



Advancing climate-resilient  
low emission development  
around the world

# The Coordination and Vertical Integration of LEDS

Subnational Integration Working Group  
Peer Learning Session

**LEDS Global Partnership 2015 Annual Workshop**

**Implementing LEDS:  
Innovation and Good Practices**

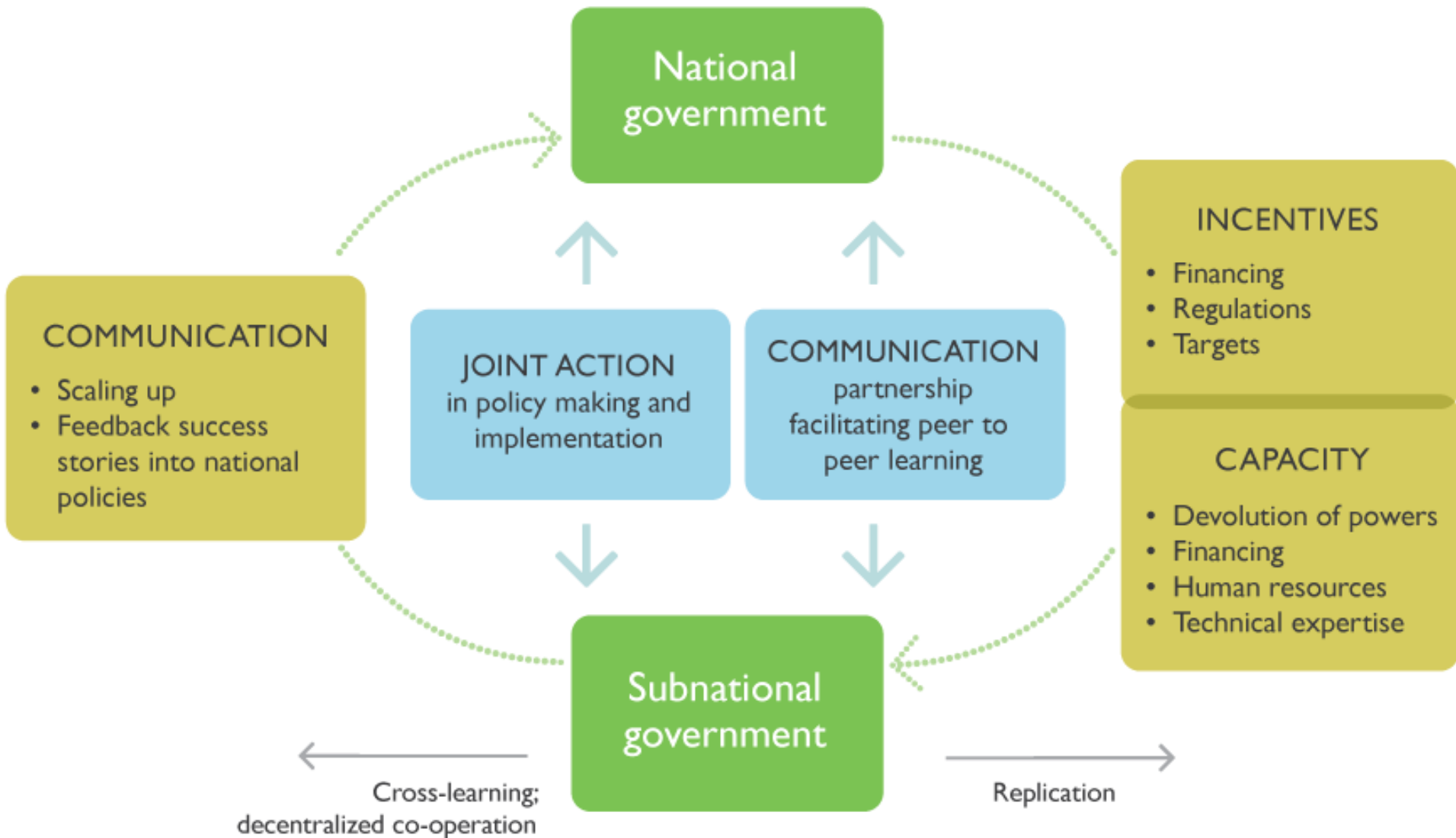
October 14-16, 2015

Punta Cana, Dominican Republic

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## The Coordination and Vertical Integration of Climate Actions

*Prepared for the Low Emissions Development (LEDS) Global Partnership Working Group on Sub-National Integration. Written by Scott A. Muller, smuller@sig-gis.com.*

**Non-state actors (NSAs) are fundamental agents to help achieve both national and international development goals. While disparate climate actions by NSAs do contribute towards filling the greenhouse gas (GHG) emissions gap, there are significant additional benefits to be gained by improving the coordination and vertical integration of these sub-national climate actions.**

**This report summarizes principal themes and observations that have emerged during the past two years of activities from the Working Group on Sub-national Integration (SNI-WG) of the Low Emission Development Strategies Global Partnership<sup>1</sup> (LEDS GP). It also briefly highlights informative sub-national and vertical integration themes from the other two major multilateral agreements this year on sustainable development and climate change.**

### 1.0 Scaling-up climate action

Following the 2007 publication of the IPCC's Fourth Assessment Report (AR4), there was a notable increase in national climate change legislation and the formalization of national climate policies. But these efforts, as the IPCC's Fifth Assessment Report (AR5) concluded in 2014, have not resulted in an appreciable change in the trajectory of global emissions (IPCC, 2014). The overall recognition that current mitigation pledges by national governments will not limit the global average temperature increase to 1.5°- 2°C above pre-industrial levels has highlighted the importance of "enhancing actions, and scaling up new efforts to bring untapped mitigation potential to fruition".

In order to leverage the greatest GHG emission reductions possible, two parallel strategic tracks at the international level are discernible in the approach to COP21 of the United Nations Framework Convention on Climate Change (UNFCCC). The first is the innovative ex-ante process whereby national governments submit "intended nationally determined contributions" (INDCs).<sup>2</sup> These INDCs are likely to play a key role in framing the details to achieve COP21's principal objective—to create a legally binding and universal agreement on climate.<sup>3</sup> Concurrently, an appreciable second stream of activities highlights the role of sub-national governments (SNGs), the private sector and civil society to

<sup>1</sup> <http://ledsgp.org/home>

<sup>2</sup> [http://unfccc.int/focus/indc\\_portal/items/6766.php](http://unfccc.int/focus/indc_portal/items/6766.php)

<sup>3</sup> <http://www.cop21.gouv.fr/en/cop21-cmp11/cop21-main-issues>

## The coordination & vertical integration of sub-national climate actions can:

- Raise national government ambitions for more aggressive GHG mitigation commitments.
- Help alleviate domestic political constraints.
- Scale up, as well as unlock, additional and new mitigation opportunities at the sub-national level.
- Accelerate the effective implementation of national targets, strategies and development priorities by “localizing” them. This can also provide opportunities for “bundled approaches” and increasing “co-benefits” by linking local priorities with diverse development objectives.



## The coordination & vertical integration of sub-national climate actions can:

- Improve the consistency of sub-national and national climate data sets; strengthening MRV.
- Create a more bankable “low-risk” environment for infrastructure finance and private sector investments.
- Expand and accelerate the flow of international public and private climate finance to cities, urban infrastructure and local priorities.
- Enable safe learning and strengthen domestic institutions.
- Address recognized challenges and limits to sub-national NSA climate actions.
- Help address some of the persistent collective action challenges to multilateral climate agreements.

