



CARBON CAPTURE AND STORAGE TRUST FUND

14 years of supporting CCUS development globally

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Overview

Operating since 2009, the CCS Trust Fund will close in 2024

Donors:

- United Kingdom Department for Energy Security and Net Zero
- Norwegian Agency for Development Cooperation

Purpose:

- Assist client governments in assessing their potential for CCUS to aid in meeting climate change mitigation goals
- To build CCUS capacity within client countries

Structure:

- Phase 1 (2009-2014) activities focused on developing a CCUS enabling environment in 9 countries and regions
- Phase 2 (2014-ongoing) activities dive deeper into deployment.
 - Two phase 1 countries (South Africa and Mexico) advanced to Phase 2 for piloting. Nigeria, Timor-Leste, India, and Egypt were later added in response to demand.

Types of support:

- Global knowledge management
- Capacity building
- Technical assistance for pilots preparation
- Funding for pilots
- Market development



Key lessons and achievements

A well advanced program to advance a technology before it was mainstreamed

Lessons learned

1. CCUS legal and regulatory frameworks are absent in most WBG client countries
2. CO₂ storage resource assessments are foundational to developing CCUS activities
 - Supporting such assessments is one way the WB can encourage to roll out CCUS
 - CO₂ storage resources can be a new strategic resource that WB client countries could seek to develop. Timor-Leste is a prime example of this.
3. CCUS capacity is improving globally, but knowledge transfer and targeted capacity development continues to be required

Key achievements by time of closure

1. Legal and regulatory framework scoping and development in four countries – Mexico, Nigeria, Timor-Leste, South Africa
2. Supported detailed CO₂ storage atlas development in South Africa and Nigeria
3. Supported CCUS hub scoping in Egypt and Timor Leste
4. Supported CO₂ storage piloting in South Africa
5. Supported CCUS policy development in India
6. **CCUS has become a recognized and critical climate change mitigation technology**

Looking forward

Carbon management will be required to achieve a livable planet free of poverty

1. Based on the CCUS global project pipeline, by 2030 around 400 Mt of CO₂ could be captured annually. This is about one-quarter of what the IEA projects is needed in 2030.
2. World Economic Forum projects that at least USD 200 B is required to build the CO₂ transport and storage infrastructure need to decarbonize industry by 2050. That does not include CO₂ capture costs
3. Continued industrialization will generate additional emissions from processes and high temperature heat generation unless steps are taken to abate them
 - Countries will need to balance decarbonization against industrialization
 - Carbon management supports continued emissions-abated industrialization
4. Today at least 20 low- and middle-income countries include CCUS either in their NDC or their Long Term Strategy or both
 - The countries will need support to develop carbon management enabling environments and to drive finance to carbon management projects

Technology-based carbon management in NDCs and LTSs

Country	NDC	LTS	WB CCS TF Support
Cambodia		◆	
China	◆	◆	Phase 1
Colombia		◆	
El Salvador	◆		
India		◆	Phase 2
Indonesia		◆	Phase 1
Lesotho	◆		
Malawi	◆		
Mexico		◆	Phase 1 and 2
Mongolia	◆		
Morocco	◆	◆	Phase 1
Nepal		◆	
Nigeria		◆	Phase 2
Pakistan	◆		
South Africa		◆	Phase 1 and 2
Thailand	◆	◆	
Tunisia	◆	◆	Phase 1
Türkiye	◆		
Ukraine		◆	
Viet Nam	◆		

The role of the World Bank

Carbon management is a critical climate solution which can use climate finance instruments

1. The CCS Trust Fund closes next year leaving a gap in direct support to emerging and developing countries
2. Finance cannot flow to carbon management projects if those projects do not have a legal, social, and technical license to operate
3. A new WB to support the deployment of carbon management technologies globally is under discussion
 - Legal, regulatory, and policy frameworks that support and encourage carbon management activities
 - Resource identification and assessment to produce national CO₂ storage atlases
 - Infrastructure planning for CCUS hubs and transport networks
 - Technical knowledge and capacity related carbon management
4. If sufficient funds are raised it will also provide concrete support to pilot and demonstration projects and integrate climate finance mechanisms to support the rollout of large-scale carbon management facilities. The SCALE Trust Fund with its Results-Based Climate Finance could be used as an example

