5th Anniversary of the Global Geothermal Development Plan (GGDP)

OBJECTIVES, RESULTS, WAY FORWARD

WORLD BANK GROUP
Energy & Extractives

ESMAP
Energy Sector Management Assistance Program

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April 26, 2018, Iceland Geothermal Conference

Why was the GGDP launched?

Geothermal is good!

- Clean source of power and heat

- Can be lowest-cost option

- Can provide baseload power

- Is not sensitive to weather fluctuations

Why is the growth in global installed capacity so slow and still linear?

- High resource risk

- High cost of exploration drilling

- Long development time

- High transaction cost
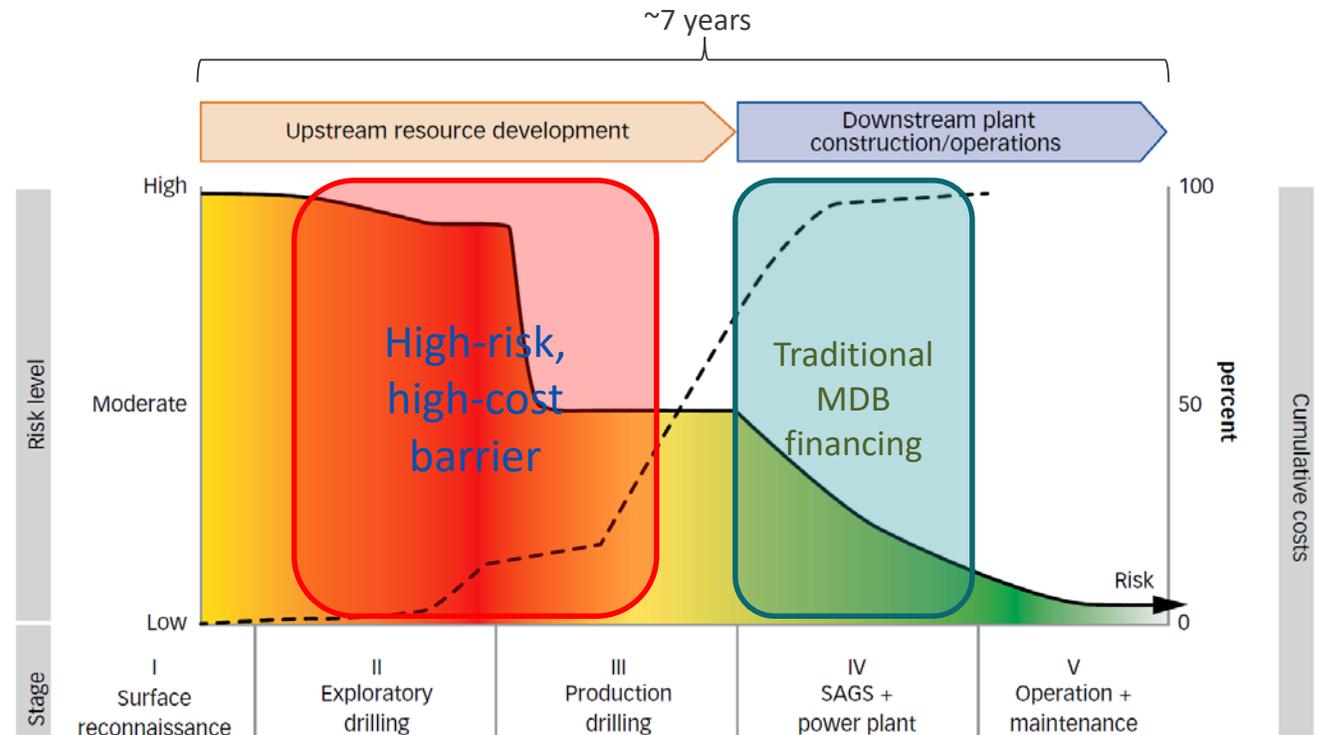
How can International Finance Institutions best support the scale-up of the sector?

