THE POTENTIAL OF CARBON CAPTURE AND STORAGE AND UTILISATION IN TRINIDAD AND TOBAGO

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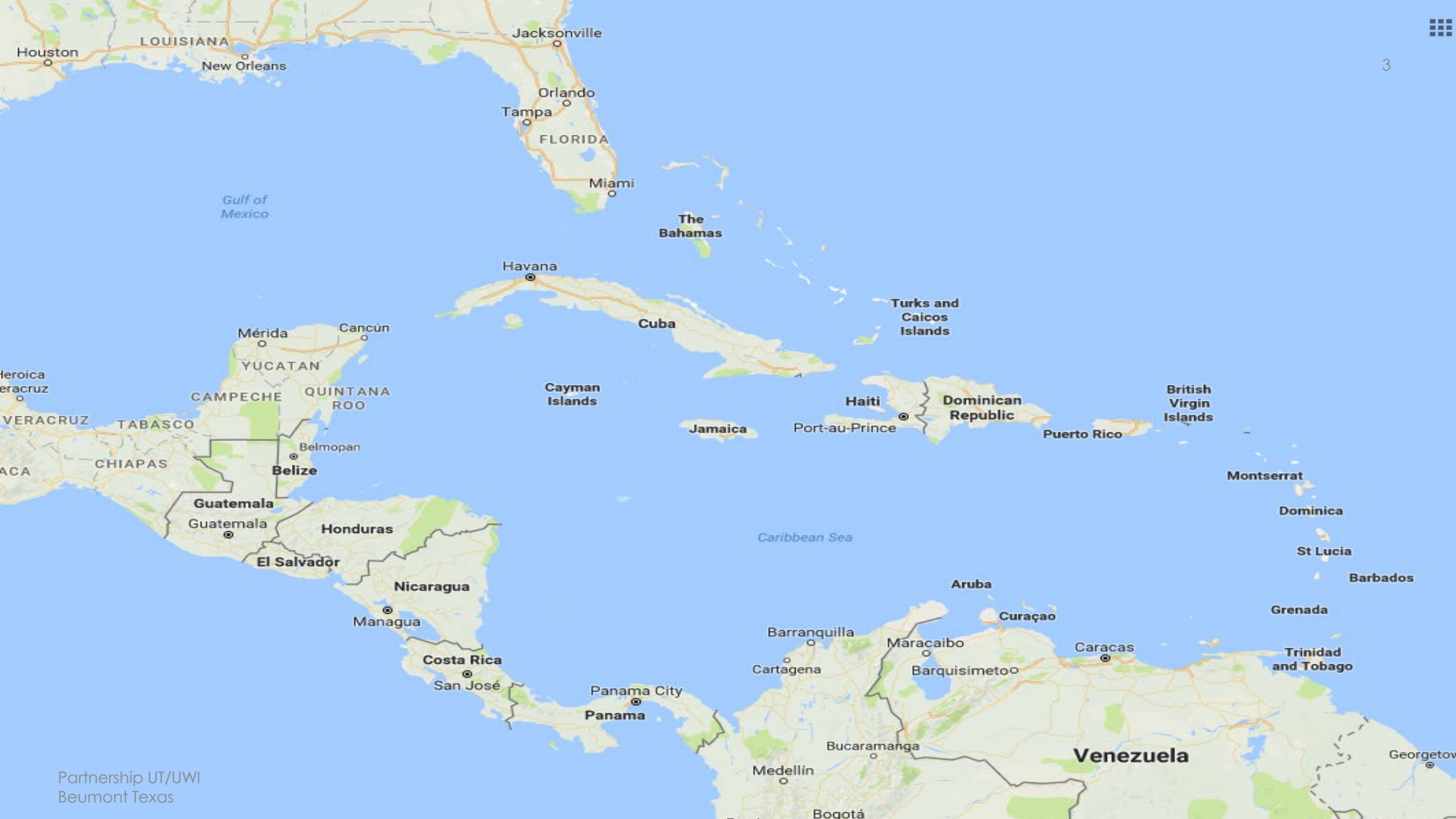
Partnership UT/UWI

