate:** app. 70% (MoE interview, 2020)

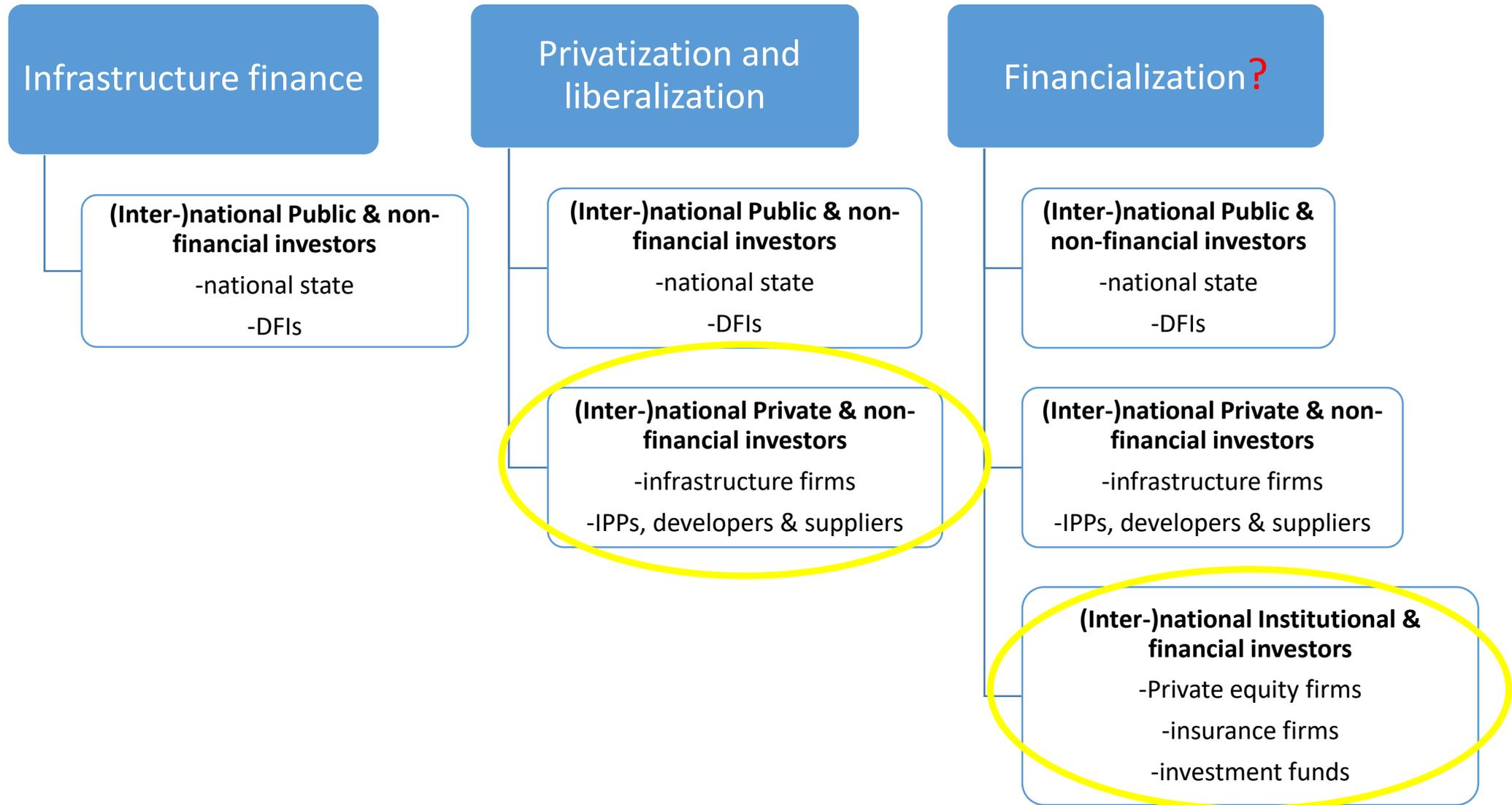
**Households without Power:** 3.5 million (WB, 2018)

**Some success:** ↑ electrified household from 15% in 2008 to 65% in 2018 (WB, 2018)

**More need:** 2700MW (GoK, 2007)

**Kenya Vision 2030:** Targets to reach universal access to electricity by 2020 (GoK, 2007); electricity for industrialization

# Changes in constitution of investors through various processes



# Drivers of energy sector developments in Kenya



- Energy development from ,green‘ sources is of **,national interest‘** (MoE & NT interviews 2019).
- Favourable **policies and incentives** at national and county levels (tax and risk mitigation incentives).



