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# **First Biennial Update Report**

Workshop for the facilitative sharing of views (FVS) under the international consultation and analysis process (ICA)

November 10th 2016  
Marrakesh, Morocco

1. National circumstances
2. Institutional arrangements
3. National GHG inventory
4. Mitigation actions
5. Constrains and gaps related financial, technical and capacity building needs, including support needed and received
6. Information on domestic measurement reporting and verification



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# 1. National circumstances

# 1. NATIONAL CIRCUMSTANCES



México



In 2013:

- 118,390,000 inhabitants (51.2% female and 48.8% male)
- Mexico is highly vulnerable to climate change
- The fifteenth largest economy
- Mexico is a “mega diverse” country
- National GHG emissions contributed with 1.4% of global emissions.

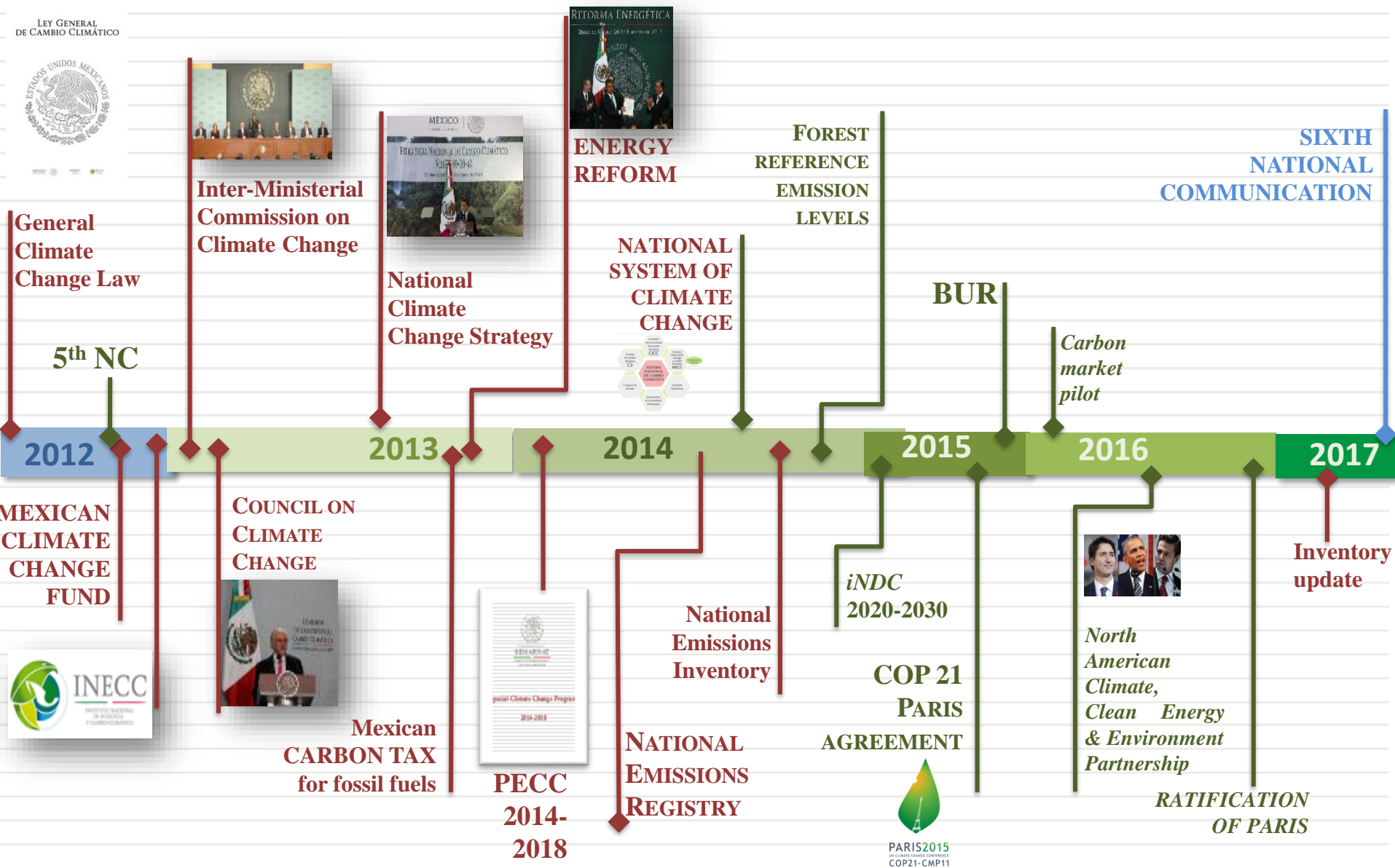


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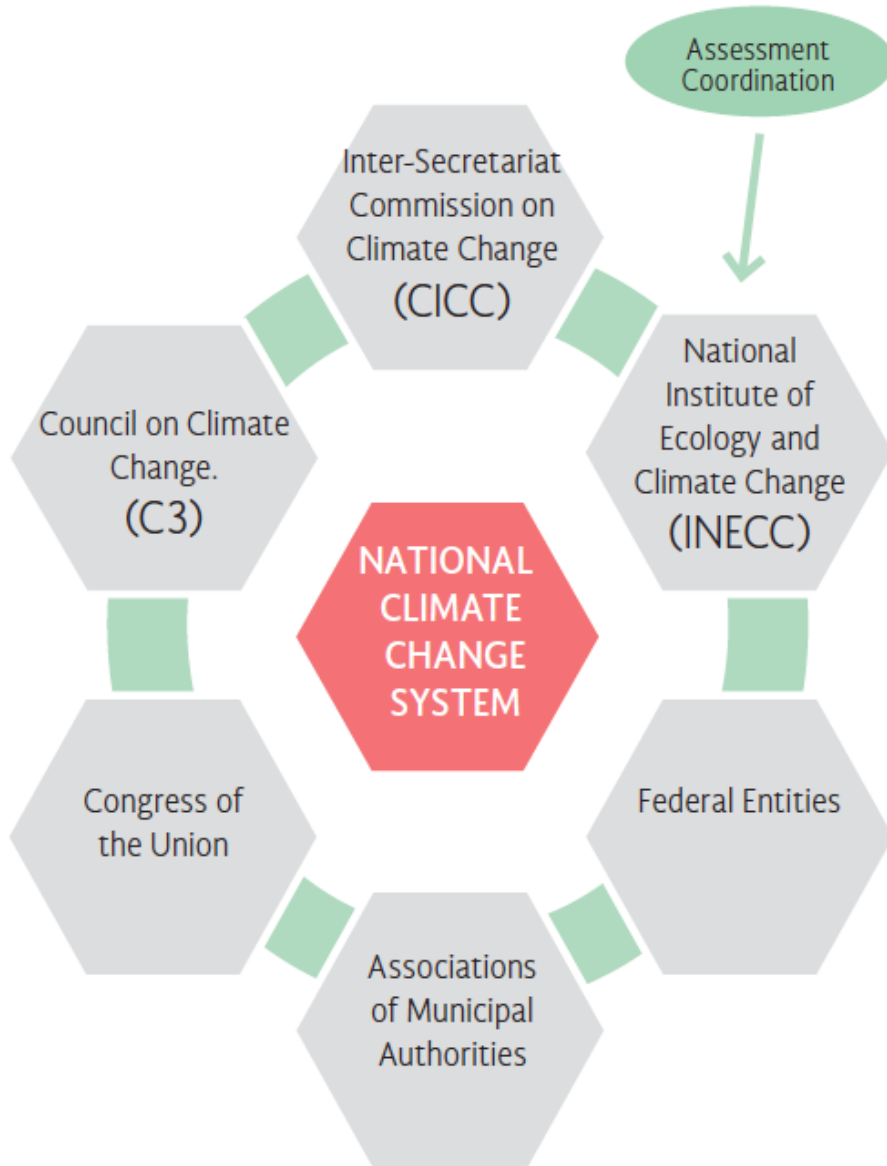
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## 2. Institutional arrangements

## 2. INSTITUTIONAL ARRANGEMENTS



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**General Law on Climate Change  
(2012)**