# Adaptation and Mitigation Joint Policy to Manage Climate Change In Housing and Urban Development Sector in Colombia

Carolina Hernandez Galeano  
Technical advisor LCRD program



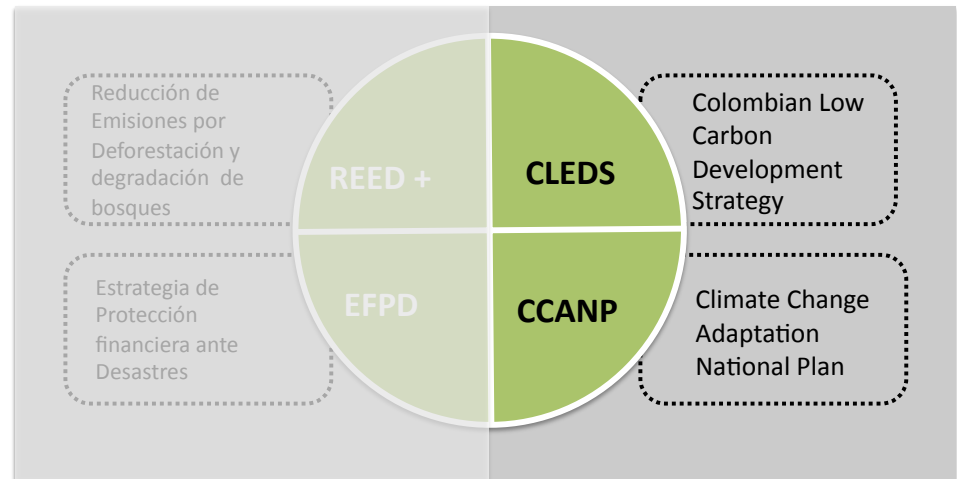
Ministry of Housing, Cities and Territories  
Subnational Integration Session  
LEDS GP annual Conference  
Punta Cana October 16th 2015



# National Policy Alignment to manage Climate Change



Untie GHG emission growth from national economic growth  
Long Tern Strategic Planning (2040).



## Policy 3700 of 2011

Institutional Strategy to articulate policies and actions in regards with Climate Change

## DNP 2010-2014 “ Prosperity to all”

Art. 217. Housing and Kind Cities

## DNP 2014-2018 “Todos por un nuevo país”

Art 170 Green Growth Strategy

## Policy 3819 de 2014

National Policy to set a National Comprehensive Cities System

# Are we prepared to population growth?



**Cities** represent between **60** and **80%** of **energy consumption** and therefore are an **important source of GHG emissions**

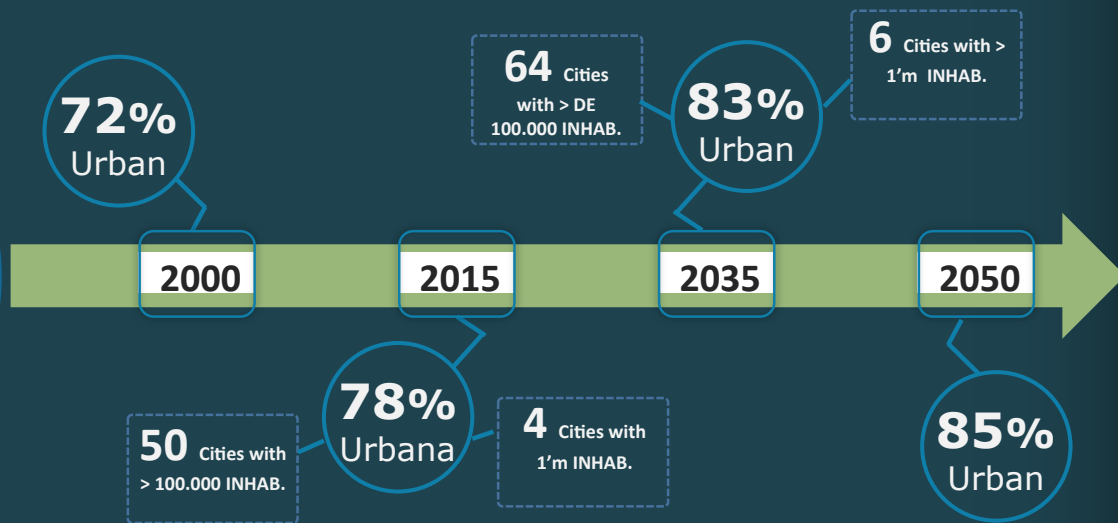


Foto tomada de: <http://www.bucaramanga.gov.co>



# Are we prepared to population growth?

**In Colombia Every YEAR** Between **2015 and 2035** will grow a city with a population the size Lisbon, Dublin, or Dresden (523.000 inhabitants)



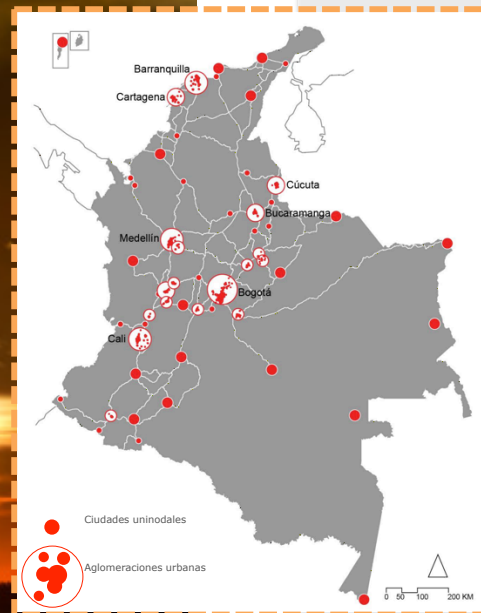
**10,5 Millions**  
Inhabitants will arrive to cities in  
the next  
**20 years**

Foto tomada de: <http://www.bucaramanga.gov.co>

# Consequences

## Temperature Rise

2041-2070



Fuente: CONPES 3819 - Política Nacional Para Consolidar El Sistema De Ciudades En Colombia



T° 2.14° 2070

### National Temperature Rise

- Lost of water resources
- Desertification
- 56% Moors and Wet Lands in threat.

- Higher energy consumption in buildings
- Urban Heat Islands
- Shortage of water in Urban Centers
- Shortage of energy coming from Hydro power