Beumont Texas

AGENDA

- Location of Trinidad and Tobago (T&T)
- Impact of Climate Change on the Caribbean
- Results on Carbon Capture in T&T
- Rationale for CCS in T&T
- Key finding from local studies
- Way forward for T&T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Barbados
Grenada
Trinidad and Tobago
Caribbean Sea
Aruba
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Cartagena
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Barquisimeto
Caracas
Bucaramanga
Medellín
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Venezuela

Impact of Climate Change on the Caribbean

CLIMATE CHANGE IMPACTS IN THE CARIBBEAN (DOMINICA -2017)

CLIMATE CHANGE IMPACTS IN THE CARIBBEAN (TRINIDAD AND TOBAGO)

Samaroo J., 2018

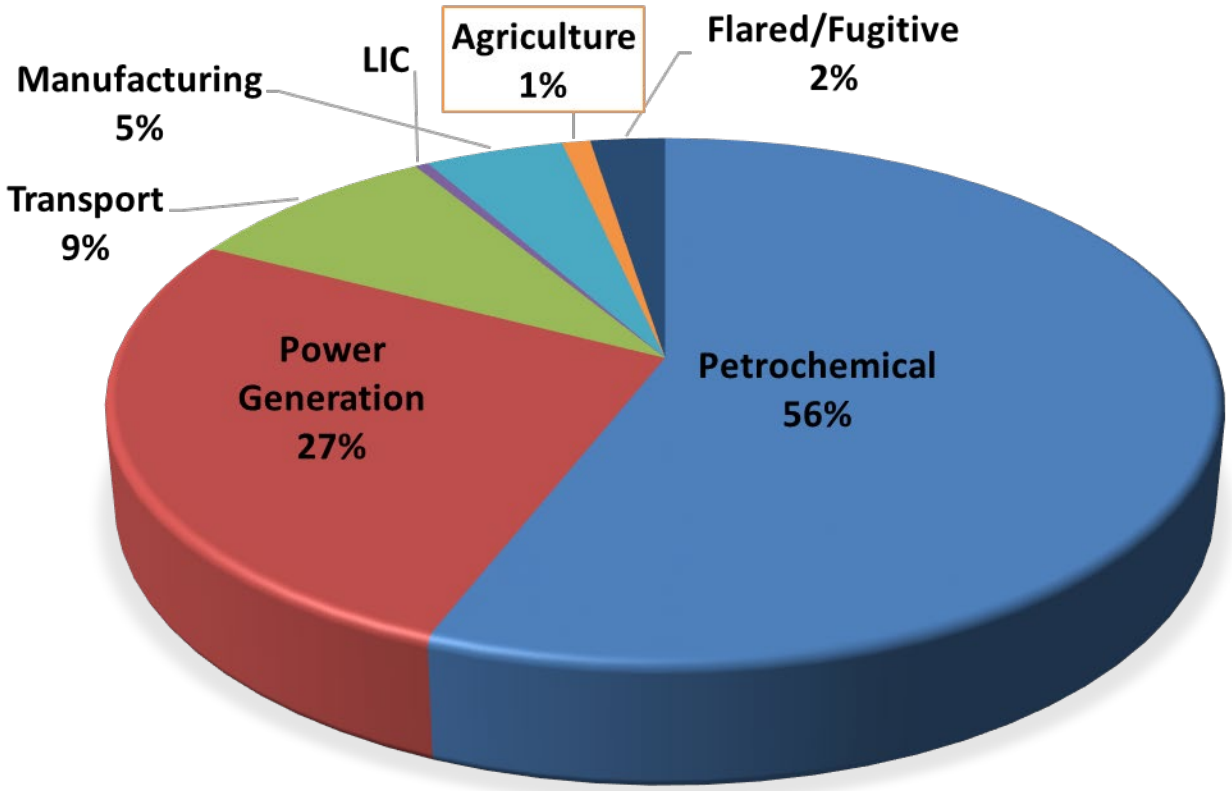
CLIMATE CHANGE IMPACTS IN THE CARIBBEAN

Livelihoods Severely affected:

