



# Second Geothermal Roundtable: CIF role in global market developments

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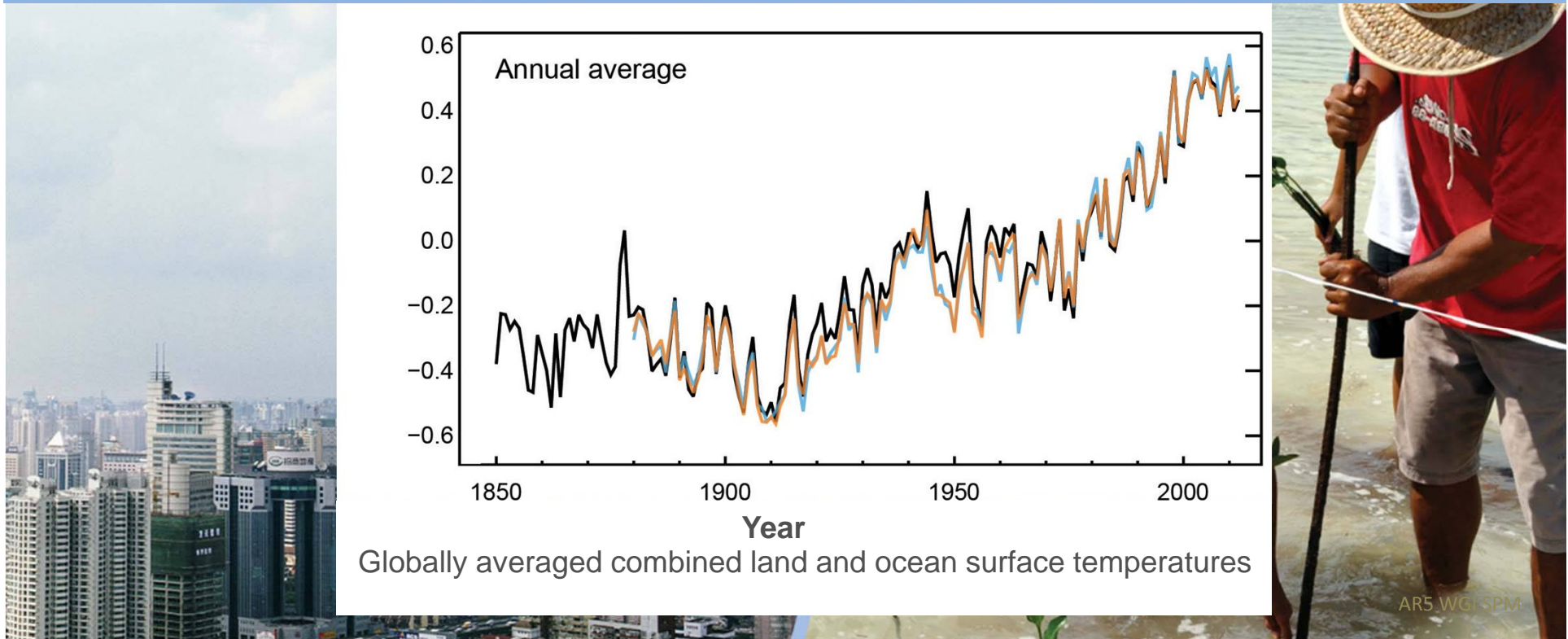
Manager  Climate Investment Funds