# Consequences

## Rainfall Variability



2041-2070




>40 % rainfall increasing in Urban Centers

- Floodings
- Damage to infrastructure
- Landslides

<20 % rainfall decreasing in the northern part of the country

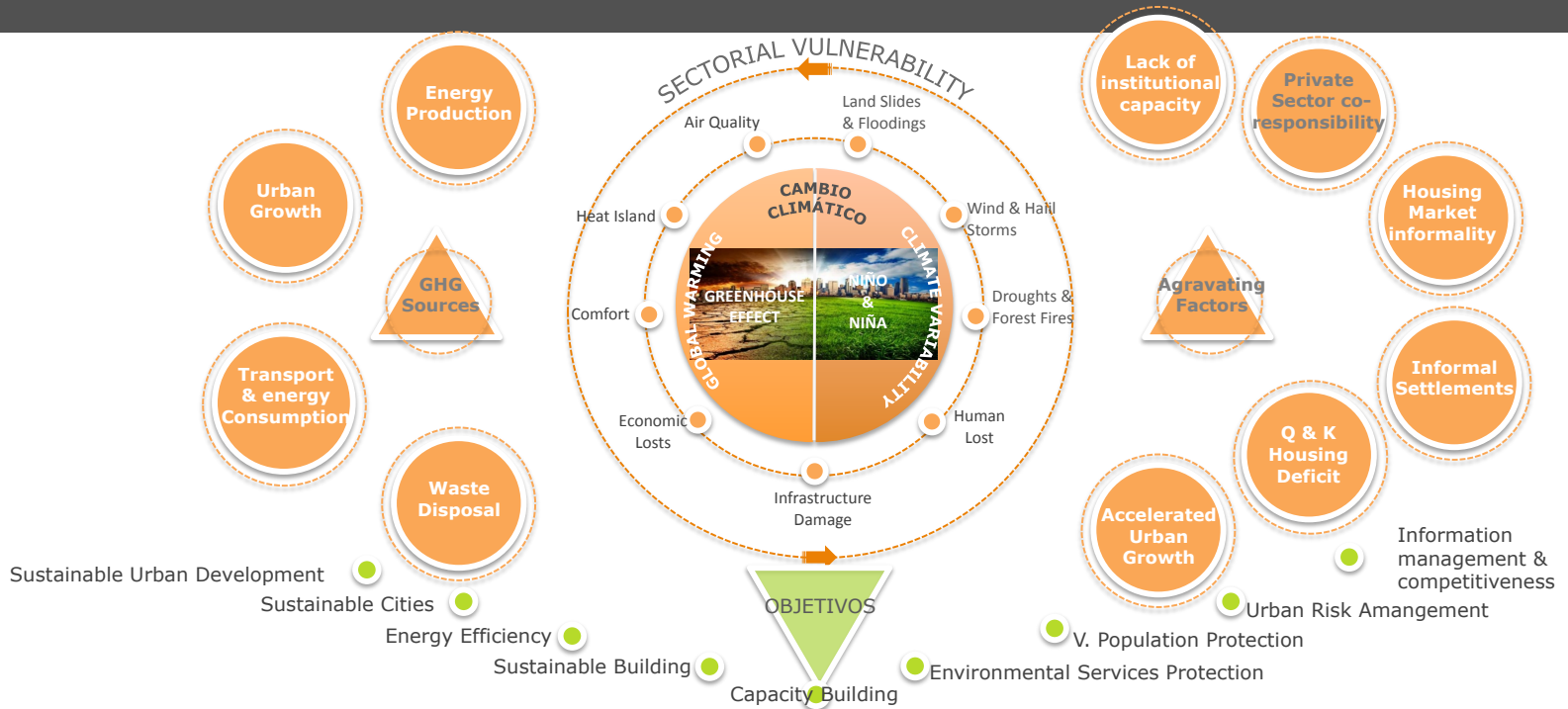
- Droughts
- Desertification
- Lost of water resources : water and electricity shortage

# Integrated action Plan to Manage Climate Change in Housing and Urban Development Sector

- 
- Long Term Planning to achieve urban and territorial sustainable planning
  - Adaptation and Mitigation as comprehensive strategies to cope with the adverse impacts of climate change in cities

MITIGACIÓN

ADAPTACIÓN



SMAP Mitigation/Adaptation

- NAMA
- Case Studies / Pilots
- INDCs

RESILIENCE TRANSFORMATION

 Territorial Development

 Urban Development

 Buildings

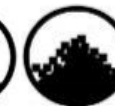
 MINVIVIENDA



LAND USE CHANGE



MATERIALS TRANSPORTATION<sup>12</sup>



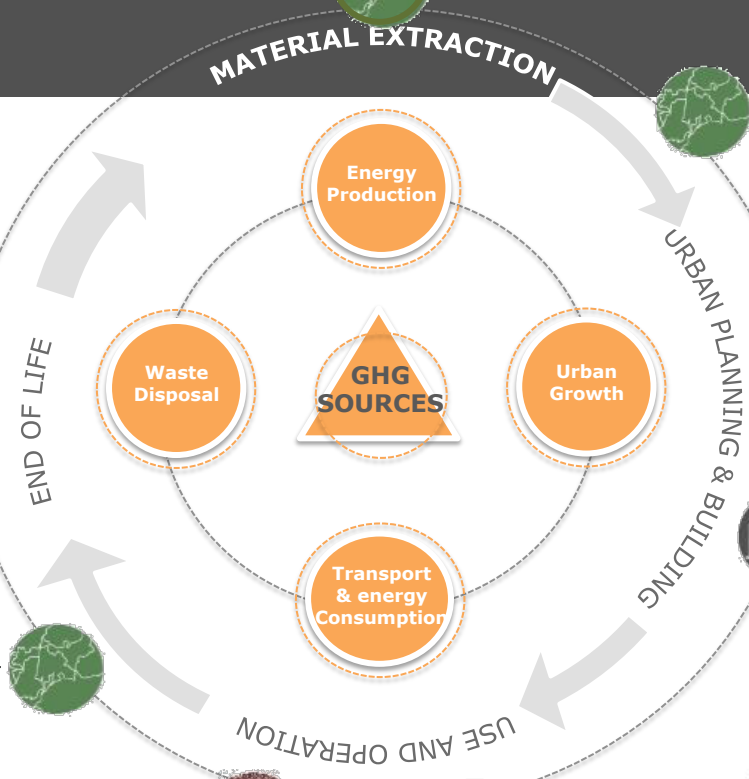
URBAN SPRAWL & INFORMAL SETTLEMENTS



MATERIALS PRODUCTION




- ENERGY CONSUMPTION
- ARCHITECTURAL DESIGN
- WASTE MANAGEMENT



 WASTE DISPOSAL

 MATERIALS RECYCLE

 COMMUTING



# S STRATEGIC GROUPS

## TERRITORIAL AND URBAN DEVELOPMENT

### CLIMATE CHANGE CRITERIA

REGULATIONS

PROGRESS:

- URBAN VULNERABILITY STUDIES
- SUSTAINABLE URBAN SEWER SYSTEM STUDIES

GOAL:  
REGULATION ENACTED

SUSTAINABLE URBAN DEVELOPMENT PROJECTS

PROGRESS:

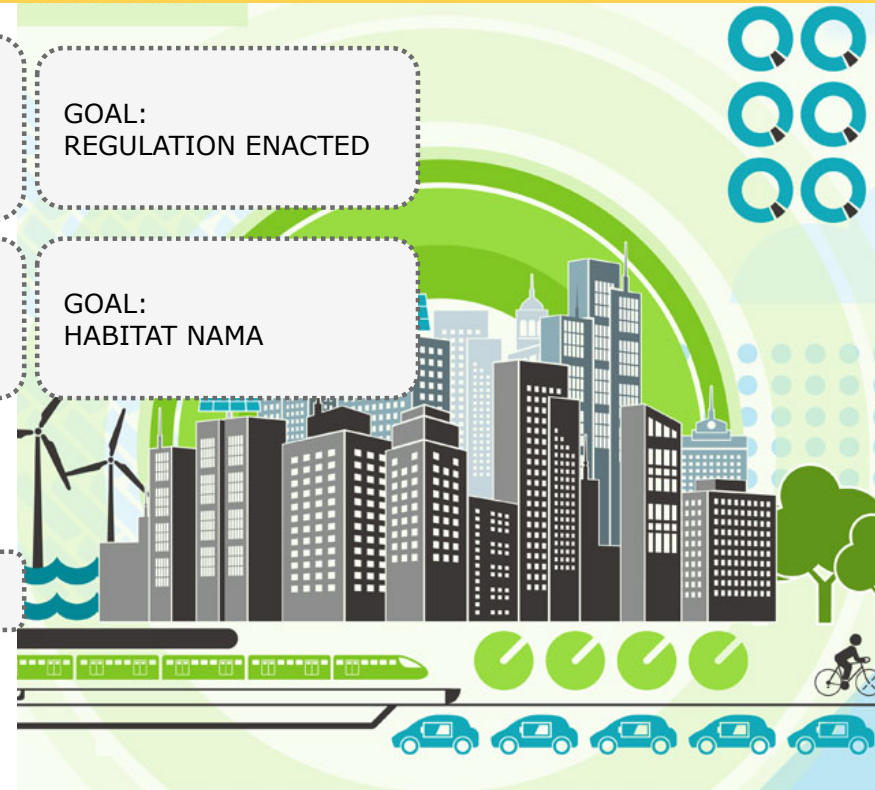
- MITIGATION BASE LINE CONSTRUCTION FOR URBAN SECTOR

GOAL:  
HABITAT NAMA

TECHNICAL ASSISTANCE TO CITIES

REQUIRES ENABLING MEASURES

CLIMATE CHANGE CRITERIA INCLUSION IN LAND USE PLANS



# S STRATEGIC GROUPS



## EFICIENCIA ENERGÉTICA EN LA VIVIENDA



### GREEN MORTGAGE SCHEME

#### PROMOTION OF GREEN LOANS

#### PROGRESS:

- Green mortgage pilot project

#### META:

Green mortgage scheme.