- Food Security
- Infrastructure
- Economic and financial impacts
- Coastal and marine resources
- Water Resources
- Health

Results on Carbon Capture in T&T

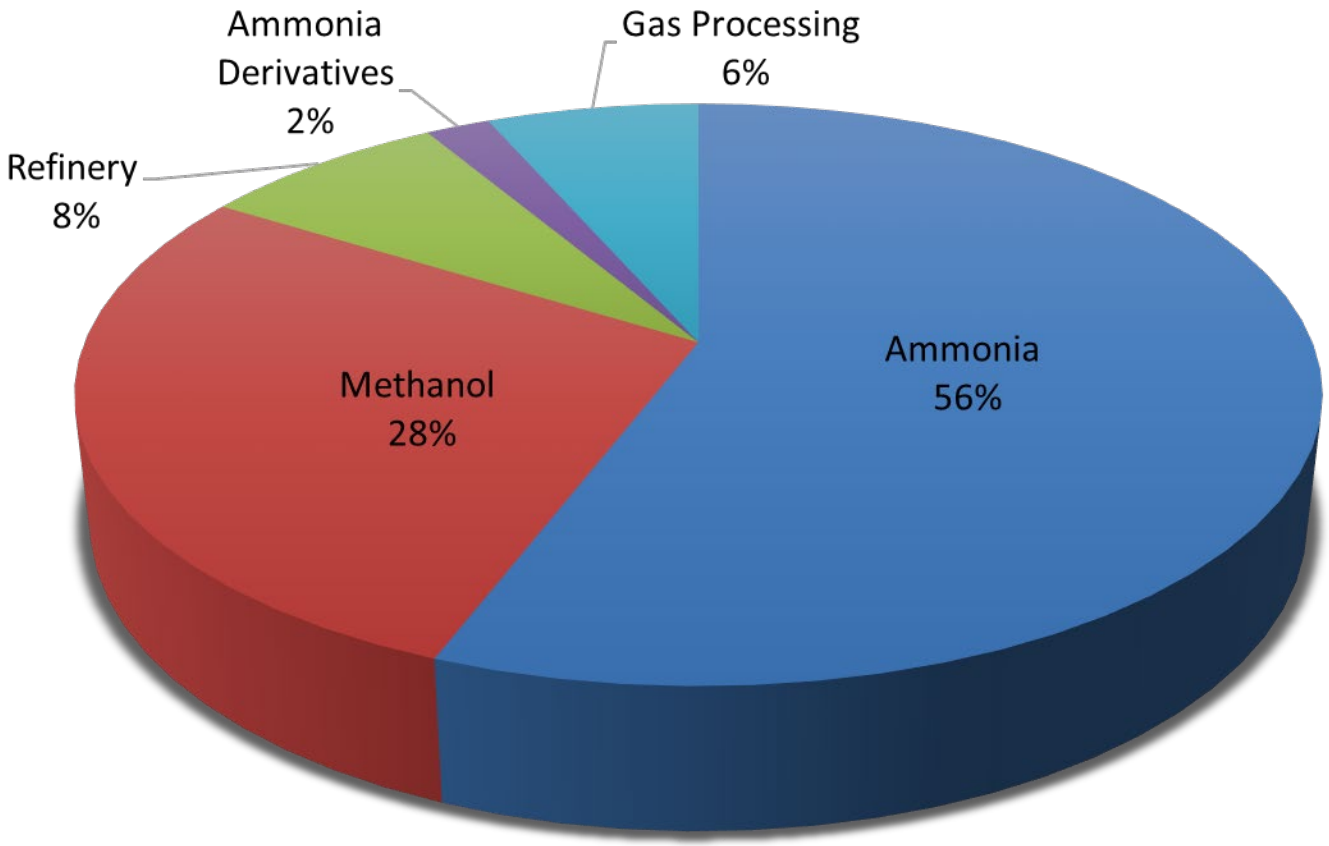
T&T's GHG Inventory - 2015



In 2015, 45 Million Tonnes of GHG emissions occurred in T&T. More than 80% emanated from the Petrochemical and Power Sectors.

Boodlal, 2017

