

Sharing experience and stimulating interest in [offshore] CCS in developing countries

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Acknowledgements



Tim Dixon
IEA Greenhouse Gas
R&D Programme



<http://enb.iisd.org/climate/ccwgi/12Aug.html>

Joseph Essandoh-Yeddu
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Carbon Capture &
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South African National Energy
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BUREAU OF
ECONOMIC
GEOLOGY



CTCN

CLIMATE TECHNOLOGY CENTRE & NETWORK

Context-Why is it important?

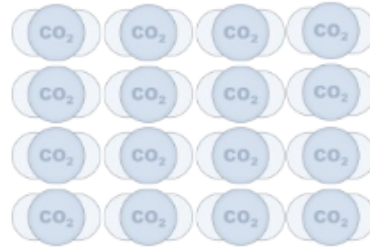
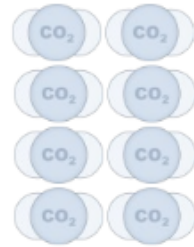
A total of 94Gt captured and stored through 2050 in IEA 2DS

1996-2016:
< 1 Gt
verifiably stored

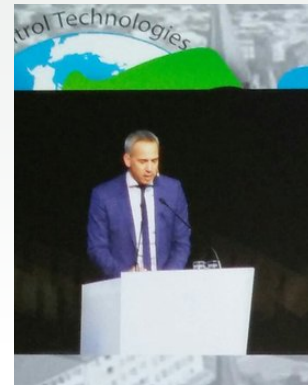
2017-2030:
8 Gt

2031-2040:
28 Gt

2041-2050:
58 Gt

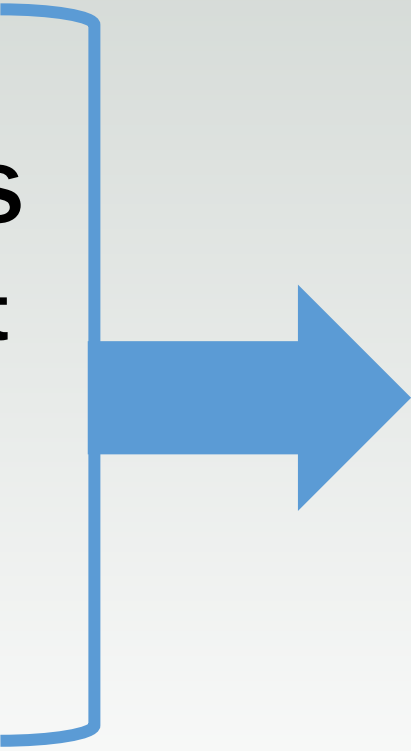