Countries where the WB has ongoing dialog on carbon management

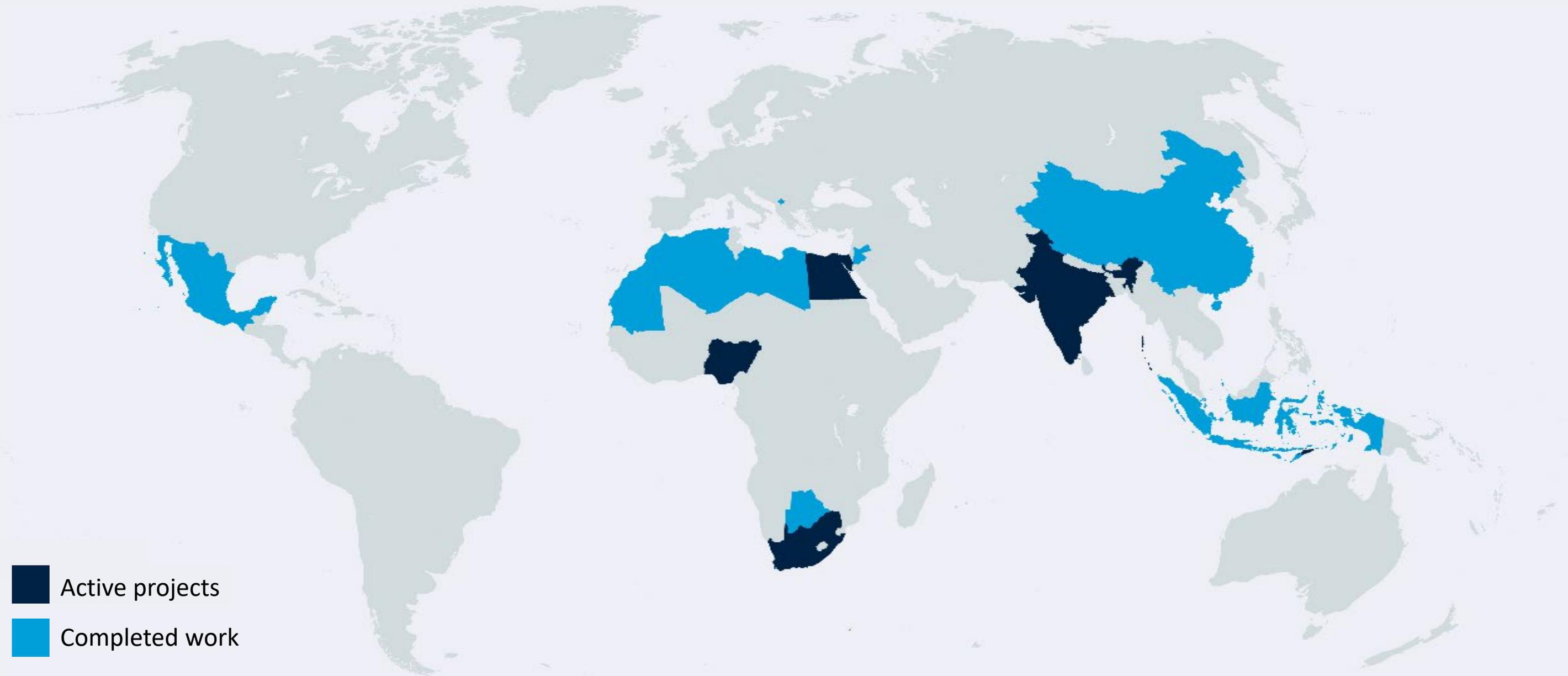
Country	Region	Readiness
Cambodia	East Asia and Pacific	Low
Indonesia	East Asia and Pacific	Medium-high
Laos	East Asia and Pacific	Low
Malaysia	East Asia and Pacific	Medium-high
Papua New Guinea	East Asia and Pacific	Low
Philippines	East Asia and Pacific	Low
Timor-Leste	East Asia and Pacific	Medium
Viet Nam	East Asia and Pacific	Low
Türkiye	Europe and Central Asia	Low
Brazil	Latin America and Caribbean	Medium-high
Colombia	Latin America and Caribbean	Low
Egypt	Middle East and North Africa	Low-medium
India	South Asia	Low-medium
Nigeria	Sub-Saharan Africa	Medium
South Africa	Sub-Saharan Africa	Medium-high