- **Energy transition** and **climate change agenda** at international and global levels



- **Huge financing** also from international development financial institutions (DFIs) and donor agencies; climate change mechanisms; private investors (IPPs).

# Case study – Geothermal energy projects in Kenya

**Location:** along the Kenyan Rift Valley

**Type:** electricity generation power plants

**Olkaria** – in operation, further expansions planned and ongoing

**Menengai** – in construction, drilling concluded

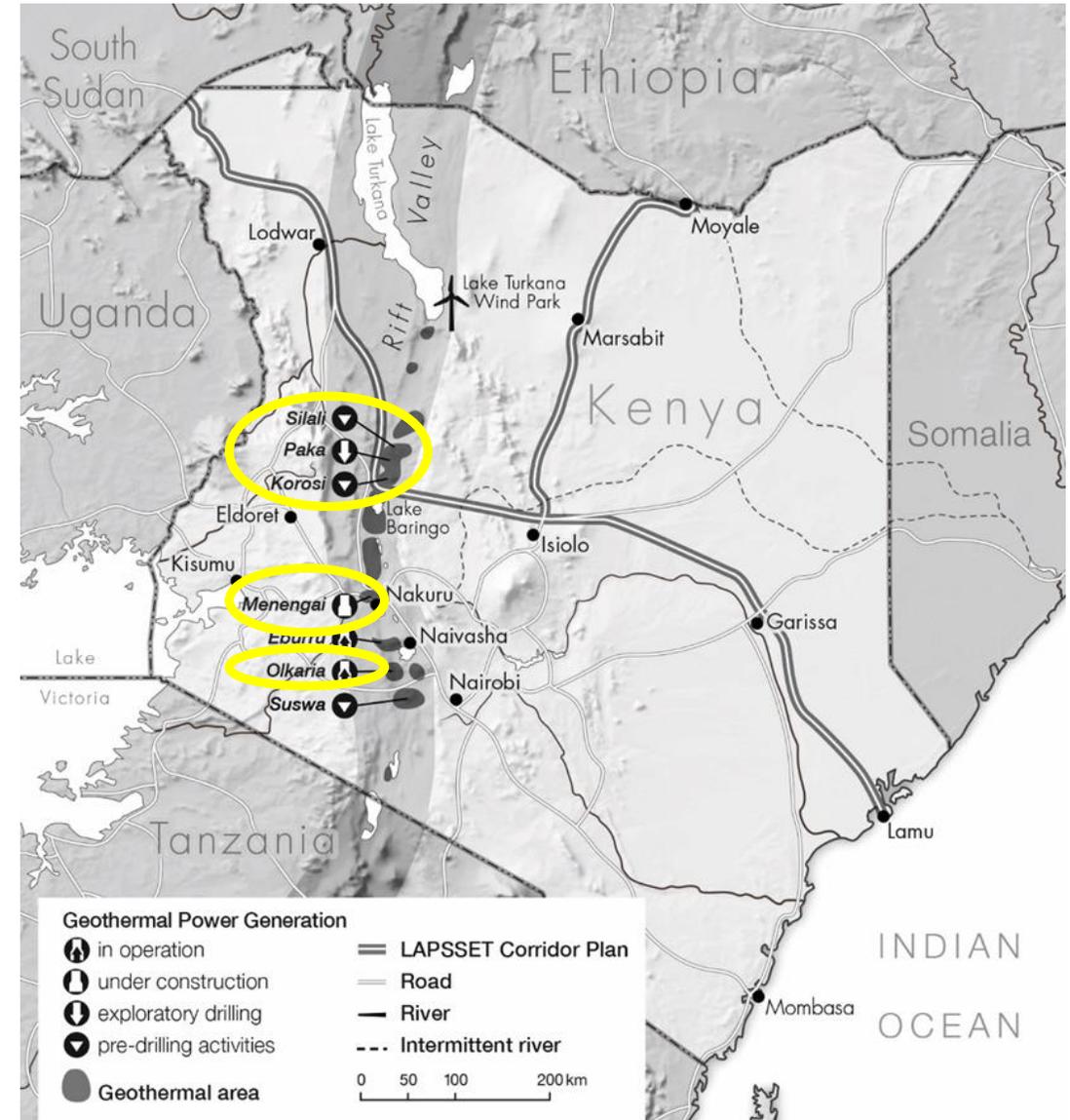
**Baringo-Silali** – drilling activities ongoing