**75% from non-OECD
countries**



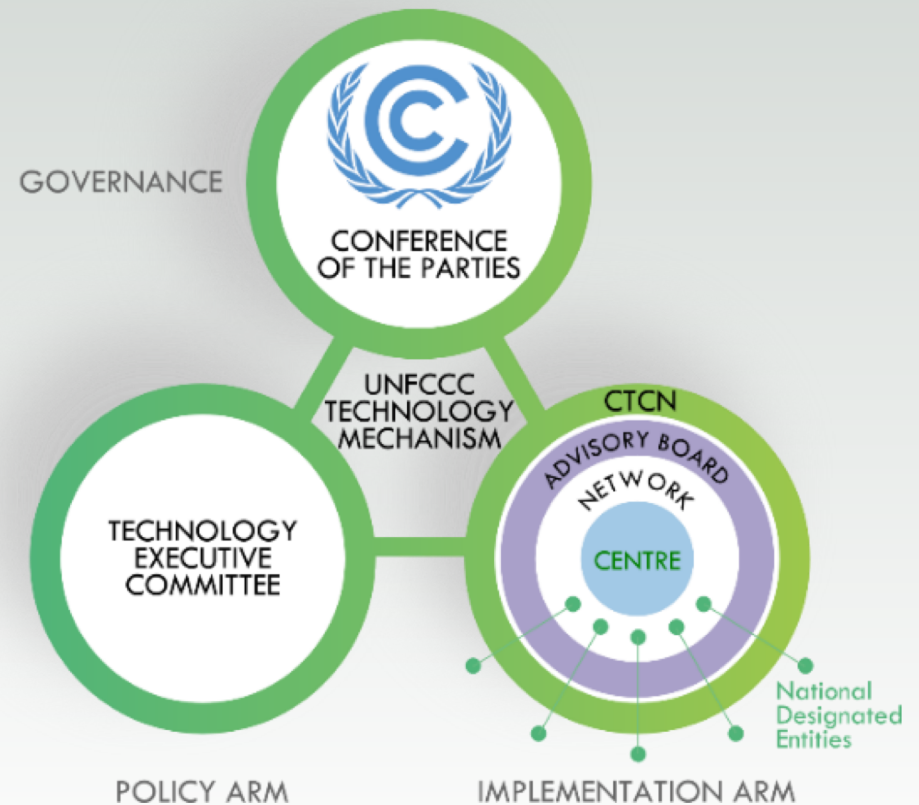
Needed Components

1. Create global awareness of CCS
2. Get countries on the path to CCS
3. Secure financial support for first steps
4. Provide platforms for engagement

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- UNFCCC COPs
 - London Convention
 - Carbon Sequestration Leadership Forum
 - IEAGHG

Climate Technology Centre and Network-CTCN

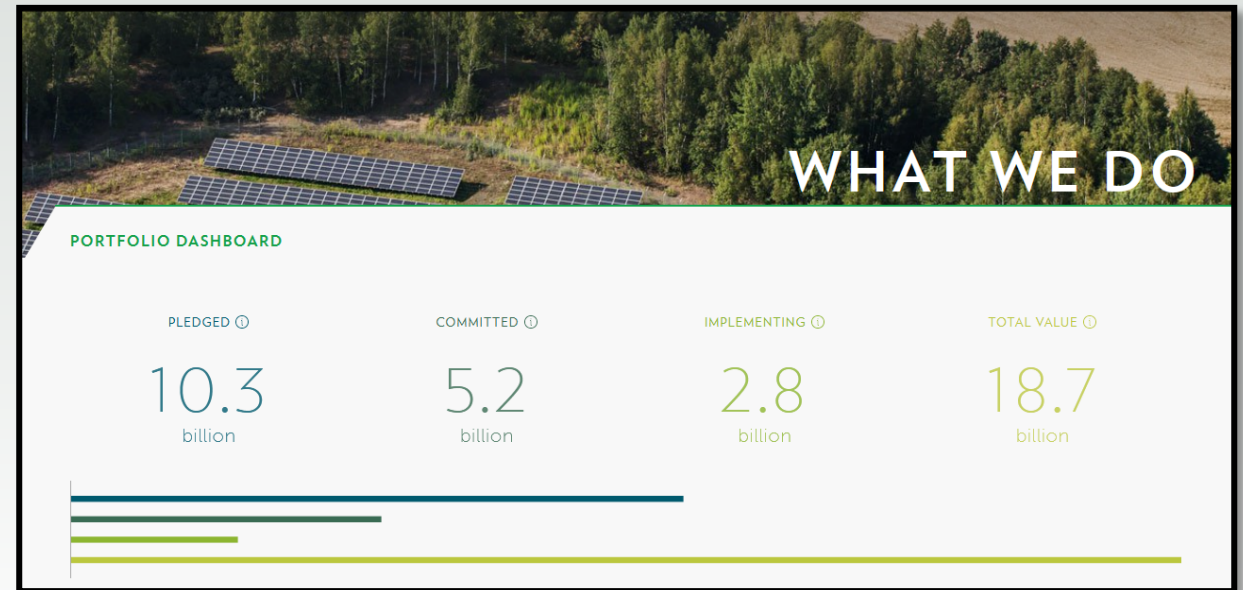
- Operational arm of the UN Technology mechanism
- Build capacity and facilitate projects in developing countries
- Responds to requests from developing countries
- Draws upon a network of institutions skilled in relevant technologies
- Support up to a value of \$250,000 USD



Structure of the UNFCCC Technology mechanism.
Source: <http://unfccc.int/ttclear/support/technology-mechanism.html>