March 2, 2015



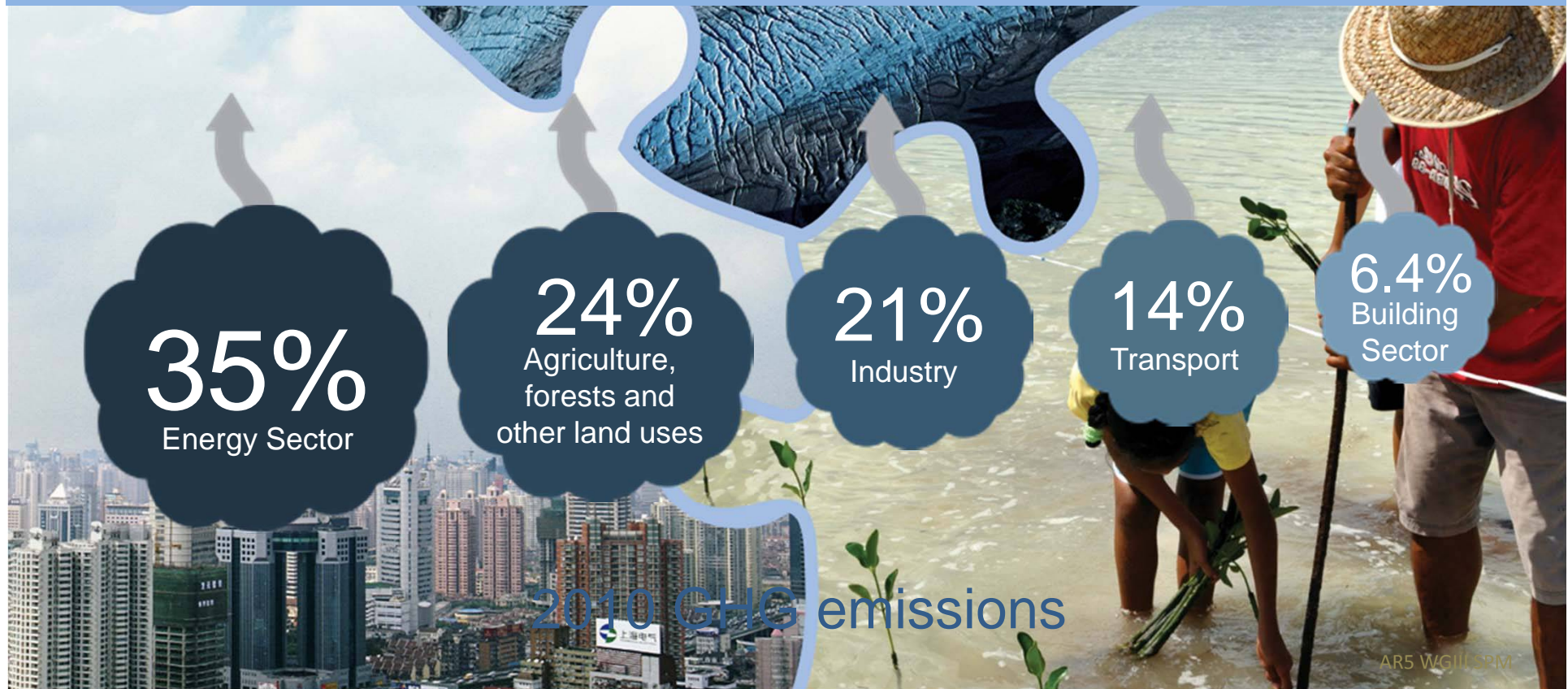
# Humans are changing the climate

It is extremely likely that we are the dominant cause of warming since the mid-20th century



# Sources of emissions

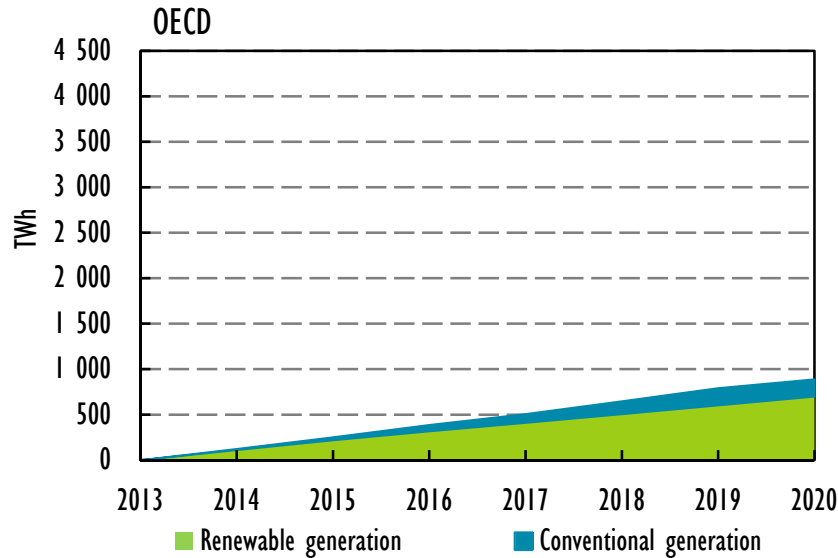
Energy production remains the primary driver of GHG emissions