**National Climate Change Strategy  
(2013)**



**Special Program for Climate Change  
(2014)**



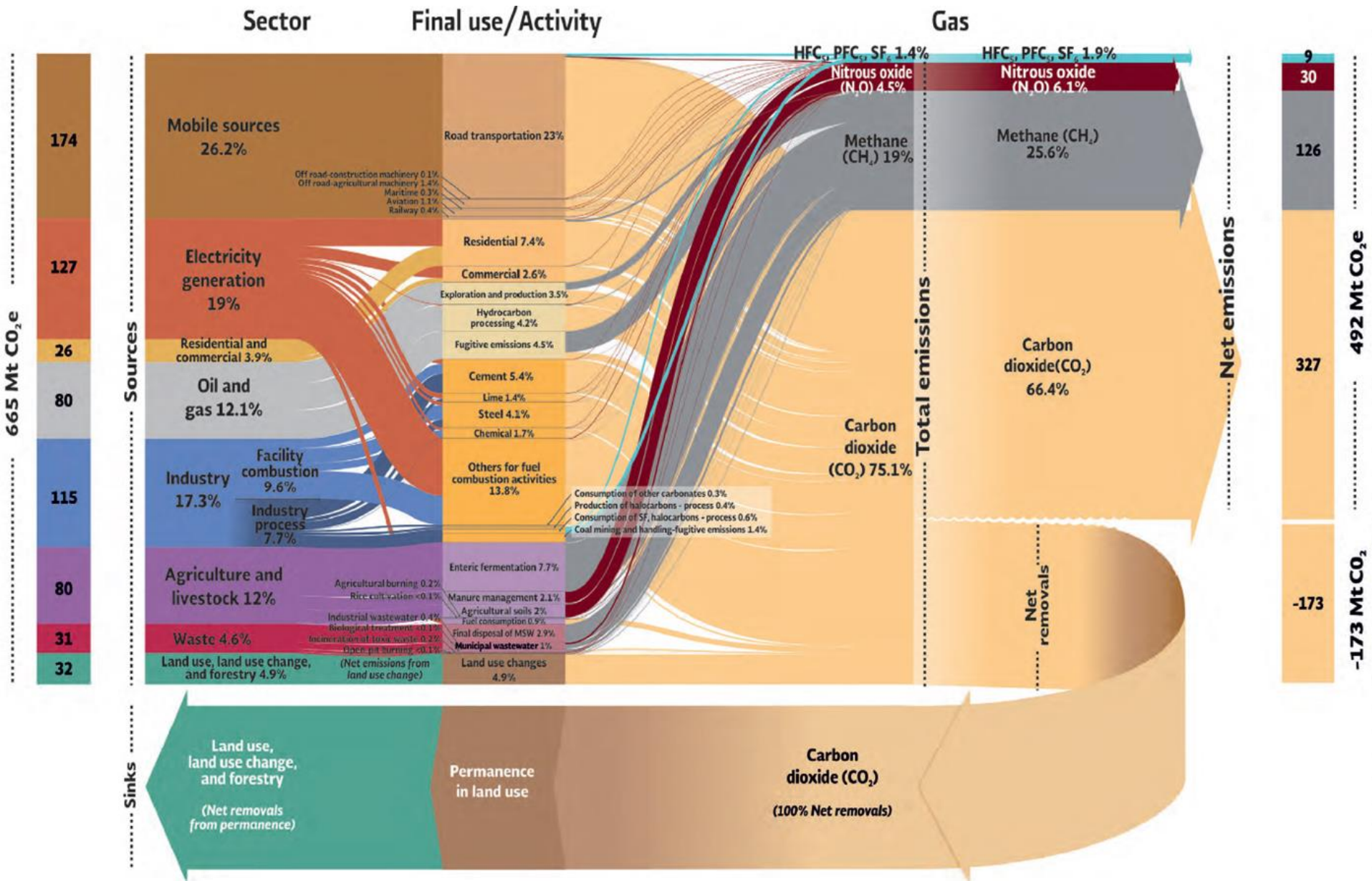
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## **3. National GHG inventory**