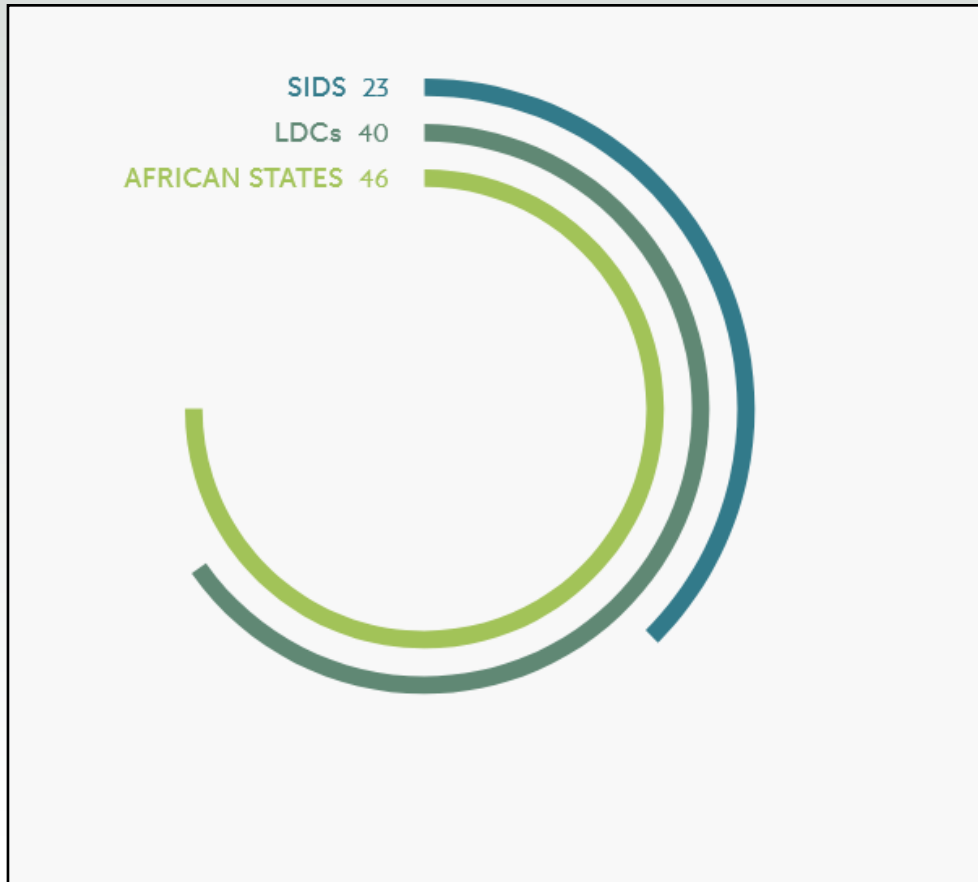
Green Climate Fund

- Established in 2010 under the UNFCCC to direct climate finance to developing countries.
- Goal to create “paradigm shifts” in climate action by utilizing public and private funds
- Equal support to mitigation and adaptation, also cross-cutting.
- \$10.3 billion USD pledged, 5.2 committed,

