



GLOBAL
CCS
INSTITUTE



Developing capacity for carbon capture and storage

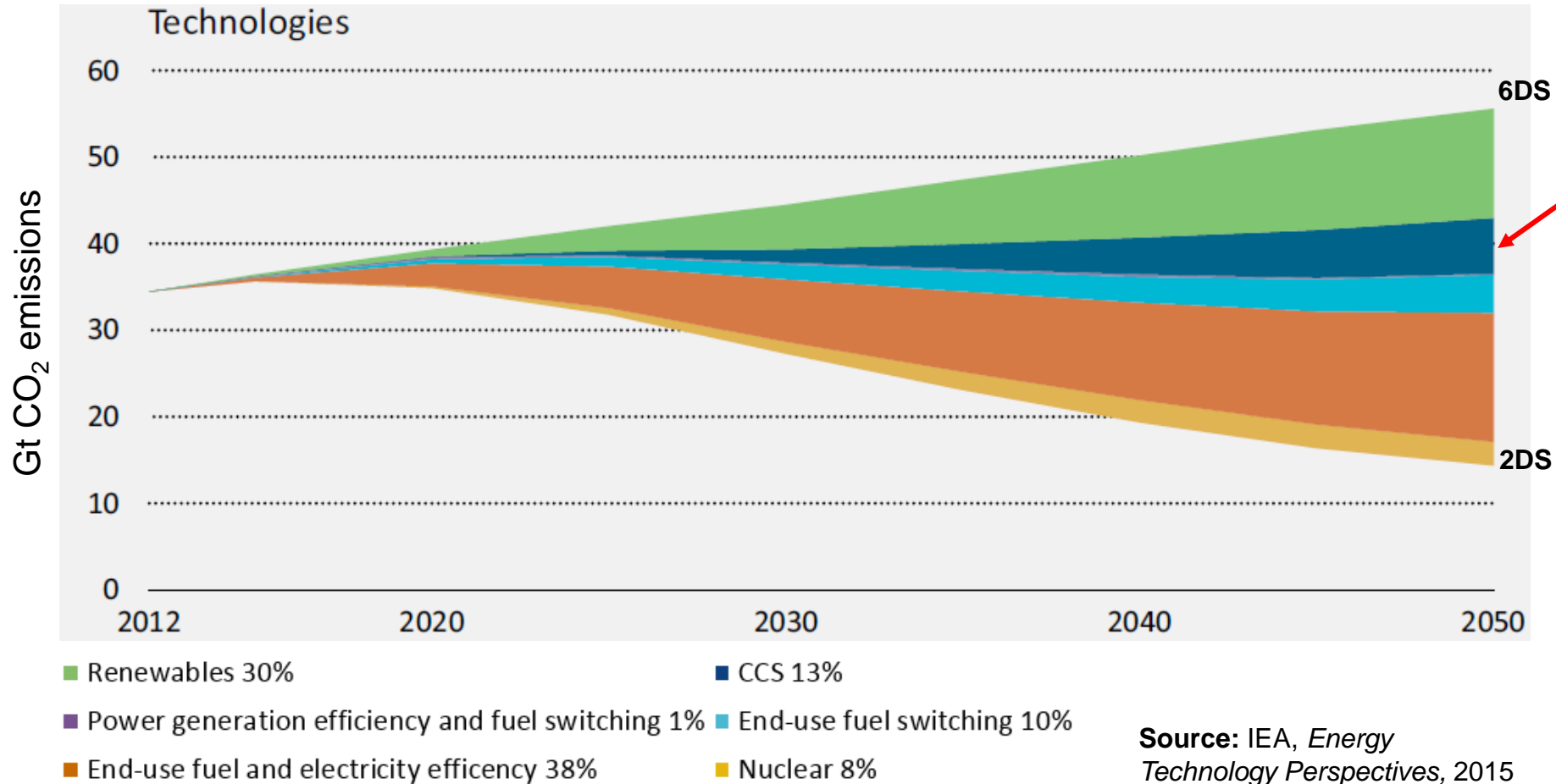
Alice Gibson – Global CCS Institute

ADB Clean Energy Forum

19 June 2015