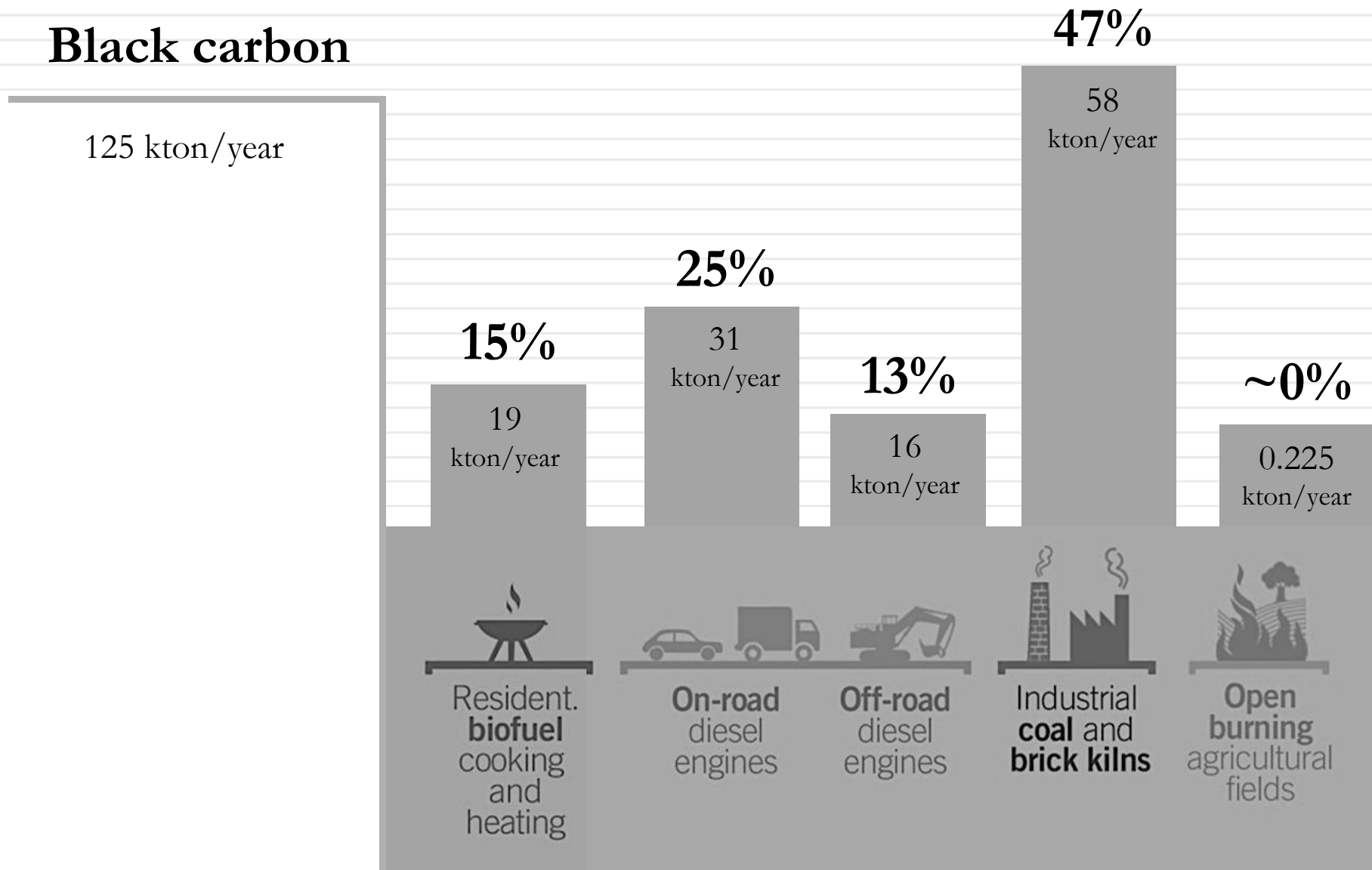


# 3. NATIONAL GHG INVENTORY



## Mexico's black carbon emissions 2013 (SLCP)

### Black carbon



#	Country	Category	Question title
3	European Union	c	Black carbon in GHG inventory



### Question

Since black carbon is not part of the IPCC Guidelines for GHG inventories, could you please explain which methodologies did you use for this estimation?