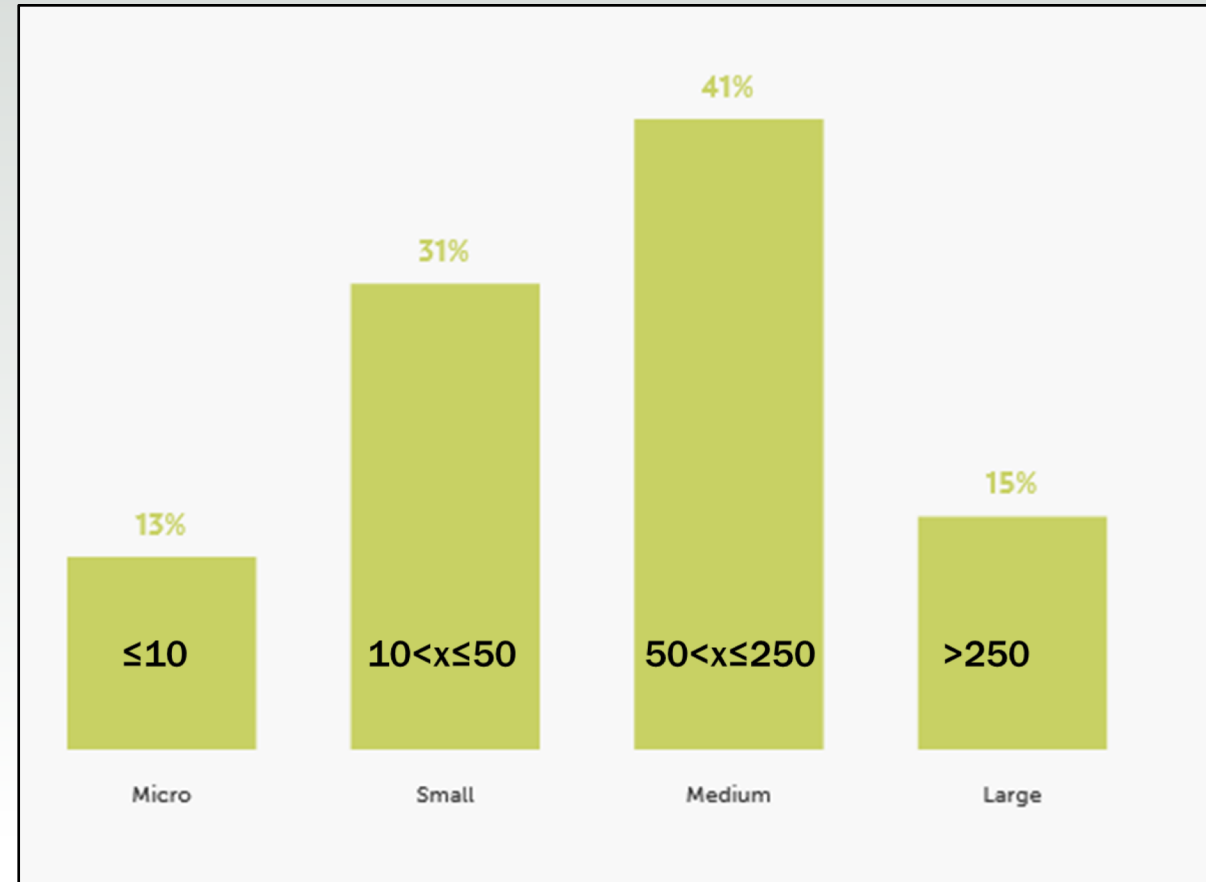


GCF Funded Projects/Programmes

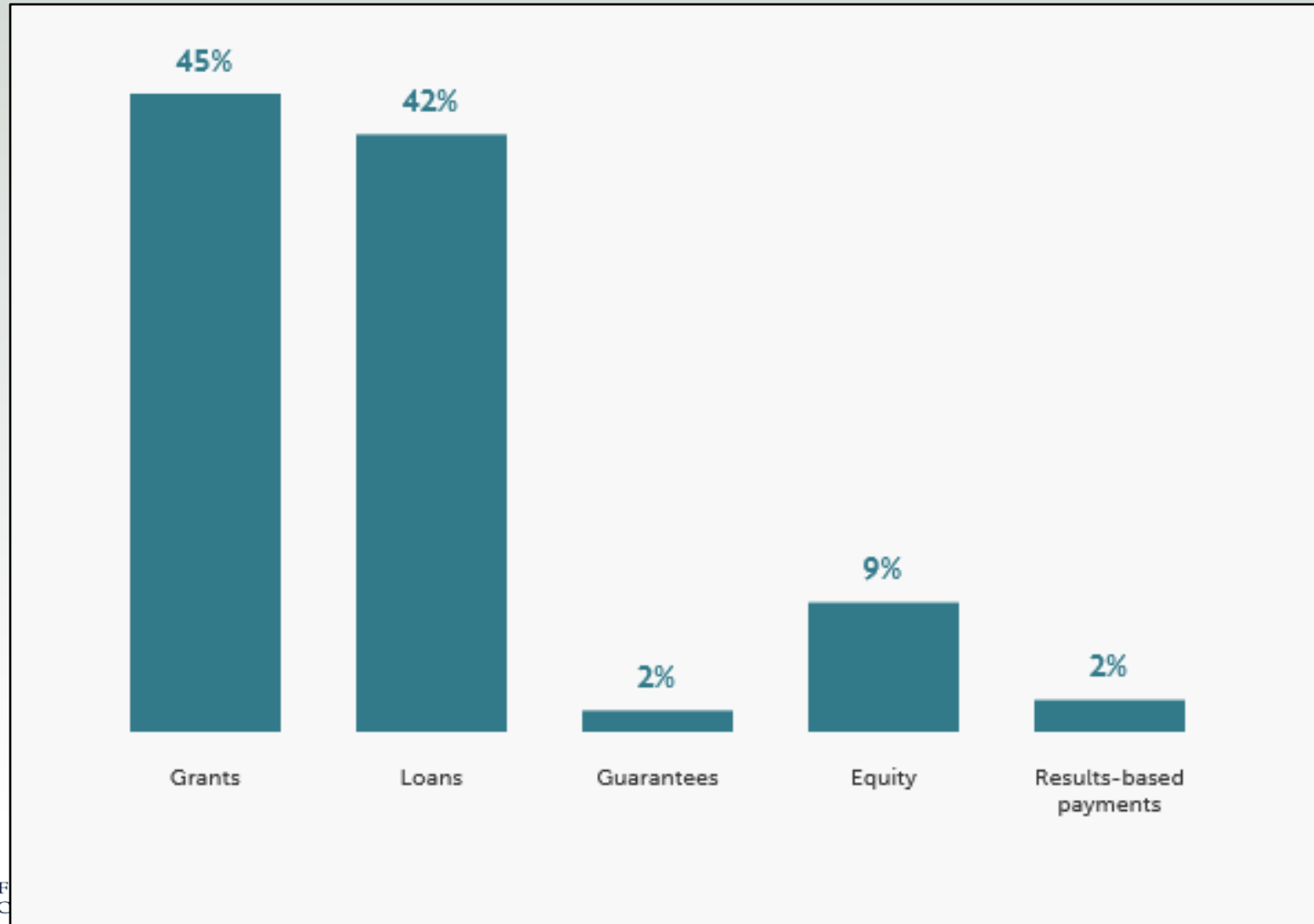
Priority Countries



Project size category (Total investment, million USD)



Financial Instruments



Carbon Sequestration Leadership Forum

– Task Force on Offshore CO₂ Storage

- Ministerial-level international initiative supporting CCS development
- 2014 Task Force to assess barriers to offshore CO₂ storage and define needs
- 7 countries : USA, UK, Australia, Japan, Netherlands, Norway, China
- Task Force report 2015

Significant opportunities exist in offshore storage.

Recommended for international knowledge sharing through workshops and collaborative projects



First International Workshop Offshore CO₂ Storage

- April 2016 in Austin Texas, USA
- Hosted by University of Texas with IEAGHG and SACCCS.
 - Build an community of countries interested in offshore storage.
 - Facilitate countries to identify needs, challenges, and opportunities
 - Identify common goals, and define common action items.

Needed Components

1. Financial support for first steps
2. Platforms for engagement
3. Create global awareness of CCS
4. Get countries on the path to CCS



Communicating Opportunity

- London Convention
- COP 21- Paris 2015
 - Official CCS Side Event- “CCS Achievements and Opportunities for Developing Country Involvement”
 - CTCN on panel



Panel (L-R): **Tim Dixon**, IEAGHG; **Ton Wildenborg**, CO2GeoNet; **Philip Ringrose**, Statoil; **Mike Marsh**, SaskPower; **Katherine Romanak**, University of Texas at Austin; and **Jukka Uosukainen**, CTCN.