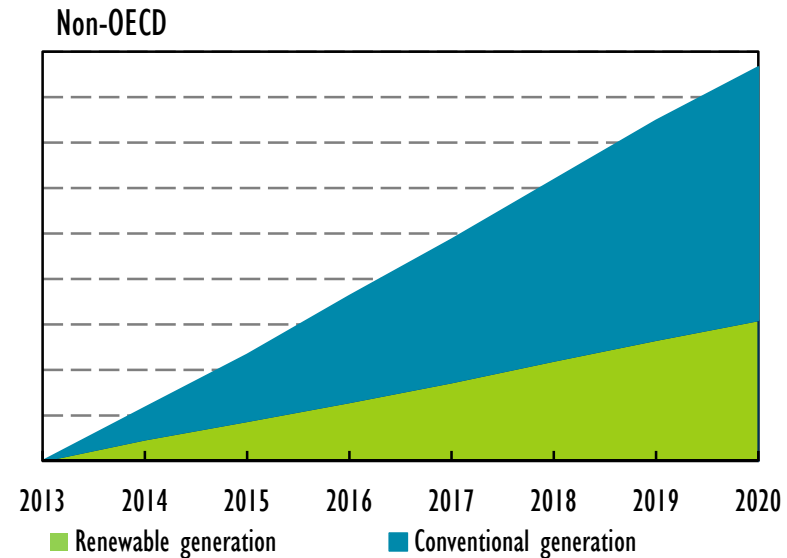


# Gross Power Generation 2013-2020

Projected cumulative change in gross power generation by source and region, 2013-20



Stable markets with slow demand and growing policy risks means relatively small growth



Large growth potential for renewables in dynamic markets with fast-growing demand beyond IEA projections



## Geothermal Energy: Potential and Value Proposition

- ✓ Stable base load energy
- ✓ Low OPEX
- ✓ Competitive prices



## Investments not Reflective of Potential or Value

- ✓ Geothermal energy investments are  $\sim < 1\%$  of \$214 billion RE investments in the world in 2013.
- ✓ Current global capacity: 13 GW



## Barriers to Catalyzing Geothermal Development

- ✓ Exploratory Drilling Risk
- ✓ Lack of technical capacity
- ✓ Lack of financing experience in local institutions





## Geothermal Energy in the Climate Investment Funds



CTF/SREP  
\$750  
MILLION

CONTRIBUTING TO

POSSIBILITY OF  
2.9 GW  
GEOHERMAL  
POWER



1/4 CURRENT  
GLOBAL INSTALLED  
CAPACITY 13 GW

CIF funding is supporting some of the first large-scale geothermal development projects in Armenia, Chile, Dominica, Ethiopia, Kenya and Tanzania





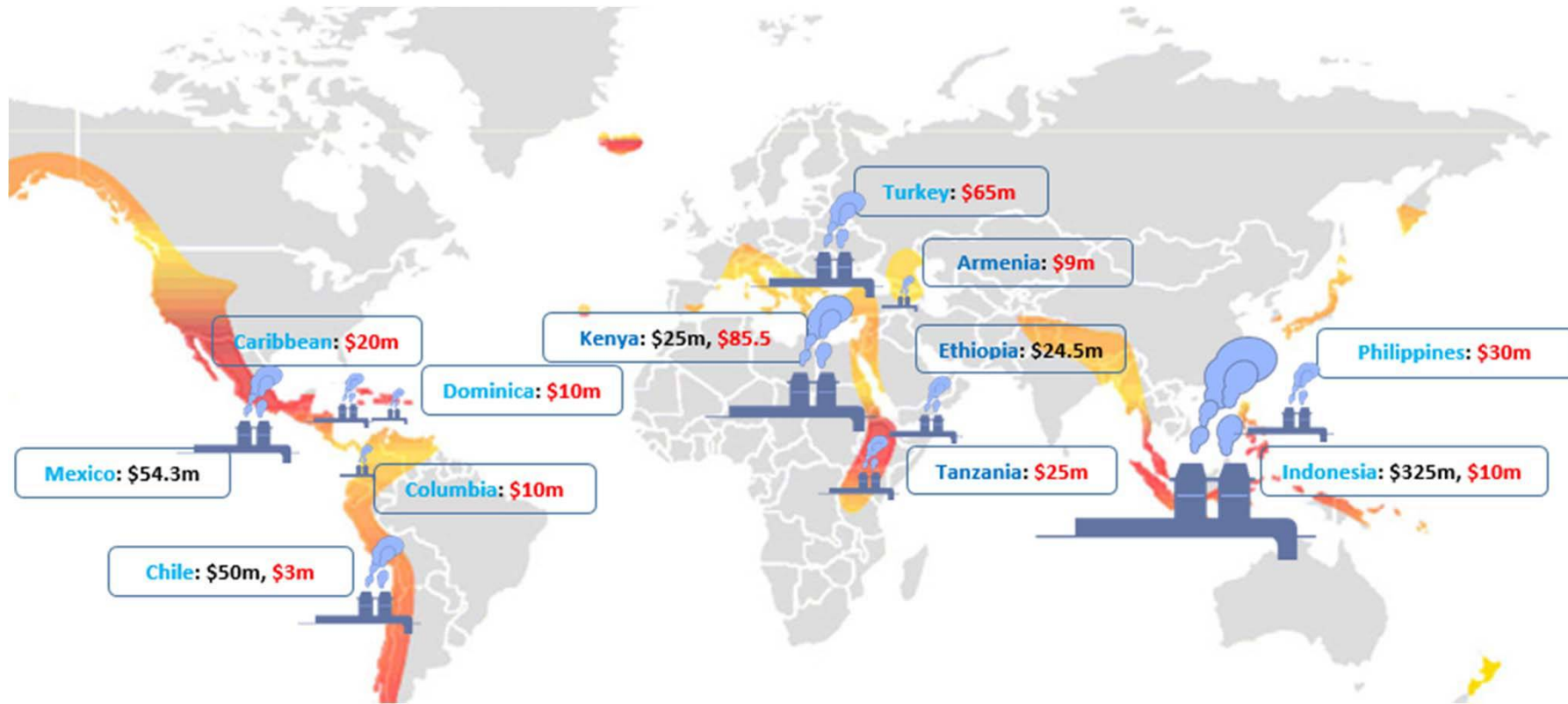
# Geothermal Energy in the Climate Investment Funds

