

# Use of Geothermal Heat in Industrial Processes in SICA Member Countries (GEO II) Project

Geothermal Direct Use Market Sounding Webinar

05.05.2022| GEO II Project



Implemented by



In cooperation with



# A brief overview of geothermal energy and its direct uses



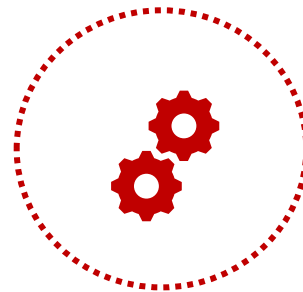
More than **75 major registered volcanoes** located in the **Pacific Ring of Fire** and approximately **1,343 hot springs** are currently registered in the Central American region.



The economically and technically exploitable geothermal potential of Central America is estimated around **3 to 5 gigawatts (GW)**.



Many SICA member countries have not taken advantage of opportunities to:  
-**make** the energy consumption of production processes **sustainable**  
-**environmentally friendly**.



Geothermal heat is used for industrial applications such as, for example, **fruit dehydration** and **crop drying**, **air conditioning** of greenhouses or **cooling** of cold rooms and buildings.

Region of Opportunities



# GEO II Implementation

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## On behalf of:

German Federal Ministry for Economic Cooperation and Development (BMZ)



## Implementation:

German Development Agency GIZ



## Political Counterpart:

General Secretariat of the Central American Integration System (SG-SICA).



## Approved amount:

4.400.000 €



## Complementary implementation module:

It is implemented jointly with the BGR (geoscientific cooperation) and the KfW (financial cooperation).



## Type of cooperation:

Technical Cooperation



## Duration:

3 years (11/2020 – 10/2023)

# Project objective

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SICA member countries have improved conditions for the direct use of geothermal energy for industrial applications.



# Intervention areas

**1 Support for the adaptation of regulatory frameworks.** The Project's technical advisory work will contribute to improve the conditions for the regulation of the direct use of geothermal energy in SICA member countries.

**2 Development of productive demonstration projects.** It will be supported to lay the foundation that companies need to make investment decisions on plants/facilities for the direct use of geothermal energy.





## Intervention areas

**3 Development of methodological tools for the management of direct use geothermal projects.** Create instruments, tools, methods or guidelines for the direct use of geothermal energy .

**4 Exchange of experiences in SICA member countries.** Professional exchange of experiences with the direct use of geothermal energy.



# Map of Direct Use projects



1

- 1.1 Food Dehydration Project (Amatitlán)
- 1.2 Cold Storage Rooms Project (Amatitlán)
- 1.3 Agajal Milk Cooling Project (Jalpatagua, Jutiapa)

2

- 2. Potential Project in evaluation

3

- 3.1 Agro-industrial Processing Center (Ahuachapán)
- 3.2 Cold Storage Room (Usulután)
- 3.3 Drying facility for Coffee Grains (Berlín)

4

- 4.1 Geothermal Cheese Stove (Pavana, Choluteca)
- 4.2 Geothermal Salt Plant (Nacaome)
- 4.3 Cooling in Escuela Agrícola Luis Landa (Nacaome)
- 4.4 Drying Fruits Project (Namasigüe)

5

- 5.1 Direct Use Pilot Project in Mateare, Telica y Tipitapa.

6

- 6.1 Food Processing Center (Miravalles)
- 6.2 Cooling in Recreo Verde Hotel, San Carlos
- 6.3 Climate control of greenhouses for tomato production (Cartago)

7

- 7.1 Potential Project with Heat Pumps

8

- 8.1 Geothermal use in the Hotel sector (Punta Cana)
- 8.2 Climate control of greenhouses (Guayabal)