- By providing concessional financing for exploration drilling

Key pillars of the GGDP

WORLD BANK HOSTED INITIATIVE FACILITATING SCALE-UP OF GEOTHERMAL INVESTMENTS THROUGH DE-RISKING, IMPROVING ENABLING ENVIRONMENT, AND SHARING BEST PRACTICES

Focus on Upstream Support

- Advocacy and Awareness Raising
  - MDBs
  - IFIs
  - CIF
  - Bilateral donors
- Mobilization of $235M of Concessional Funding from CTF
- ESMAP donor funding to support internal GGDP work at the World Bank

Global Knowledge Work

Dissemination of best practices to facilitate sustainable sector growth

- Global Geothermal Roundtables

Technical Assistance

Grants through ESMAP´s GGDP window to support:

- Preparation of geothermal investment project
- Strengthening of enabling environment in client countries
- Strengthening capacity of implementing agencies
- Assessment of geothermal resources

Collaboration with partners

Iceland, Netherlands, IFC, IGA, UNECE, IT Bandung, EBRD...

GGDP Mobilization of CTF Funding Geothermal

$235 MILLION FROM DEDICATED PRIVATE SECTOR WINDOW - FUNDS MANAGED BY DIFFERENT MDBs

Turkey –
$25 m, EBRD
$40 m, WB

Mexico –
$20 m, IDB

Six E-Caribbean states
$20 m, IDB
Dominica - $10 m, WB
St Lucia - $10 m, WB

Colombia –
$10 m, IDB

Indonesia,
Philippines –
$30 m, ADB

Kenya –
$50 m, AfDB

Chile –
$20 m,
IDB & WB
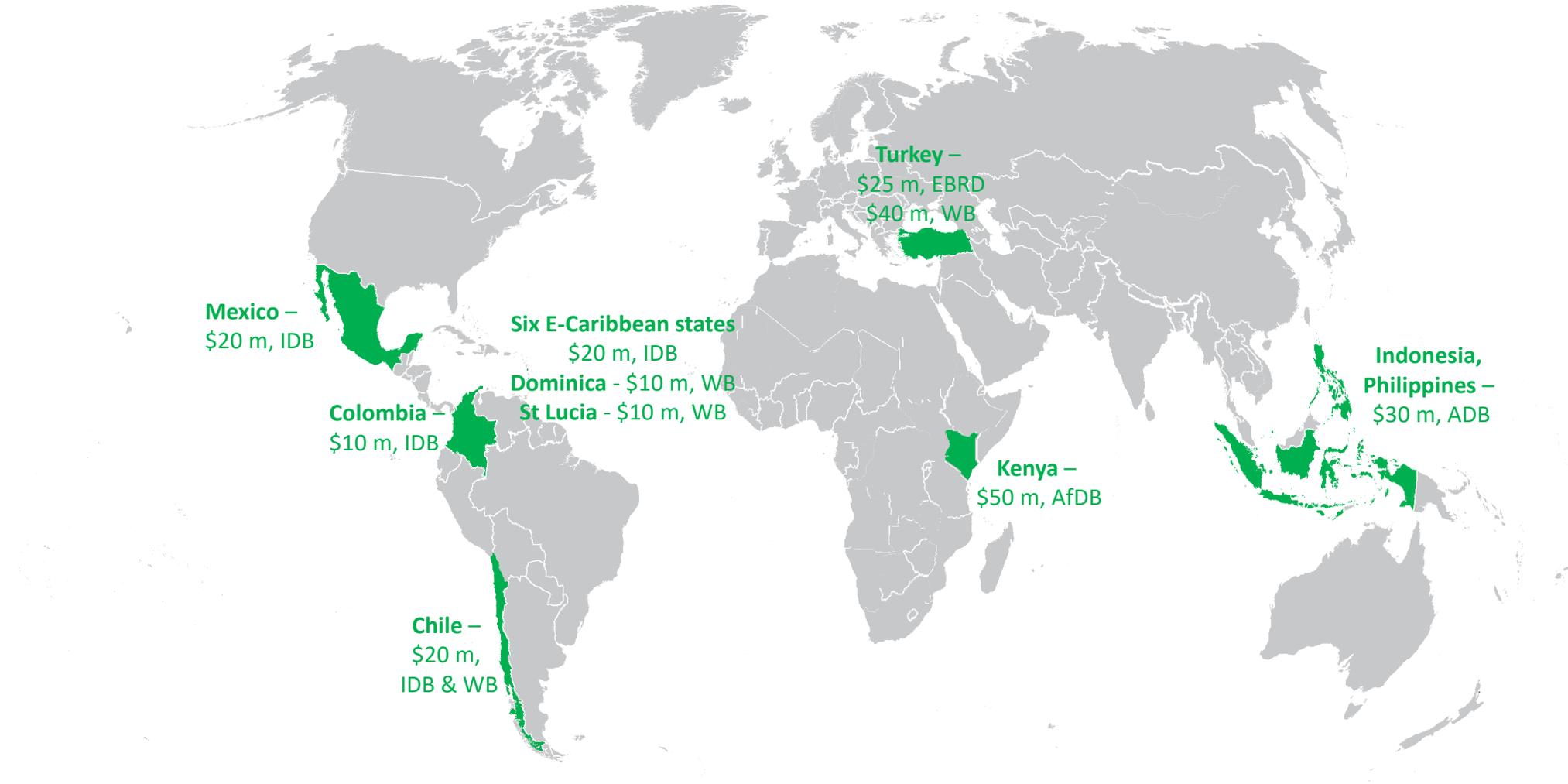
# How has the GGDP moved the needle on support to geothermal?