SREP

CTF

COMMITTEE APPROVED

ENDORSED (NOT APPROVED)



**LAC**  
\$104m  
\$43m

**AFRICA**  
\$49.5m  
\$110.5m

**ECA**  
\$0m  
\$74m

**ASIA:**  
\$325m  
\$40m



# CIF Experience: Kenya

## Menengai Geothermal Project (AfDB)

**SREP Funding: \$25m;**

AfDB - \$124.1m

Gov<sup>†</sup> - \$245.2m

Bilaterals - \$108.7m

Total Co-financing: \$478m

Expected Results:

- 150MW new capacity
- 2.5m people with new access to clean energy
- 48.75 MtCO<sub>2</sub> reduction over lifetime



THOMSON REUTERS FOUNDATION/Isaiah Esipisu

SREP funding is covering exploratory drilling, an essential activity to prove the availability of steam resources but one in which the private sector has little appetite to invest. Phase I drilling is underway and expected to provide 150 MW to the national grid by 2017.



# CIF Experience: Indonesia

## Indonesia Geothermal Clean Energy Investment Project (IBRD)

**CTF Funding: \$125m**

IBRD - \$175m

Govt - \$274.7m

Total Co-financing: \$449.7m

Expected Results:

- 150MW new capacity
- 1.1 MtCO<sub>2</sub> reduction annually



© Jimmy Lopes | Dreamstime.com - Geothermal Power Plant Producing Alternative Green Energy.

CTF funding is facilitating confirmation of geothermal resources, steam field development and above ground systems.



# CIF Experience: Mexico

## NAFIN Geothermal Financing and Risk Transfer Facility (IDB)

CTF Funding: \$54.3m

IDB - \$54.3m

Govt NAFIN, & others - \$65.8m

Private Sector - \$1,025m

Total Co-financing: \$1,145.7m

Expected Results:

- 300 MW new capacity
- 33 MtCO<sub>2</sub> reduction over 30 year lifetime

Project will help with risk mitigation for geothermal projects in the early stages of exploration and test drilling through a range of financial instruments (loans, grants, & insurance)





## CIF & CPI Analytical Work: Geothermal

The CIF has commissioned CPI to undertake a body of analytical work<sup>2</sup> including a [series of dialogues](#), case studies, and reports<sup>2</sup> leading to recommendations on how to effectively target public finance and public policy to scale up geothermal deployment.



*The Role of Public Finance in Deploying  
Geothermal: Background Paper*

Valerio Micale  
Padraig Oliver  
Fiona Messent


October 2014

*San Giorgio Group  
Report*





**Thank You!**

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