## Developers:

**Kenya Generation Company (KenGen)** – 70% state-owned company, focus on plant development

Since 2008, **Geothermal Development Company (GDC)** – state-owned Special Purpose Vehicle (SPV), development of steam fields.

**Independent Power Producers (IPPs)** – International and national plant developers



## Fieldwork and research methodology

- Expert interviews in energy, environment and finance sectors, at national and international levels.
- **Complemented with:** informal interviews, project site visits, archival and document content analysis.



# Results – arrangements, processes and challenges

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## ‘But We Cannot Do It All’: Investors’ Sustainability Tensions and Strategic Selectivity in the Development of Geothermal Energy in Kenya

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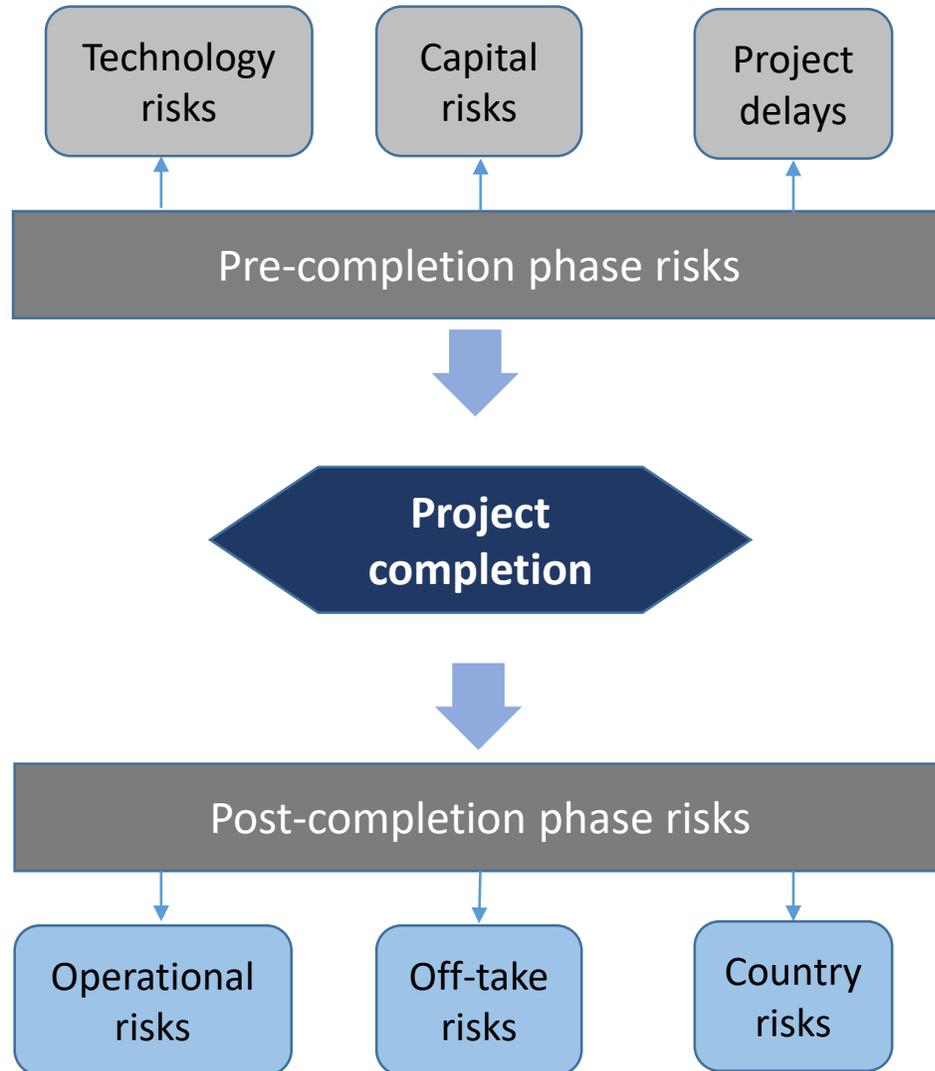
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**Climate actions as market intervening actions: analyzing the case of climate financing in Kenya’s large-scale renewable energy market.**