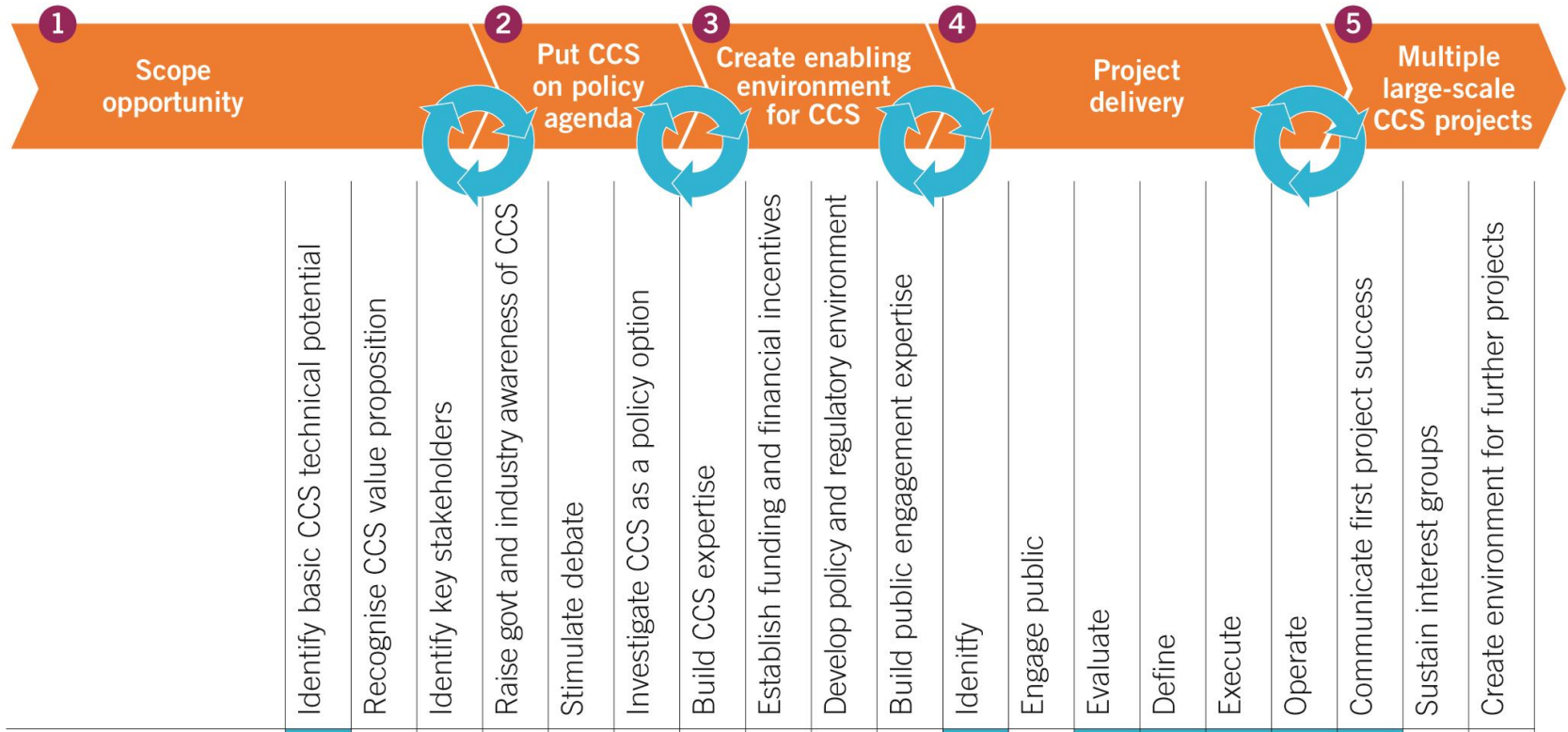
CCS is a vital element of a low-carbon energy future



CCS will need to account for 13% of global emissions reductions on a least-cost basis