MDB and CIF Focus Has Shifted Decidedly to Upstream Stages of Geothermal Development

CIF projects and GRMF and GDFLAC

### Cumulative MDB and CIF Financing for Geothermal Energy

Y-axis: 2010 US$ million (0 to 4500)
X-axis: years 1978 to 2017

Legend:
- World Bank (orange)
- Other MDB (grey)
- CIF (yellow)
- Single country and regional support (hatched blue/yellow)
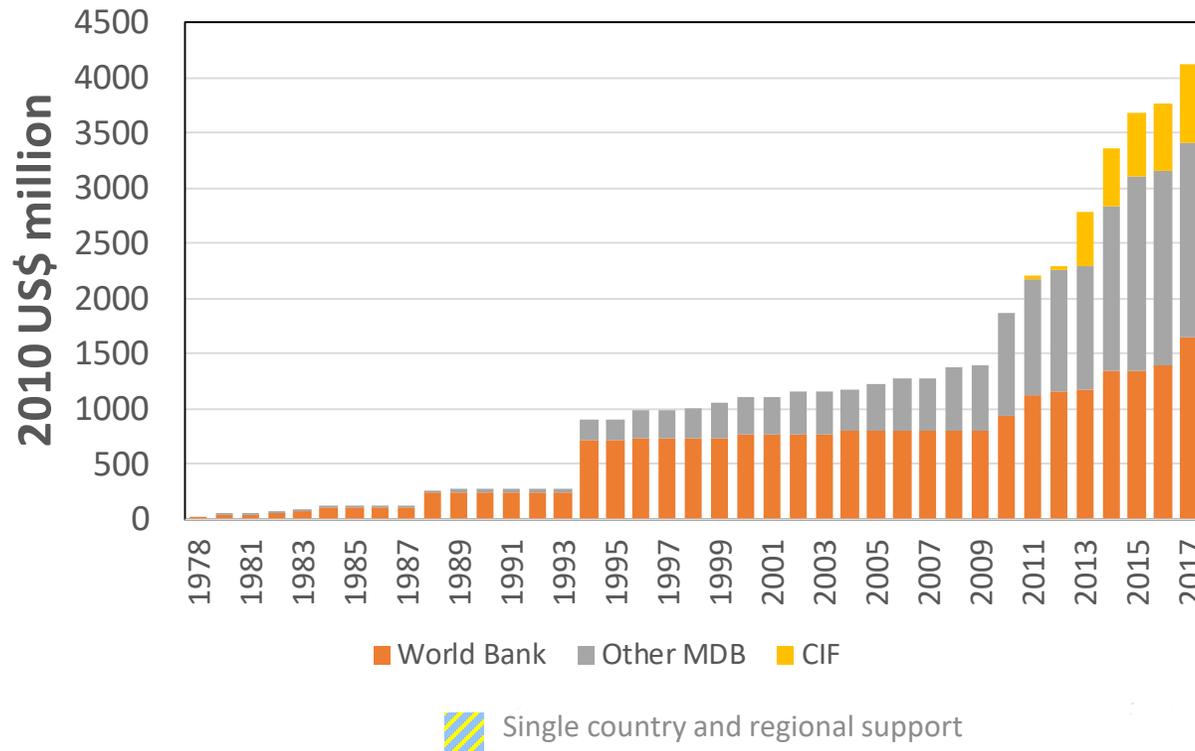
Multilateral Development Banks' Financing of Exploration Drilling and De-Risking versus Downstream Developments over Time

1978 – 2012: 93% (green), 7% (red)