### Black carbon methodology

Metodología	Sector / Actividad	Valor	Dato de actividad / unidad
Fracción de PM <sub>2.5</sub>	GEE Residencial y comercial	20% <sup>1</sup>	combustión de combustóleo
		20% <sup>1</sup>	combustión de diésel
		20% <sup>1</sup>	combustión de gas natural
		14% <sup>1</sup>	combustión de carbón
		7% <sup>1</sup>	combustión de gas L.P.
	Leña residencial	17% <sup>1</sup>	combustión de leña
	Industria	3% <sup>2</sup>	industria cementera
		5% <sup>2</sup>	industria de caleras, siderúrgica, química
		30% <sup>2</sup>	combustión de bagazo
	USCUSS (incendios)	7.2 - 12% <sup>3</sup>	incendios forestales
Maquinaria de la construcción y agrícola	60% <sup>1</sup>	combustión de diésel	
Incineración de residuos peligrosos	2.4% <sup>1</sup>	combustión de residuos peligrosos	
Agricultura	7% <sup>1</sup>	combustión de gas L.P.	
Factor de emisión	P&G	E = 447,055 <sup>4</sup>	kg CN / Tg CO <sub>2</sub>
	Quema a cielo abierto de residuos	E = 0.646 <sup>5</sup>	g CN / Kg de residuos quemados
	Quemas agrícolas	E = 0.73 <sup>2</sup>	t CN / Gg de biomasa agrícola quemada base seca
	Ferrocarril	E = 1.53 <sup>2</sup>	g CN / kg combustible
	Marítimo	E = 1.02 <sup>2</sup>	kg CN / ton diésel
	Aviación	E = 0.1 <sup>2</sup>	g CN / kg combustible
MOVES	Autotransporte		

1. Carb, Speciation Profiles Used in ARB Modeling

2. Atmospheric Brown Clouds (ABC), Emission Inventory Manual.

3. [http://www.ine.gob.mx/descargas/cclimatico/2010\\_cca\\_mce2\\_temas\\_emergentes.pdf](http://www.ine.gob.mx/descargas/cclimatico/2010_cca_mce2_temas_emergentes.pdf)

4. McEwen, J y M. Johnson (2012). "Black carbon particulate matter emission factors for buoyancy-driven associated gas flares", Journal of the Air & Waste Management Association.

5. Christian, T., R. Yokelson, B. Cárdenas, L. Molina, G. Engling y S. Hsu. (2010). "Trace gas and particle emissions from domestic and industrial biofuel use and garbage burning in central Mexico", Atmospheric Chemistry and Physics.

6. UNEP 2011. Near-term Climate Protection and Clean Air Benefits: Actions for Controlling Short-Lived Climate Forcers, United Nations Environment Programme (UNEP), Nairobi, Kenya, 78p]

### 3. NATIONAL GHG INVENTORY



#### Data by industrial facility

- Unit level data of strategic sectors such as electricity, cement, steel and chemical industries (new electronic system *COAweb*) to gather industrial and utilities activity data and Ministry of Energy's utilities data).

#### Fugitive emissions

- IPCC 2006 methodology with new national study for Emissions Factors

#### More accurate vehicle fleet data

- Improved fleet data and implementation of EPA's MOVES model adapted to Mexico for the estimation of black carbon and criteria pollutants.

#### Better data and models of waste and agriculture

- Implementation of the Mexico's Biogas Model with more detailed databases for MSW municipal level disposal sites, technology and emissions.
- Activity data was improved for excreta in agriculture sector, for nitrogen estimation.

### 3. NATIONAL GHG INVENTORY

#### LULUCF estimates of areas with no change

- Used of the most recent National Forest and Soil Inventory to estimate the absorption by forestland that remains forestland and other unchanged areas. Net absorption was estimated in - 173 MtCO<sub>2</sub> constituting an important sink (24% of total emissions).



#### GWP AR5

- Used of Global Warming Potential published in the IPCC's 5th Assessment Report.

#### Country-specific emission factors

- Emission factors were revised and updated to use the most relevant to national circumstances

#### BLACK CARBON

- Inclusion of carbon black expands the scope of the Inventory.



#	Country	Category	Question title
2	European Union	c	LULUCF



## Question

In the GHG inventory (LULUCF sector) Mexico only included emissions and removals from land use conversions in the national total. Net removals from forest lands remaining forest lands are calculated, but not included in the national total.

Could you please provide more information regarding the reasons for this decision?

## Mexico response

We found that guidelines regarding accounting removals by the LULUCF sector **are not very clear**.

For example, Decision 2/CP17 Annex III, states that for the national inventory of emissions, Non-Annex I Parties should submit updates of national GHG inventories according to decision 17/CP.8. This decision refers to a national inventory of **anthropogenic emissions**, including sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol. It also encourages reporting of these emissions and absorptions according to Tables 1 and 2, we found that **these tables are not fully consistent with Good Practice Guidelines 2003 on LULUCF**.

**For transparency purposes we left them separated.** We included the emissions reporting of anthropogenic emissions of LUCUCF with total emissions and permanences are clearly reported in a separate line. The BUR does include a net emissions line.

We believe that guidance from the Convention could be valuable to clarify this issue.