Note: Countries where the CCS TF is currently supporting activities are bolded. Level of readiness is estimated by the WB CCS TF. Low indicates no enabling environment in place, medium indicates some enabling environment in place, high indicates a readiness for piloting and/or commercial-scale activities.

Annex 1: Active projects

CCS Trust Fund Activities

Over its 14 years of activity, the CCS Trust Fund has supported work in 12 countries and regions



■ Active projects
■ Completed work

CASE STUDY: Egypt

Advancing industrial CCS hubs and developing an enabling framework

PHASE I

To assess CCS potential and capacity building in Egypt

Budget: USD 300k

Three tasks:

- Technical and economic assessment of CCS potential
- Analysis of barriers and how to overcome them
- Capacity building

Status: Completed in 2013

PHASE II

Improve understanding of four potential CCUS hubs in Egypt

Budget: USD 750k

Project components:

- Creation of a CCS strategy and action plan
- Assessment of the technical and financial feasibility of industrial CCUS hubs

Status: To be completed in Q4 2023



CASE STUDY: Nigeria

Developing industrial CO₂ Capture Utilization and Storage

SCOPE

Complete a diagnostic and scoping study of industrial CCUS activities in Nigeria

Budget: USD 2.2 million

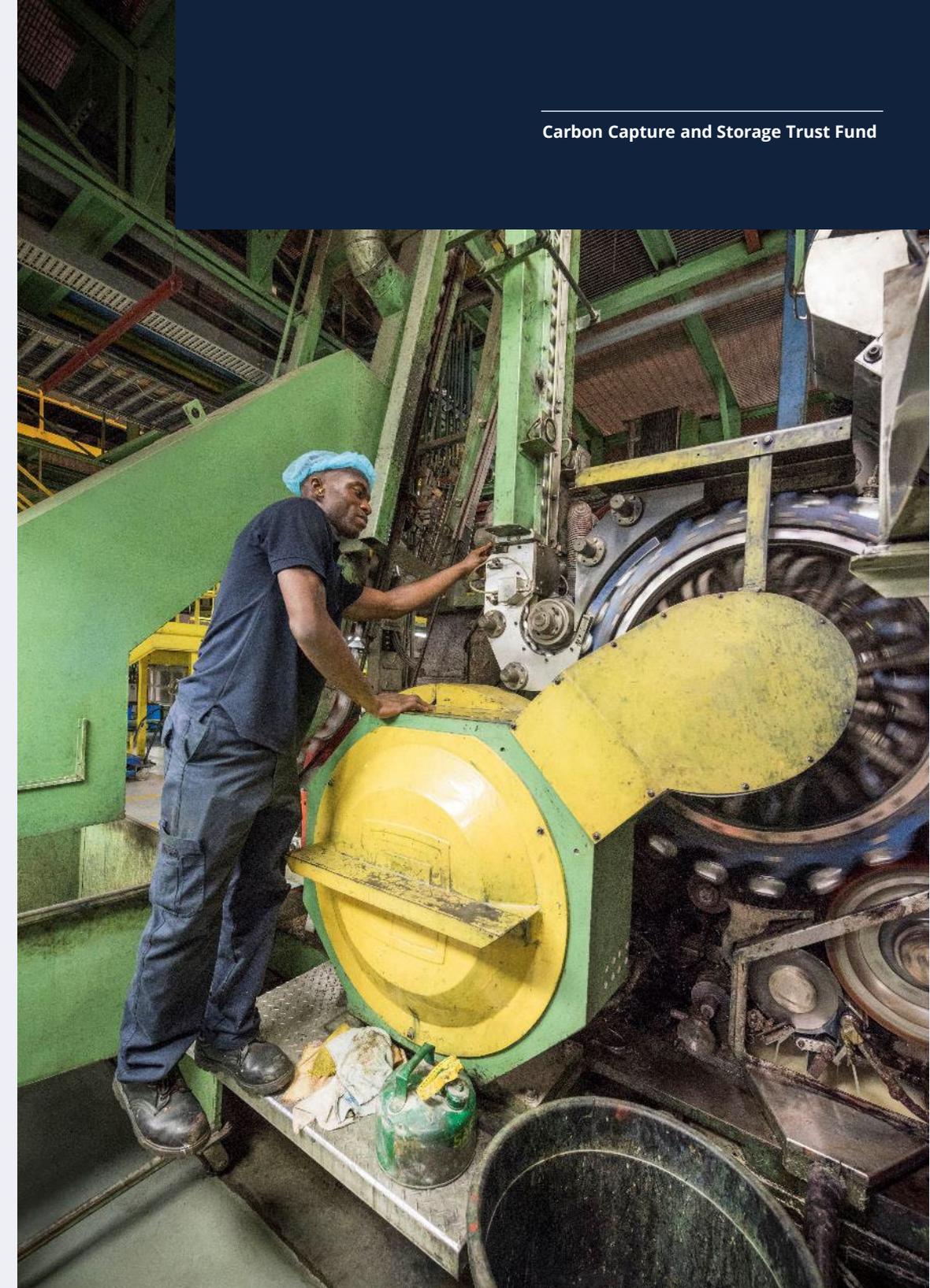
Project components:

- Assessment and mapping of CO₂ sources and CO₂ storage potential
- Screening of industrial CCUS pilot options
- Capacity building workshops
- Legal and regulatory study

Status: To be completed in Q4 2023

“The Federal Government is excited to work with the World Bank Group towards developing and implementing CCUS as part of the country's pathways to accelerate energy transition by 2060”

Office of the Vice President of the Federal Government of Nigeria



CASE STUDY: South Africa

From CCS studies through to CCS pilots

PHASE I

Support the establishment of a CCUS enabling environment

Budget: USD 1.35m

Four studies:

- CCS legal and regulatory
- Techno-economics of CCS
- Stakeholder engagement
- Capacity building

Status: Completed in 2015

PHASE II

Prepare and implement a CCS pilot

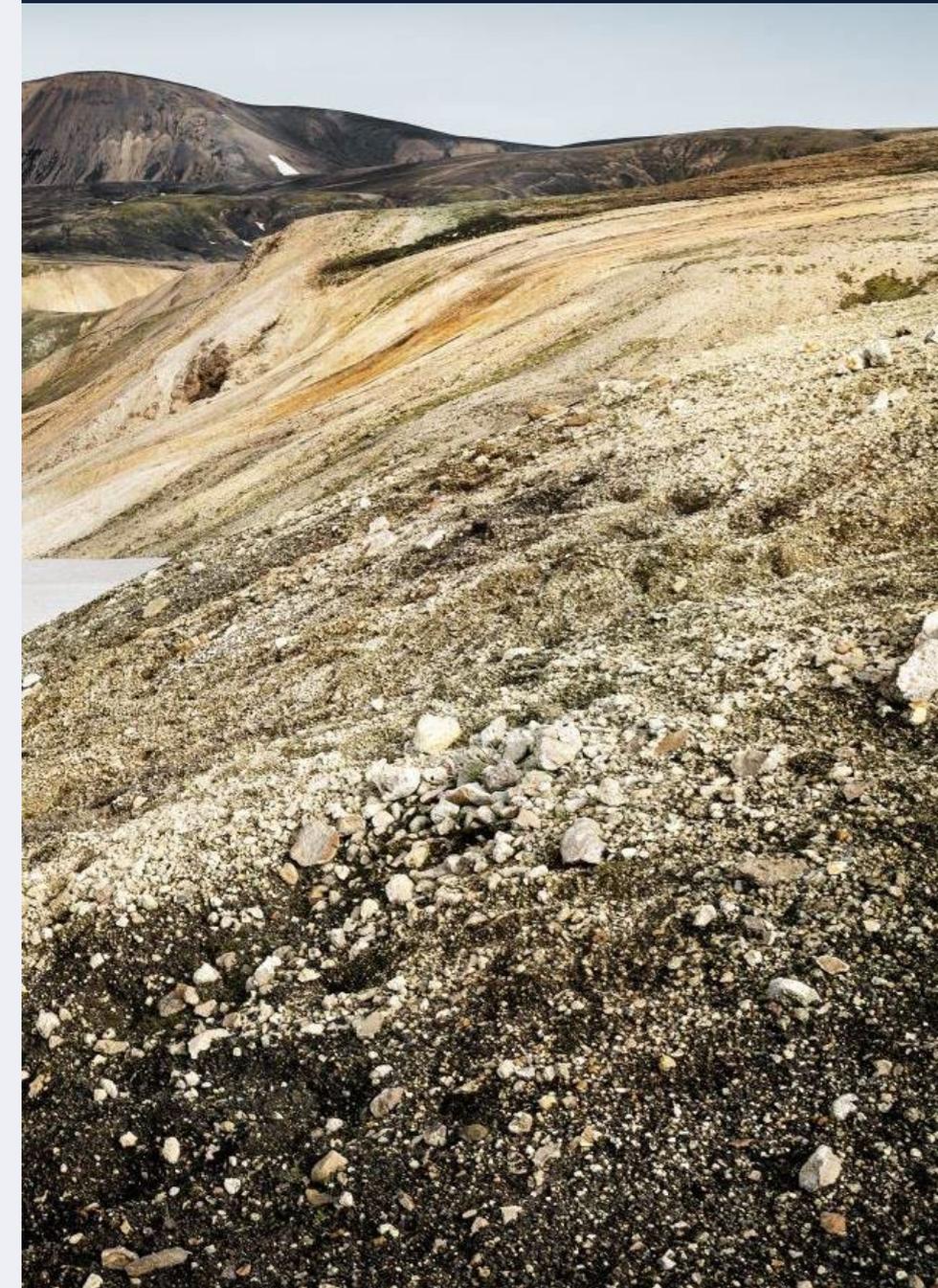
Budget: USD 42.4m

- WBG: USD 27.4m
- Government of SA: USD 15m

Focused on two pilot projects:

- Pilot CO₂ Storage Project – proof of concept for CO₂ storage in South Africa; technical and governance capacity building
- CO₂ Capture Pilot Project – technology assessment and Front-End Engineering and Design (FEED)

Status: Ongoing for completion in 2024



CASE STUDY: Timor-Leste

Supporting the development of CCUS legal and regulatory frameworks

SCOPE

Support the development of legal and regulatory frameworks in order to allow for the implementation of the Bayu-Urdan CCS project

Budget: USD 1.34m

Project components:

- Assess existing legal and regulatory frameworks
- Identify fiscal benefit sharing and local participation
- Support capacity building on CCUS and carbon markets

Status:

- The pre-implementation phase of the project is complete
- The project has submitted its funding request and implementation will start in April 2023
- To be completed in Q4 2023



CASE STUDY: India

Identifying policy gaps and CCUS potential in-country

SCOPE

Support the government in creating a policy framework for CCUS in India

Budget: USD 700k

Project components:

- Identification of global CCUS policies and business models that can be adapted to an Indian context
- Creating an approach to stimulate the development of CCUS hubs and clusters
- Quantification of the role of CCU in India's energy transition

Status:

- Work is ongoing with work to be completed in Q4 2023





THANK YOU.

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