



GLOBAL  
CCS  
INSTITUTE



# CAPACITY DEVELOPMENT ASSESSMENT APPROACH

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# INSTITUTE FOCUS

The Global CCS Institute connects parties around the world to solve problems, address issues and learn from each other to accelerate the deployment of CCS projects.





# WHAT CAPACITY MIGHT NEED TO BE DEVELOPED?

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**General understanding of CCS and its role**

**Regulatory and legal frameworks**

**Technical expertise**

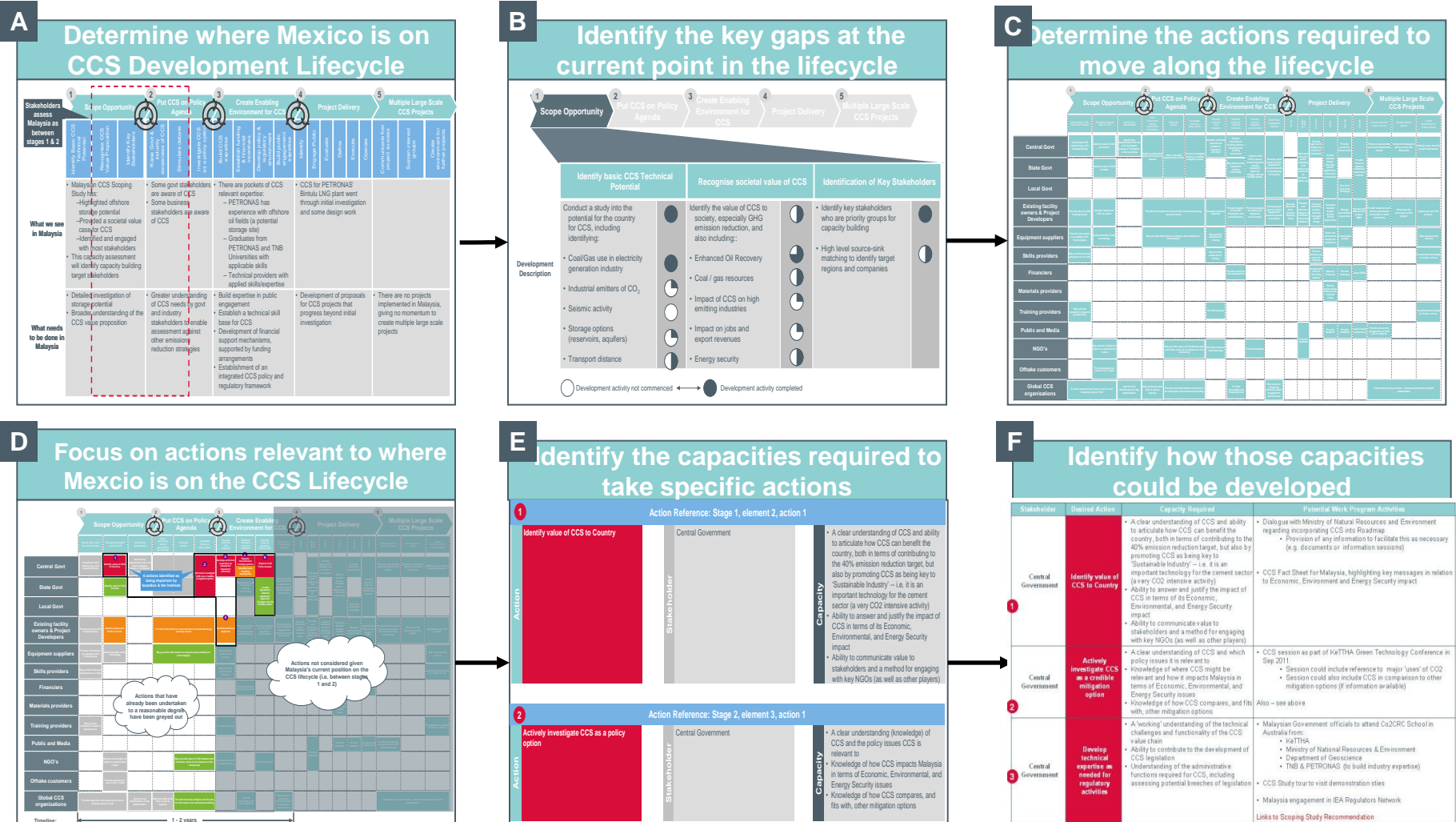