#### CONSUMPTION HABITS CAMPAIGNS

Requires the above measure to be implemented

#### Home appliances labeling

- Home appliances regulation  
**Ministry of energy**

#### Renewable energy

- Renewable energy law  
**Ministry of energy**



# S STRATEGIC GROUPS

## SUSTAINABLE BUILDING

### SUSTAINABLE BUILDING CRITERIA

ENHANCEMENT OF HOUSING LIVABILITY

GOOD USE OF WATER RESOURCES

SUBSIDIES

#### PROGRESS:

- Decree 1285 of 2015 Sustainable Building Regulation
- Investment:** IFC y SECO  
**Start implementation** June 2015

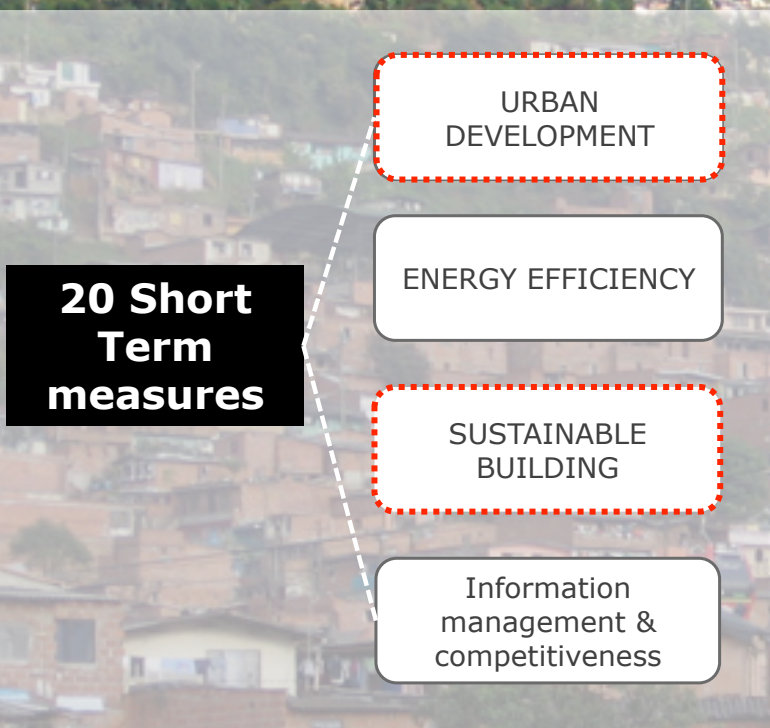
#### AVANCES:

- Sustainable building criteria in free social housing programs
- Start:** 2015

**Goal:**  
Guide and regulation implemented

**Goal:**  
Free social sustainable housing

# Prioritized measures and Vertical Integration





# Sustainable Building regulation



## Sustainable Building Regulation

### SMAP

Sectorial Mitigation Action Plan



### Decree 1285 of 2015

Sustainable Building Guidelines and Standards to make efficient use of water & energy resources in new buildings

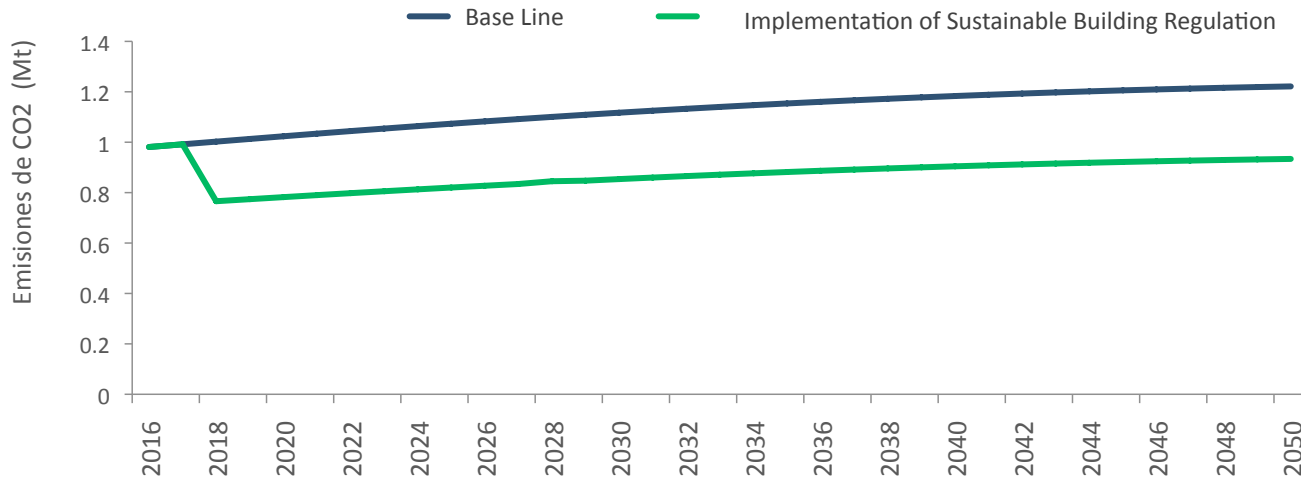
# Sustainable Building Regulation

## 5 Key points



1. It requires the compliance of water and energy saving percentages.
2. It suggest a complete guideline of sustainable construction measures to be applied in new buildings
3. Saving Percentages will be gradually mandatory
4. The implementation of the regulation is mandatory to every new building (6 types of use)
5. Regualtion will be gradually implemented in all cities of the country

# GHG reduction: Preliminary calculation

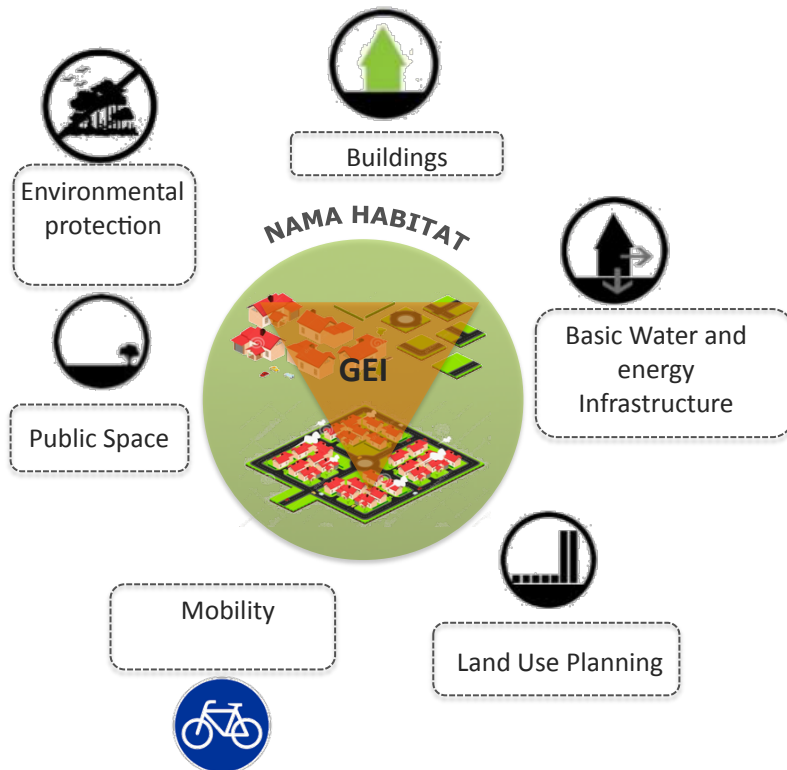


Fuente: Elaboración propia

**Preliminary** Calculations indicate that **implementing the Sustainable Building Regulation**, could **cut down** CO2 emissions from water and energy consumption in the building sector **up to 24%** compared to a baseline