CCS Development Lifecycle

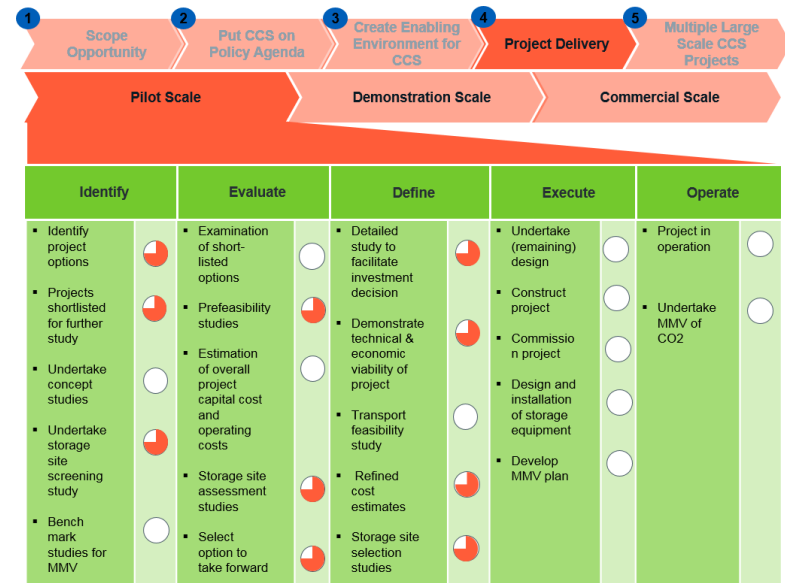
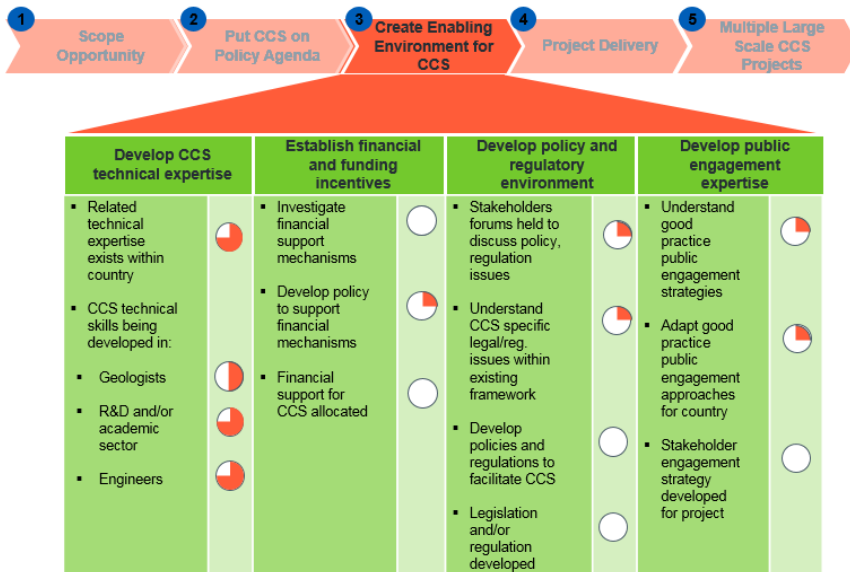