Journal:	EPA: Economy and Space
Manuscript ID	EPA-2020-0421
Manuscript Type:	Original Manuscript
Keywords:	neoliberalism, market intervening actions, climate actions, renewable energy markets, climate financing

## Risks in renewable energy projects



The large-scale geothermal projects in Kenya are susceptible to both pre- and post-completion risks.

**Pre-completion risks:** entails **steam exploration, well development and plant construction risks**, whose failure imply **loss of or incurrence of more capital expenditures**.

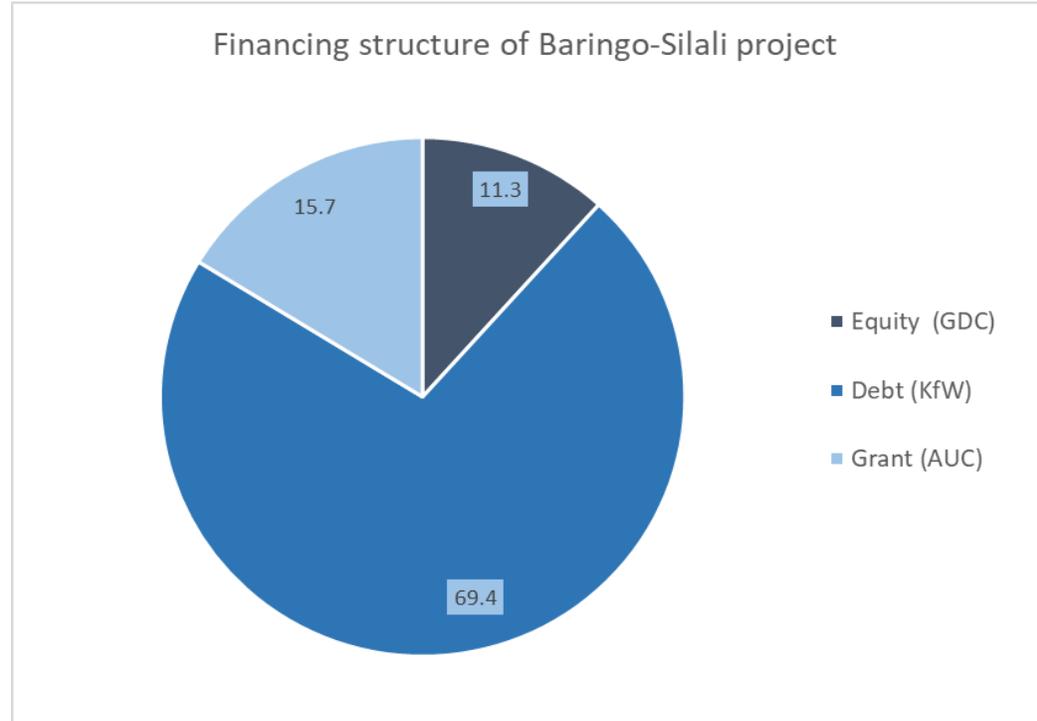
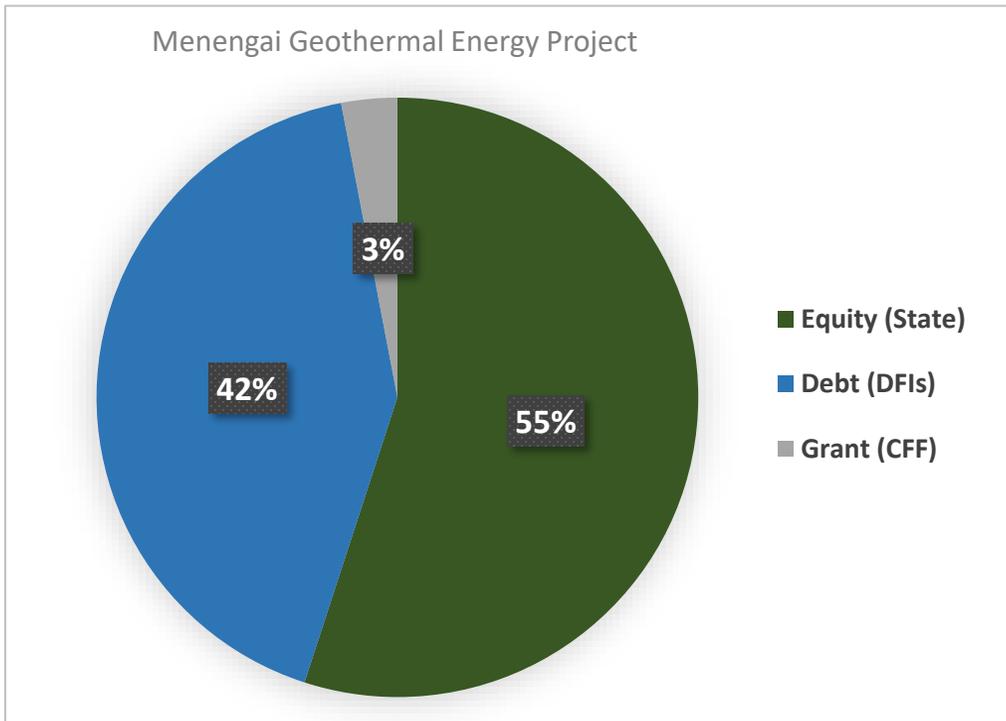
**Post-completion risks:** entails risks of **electricity off-take, honouring of PPAs and other contracts, non-local acceptance of projects**.

