

# Overview of GHGs Emission Inventory and Its Institutional Arrangement in Iran

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# Presentation outlines

- ▶ Iran's demographics and macro economic profile
- ▶ Iran's Climate Change profile
- ▶ GHGs emission by sectors in 2010
- ▶ GHGs emission trends in Iran
- ▶ Legal Framework for enforcement of GHGs Inventory Preparation
- ▶ Institutional Arrangement for Inventory preparation
- ▶ Barriers and Constraints
- ▶ Recommendations

# Iran's demographics and macro economic profile in 2010

items	Value	
Population (Million)	74	
GDP ( Billion 2005 US\$-PPP)	773 (18 th in world)	
Per-capita income (2005 US\$)	PPP	10,446
	Exch. rate	3,108
CO2 emission from fuels (Million tonnes)	509	
Per-capita CO2 emissions (tonnes)	6.9	
Per-GDP CO2 emissions (Kg/2005 US\$ @ PPP)	0.66	

# Iran's climate change profile in 2016

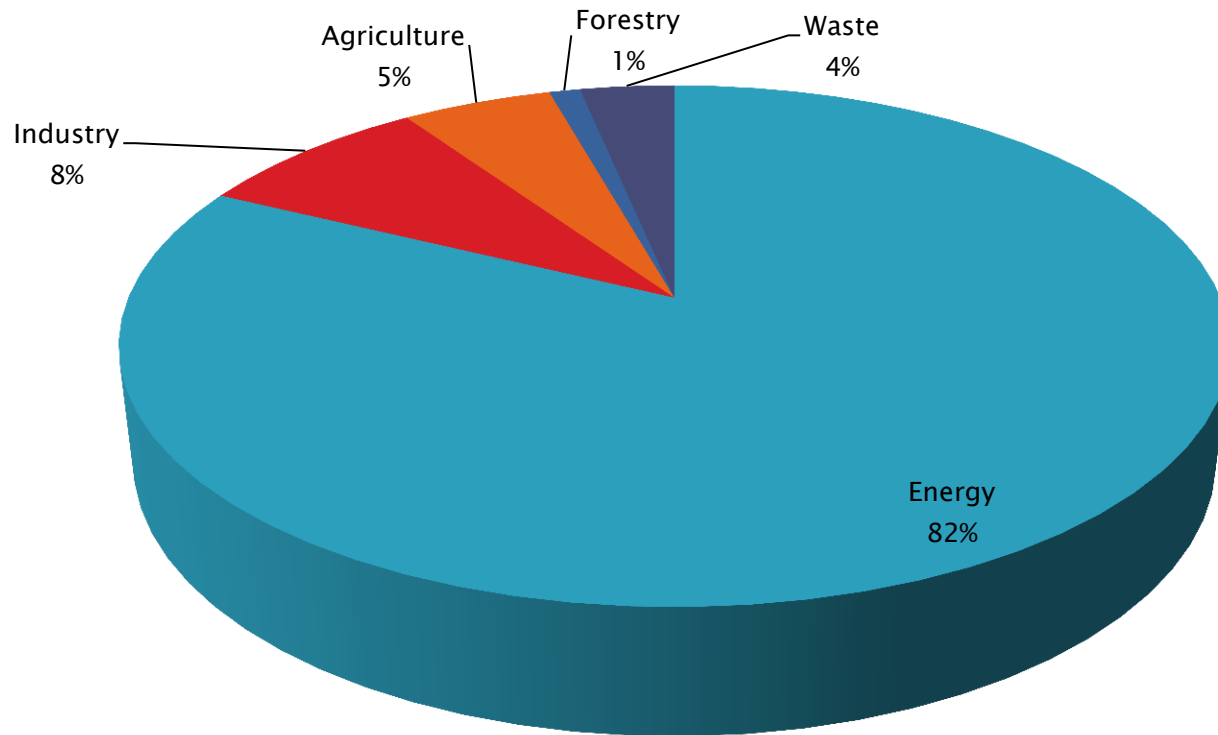
items	Value
UNFCCC and KP Ratified on :	1996 and 2005
INC, SNC and TNC Submitted on:	2003, 2011 and TNC will be submitted by end of 2016
National Inventory was prepared for :	INC, 1994 SNC, 2000 TNC, 2010 The GHGs emission from fuel combustion in yearly basis is published since 2000 by Ministry of Energy in Energy Year Book
INDC and Paris Agreement:	INDC submitted on 18 November 2015 and Paris Agreement was signed in April 2016 and under ratification by Parliament
National Rules of Procedure for Implementation of UNFCCC and KP was approved on:	2009 and revised on 2012 and 2015
Low Carbon Economy Strategies approved on :	January 2016
National Strategies and Action Plan on Climate Change:	Under Approval by Board of Ministers