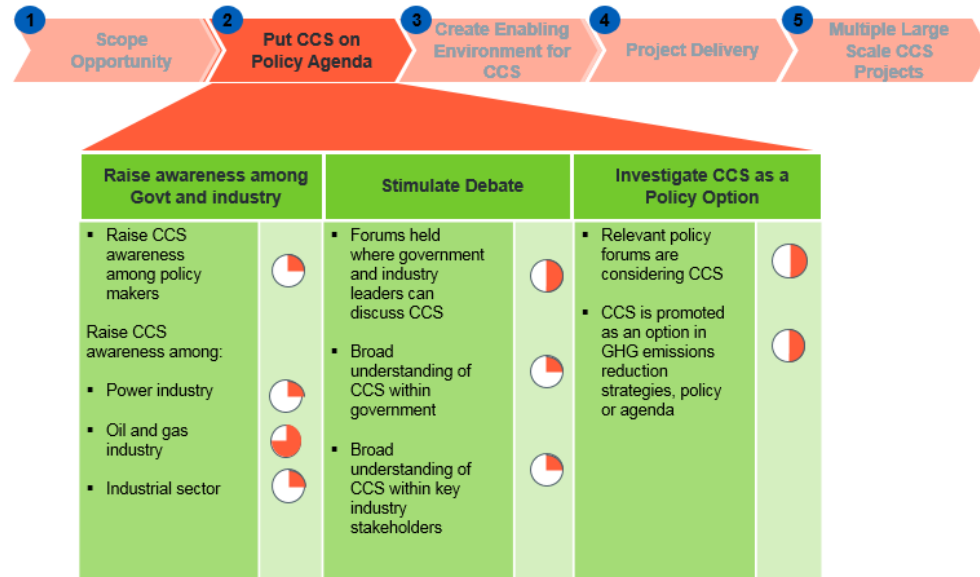
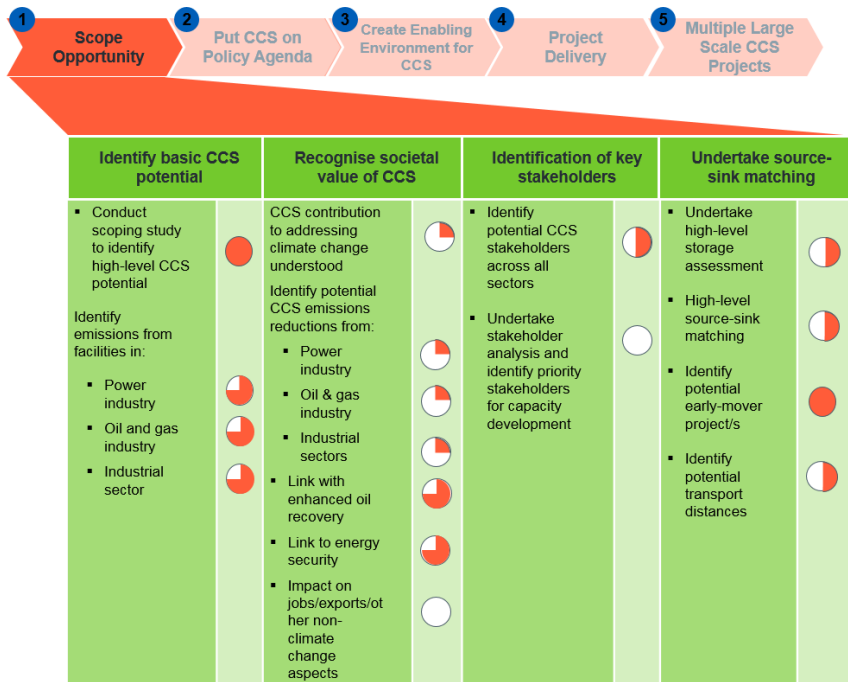