# The enabling role of the national state – MGE & BSGE

**Equity-debt ratio:** tends to show the amount of risks in the projects development

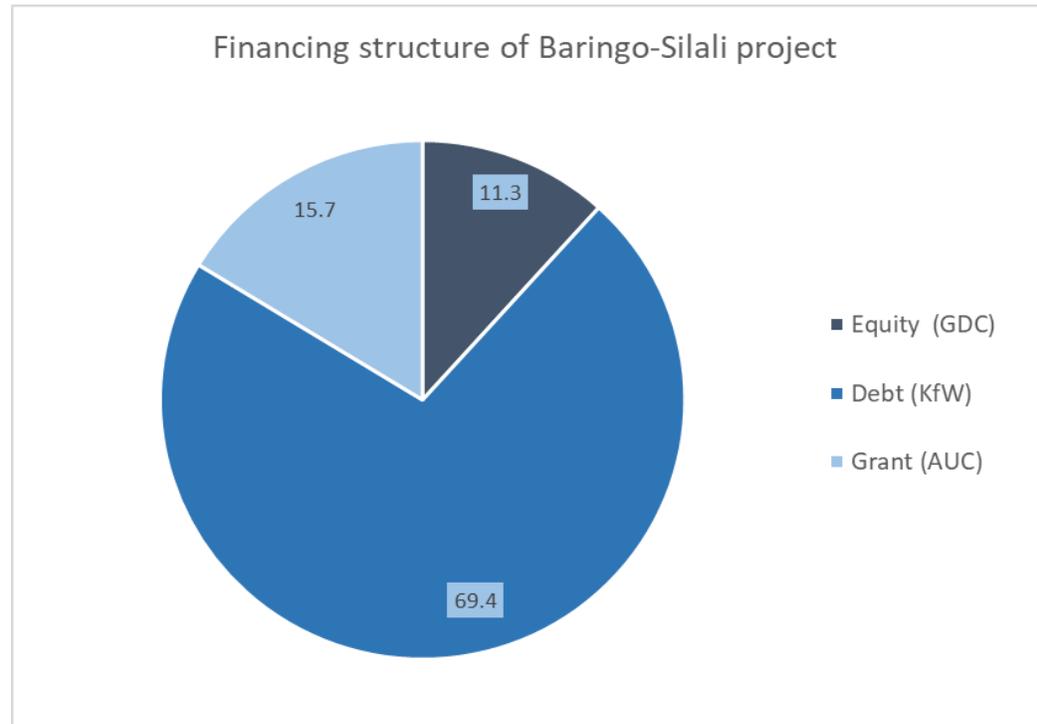
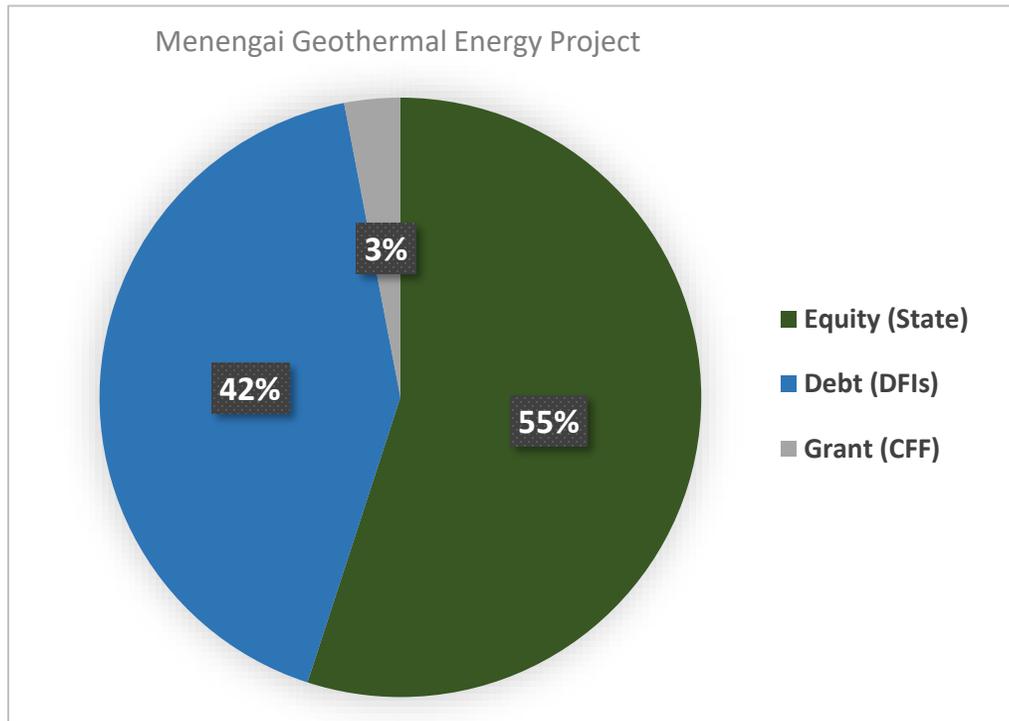
National state provides ,**risk buffers**‘ and **incentives** to catalyze investments in the projects

- These come in form of **FiTs** and **Off-take assurances** in the projects development.