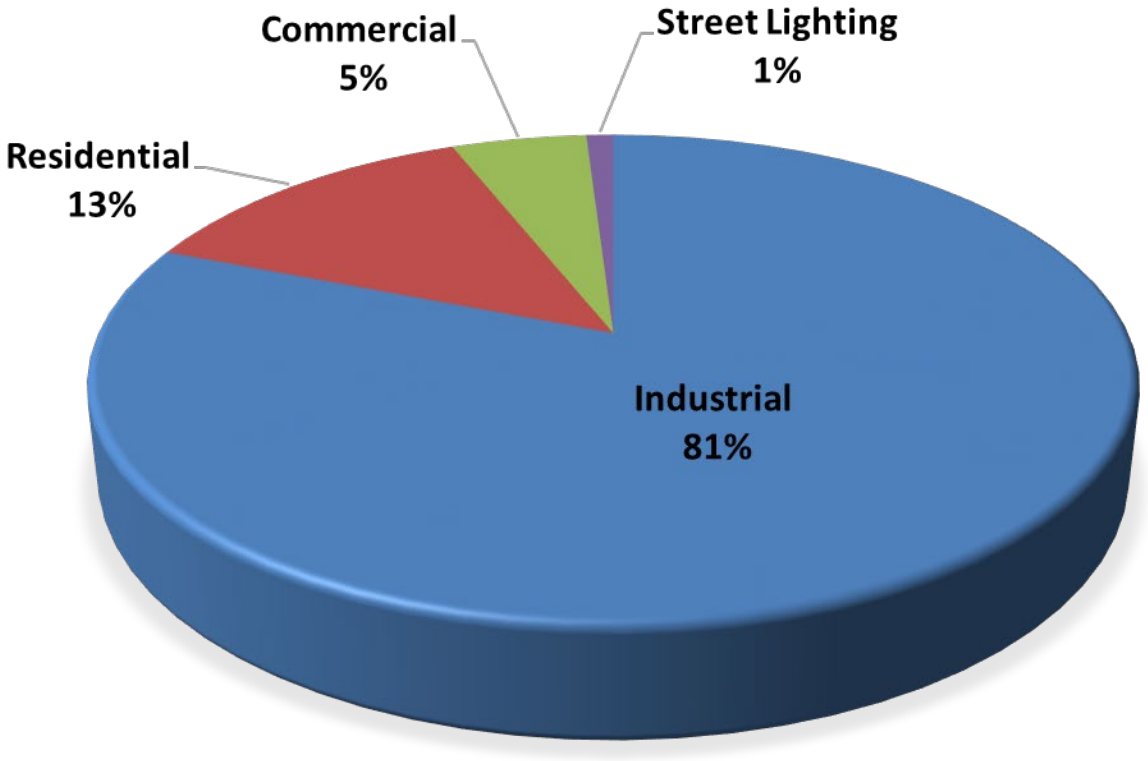
T&T's GHG Inventory - The Petrochemical Sector



In 2015, within the Petrochemical Sector in T&T, more than 80% of GHG emissions originated from Ammonia and Methanol Synthesis.

Boodlal, 2017

T&T's GHG Inventory - The Power Sector



In 2015, within the Power Sector in T&T, 81% of GHG emissions originated from Industrial consumption.