Stage 3 - Create an Enabling Environment



Develop CCS technical expertise		Establish financial and funding incentives		Develop policy and regulatory environment		Develop public engagement expertise	
<ul style="list-style-type: none">Related technical expertise exists within country		<ul style="list-style-type: none">Investigate financial support mechanisms		<ul style="list-style-type: none">Stakeholders forums held to discuss policy, regulation issues		<ul style="list-style-type: none">Understand good practice public engagement strategies	
<ul style="list-style-type: none">CCS technical skills being developed in:		<ul style="list-style-type: none">Develop policy to support financial mechanisms		<ul style="list-style-type: none">Understand CCS specific legal/reg. issues within existing framework		<ul style="list-style-type: none">Adapt good practice public engagement approaches for country	
<ul style="list-style-type: none">Geologists		<ul style="list-style-type: none">Financial support for CCS allocated		<ul style="list-style-type: none">Develop policies and regulations to facilitate CCS		<ul style="list-style-type: none">Stakeholder engagement strategy developed for project	
<ul style="list-style-type: none">R&D and/or academic sector				<ul style="list-style-type: none">Legislation and/or regulation developed			
<ul style="list-style-type: none">Engineers							





Indonesia CCS Workshop – opportunities identified

- Gundih Pilot Project
 - Encourages learning-by-doing
- Undertake further stakeholder analysis
 - To target capacity development to most relevant people
- ‘What is CCS’ Sector Forums
 - To educate government policymakers and industry decision makers
- Seek to have CCS included in Indonesia’s Nationally Appropriate Mitigation Actions
 - To help funding opportunities
- Progress legal and regulatory development
- CCS Public Engagement Workshop on Good Practices
 - To help adapt good practice public engagement approaches for Indonesia
- Gundih Project Public Engagement Strategy
 - Apply public engagement strategies to Gundih project
- Education Program
 - Invite students learn about CO₂, climate change and low-carbon technologies
- International Project Study Tour
 - Facilitate ‘learning-by-looking’



A process - not a prescription

Tailoring capacity development to a specific country is a process of:

- Helping relevant stakeholders understand the issues around a specific area:
 - Technical
 - Legal and regulatory
 - Policy and financial incentives
 - Public engagement
- Sharing examples from other jurisdictions
- In-country stakeholders and international experts together identify what would work in-country



Malaysia - developing academic and technical expertise



CONNECT Home Business Units Browse

Malaysian University Carbon Capture and Storage Extranet

Overview Content People Calendar Actions About

ABOUT THIS GROUP

WELCOME

Welcome to the **Malaysian University Carbon Capture and Storage (CCS) Extranet**. The main purpose of this extranet is provide you with educational materials so you can teach a CCS subject at your University. This includes PowerPoint presentations and suggested exam and assignment topics.

A key part of the Global CCS Institute's ongoing support is to answer any questions you may have on the content of the PowerPoint presentations, or talk through any aspects of CCS, so you feel fully equipped to deliver the CCS subject confidently. We encourage you to post your questions in the discussion group on this extranet and we will answer them as soon as possible – drawing on CCS expertise from the Institute and/or the CO2CRC. We also encourage you to discuss issues among yourselves using the discussion feature of this extranet.

If you have any technical questions regarding this extranet site, please contact the Institute's Knowledge Management Officer - Kylie Martin (kylie.martin@globalccsinstitute.com).

If you have any other questions regarding any aspect of this CCS university initiative, please contact the Institute's Capacity Development Manager, Alice Gibson (alice.gibson@globalccsinstitute.com).

RECENT CONTENT

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 - Topic 6: Learning and best practice on stakeholder communication and engagement** by Kylie Martin 7 months ago
 - Topic 6: Health, Safety and Risk Assessment in CCS** by Kylie Martin 7 months ago

More

ACTIONS

- Start a discussion
- Write a document
- Upload a file
- Create a status update
- Create by email
- Invite people to join this group
- Create an event
- Create a video

APP ACTIONS

- Connect email distribution list
- Connect other systems

CATEGORIES

- 1: Climate
- 1.1: Global Status of CCS
- 2: Storage
- 3: Capture and Transport
- 4: Economics
- 5: Economic Opportunities
- 6: Community, regulatory, health and safety and risk
- Administration & Suggested Topics

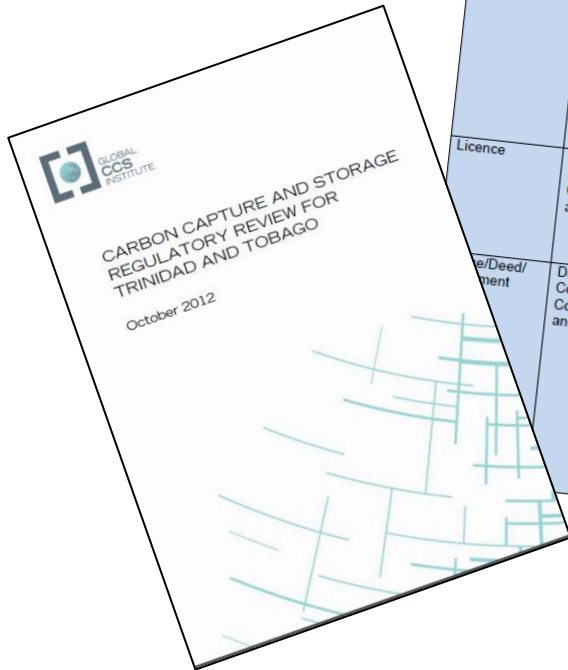
CCS 101 graduate course in:

1. University of PETRONAS
2. National University of Malaysia
3. University of Technology Malaysia
4. Universiti of Tenaga Nasional



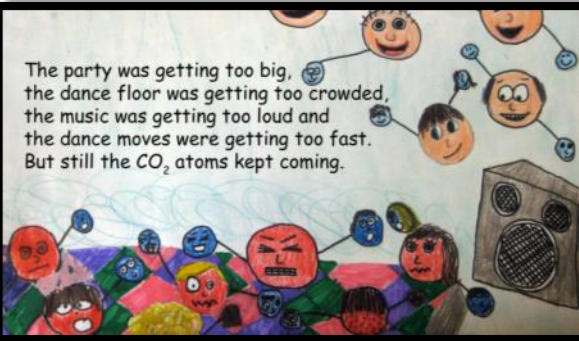
Trinidad & Tobago - legal and regulatory development

Permit	Area covered	Legal provisions	Competent authority	Timeline	Work needed to complete submission	Potential legislative amendment	Comment
Approval	Design and Construction - Construction and Planning	Regulation 43(b), Petroleum Regulations 1971	Ministry of Energy	3-6 months	Energy Based Facilities; Role of the Certified Verification Agent in Approval Regime; verification scheme for offshore structures; verification scheme for pipeline systems; verification scheme for hydrocarbon production and processing facilities.		
Approval	Design and Construction - Construction and Planning	Regulation 92, Petroleum Regulations 1971	Ministry of Energy	3-6 months	Require approval from the Ministry of Energy for any intended new built energy based facility and associated infrastructure		
Licence	Design and Construction - Construction and Planning	Pipelines Act (Chap 35:51): s 4	Chief Technical Officer/ Chief Executive Officer of Municipal Corporation/ Commissioner of State Lands or relevant Minister	3 months	Require approval from the Ministry of Energy for any intended modification to an existing energy based facility and associated performance expectations	Amendment of Pipelines Act to include transport of CO ₂	
Licence	Design and Construction - Construction and Planning	Continental Shelf Act (Chap 1:52): s 3(1) - (3)	Minister with responsibility for external affairs/ Port Authority of Trinidad and Tobago	30-45 days	Application for licence from Minister to carry out activities (other than those related to petroleum in a submarine area) with respect to the seabed and subsoil and their natural resources; Consent of Port Authority to the carrying out works on any part of the seashore if obstruction or danger to navigation is likely to result.		
Permit/Deed/Agreement	Design and Construction - Construction and Planning	Land Acquisition Act (Chap 58:01): s3 (1) - (5)	Commissioner of State Lands	90 days	Status and Title searches are carried out to determine if desired land falls under state or private ownership. If the land is state owned, it can be reserved for the particular purpose but if private, it needs to be acquired. Acquisition of private lands for public purpose requires notice of acquisition of lands signed by the Secretary to the Cabinet to be published in the Gazette, daily the lands to be acquired. Where no objections or representations are made, surveys to be conducted by Commissioner of State of Lands and to investigate whether lands are fit for the intended purpose. President may formally vest the lands in the State on resolution by Parliament or may by Order allow Commissioner of State lands to enter into possession.		This process and timeframe can vary significantly depending on the location of the state lands to be acquired and whether information is already held by Commissioner of State Lands on the relevant parcels of land.