# GHGs emission inventory in 2010(Kton)

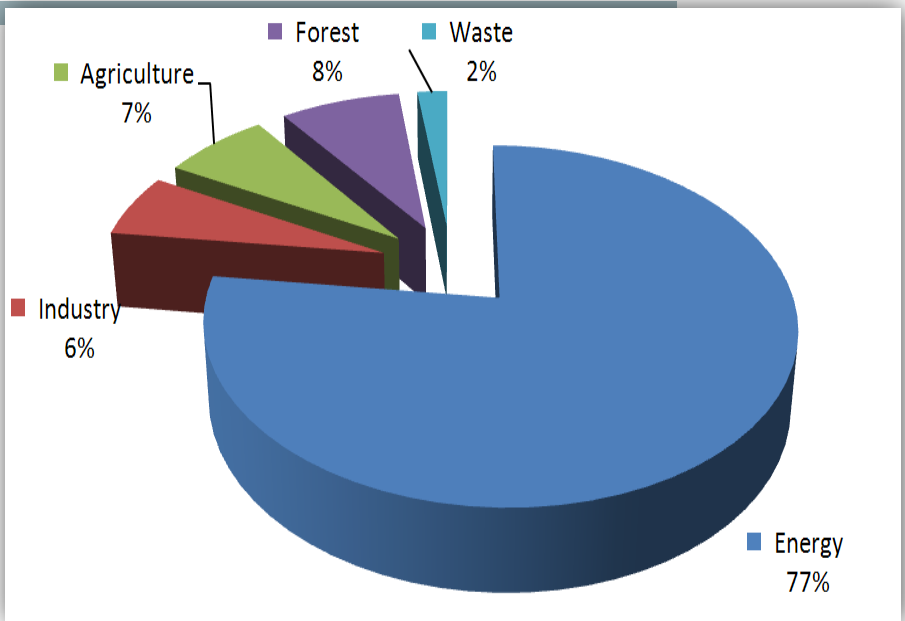
Sources	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	Total
<b>1. Energy</b>	<b>584,451</b>	<b>5,437</b>	<b>4.0</b>	<b>699,868</b>
<i>Fuel Combustion</i>	<i>543,569</i>	<i>71</i>	<i>4</i>	<i>546,300</i>
<i>Fugitive Emissions</i>	<i>40,882</i>	<i>5,366</i>	<i>0</i>	<i>153,568</i>
<b>2. Industry</b>	<b>67,840.8</b>	<b>29.8</b>	<b>4.5</b>	<b>69,846</b>
<b>3. Agriculture</b>	<b>598.8</b>	<b>966.1</b>	<b>75.7</b>	<b>44,367</b>
<b>4. Forestry</b>	<b>9,181</b>	<b>0.3</b>	<b>0.0</b>	<b>9,187</b>
<b>5. Waste</b>	<b>29.0</b>	<b>1,308.2</b>	<b>1.3</b>	<b>27,905</b>
<b>Total GHG's Emissions</b>	<b>662,101</b>	<b>7,741</b>	<b>85</b>	<b>845,173</b>
<b>GWP*</b>	<b>1</b>	<b>21</b>	<b>310</b>	
<b>Total CO<sub>2</sub> Equivalent</b>	<b>662,101</b>	<b>162,570</b>	<b>26,502</b>	<b>845,173</b>