Boodlal, 2017

BEST CO_2 SOURCES IN T&T

- Process Emissions from Ammonia Synthesis
  - Four (4) million metric tonnes per annum, available for CO_2 sequestration projects
- Process Emissions from Atlantic (1 million metric tonnes per annum are available)

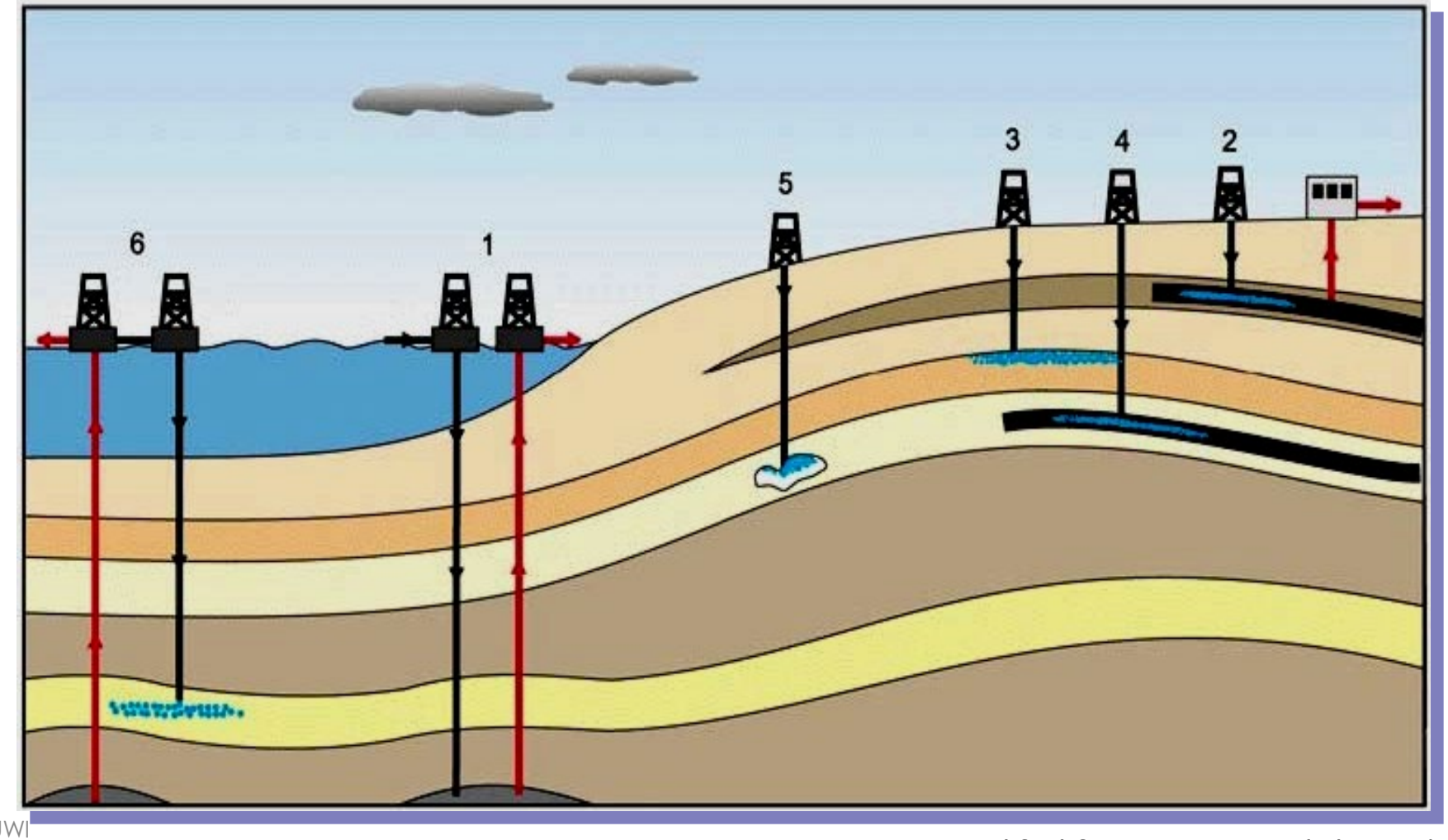
Boodlal, 2017

Rationale for CCS in T&T

Why not Ocean and Terrestrial Sequestration?