**Financial mechanism**

**Commercial models**

**Building public awareness & engagement**

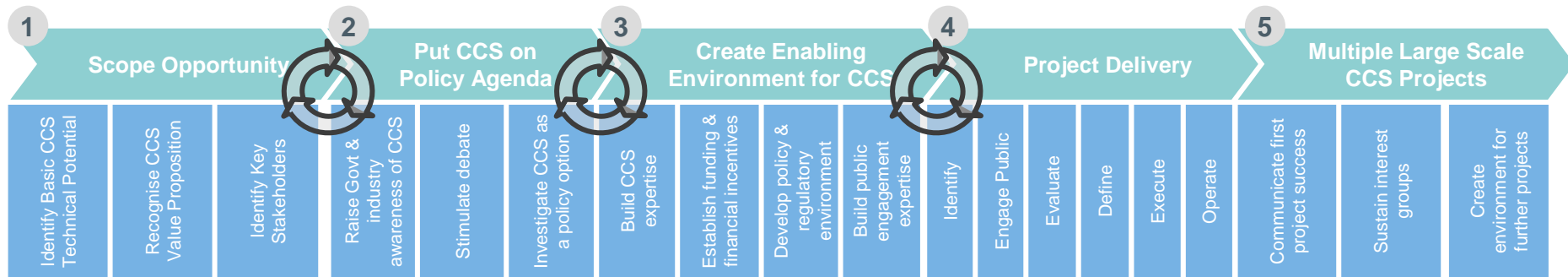


# The capacity assessment process has six steps designed to identify pathways to facilitate