# Contribution of different sectors on GHGs emission in 2010 (%-CO2 eq.)

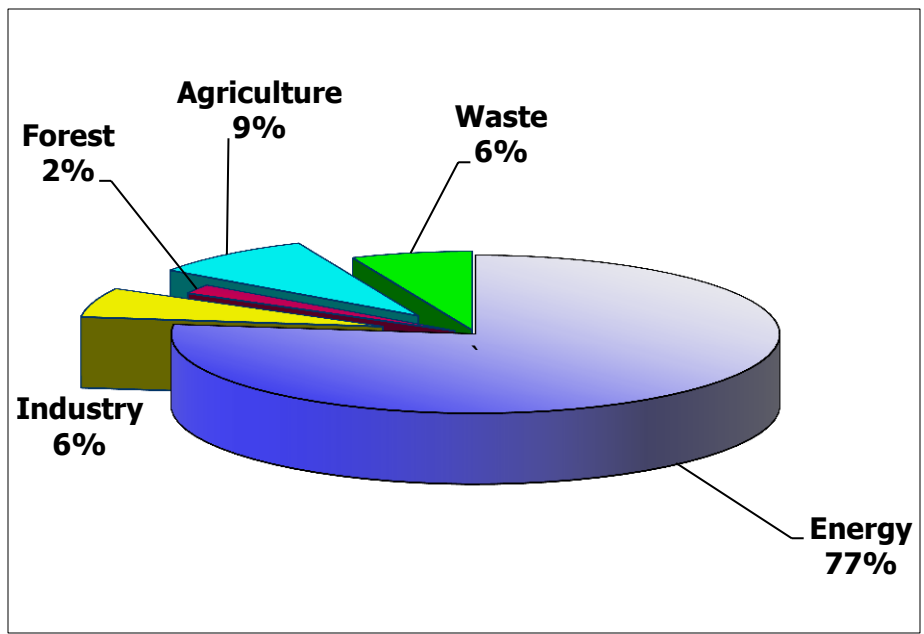
Overall GHGs emissions on 2010 is about 845 Million tonnes-CO2 eq.