	2016	2017	2020	2025	2030	2035	2040	2045	2050
Línea Base	0.981	0.992	1.024	1.073	1.117	1.154	1.183	1.21	1.221
Escenario implementación de la reglamentación	0.981	0.992	0.782	0.820	0.854	0.882	0.904	0.92	0.9337Mt CO <sup>2</sup>
%Reducción	0.0	0.0	23.6	23.6	23.6	23.6	23.6	23.6	<b>23.6%</b>

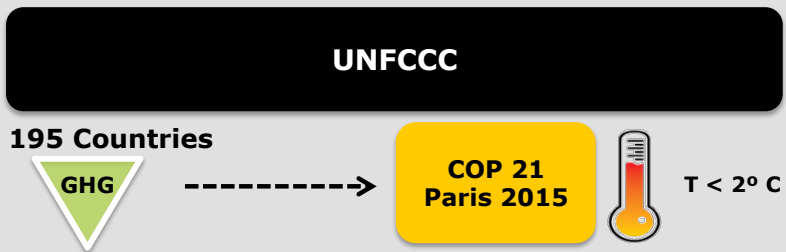
# NAMA Habitat - Formulation



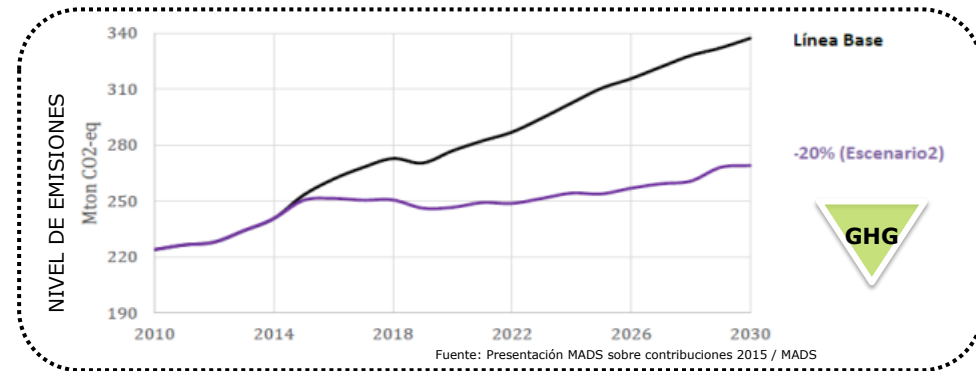
GHG emission reduction through comprehensive and sustainable urban planning; With spatial interventions that guarantee recovery of urban degraded areas, resettlement of population at risk, and provision of sustainable basic water and energy infrastructure.



# INDC's & International Agenda



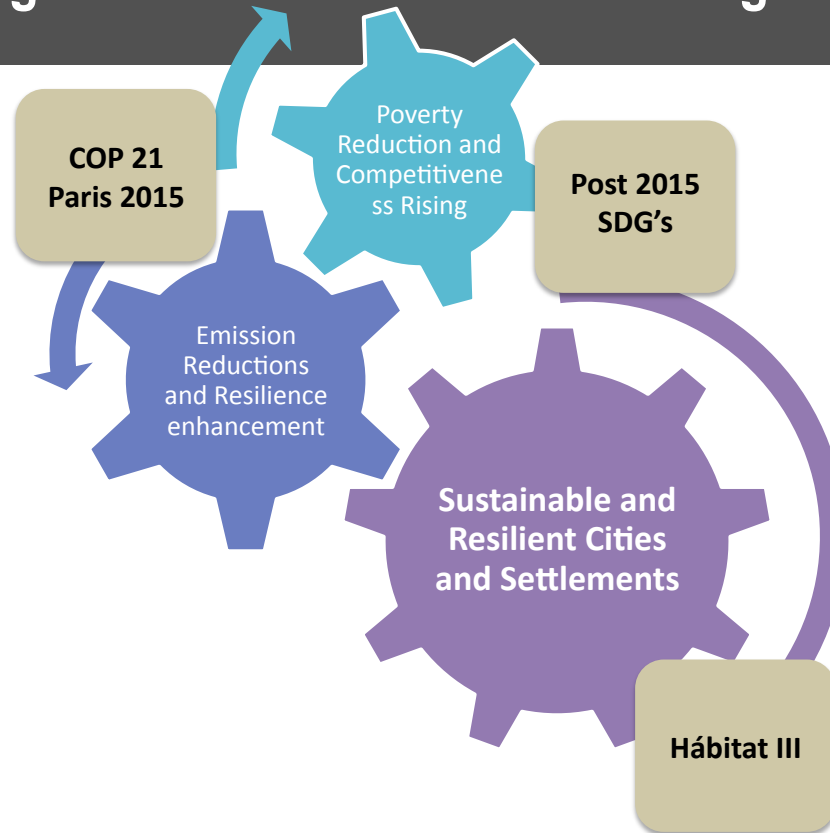
Colombia submitted its INDC's.  
Target: 20% GHG Emissions reduction



## OUR SECTORIAL CONTRIBUTION

- Sustainable Building Regulation
- Sustainable Urban Development
- Green Mortgage
- NAMA

# Coordination and Alignment with the international agenda



The Ministry actions seek to be aligned and coordinated with the international agenda

# Conclusion

*All these actions are a **determined commitment** to achieve **sustainable development**, in order to **enhance the competitiveness of cities, the quality of life** of the inhabitants and **environmental and social preservation** of local, regional and national **ecosystems**.*



## GRACIAS THANK YOU FOR YOUR INTEREST

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# Carbon Footprint for Organization Program in Thailand The Design and Implementation of a Web based GHG Reporting Platform

**Thailand Greenhouse Gas Management Organization  
October 2015**

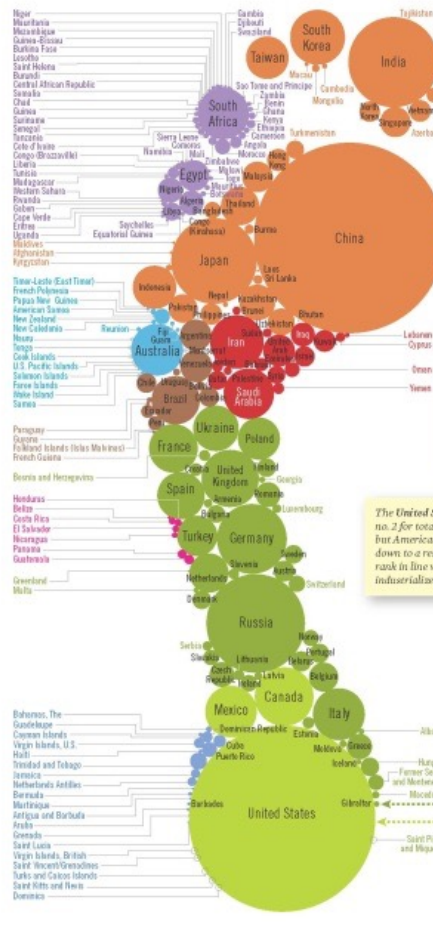


Thailand Greenhouse Gas Management Organization (Public Organization) (TGO)