CCS



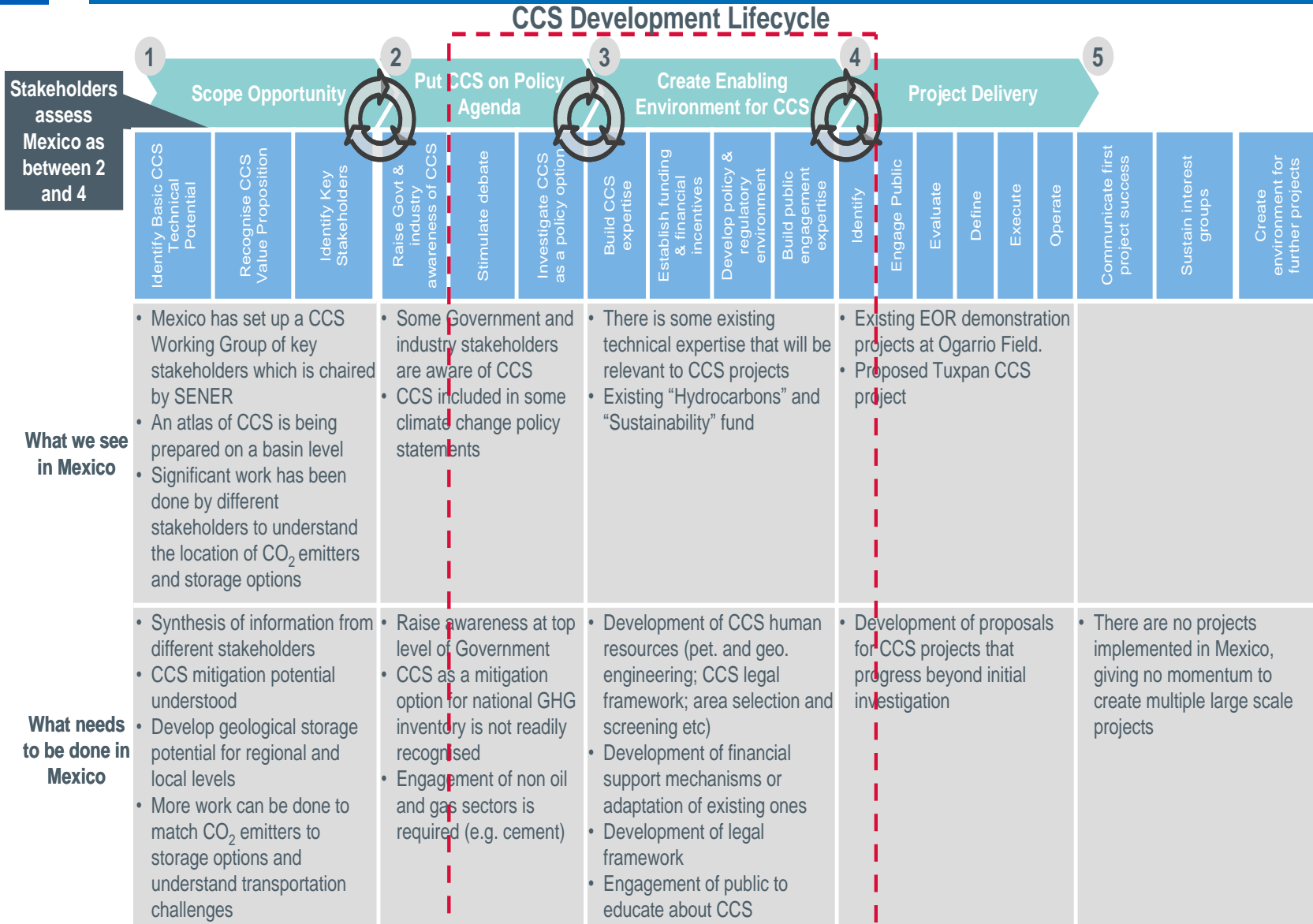


# CCS DEVELOPMENT LIFECYCLE



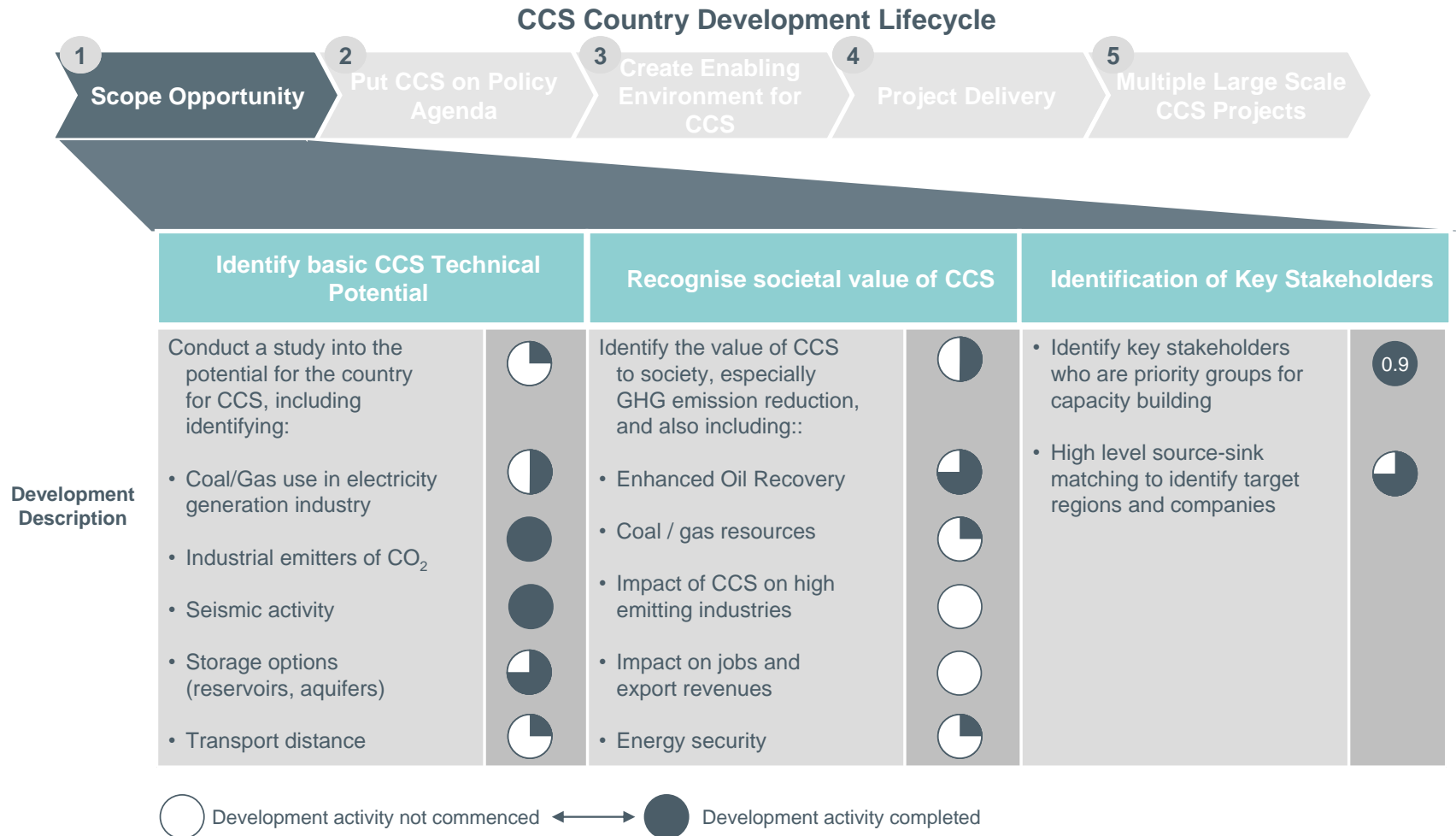


# Stakeholder Assessment





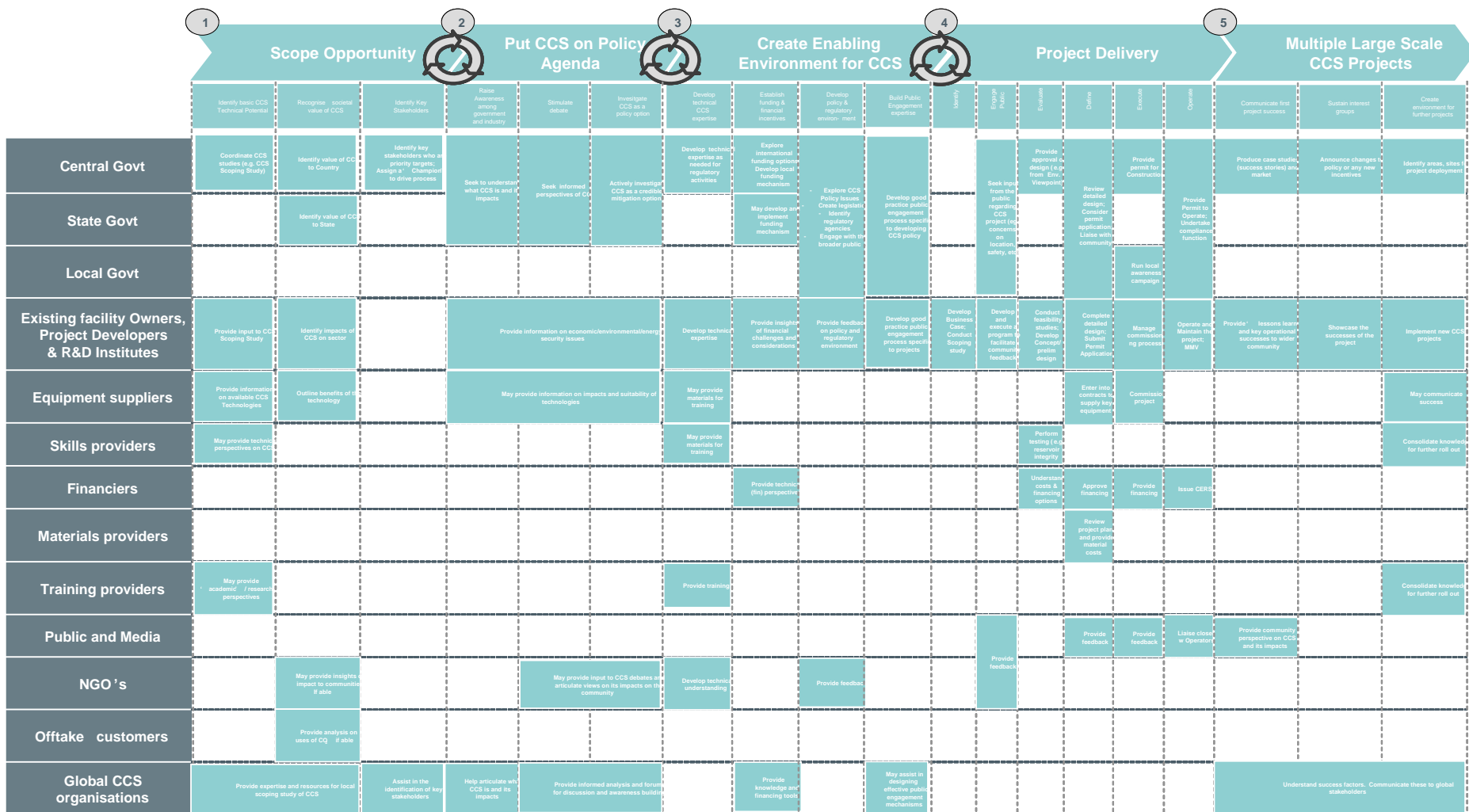
# Work has been done to scope the CCS opportunity in Mexico







