



GLOBAL GEOTHERMAL ALLIANCE

Geothermal Direct Use

IRENA

05/05/2022



Introduction



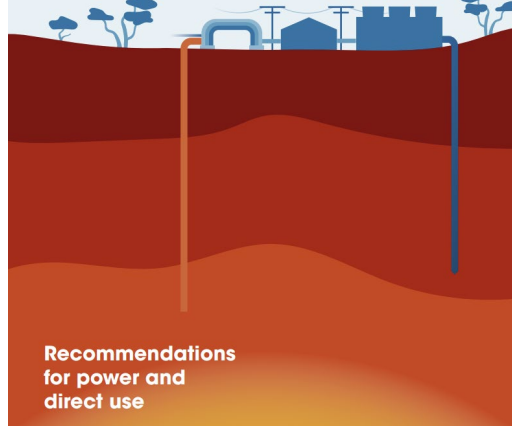
Accelerating geothermal heat adoption in the agri-food sector

Key lessons and recommendations



GEOTHERMAL DEVELOPMENT IN EASTERN AFRICA

Recommendations for power and direct use



INTEGRATING LOW-TEMPERATURE RENEWABLES IN DISTRICT ENERGY SYSTEMS

GUIDELINES FOR POLICY MAKERS

Supported by:



POWERING AGRI-FOOD VALUE CHAINS WITH GEOTHERMAL HEAT

Final Report

December 2021

A Guidebook for Policy Makers

<https://irena.org/>

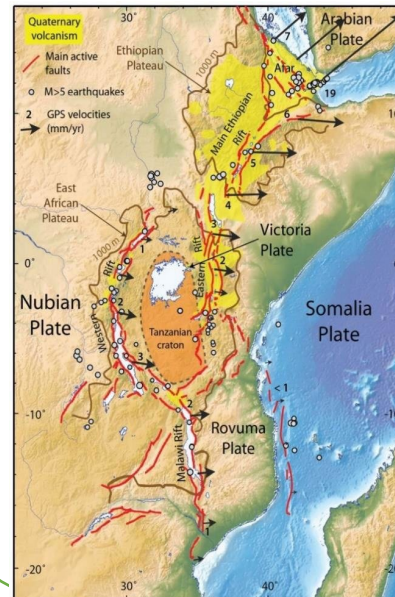
<http://www.globalgeothermalalliance.org/>

Geothermal Development in Eastern Africa – Direct Use



- ❑ Provide the updated status of geothermal development, both electricity and direct use
- ❑ Identifies the key barriers to geothermal development
- ❑ Provides recommendations for accelerating development of geothermal electricity and direct use

- ❑ Outcomes of the Regional Workshop on Geothermal Financing and Risk Mitigation in Africa
- ❑ Assessment: experience in Comoros, Djibouti, Ethiopia, Kenya, Tanzania, Uganda and Zambia



Enabling direct use



Use	Installed capacity (MWt)	Annual energy use (TJ/yr = 10 ¹² J/yr)
Greenhouse heating	5.3	185
Agricultural drying	0.3	9.9
Fish farming	0.2	6.5
Bathing and swimming	8.7	275.5
Other uses (laundry operations and milk pasteurisation)	4	125
Total	18.5	602.4

Increased interest in DU in EAR

- ❑ Kigali Statement of ARGE0-C7 called for the mainstreaming of DU
- ❑ Technical workshop on the Geologic Development and Geophysics of the Western Branch of the Greater East African Region – most resources are low and medium temp. suitable for DU
- ❑ Several social, economic and environmental benefits of DU



Policy, institutional and Regulatory Frameworks

Policy support for geothermal direct use is largely yet to be developed

Legal and Regulatory Framework

Ethiopia - Geothermal proclamation No.981/2016

Grade I resources: Suitable for power and combined heat and power

Grade II resources: Suitable for direct use
Issued by regional/National government

Provides for incentives

Kenya - Energy Act 2019

Recognizes the role of Direct use of geothermal energy

Renewable Energy Resource Advisory Committee (RERAC)