Australia – Education

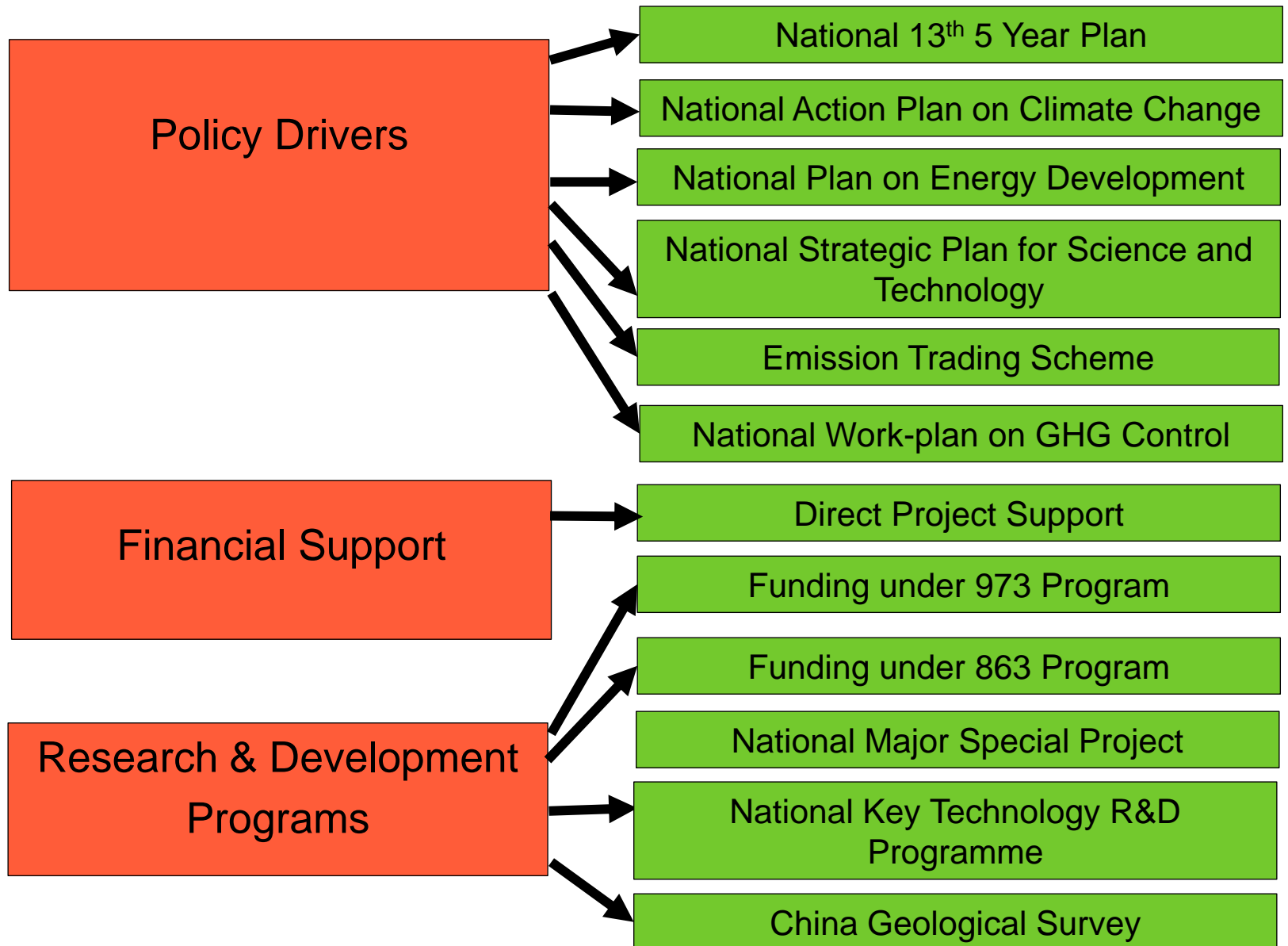


- CSIRO led climate change and sustainability education program for Primary and Junior High School
- Active in over 255 Australian schools
- Partnered with the Institute to include the 'Introduction to CCS' into program
- 1 year program included:
 - Teacher development sessions
 - Classroom resources
 - Climate Change and CCS Workshops with CSIRO Scientists and Institute staff
 - Hands-on science experiment kit - 11 kitchen cupboard experiments
 - Interschool Challenge events





China - domestic CCS support





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