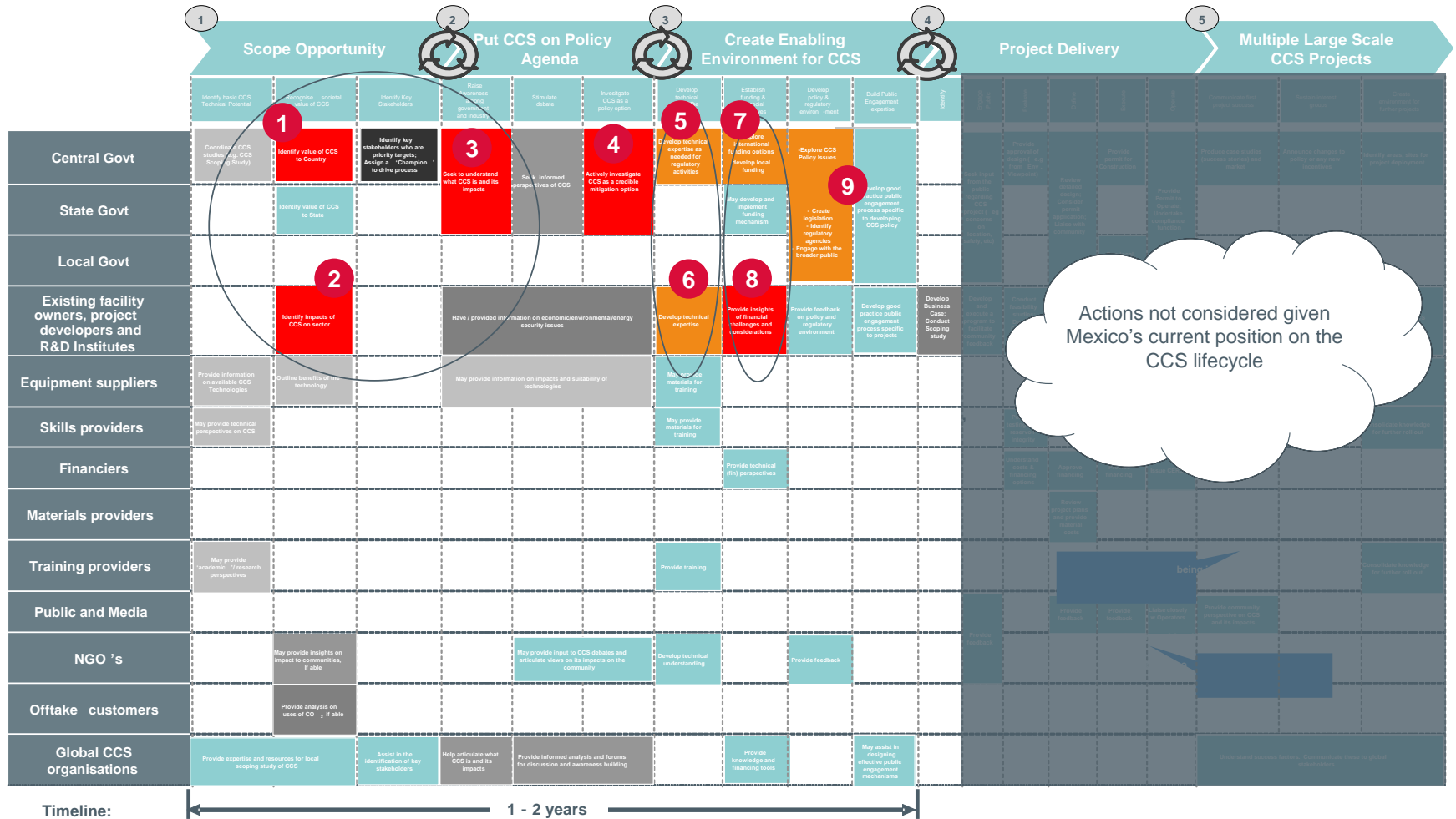
# At each point in the lifecycle these stakeholders can take actions to help accelerate CCS development