2013 – 2017: 71% (green), 29% (red)
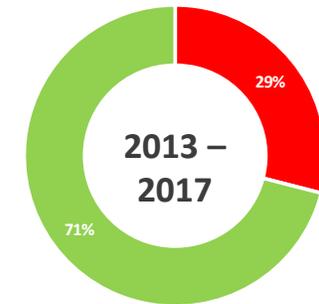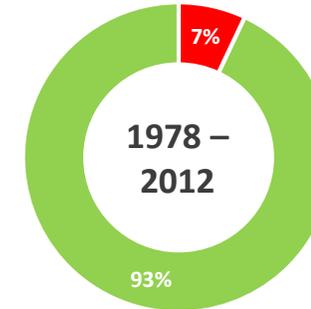
Climate Investment Funds
Active geothermal projects by development stage*

Volume of funding in US$ million — total 701.5
- IV: 25
- II: 104.9
- II & III: 222.3
- II, III & IV: 219.3
- III: 50
- III & IV: 80

Number of projects — total 16
- IV: 1
- II: 5
- II & III: 4
- II, III & IV: 3
- III: 1
- III & IV: 2
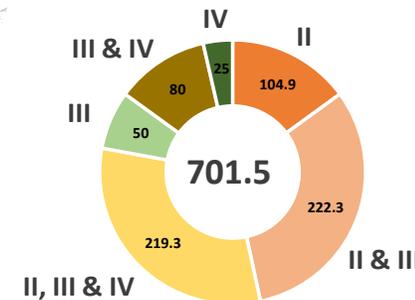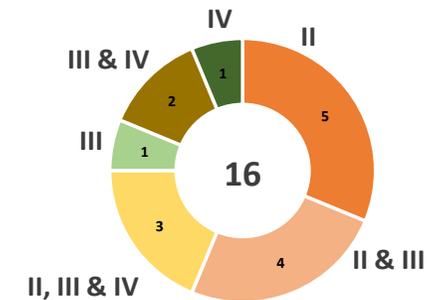
* Geothermal Development Stages:
I: Surface Exploration II: Exploration Drilling; III: Production Drilling; IV SAGS and Power Plant Construction

ESMAP — Energy Sector Management Assistance Program

GGDP Technical Assistance and Project Preparation

ESMAP GRANTS TO COUNTRY TEAMS AND TECHNICAL SUPPORT

Kazakhstan Resource Assessment

Turkey Project Preparation and Implementation

Armenia Project Preparation, Implementation

Mexico Opportunities for Geothermal Development

El Salvador Assessment of Feasibility Studies

Dominica, St Lucia Project preparation

Nicaragua Project Preparation

Djibouti Well Testing

Ethiopia, Uganda Implementation Support

Kenya National Geothermal Strategy

Tanzania Capacity Building for TGDC

Indonesia Project Preparation and Implementation

Chile Sustainable Geothermal Development

Fiji Resource Assessment

ESMAP Energy Sector Management Assistance Program

What Lies Ahead for the GGDP?

How Can We Best Support the Sector? Suggestions?

Focus on Upstream Support

- Upstream Support is now mainstreamed in IFIs' and CIFs' geothermal support
  - *Is there need for concerted funding mobilization?*
- Global assessment of investment-ready projects and upstream geothermal funding landscape planned for FY19

Global Knowledge Work

Pipeline of studies

- Guidance on Gender and Geothermal
- Barriers and Opportunities for Geothermal Development in LAC
- Best Practices for:
  - Exploration Data Management
  - Preparation of Feasibility Studies

Possible Studies

- Barriers and Opportunities for Direct Use of Geothermal
- Best Practices in Structuring Exploration Drilling Contracts
- *Suggestions?*

Technical Assistance

GGDP will continue to support:

- Preparation of geothermal investment project
- Strengthening of enabling environment in client countries

Over the next two years the GGDP will also pilot guidance on

- Gender and Geothermal
- Classification of Resources
- Exploration Data Management
- *Other Suggestions?*

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Thank You.

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Global Geothermal Development Plan

- **Objective:** *to scale up investments in geothermal projects in developing countries*

- Concerted fundraising effort to mobilize **$500 million** of **concessional** financing to support **up-stream development**

- Effort led by **World Bank/ESMAP** – other MDBs can tap into the funds raised

- Dedicated internal World Bank funding window for project support and knowledge work