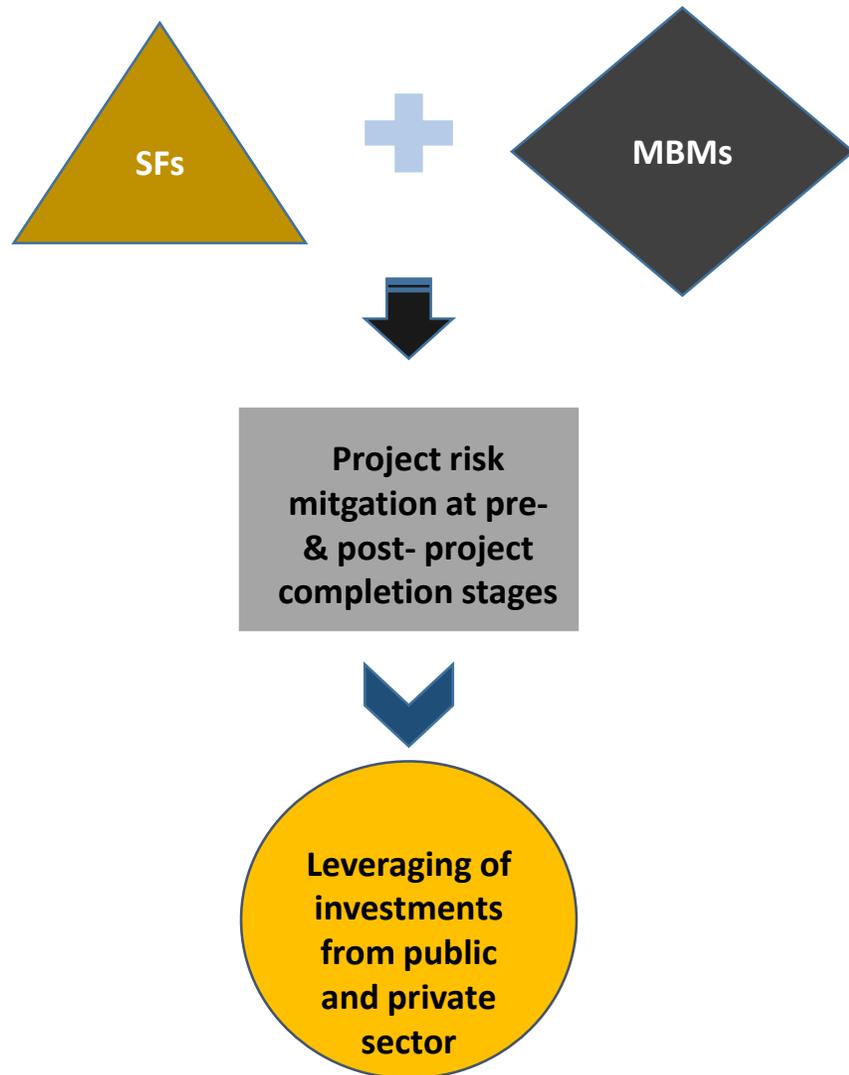


## Large role of Development Financial Institutions – MGE & BSGE

- **Debt financing and Technical assistance** from Development Financial Institutions
  - African Development Bank (AfDB), German Development Bank (KfW), French Development Agency (AFD), European Investment Bank (EIB), World Bank (WB), U.S. Agency for International Development (USAID), U.S. Trade and Development Agency (USTDA).



# Catalyzing roles of Climate Finance



**Specialized Funds (SFs), Market-Based Mechanisms (MBMs), Green Bonds** are leveraged at **different project phases**

**SF instruments** are loans, grants, guarantees which are used to fund/finance mitigation projects at their **pre-completion phases**.

**MBM instruments** are used to earn carbon credits revenues (CERs) through the trading of carbon offsets generated from mitigation projects at their **post-completion phase**.



**Green Bonds Programme**  
— KENYA —

# Cross-scale linkages between investors and communities

The materialization of the projects involve various **cross-scale linkages and interactions**

- among **diverse stakeholders** (national state, DFIs, communities),
- enabled through **organisations** (GDC), **legal requirements** (ESIAs), **laws** (land, energy, water), **CSR** and **local practices**

Negotiations and mediations through **institutions, laws and practices** (GDC, ESIAs, Energy and Land laws).



# Investor-community conflicting futures

- Investors (national and international states) visions: electricity provision, economic growth and industrialization, ,modernization', climate change.
- Local community expectations: improved socio-economic livelihood (where pastoralism and agriculture are main-stay, preservation of local culture).



## Fields of conflicts:

- Resettlement of Project Affected Persons
- Locations and spaces for Socio-economic livelihood
- Cultural loss



# Investors' sustainability dilemmas

**Sustainability** of projects development:

- Equal consideration of economic, social and environmental pillars.

Investors (public and private, international and national) are faced with sustainability dilemmas and tensions while **attempting to simultaneously apply the sustainability triad**.

- **prioritization** of certain sustainability components, while relegating others, based on priorities and winning interests.

**projects carry on** notwithstanding certain pending social and environmental sustainability concerns



## Investors' social-economic enablement activities as necessity

Reparations and socio-economic enablements through **resettlement schemes, Corporate Social Responsibilities** and **ancillary infrastructures**.

These linkages are important as projects could **delay or come to halt**, if neglected



Food sharing during drought in Baringo, after a community sensitization practice (GDC, 2019)



Provision of animal water troughs in Baringo (GDC, 2019)



Commissioning of community water-points in Baringo (GDC 2019)

**Thanks for your Audience!**



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