



# POWERING AGRI-FOOD VALUE CHAINS WITH GEOTHERMAL HEAT

## PROJECT DEVELOPMENT AND FINANCING

CAPACITY BUILDING EVENT – AFRICA WEBINAR

JULY 19, 2022



# Direct Use Project Ownership and Business Models

## Project ownership models:

- (i) Stand-alone direct use systems
- (ii) Cascaded direct use systems
- (iii) Integrated geothermal direct use and electricity generation systems



## Business models:

- ✓ Ownership models impact the financing schemes → ownership of entire operation, partnership, heat purchase agreement (HPA)
- ✓ Powering agri-food value chains with geothermal heat → parallel approach – geothermal resource and processing plant
- ✓ Unique case: Existing power generation facility
- ✓ The challenge is the processing plant – design affected by technology, market, and supply chain considerations

Financing mechanism	Description
<b>Pure grants</b>	<ul style="list-style-type: none"><li>✓ Funding for risky activities such as initial exploration and initial drilling</li><li>✓ Grantors are typically governments or international development organisations</li><li>✓ No strings attached if the work is performed as contemplated</li></ul>
<b>Contingent grants</b>	<ul style="list-style-type: none"><li>✓ Typically provided during the exploration and initial drilling stage<ul style="list-style-type: none"><li>• If drilling is unsuccessful, the grantee has no monetary obligations</li><li>• If the operation is successful, the grant converts into a loan that the grantee will repay over time</li></ul></li><li>✓ Can be recycled to provide support for more projects</li></ul>

# Financing Options

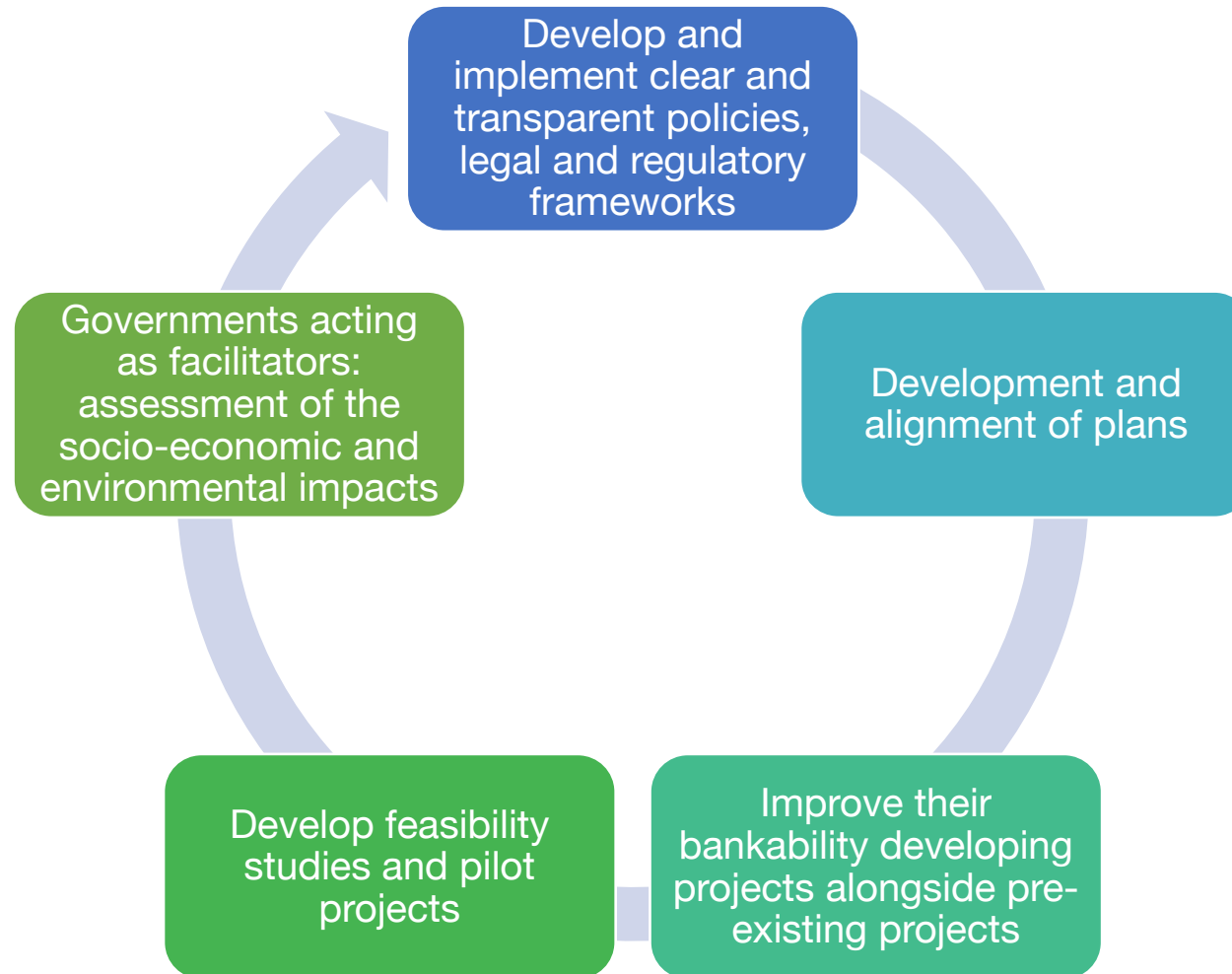
Financing mechanism	Description
<b>Risk mitigation</b>	<ul style="list-style-type: none"> <li>✓ Drilling phase:               <ul style="list-style-type: none"> <li>• Insurance: The insured pays a one-time premium prior to the start of drilling</li> <li>• Grants: Under this mechanism, the qualified applicants can obtain a grant covering the costs of the initial drilling and other related expenses</li> </ul> </li> </ul>
<b>Concessional loan</b>	<ul style="list-style-type: none"> <li>✓ Loan at below-market conditions: lower interest rate, longer maturity and no or very light securities and collaterals</li> <li>✓ Available at later stages of project development</li> <li>✓ Repaid from the profits of the operation</li> </ul>
<b>Project financing</b>	<ul style="list-style-type: none"> <li>✓ Multilateral or regional development banks typically offer project debt (e.g., AfDB, IDB, World Bank/IFC, etc.)</li> <li>✓ Equity is usually provided by investors focused on emerging markets</li> <li>✓ Project financing allows the project assets to be the only collateral → time consuming and expensive</li> </ul>