Institutional support

Kenya

Kenya Electricity Generating Company
Geothermal Development Company

Djibouti

ODDEG is responsible for geothermal development

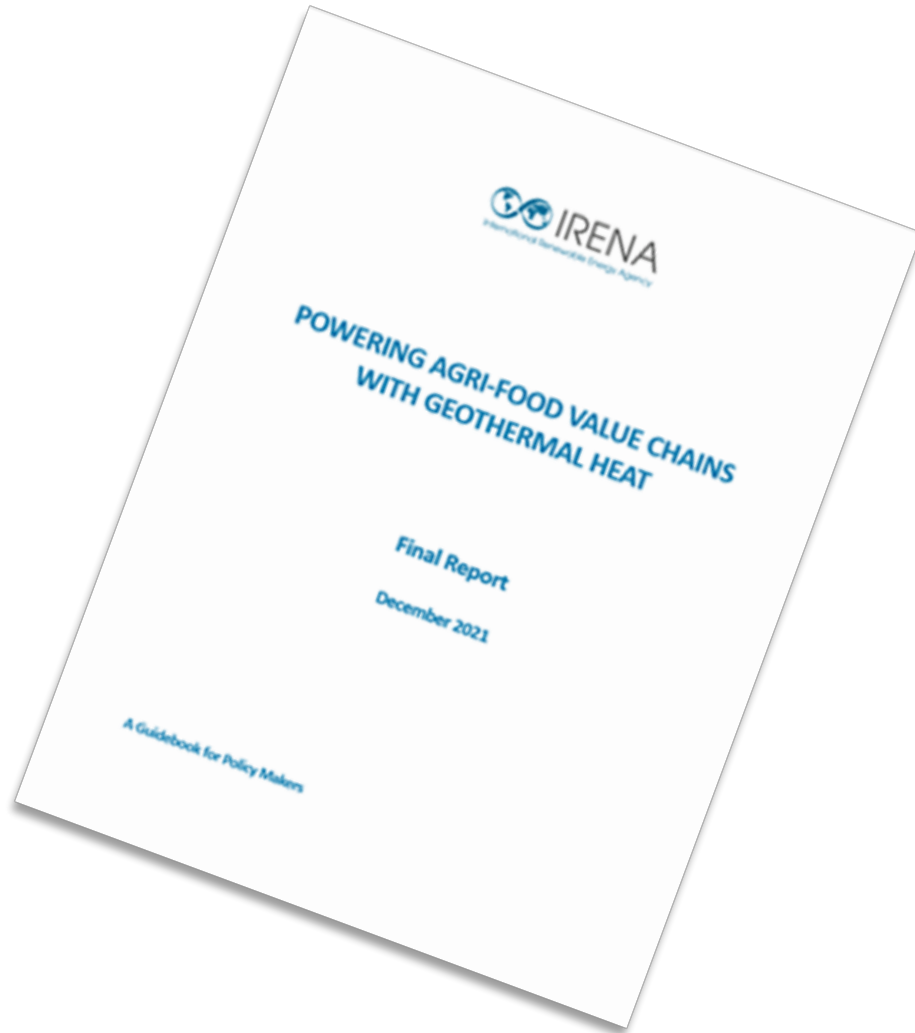
Tanzania

Tanzania Geothermal Development Company

Uganda

Geothermal Resource Department

Powering Agri-food Value Chains with Geothermal Heat: Guidebook for policy makers