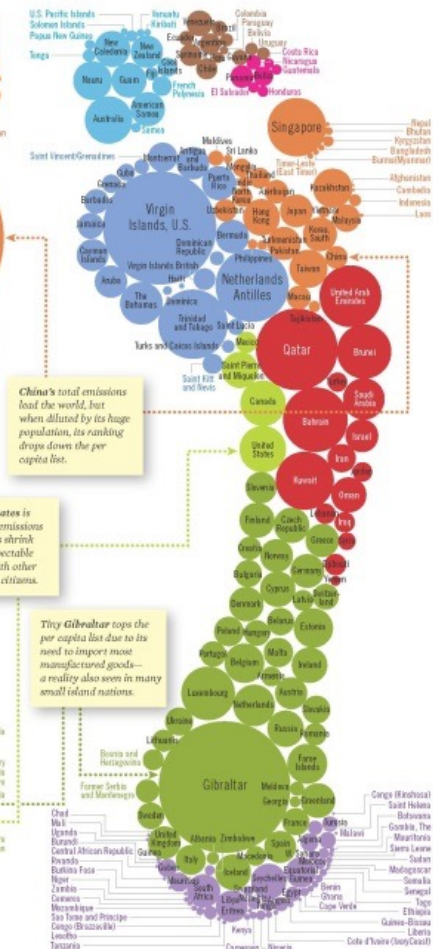
# What is a carbon footprint for organization?

A carbon footprint is a measure of an organization's impact on the environment in terms of the amount of greenhouse gases (GHGs) produced

Total Carbon Emissions by Nation



Per Capita Carbon Emissions by Nation



China's total emissions lead the world, but when diluted by its huge population, its ranking drops down the per capita list.

The United States is no. 2 for total emissions but Americans shrink down to a respectable rank in line with other industrialized nations.

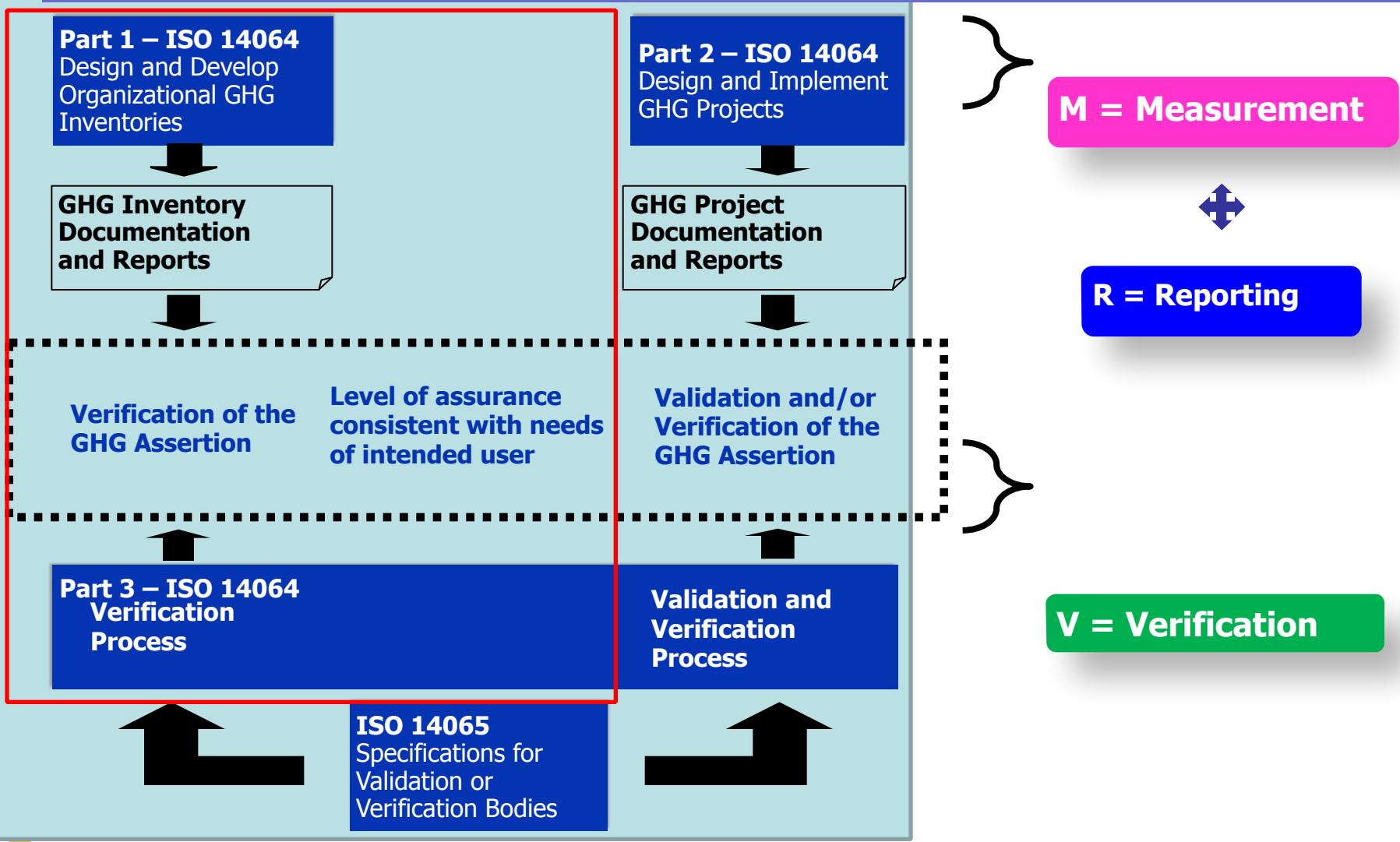
Qatar tops the per capita list due to its need to import more manufactured goods—a reality also seen in many small island nations.