## Ongoing activities and studies for the emissions inventory:

1. Capacity building on IPCC 2006 methodologies.
2. Tools for inventory uncertainty analysis
3. Black carbon monitoring network
4. Methane emission factors from enteric fermentation by species age, diet, function, production system and region in Mexico
5. CO<sub>2</sub>, CH<sub>4</sub>, PM<sub>10</sub> & PM<sub>2.5</sub> emission factors from waste agriculture burning
6. Subnational forestry emissions inventory and elements to improve state level MRV systems at the subnational
7. Vehicle fleet at municipal level





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## **4. Mitigation actions**



# 85 Mitigation actions in accordance with international commitments and national goals

PECC

NAMA

PEAER

RENE

- Promoting energy efficiency
- Sustainable city models
- Transition to clean energy sources
- Sustainable agroforestry and livestock practices
- Reduction of SLCP emissions

## 4. MITIGATION ACTIONS

Mitigation action examples	Sector	Expected reduction (MtCO <sub>2</sub> e)*	Methodology
Diversification of the energy matrix with investment in clean energy generation	Power generation	18.7	Prospective and operational parameters from the corresponding Ministry.
Energy efficiency through standards, in public lighting, buildings, and federal vehicles	Energy (sust. cities)	9.66	Activity reports and subnational registries from the leader institution sector
Promoting investment into smart grids that facilitate the incorporation of renewable energy and the reduction of technical losses	Energy (electricity consumption)	4.10	EF from “Programa GEI” (voluntary program) and information of the percent of technical losses estimated by the implementing agency.
Pemex's contribution through energy efficiency, burning, venting and gas exploitation	Oil and gas	5.00 + 18,203 tCH <sub>4</sub>	Algorithms and EF from EPA AP-42 and operational parameters from implementing agency
Clean Transportation Program	Transport	3.00	Based on FLEET model from EPA, EF IPCC 2006.
Implementation of NAMA projects in the housing sector	Residential and commercial	1.38	Base Line was based on three characteristic social housing building types in four different climate zones of Mexico. Four different energy efficiency cases were produced through the calculation of the effects of different building parameters
Reduce black carbon emissions by sugarcane green harvesting instead of burning practice.	Agriculture	0.8 + 3,104 tCH <sub>4</sub> + 805 tCN	Activity data (surface coverage) based on official statistics from the leader corresponding Ministry; parameters and EF from INEGI 1990-2013.
Promote management of solid waste	Waste	0.5 + 20,833 tCH <sub>4</sub>	AMS-III.G Version 08 “Landfill methane recovery”
Increasing coverage of municipal wastewater treatment	Waste (water)	2.99 MtCO <sub>2</sub> e	AM0080: Mitigation of GHG emissions with treatment of wastewater in aerobic treatment plants
Deforestation and forest degradation through early actions in the territory	Forest	8.75	The scenario was estimated considering a reduction of deforestation rate (2.5% annually) compared to the national reference level.

\* Annual commitment by 2018



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**5. Constrains and gaps  
related financial, technical and  
capacity building needs, including  
support needed and received**

## 5. CONSTRAINTS AND GAPS

### *Financing*

- For the elaboration of the BUR, Mexico contributed 325,000 USD and GEF 321,461 USD. Resources were managed by UNDP and implemented by INECC.
- To report on financial support, Mexico started compiling information of financial flows dedicated to climate change. Through our BUR we found:
  - Matching information from donor countries and multilateral organizations is very complex, since there are no unifying criteria nor a platform to compile this information.
  - Also, there is a need to track financial flows that Mexico allocates specifically for South-South climate change cooperation.
- Therefore, transparency could be enhanced with better guidelines for reporting, together with a systematic approach for matching support given and received, applicable for all Parties.
- Mexico is taking steps to coordinate information for our next BUR with the Ministry of Foreign Affairs and other Ministries.

### *Capacity building :*

- Enhance the capacity of experts to migrate towards the use of the 2006 IPCC Guidelines to prepare the national GHG inventory.
- Develop further the methods used for quantifying and monitoring the progress of mitigation actions.
  - Applying a consistent methodology across sectors.
  - Improving the methodologies for specific sectors.
  - Applying best practices for accurately identifying and reporting progress made.
- Improve the integration of the country's different MRV subsystems and enhancing the synergies among them.
- Enhance the national capacity to design and implement a methodology for identifying gaps, constraints and needs.
- Enhance the national capacity to prepare a TNA, including identifying sources of funding for technology transfer purposes.
- Frameworks that integrate financial mechanisms to technology transfer mechanisms for successful adoption of climate technologies.