Inviting Countries

An Invitation

- Opportunities are available at all levels for “getting on the path” to CCS.
- Explore your potential for geological CO₂ Storage.
- Do a needs assessment survey
- Utilize new funding mechanisms to build your capacity in CCS – e.g. CTCN
- Become involved in the CSLF
- Explore memberships with experienced organizations

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Getting On the Path to CCS

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COP 22 Marrakech Morocco

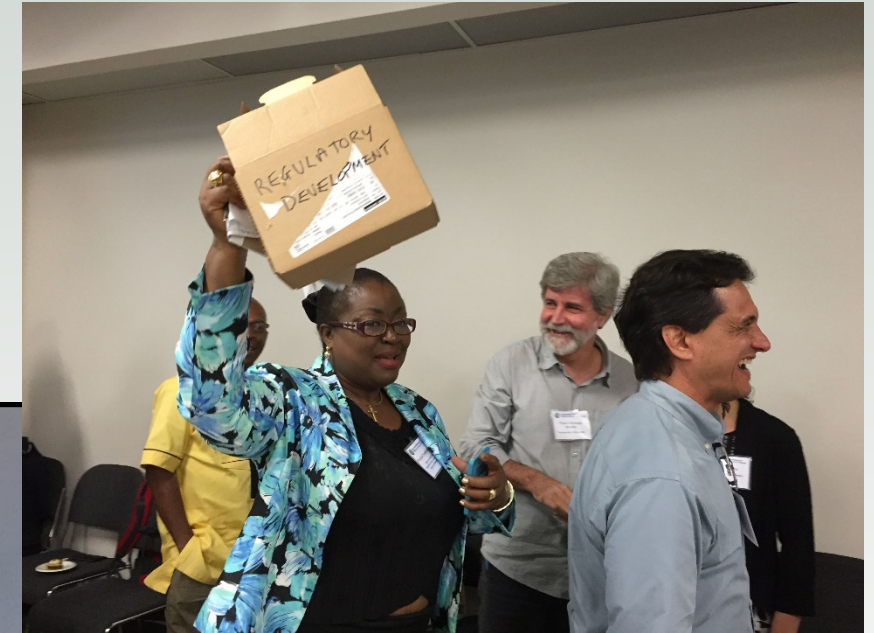
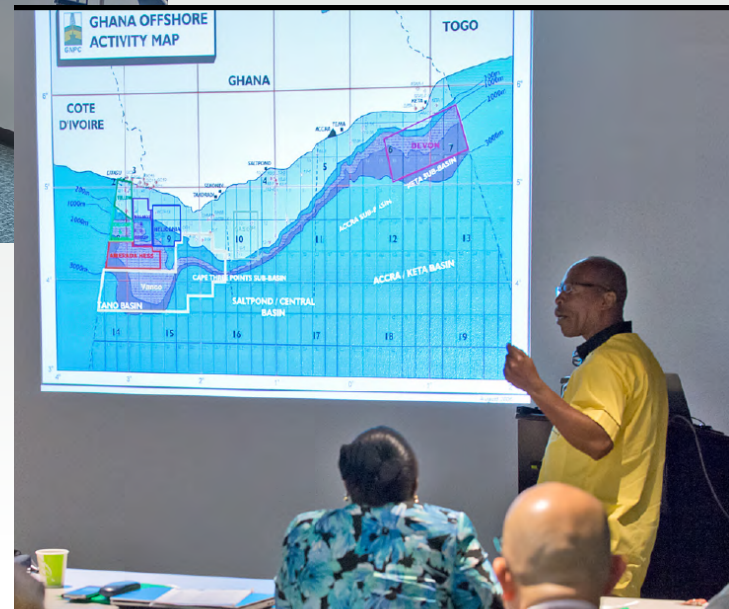


Result: Developing Country Interest

- Interest from several countries
- Nigeria and Ghana the most persistent
- Guidance from The University of Texas and IEAGHG to approach CTCN for funds to attend the offshore workshop
- Successfully received CTCN financial support

This was the first approach of each country to the CTCN, and the first application for use of funds in relation to CCS, set a precedent for UNFCCC Technology mechanisms to be used for CCS technology.