DESIGN: STRANFORD A&P STUDIO/COM NOTE: BASED ON 2007 DATA. SOURCES: U.S. ENERGY INFORMATION ADMINISTRATION

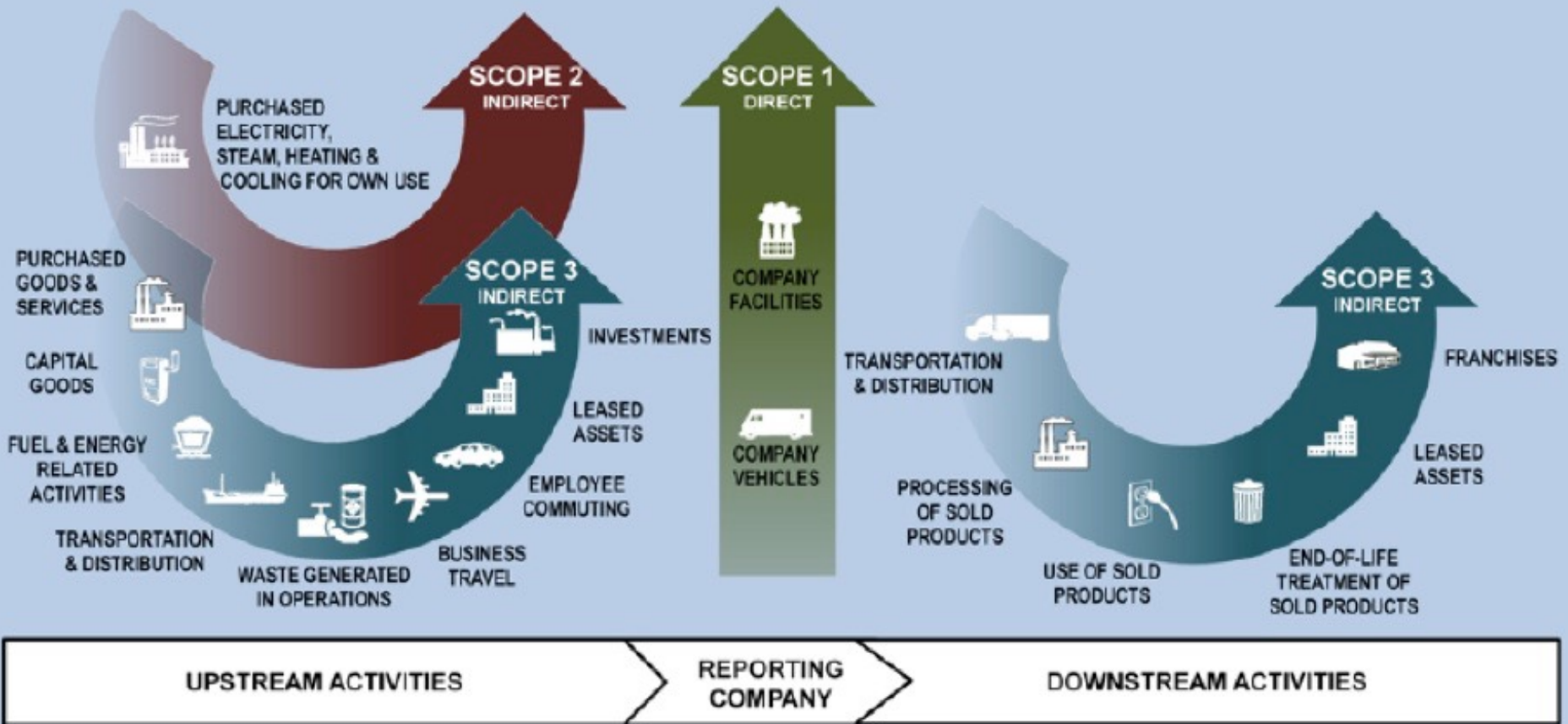


# MRV & ISO 14064



# Operational Boundary

CO<sub>2</sub> CH<sub>4</sub> N<sub>2</sub>O HFCs PFCs SF<sub>6</sub>



# CFO in Thailand (I)

- **In 2010**, the collaboration between MTEC and TGO had taken place , The Memorandum of Understanding was signed under “the technical cooperation on Carbon footprint of product and/or organization for Thailand”
- **In 2011**
  - The Eco- Industrail Research and Training Center of Mahidol University was requested by TGO and MTEC to conduct the Carbon footprint for organization promotion and Pilot implementation Project ; 10 pilot organization has join and conduct their own CFO as pilot cases and model for CFO in Thailand
  - MTEC appointed the Carbon Footprint for Organization Technical Committee in order to facilitate and promote the pilot implementation project and develop the CFO Guideline for Thailand
  - The outcome ;
    - The development of CFO Guideline of Thailand
    - Thai CFO Consultants and Experts

# CFO milestone in Thailand (II)

- **In 2012 and 2013**

- The phase of CFO Promotion and Implementation for Industrial and municipality sector
- The CFO Guideline was revised and the CFO Verification Guideline was developed by FTI as a consultant assigned by TGO and MTEC under The facilitation of CFO Verification Committee appointed by [National Science and Technology Development Agency](#), Ministry of Science and Technology.
- The implementation of CFO verification system and CFO validation/verification body registration were implemented
- The outcome ;
  - 46 municipality, 33 industries and 2 academic institutes were implemented the CFO.
  - The CFO verification system and its guideline as well as the CFO Consultant and Networking were established.
  - 11 VVB were registered with its eligibility in conducting the CFO verification in Thailand under TGO Scheme.

- **In 2014**

- The pilot Implementation case of CFO Project is continually conduct with broader rank of industrial organizations as of 35 organizations in expected target especially focus in energy intensify type of industries such as ; petrochemical, ceramic, steel, refinery, electricity generation etc.

# TGO'S Basic Requirement in Quantifying CFO

1. Level of assurance	Limited
2. Objectives	To verify the GHG assertion, registered and approved the Organization's carbon footprint for scope 1&2 by TGO
3. criteria	TGO Guidance of the carbon footprint for organization
4. scope	<p><u>Organization boundary</u> By organization's legal evidence Eg. Factory - Manufacturing license Office - Commercial registration</p> <p><u>Emission/removal sources</u> Scope 1, 2 –all and biogenic CO2 Scope 3 – partial, not include in the verification's scope</p> <p><u>Data collection period</u> ; 1 year</p> <p><u>Scope of activity</u> ; the activity data shall be accounted unless its aggregated threshold is less than 5% of total emissions</p>
5. materiality	5%

# CFO VERIFICATION BODY IN THAILAND

Organizations that engaged in the CFO Pilot implementation Project in 2013 in order to develop the country's CFO verification system will be recognized their eligibilities to be registered as TGO's Verification Bodies and approved by the TGO Carbon Labeling development and promotion working group, As of September 2015, there are 12 organizations which are;

1	National Metal And Materials Technology Center,thailand
2	Centre Of Excellence On Environmental Strategy For Green Business (Vgreen),
3	Research Unit For Energy Economic & Ecological Management , Chiang Mai University
4	Eco Industry Research And Training Center, Mahidol University
5	School Of Energy And Environment, University Of Phayao
6	Center Of Excellence On Energy And Eco-efficiency , Thammasat University
7	The Energy Conservation Center Of Thailand
8	Bureau Veritas Certification (Thailand) Ltd.
9	Sgs (Thailand) Limited
10	The Thailand Institute Of Scientific And Technological Research (Tistr)
11.	Lloyd's Register International (Thailand) Ltd.



# Carbon Footprint for Organization: Status



Industrial sector	Amount
Food and beverage	24
Construction Material	17
Service	14
Petroleum and petrochemical	13
Electricity	11
Pulp and Paper	8
Others	47

sector	2015	Total
<b>Industries</b>	67	<b>134</b>
<b>Municipalities</b>	29	75



# The GHG data problem



Thailand's priorities:

- Build a GHG reporting program that would produce high-quality, consistent data to inform future policy
- Build GHG MRV capacity in the private sector ahead of regulation
- Build tools and infrastructure in preparation of a potential ETS

# the Revised CFO Program Design and Implementation

**2014-2015**

TGO partnered with USAID to update the CFO program and to increase the participation of the industrial and other sectors in greenhouse gas (GHG) reporting


## **The Revised CFO Program (Version 2):**

- Builds upon the lessons learned and incorporates international best practice.
- Will generate more accurate, consistent and comparable data, which will inform TGO policy and business decisions on how to make operations more efficient and competitive.
- Is effective for all sectors in Thailand.
- Preserves data confidentiality.

- More prescription, generally
  - What is reported
  - Boundaries (control approach at minimum)
  - How GHGs are measured
- De minimis threshold
- Online reporting platform

# The On line CFO Reporting Platform

## Revised CFO Program (Version 2)


You are logged in as tgo\_test\_ea@email.com [My Account](#) [Log Out](#)

[Set Up Inventory](#)
[Report Emissions](#)
[Manage Documents](#)
[Submit Inventory](#)
[Reports](#)
[Admin](#)

[Enter activity data](#)  
[Enter pre-calculated data](#)

[Instructions](#)
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Welcome to The Climate Registry's portal for accurate and transparent greenhouse gas (GHG) data. You will need to log in or create an account to access reports.

New users, register below by clicking "I'd like to register for a new account." Existing users please log in below.

Forgot your password? Enter your email address and then click "Help, I forgot my password." We'll send you an email with instructions.