# Contribution of different sectors on GHGs emission (%-CO2 eq.)

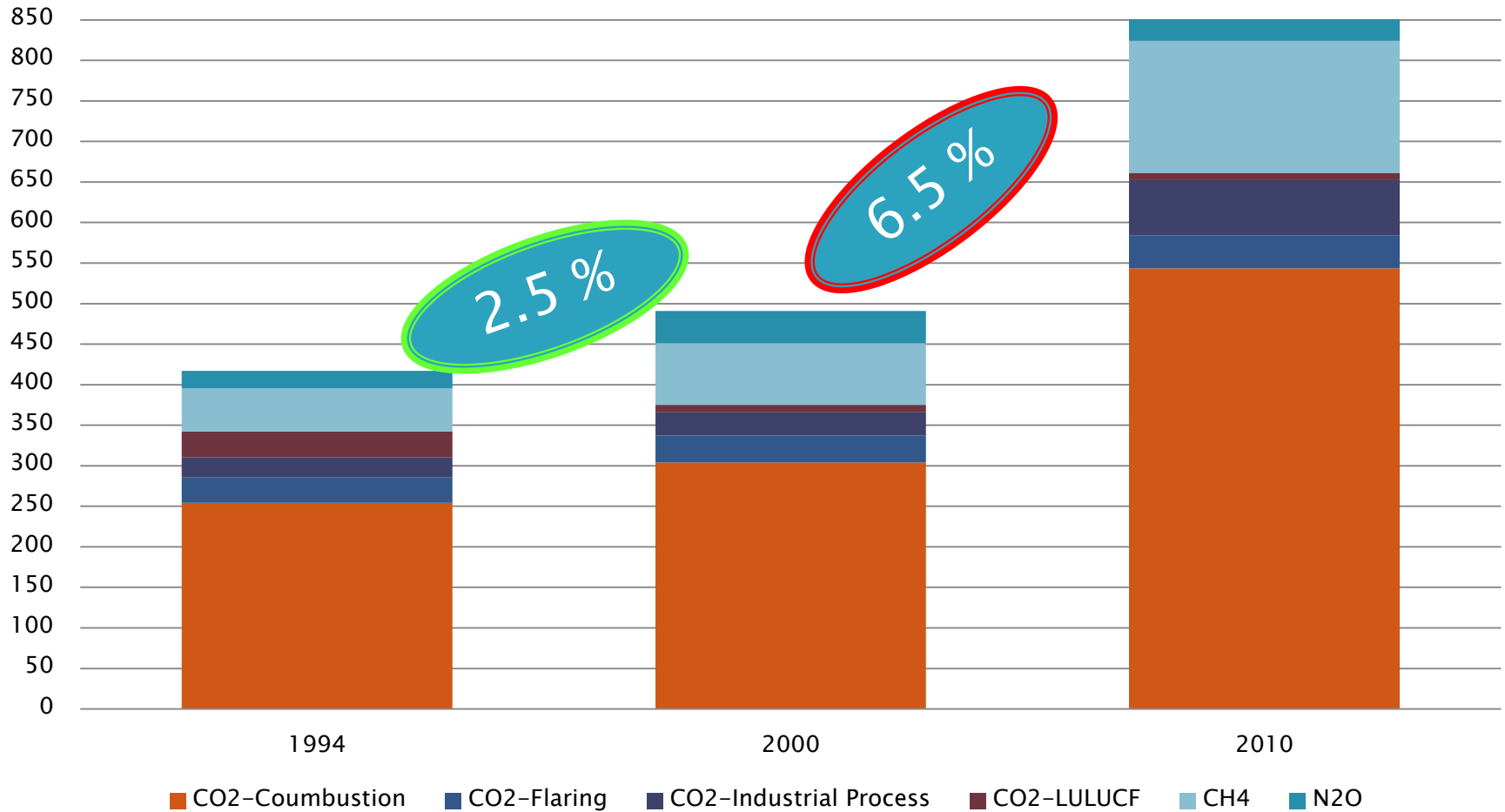