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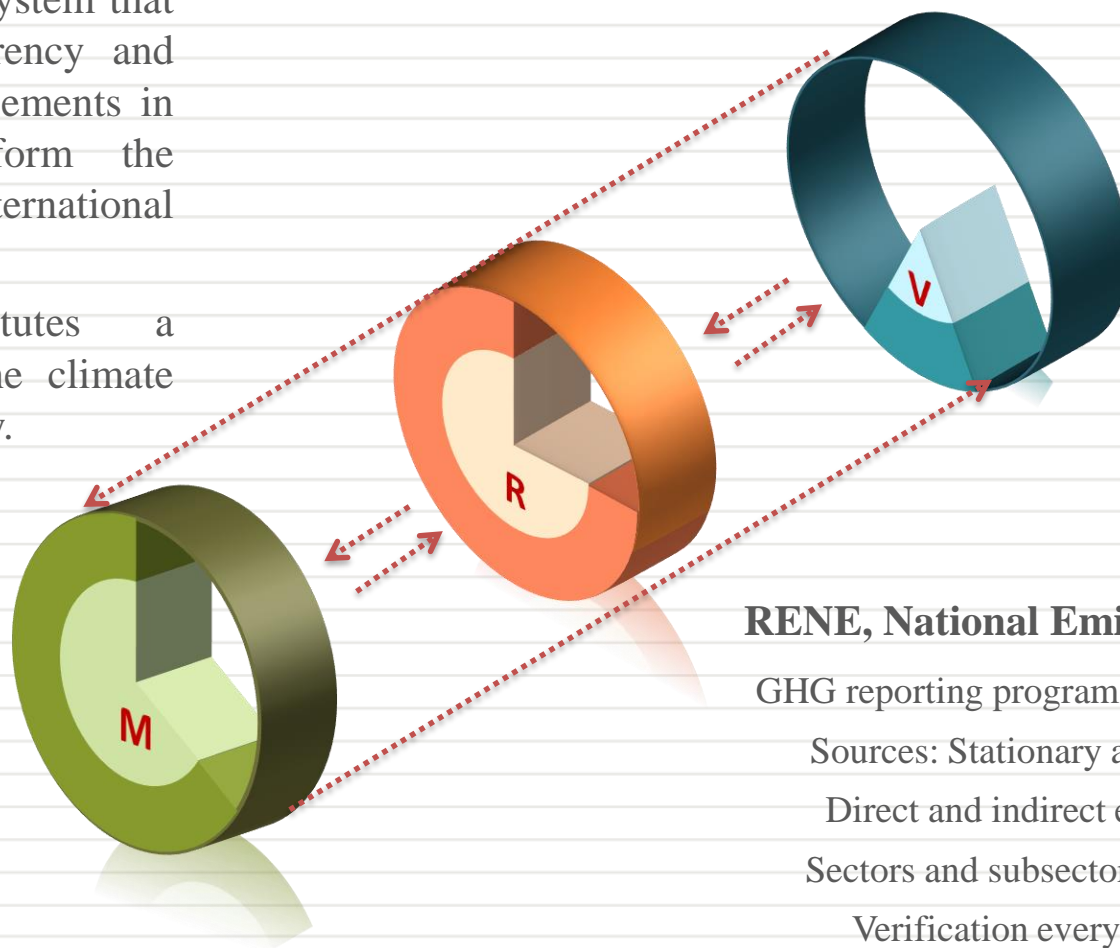
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## **6. Information on domestic measurement reporting and verification**

## Moving towards a national MRV system

Mexico has begun a process to build a national MRV system that give certainty, transparency and robustness to its achievements in GHG mitigation, inform the public and the international community.

This effort constitutes a fundamental part of the climate change mitigation policy.