### Manage Facilities

[Instructions](#)
[Additional Help](#) [+Show](#)

Entity: 
 Emissions Year:

Inventory Status: 
 Reporting Progress:

[View list of facilities](#)

### Log In

Email\*

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Facility  [Search](#)

Select	Facility Name	Address
<input type="checkbox"/>	Bangkok Office	1234 Street, Bangkok TH
<input checked="" type="checkbox"/>	Stationary Combustion Facility	1515 Sample Street, Bangkok TH

[Edit facility](#)
[Add/Activate facility](#)
[Removes facility](#)
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[All Sources](#)
[More Filters](#) [Search](#)

Select	Facility Name	Source Name	Country	Region	Activity Type	Fuel Type	Fuel	End Use Sector	Technology	CO2e
<input type="checkbox"/>	Bangkok Office	Stationary Biomass Combustion	TH	All	Stationary Biomass Combustion - Biomass	Biomass Fuels	Wood or Wood Waste	Electric Power	Wood or Wood Waste Boilers	2203
<input type="checkbox"/>	Bangkok Office	Stationary Combustion	TH	All	Stationary Combustion - Scope 1	Natural Gas	Natural Gas	Electric Power	Boilers	87.5002

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# Mitigating the cost of verification

(

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**Maintaining  
transparent  
data monitoring  
systems**

**Keeping  
organized data  
records  
(spreadsheets,  
invoices and  
records)**

**Using the  
built-in  
calculation tool  
in the reporting  
software**

**Maintaining a  
quality  
assurance  
program**

# Benefits of GHG reporting to organizations

## Be more competitive



Reporting your GHGs will help you save money and become more energy efficient and competitive

## Be prepared for future climate policy



Reporting your GHGs will put you in a much better position than other companies when Thailand introduces mandatory reporting or a carbon market

## Be a leader as Thailand builds its low-carbon economy



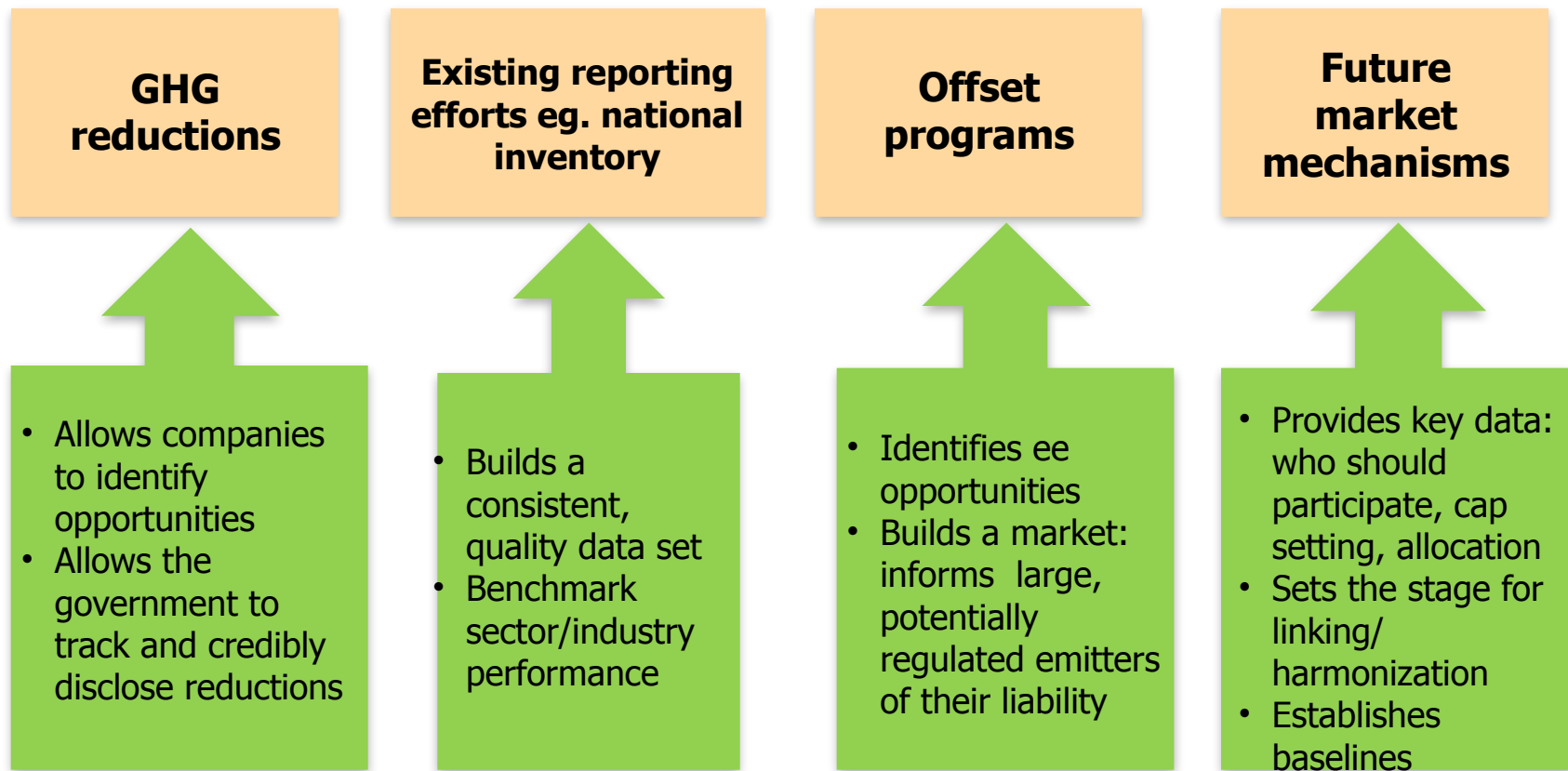
Reporting your GHGs will help you be seen as a leader to your vendors, customers, and other key stakeholders

## Track your success



Reporting your GHGs annually sets a baseline for future performance and allows you to track and record your progress and your reductions over time

# Integration in Thailand



## Corporate GHG reporting program

# From voluntary MRV to carbon markets

**Linked  
markets**



**Linked  
markets**



**Linked  
markets**

**Carbon regulation**  
Cap and trade / carbon taxation

**Mandatory reporting**

**Voluntary reporting**

# Lesson learn : Key Success Factor

- Sufficiency of National LCI Database and Emission factor
- Standardized guidelines : Quantification/reporting, Verification and Accreditation and theirs user-friendly template
- Concrete policy framework, strategic and action plan/budget
- Constructive Stakeholder engagement and partnership
- Availability of Public participation process in guideline development and implementation
- Capacity Building, technical assistant and incentive program for reporter, consultant and verifier
- Pilot implementation program/initiative
- Effective administrative framework, structure and Reporting/registry platform



# Lesson learn : Challenge

- Limitation of specific emission factor.
- Availability of competent expert and verifier
- Technical and technology assistant program for MRV and mitigation
- Insufficiency of promotion and communication campaign/ program to raise awareness and disseminate the GHG quantification management and mitigation approach
- lack of incentive to promote the CFO
- Risk in communication of public disclosure issues.

# Thank you



## **Thailand Greenhouse Gas Management Organization (Public Organization)**

120 Ratthaprasasanabhakti Building, 9th Fl. The Government Complex Commemorating His Majesty, Chaengwattana Road, Laksi, Bangkok 10210 Thailand. [www.tgo.or.th](http://www.tgo.or.th)

# Addressing your own challenges

In **groups of 5-8** with both country and technical representation

- Identify a **time-keeper**, a **rapporteur** and a **presenter**
- Each country – share a challenge you currently have related to this topic
- Share ideas on good practices and think of innovative solutions
- Discuss how to adapt and apply similar approaches to your country
- Identify opportunities for further collaboration and learning
- Capture ideas on the output template sheets

In considering your challenge you may like to think about:

1. What is the problem *really* about? What makes it challenging?
2. What types of innovative solutions has your country used, or are you aware of, to address the challenge?
3. Which stakeholders are involved? How engaged are they? Who else could be involved? What else could you do to build engagement?
4. What tools, resources or other technical options are available or could be created to help build solutions?
5. What assistance is could the LEDS GP and its working groups offer to address these challenges?