1994



2000

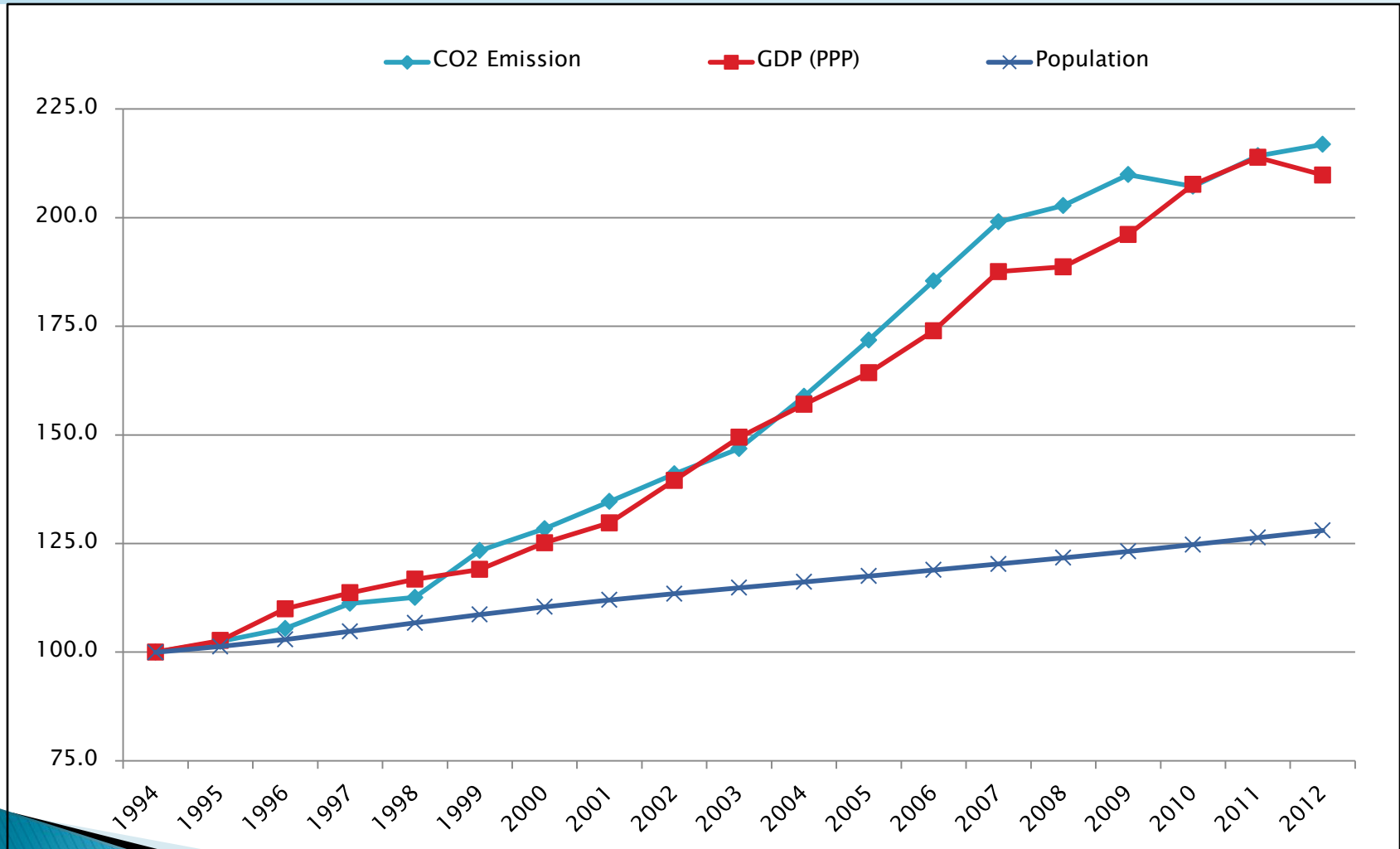
# GHGs emission trend between 1994 and 2010 (Kton)