**Upcoming Capacity
Building in Eastern Africa**

Geothermal agri-food applications

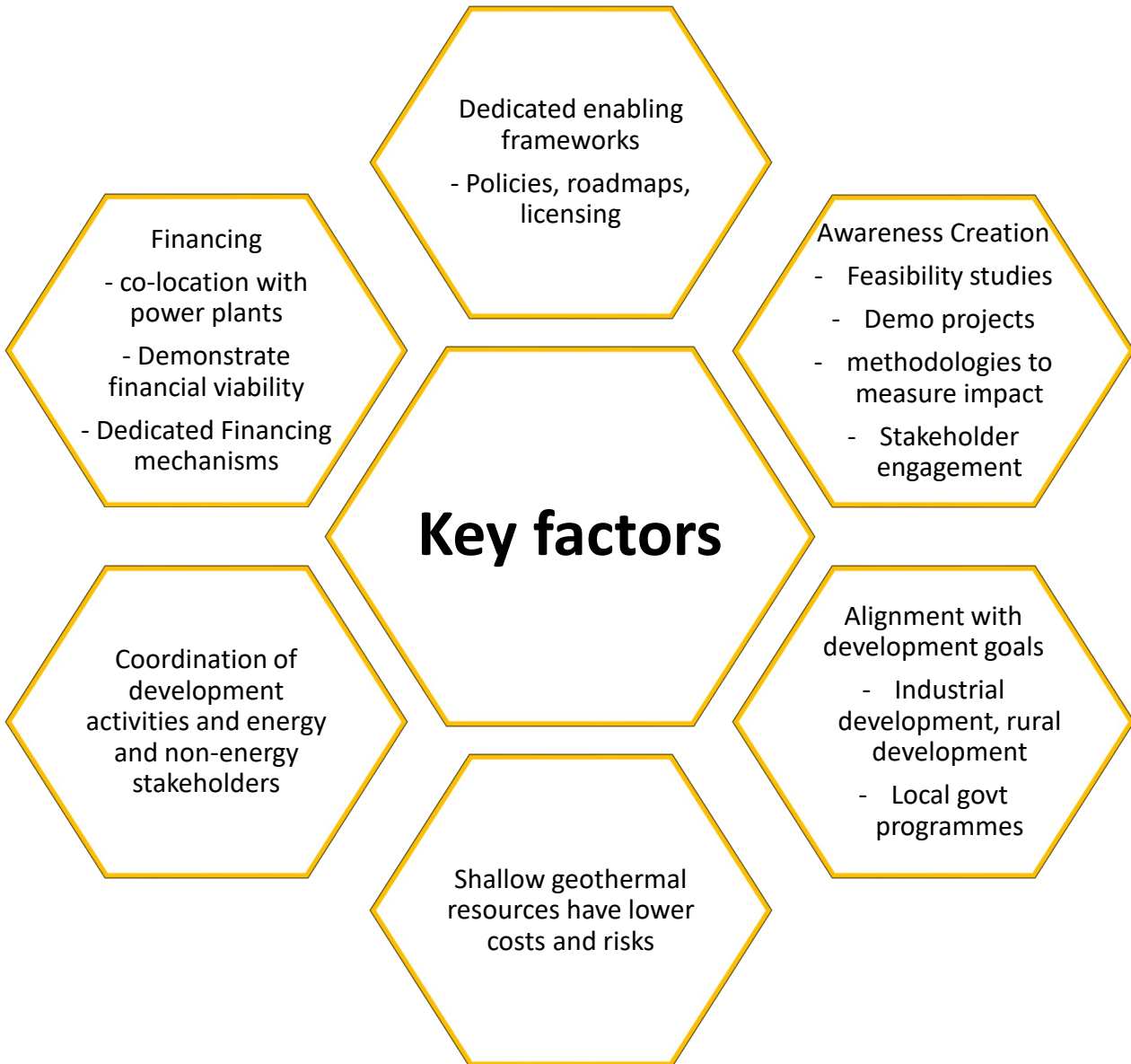
- ☐ Food production
- ☐ Drying and dehydration
- ☐ Processing and value addition
- ☐ Cold storage and refrigeration

Increased interest in DU in EAR

- ☐ Global Geothermal Direct Use case studies
- ☐ Analysis of global best practices
- ☐ Tools for quantifying socio-economics of DU and heating tariff determination
- ☐ Recommendations for successful implementation of DU

Priority Action Areas

Eastern African recommendations



Recommendations from Global case studies





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Thank you!