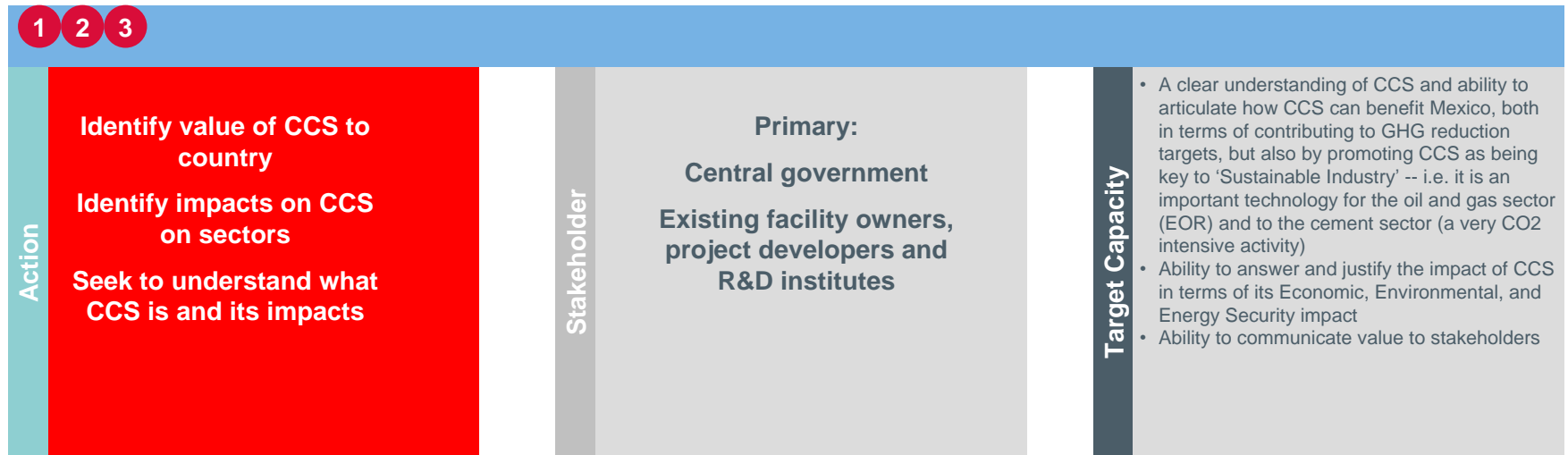


# Prioritised Actions





# Linking Capacities to Actions





# Example of high level 'Action Plan'

## Capacity Development Opportunity Assessment

1 2 3

Stage in CCS Lifecycle	Stage 1 and 2	Activity	Recognise the value of CCS and raise awareness of its potential in Mexico with key decision makers
Action	Identify value of CCS to country Identify impacts of CCS on sectors Seek to understand what CCS is and its impacts	Stakeholder Group:	Central government Existing facility owners, project developers and R&D institutes
Key stakeholders	SENER, SEMARNAT, CFE, PEMEX and Ministry of Finance		
Current capacity	While there are some good examples of work done by different stakeholders in the working group, overall understanding of the value of CCS to Mexico has not been comprehensively analysed. There is a lack of understanding within the senior levels of Government, CFE and PEMEX about CCS. While the establishment of the CCS Working Group is a very positive step, the group currently lacks direction beyond the completion of the CCS Atlas	Target Capacity	<ul style="list-style-type: none"> <li>• A clear understanding of CCS and ability to articulate how CCS can benefit Mexico, both in terms of contributing to GHG reduction targets, but also by promoting CCS as being key to 'Sustainable Industry' -- i.e. it is an important technology for the oil and gas sector (EOR) and to the cement sector (a very CO2 intensive activity)</li> <li>• Ability to answer and justify the impact of CCS in terms of its Economic, Environmental, and Energy Security impact</li> <li>• Ability to communicate value to stakeholders</li> </ul>
Capacity Development Strengths	<ul style="list-style-type: none"> <li>• Commitment of a number of key stakeholders to CCS in Mexico</li> <li>• A lead stakeholder (i.e. SENER) supportive of the initiative</li> <li>• A diverse mix of skills within the CCS Working Group</li> </ul>	Barriers to, and opportunities for capacity development	<ul style="list-style-type: none"> <li>• Not all relevant stakeholders understand what CCS is</li> <li>• There could be more Government support for CCS at a top level - not everyone is convinced it's a good idea</li> <li>• CCS project/s are not considered "country priority" projects</li> <li>• EOR is not always linked with CCS</li> </ul>
Recommendations (objectives)	<ul style="list-style-type: none"> <li>• Develop country level CCS strategy</li> <li>• Half-day briefing with key Govt decision makers and representatives from CFE and PEMEX to educate about CCS; focusing on need for CCS economics, link to EOR, and "CCS 101" (this could be done via a function at the Australian Embassy)</li> </ul>	Resources required	<ul style="list-style-type: none"> <li>• SENER (to project manage)</li> <li>• Global CCS Institute to provide input and engage external support (including an external party to facilitate, advise and manage strategy development tasks / an external party to prepare workshop materials and facilitate workshop)</li> </ul>