Nigeria and Ghana at Offshore Workshop

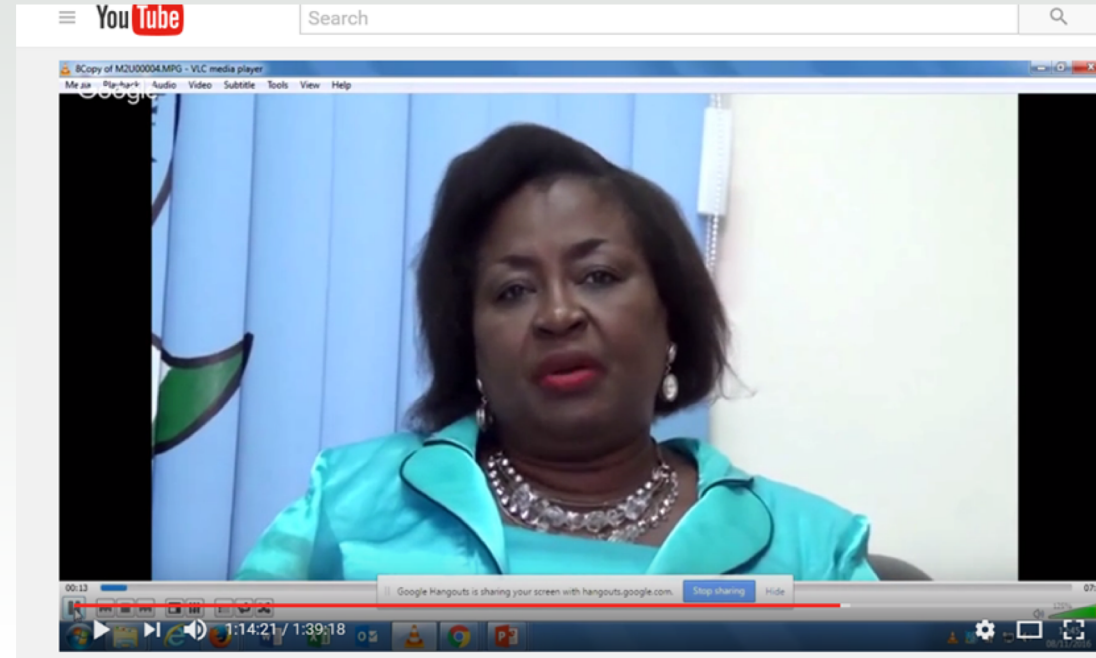


CTCN Mini Workshop

- Ghana
- Nigeria
- Brazil
- Venezuela
- Mexico
- South Africa
- China
- Korea
- Japan



COP-22 Side Event - Marrakech Morocco



Outcomes

- **Nigeria assembled a domestic team to develop an application for technical assistance for CCS in Nigeria**
 - National focal point
 - National geological survey
 - Ministry of Environment.
- **Nigeria prepared a paper for the London Convention meeting in 2016 to share their experiences and recommended the International Maritime Organisation work more closely with the CTCN.**
- **Thus stimulating new cooperation between relevant international bodies**

Outcomes Continued

- Ghana has a great need for providing information public and government
- Ghana and Nigeria to co-organize workshops in the West African sub-region to elaborate economic opportunities
- High priority for direct economic benefits to regional governments
 - enhanced oil and gas recoveries,
 - production of industrial alcohol and
 - agricultural fertilizers

Conclusions and Recommendations

- UNFCCC funding mechanisms, + knowledge-sharing platforms = advancement of CCS technology in developing countries.
- One proponent within a country who is willing can initiate entire national programs
- Provide opportunities as an invitation to countries to explore CCS
- Ensure that activities are available for engagement and learning
- UNFCCC bodies must provide support for CCS technology.
- CCS which is recognized within the UNFCCC as a critical mitigation option, should be supported and explored.



Thank you for your attention

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History of Co-evolving Opportunities

2010 - COP 16
Cancun, Mexico

CCS could be recognized provided certain technical issues resolved

UN Technology Mechanism established to support technology transfer to developing countries.

2011 - Technical Workshop
Abu Dhabi, UAE

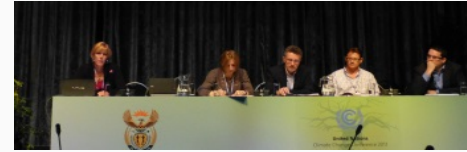
CCS technical issues addressed

UT presents on groundwater protection



2011 - COP 17
Durban, S. Africa

Official UNFCCC Side events to inform policy



CCS recognized as UNFCCC mitigation technology

2014 - COP 20
Lima, Peru

Official UNFCCC Side events

Technical Expert Meetings (TEMS) highlight CCS

UN Technology Mechanism becomes operational - CTCN

CSLF Task Force on Offshore CO₂ Storage