- Ocean sequestration is unsafe and unreliable
- Trinidad is 5000 km^2 = 500,000 hectares
- Eleven tonnes/hectare of tropical forest per year can be sequestered. (IPCC, 2006)
- 500,000 x 11 = 5.5 million tonnes would be the maximum amount of emitted CO_2 that could be captured by natural sinks

Geologic sequestration Options for T&T

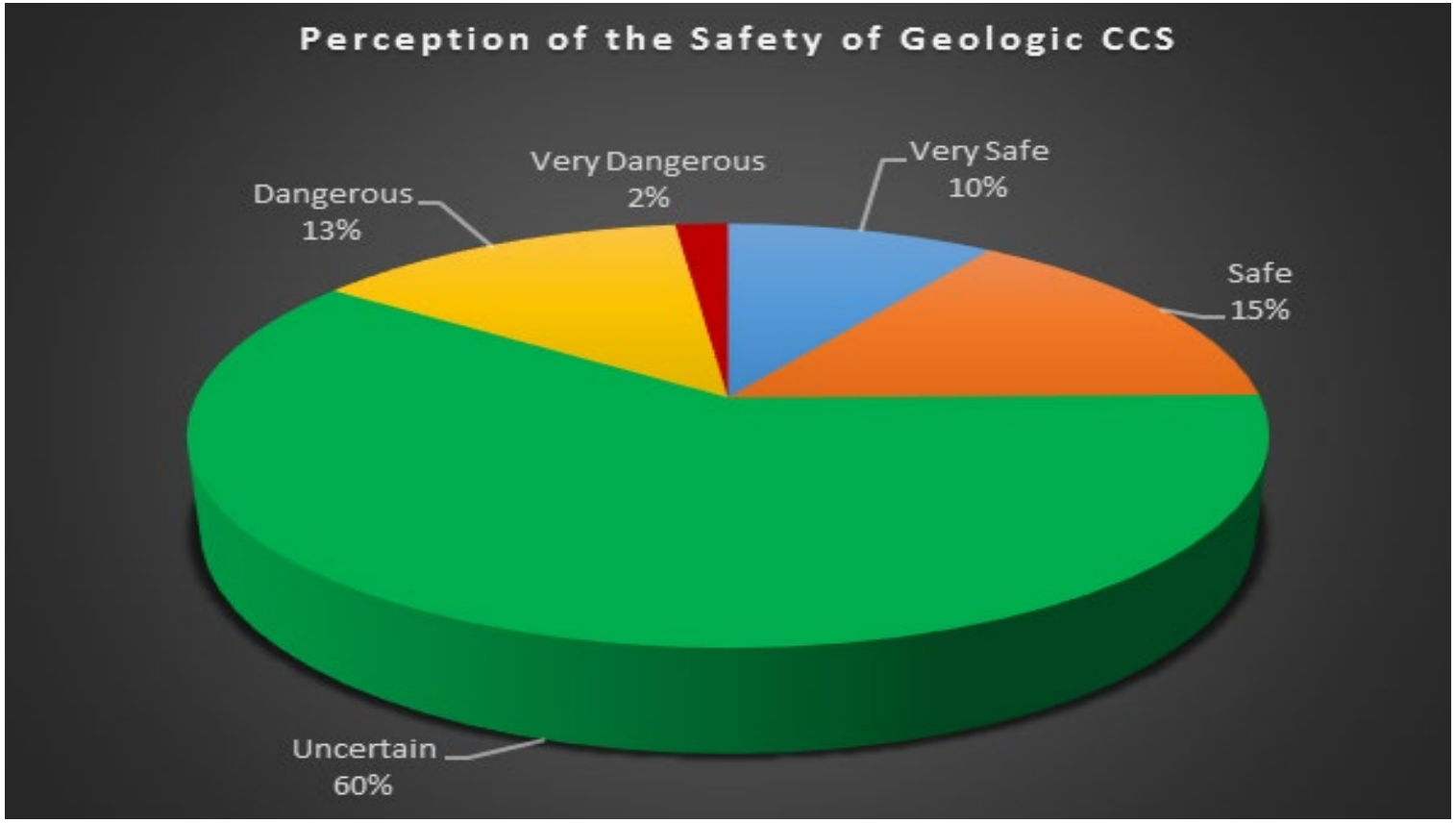


Modified from www.spacedaily.com/news/greenhouse00j-html

Critical Factors to Geologic Sequestration

- Costs
- Public acceptance
- Leakage of injected CO_2

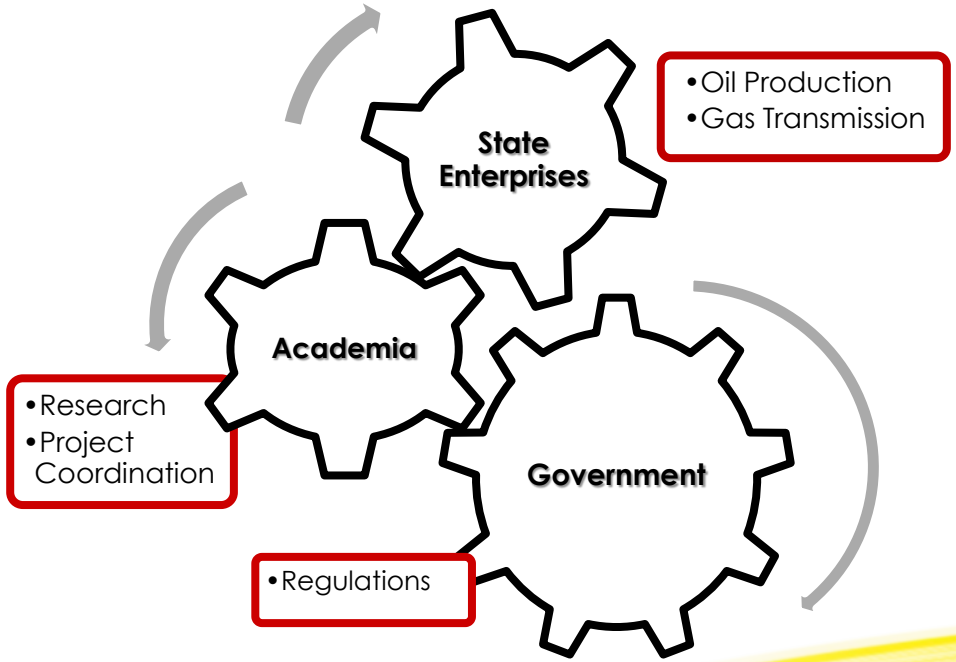