### **RENE, National Emissions Register:**

GHG reporting program (mandatory):

Sources: Stationary and mobile

Direct and indirect emissions

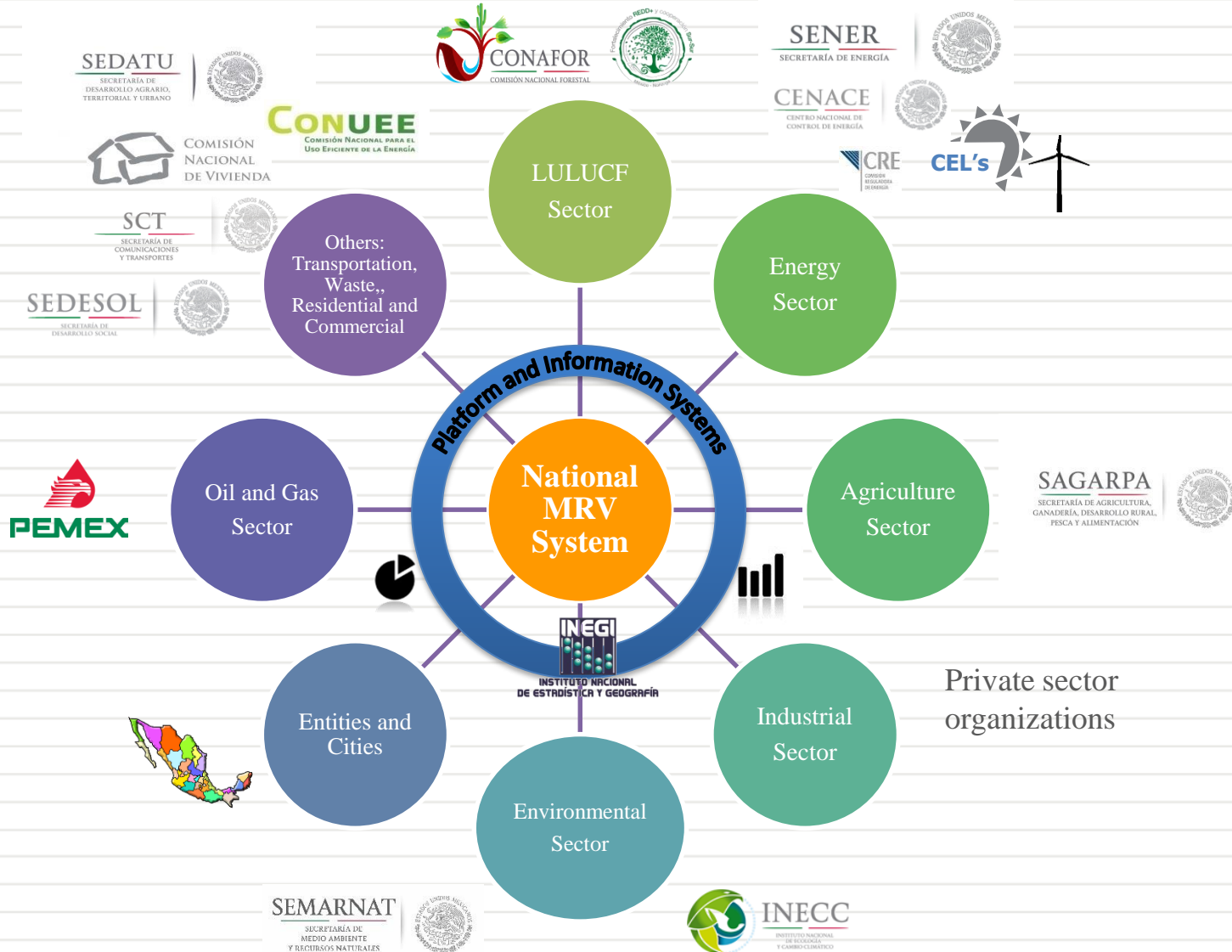
Sectors and subsectors included

Verification every 3 years

Registration of mitigation activities (voluntary)

Carbon trading markets

## Key stakeholders for the MRV system implementation









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**Thank you**

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## Written questions received by parties:

### European Union (8)

- BUR guidelines
- LULUCF
- Black carbon in GHG inventory
- GHG data platform
- Improvements to GHG inventory
- Emission registry
- Carbon markets
- Indicators

### Japan (1)

- JCM expectations

### New Zealand (1)

- MRV

### United States (6)

- BUR guidelines

- Steps for information and quantification of mitigation actions
- Synthesizing data on emissions reduction potential
- Report of financial support
- 2006 IPCC methodologies
- Key category analysis

### Peru (4)

- Support needed methodology
- Information gathering challenges
- Coherence in time series
- Report of removals

### Switzerland (1)

- GWP