Global CCS Institute enabler involvement	Knowledge Sharing and Financial and Commercial: Leverage CCS knowledge products and provide external support to manage and advise on strategy development and workshop preparation and facilitation.		

# WORK PROGRAM ACTIVITY 1

## Capacity Development Opportunity Assessment

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Stage in CCS Lifecycle	Scope Opportunity	Activity	Develop National Strategy on CCUS
Action	Identify value of CCS to Mexico	Primary Stakeholder Group	Central Government
Key stakeholders	<ul style="list-style-type: none"> <li>Secretariat of Energy (SENER)</li> <li>CCS Working Group member organisations</li> <li>Global CCS Institute (the Institute)</li> <li>Key Government decision makers (e.g. Energy Minister)</li> </ul>		
Current capacity	<ul style="list-style-type: none"> <li>Some knowledge among some government officials on CCS</li> <li>Some knowledge of Mexico's physical and economic ability to adopt CCS and CCUS as a mitigation technology</li> </ul>	Target Capacity	<ul style="list-style-type: none"> <li>A clear understanding of the benefits CCS can offer in reaching Mexico's energy goals, and it's link to climate change goals</li> <li>Ability to identify the impact of CCS in terms of its Economic, Environmental, and Energy Security</li> <li>Clear CCS plan or high level 'roadmap' to guide all key stakeholders, ensure unified goals</li> </ul>
Capacity Development Strengths	<ul style="list-style-type: none"> <li>SENER and CCS Working Group have identified a CCS National Strategy as a priority</li> <li>A diverse mix of skills and expertise within government agencies</li> <li>The importance of energy security and climate change has been identified within government</li> </ul>	Outcomes	<ul style="list-style-type: none"> <li>National CCS Strategy approved by Mexican Secretary of Energy</li> <li>Clearly identified recommendations and next steps</li> </ul>
Actions	<ul style="list-style-type: none"> <li>Develop strategy terms of reference, including strategy timelines for stakeholder meetings, draft, reviews etc</li> <li>Engage relevant contractor/organisation to undertake work</li> <li>Stakeholder meetings with Mexican CCS Working Group</li> <li>Supporting workshops on: Legal and Regulatory, EOR</li> <li>Draft report and review process</li> </ul>	Resources required	<ul style="list-style-type: none"> <li>Staff time of key stakeholders</li> <li>Meeting logistics e.g. location, agenda, invites, travel etc</li> <li>Input into strategy as required</li> <li>Funding for consultant to prepare strategy</li> </ul>
Timing	<ul style="list-style-type: none"> <li>January - November 2012</li> </ul>		



