Investments in Large-scale Renewable Energy Projects in Kenya

Findings and Experiences

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The Kenya Context

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

<table>
<thead>
<tr>
<th>Source</th>
<th>Installed generation capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydro</td>
<td>826 MW 30.5%</td>
</tr>
<tr>
<td>Geothermal</td>
<td>748 MW 27.6%</td>
</tr>
<tr>
<td>Thermal (MSD)</td>
<td>663 MW 24.5%</td>
</tr>
<tr>
<td>Thermal (GT)</td>
<td>337 MW 12.4%</td>
</tr>
<tr>
<td>Wind</td>
<td>28 MW 1%</td>
</tr>
<tr>
<td>Biomass</td>
<td>51 MW 2%</td>
</tr>
<tr>
<td>Solar</td>
<td>60 MW 2.2%</td>
</tr>
</tbody>
</table>

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

Infrastructure finance
- (Inter-)national Public & non-financial investors
  - national state
  - DFIs

Privatization and liberalization
- (Inter-)national Public & non-financial investors
  - national state
  - DFIs
- (Inter-)national Private & non-financial investors
  - infrastructure firms
  - IPPs, developers & suppliers

Financialization?
- (Inter-)national Public & non-financial investors
  - national state
  - DFIs
- (Inter-)national Private & non-financial investors
  - infrastructure firms
  - IPPs, developers & suppliers
- (Inter-)national Institutional & financial investors
  - Private equity firms
  - Insurance firms
  - Investment funds

Source: Interviews 2019/2020, document analyses
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
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).

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**Menengai Geothermal Energy Project**

- **Equity (State)**: 42%
- **Debt (DFIs)**: 55%
- **Grant (CFF)**: 3%

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**Financing structure of Baringo-Silali project**

- **Equity (GDC)**: 15.7%
- **Debt (KfW)**: 11.3%
- **Grant (AUC)**: 69.4%
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.
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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