# RE Facilitation Platforms



Climate Investment Platform (CIP)	Energy Transition Accelerator Financing Platform (ETAF)
<ul style="list-style-type: none"> <li>✓ Online multi-stakeholder platform for registration of renewable energy projects as well as investors/financiers interested in supporting projects that are furthering the energy transition.</li> <li>✓ Project facilitation support for the establishment and implementation of ambitious climate commitments and enabling frameworks at the country level.</li> <li>✓ Matchmaking between projects and investors as well as risk mitigation through technical assistance to achieve bankability.</li> </ul>	<ul style="list-style-type: none"> <li>✓ USD 1 billion facility to support the energy transition by addressing existing financing gaps.</li> <li>✓ Co-financing or co-investment to all sizes of projects in developing countries on demand.</li> <li>✓ Established with seed capital of USD 400 million from the ADFD and envisages raising the balance from multiple stakeholders during 2022-2023 and leveraging IRENA expertise to support project developers.</li> </ul>

# How to Attract Investment



# Scaling up growth

- ✓ Public financing
- ✓ Partnerships with local commercial banks that can provide financing in local currency
- ✓ Facilitating local financial institutions to understand the financing requirements of direct-use projects by developers and other industry stakeholders
- ✓ Improve market intelligence to de-risk and optimise geothermal energy investments in food chains.
  - Map the locations where geothermal energy solutions have the best chances
  - Comprehensive cost-benefit analysis of geothermal energy investments in food chains



A drilling rig at Menengai, Kenya (source: Kenya GDC)

Challenge/gap	Description	Recommendations/lessons learnt
Access to financing	<p>Geothermal project development has high upfront costs and risks.</p> <p>Public financial resources are limited, especially in developing countries.</p> <p>Multilateral and international bank funding is mainly focused on geothermal electricity production projects.</p> <p>Demonstrable feasibility of direct-use projects is lacking in many developing countries.</p>	<ul style="list-style-type: none"> <li>• Establish risk mitigation schemes to minimise the exposure to losses by geothermal developers.</li> <li>• Develop laws and regulations that encourage the deployment of geothermal heating, including simplified licencing procedures for geothermal direct-use projects.</li> <li>• Develop direct-use projects alongside existing power projects to utilise excess heat through cascading systems or available heat from sub-commercial wells.</li> <li>• Assess the socio-economic benefits of deploying geothermal heat in agri-food projects to demonstrate the potential to improve the livelihoods of local communities.</li> <li>• Launch pilot projects to demonstrate the technical/ financial viability of direct-use technologies and associated business models.</li> <li>• Partner with local banks and build their capacity to finance direct-use projects using local currency financing.</li> <li>• Leverage technical assistance and matchmaking platforms to connect investors/financiers with bankable projects.</li> </ul>



# THANK YOU!