# Miravalles regional center for drying and storage of agricultural products, CR

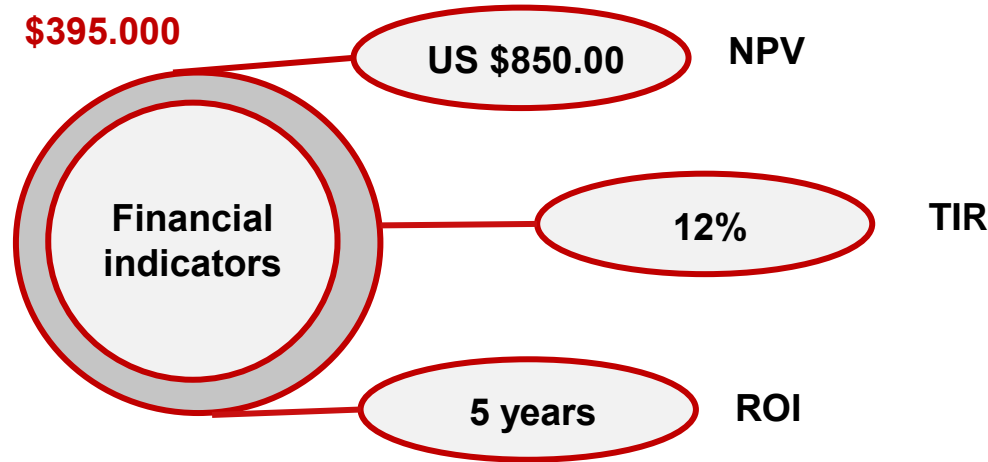
Grupo ICE, Miravalles (national utility)

Cascade design

**Innovation or Disruptive technology / Innovation/equipment:**  
Cascade design, Geothermal dryer, Geothermal refrigerated warehouse.

**Scaling up potential** in La Geo, SV and San Michkael, GT.

**Investment:**  
**\$395.000**





# Geothermal system for cooling and heating at the Westin Hotel, DR

The **hotel Westin**,  
partial geothermal system / use of a groundwater condensing chiller.

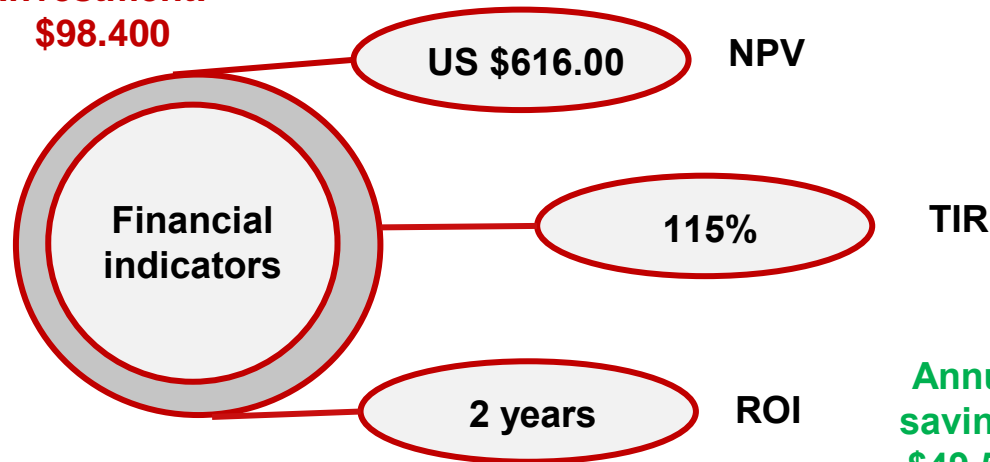
**Heat pump (150 kW) + geothermal chiller**

Hybrid solar-geothermal system



**Investment:**

**\$98.400**



	Energy (kWh)	LP Gas (GJ)	Costs (USD)
Electricity savings	-59 147	0	-15 378
LP Gas savings	198 091	30 802	64 924
Total savings	138 945	30 802	49 546
Total saving percentage	9%	100%	12%

**Annual  
savings:  
\$49.500**

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