Public perception of CCS in T&T -2018



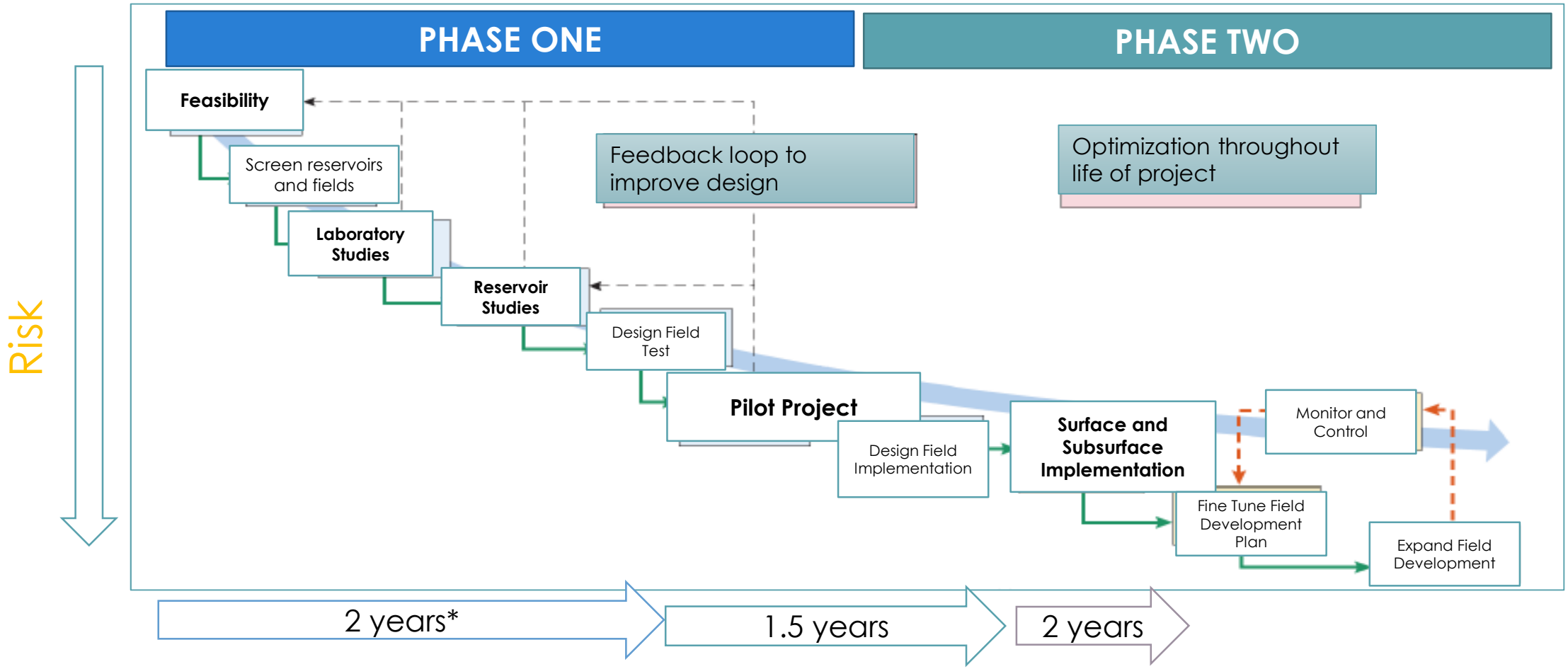
Alexander et al., 2018

THE CERM PROJECT:

MAXIMISING VALUE THROUGH COLLABORATION AMONG GOVERNMENT AND GOVERNMENT-SPONSORED ACADEMIC INSTITUTIONS



CO_2EOR ROAD MAP



Investment

Source: Schlumberger Oil Review

Key finding from local studies

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- CO_2 can be trapped for thousands of years fault and cap rock must be sealing.

Way forward for T&T

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- Capacity Building at the Educational Institutions
- National climate change workshops
- Public Awareness
- International Partnerships
- Conducting local research
- Storage Capacity
- Demonstration projects

How can the CERM Project reduce CO_2 emissions?

1. Provide opportunities to commercialize carbon emissions*
2. Provide the necessary detail for sound CO_2EOR investment decisions
3. Build local expertise with a new generation of geoscientists and engineers to design, operate and optimize CO_2EOR and CCS in Trinidad.
4. Overall reduction in carbon footprint

WWW.THECERMPROJECT.COM

ANY QUESTIONS?

CCS

SOURCE: SMITH 2007