# WORK PROGRAM: MALAYSIA

March 2009	One and a half-day introductory CCS workshop for government and industry stakeholders.
2010 - Finalised Jan 2011	In partnership with the Ministry of Energy, Green Technology and Water and Clinton Climate Initiative developed a Malaysia CCS Scoping Study identifying the potential for CCS in Malaysia.
July 2011	In partnership with Malaysian stakeholders undertook a capacity assessment as well as developed and finalised a capacity development work program of nine key activities.
September 2011	Co-hosted with Ministry of Energy, Green Technology and Water a CCS session at Malaysia's Green Technology Exhibition and Conference.
July 2012	Provided advice regarding potential CCS research networks and collaborations
July 2012	In partnership with CO2CRC and Ministry of Energy, Green Technology and Water facilitate the introduction of a CCS subject in key Malaysian universities.
August 2012	Institute sponsorship for one Malaysian stakeholder to attend the 34th International Geological Congress and the Carbon Sequestration Workshop.
July 2010 & Sep 2011	Institute scholarships for five Malaysian representatives to attend the CO2CRC CCS School.
3-6 Feb 2013	SPE Applied Technology Workshop, "Carbon Control and Storage - Emphasis on Offshore Carbonate Reservoirs" – co-chaired by Global CCS Institute, Penang, Malaysia
April 2013	Malaysian Study Tour for 12 Malaysian delegates to visit Australian CCS projects
March 2013	Legal and Regulatory Workshop
August 2013	Second CCS Short Course as part of 'train-the—trainer' initiative Professors given opportunity to give 'practice' presentation and receive peer-review by CO2CRC Professors



# WORK PROGRAM: MEXICO

Sep 2011	Undertook a CCS Capacity Development Assessment in partnership with Secretariat of Energy and the Mexican CCUS Working Group.
October 2011	Development of a CCS Capacity Development Work Program.
Jan - Mar 2012	Advice on the development of a National CCS Strategy Terms of Reference.
March 2012	Presented at the International Energy Agency (IEA) and Secretariat of Energy CCS workshop.
August 2012	Institute sponsorships for three Mexican stakeholders to attend the 34 <sup>th</sup> International Geological Congress and the Carbon Sequestration Workshop.
June 2012	Provide high-level advice on development of basin level storage study.
June 2012	Presented at Asia Pacific Economic Cooperation (APEC) workshop on storage.
Sep 2012	University capacity development program agreed with 'Academic Council of the Earth Sciences Schools for the Implementation of Topics of Geological CO <sub>2</sub> Storage' facilitating the introduction of CCS curriculum.
11-15 Feb 2013	Delivery of a week-long CCS technical course aimed at University Professors, lecturers and graduate students.
Aug - Nov 13	Series of 3, 1 hour long storage webinars as part of program with 'Academic Council' on the following topics:
April 2013	Sub-Licence Agreement signed between Institute and two Mexican Universities for provision of educational materials to facilitate the teaching of a CCS course, as part of 'Academic Council' program.



# Resources

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## **Resources**

- Regional Profile
- Time
  - Partners and Stakeholders
  - Logistical and administrative arrangements
  - Travel for 1 week
  - Late nights
  - 1 week to refine
  - Seek feedback
  - Implementation of specific activities
- Cost
  - Travel (biggest cost)





# The Way Forward

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- “strengthen the knowledge, abilities, skills and behaviour of individuals, groups, organisations and governments” so that they are better readily to take advantage of the benefits of CCS when the right conditions arise
- Iterative Process
- The Global CCS Institute is willing to facilitate a capacity development assessment process using this methodology

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