Source: Iran's National Communications to UNFCCC and IPCC AR5-WGIII Reports

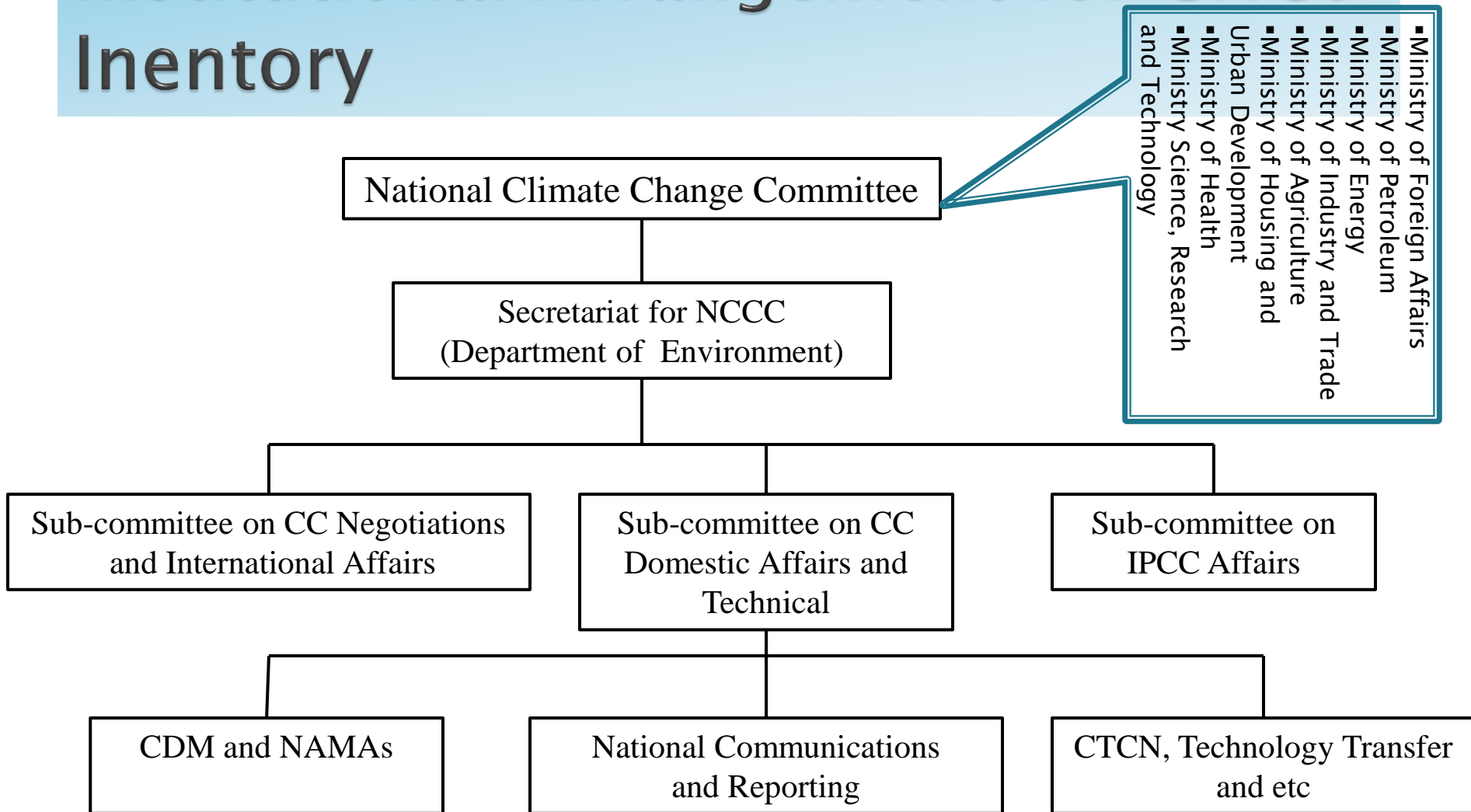


# GHGs emission trend versus GDP and population between 1994 and 2010



Source: Iran's Third National Communication to UNFCCC and IEA 2012 CO2 Emission Highlights from Fuel Combustion

# Institutional Arrangement for GHGs Inventory

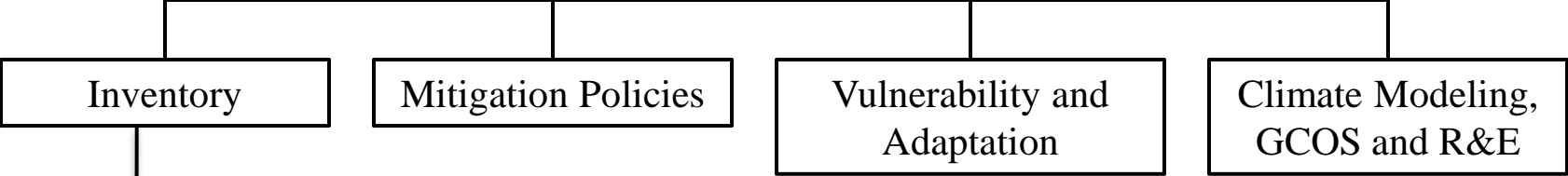


# Institutional Arrangement for GHGs Inventory

- Steering Committee consist of member from:**
- Ministry of Foreign Affairs
  - Ministry of Petroleum
  - Ministry of Energy
  - Ministry of Industry and Trade
  - Ministry of Agriculture
  - Ministry of Housing and Urban Development
  - Ministry of Health
  - Ministry Science, Research and Technology
  - UNDP
  - Academia and NGOs

National Communications  
(National Climate Change Office of Department of Environment)

Secretariat for NCs,  
Consultants and Team Leaders



- Sectors and Main Responsible Bodies for Data Providing:**
- Energy (MOE, MOP)
  - Industrial Process (MIMT, Custom)
  - Agriculture (MOA)
  - Forestry and Land-use (MOA, FRWMO)
  - Waste (MOE, MIMT, MOI and Municipality Organization)

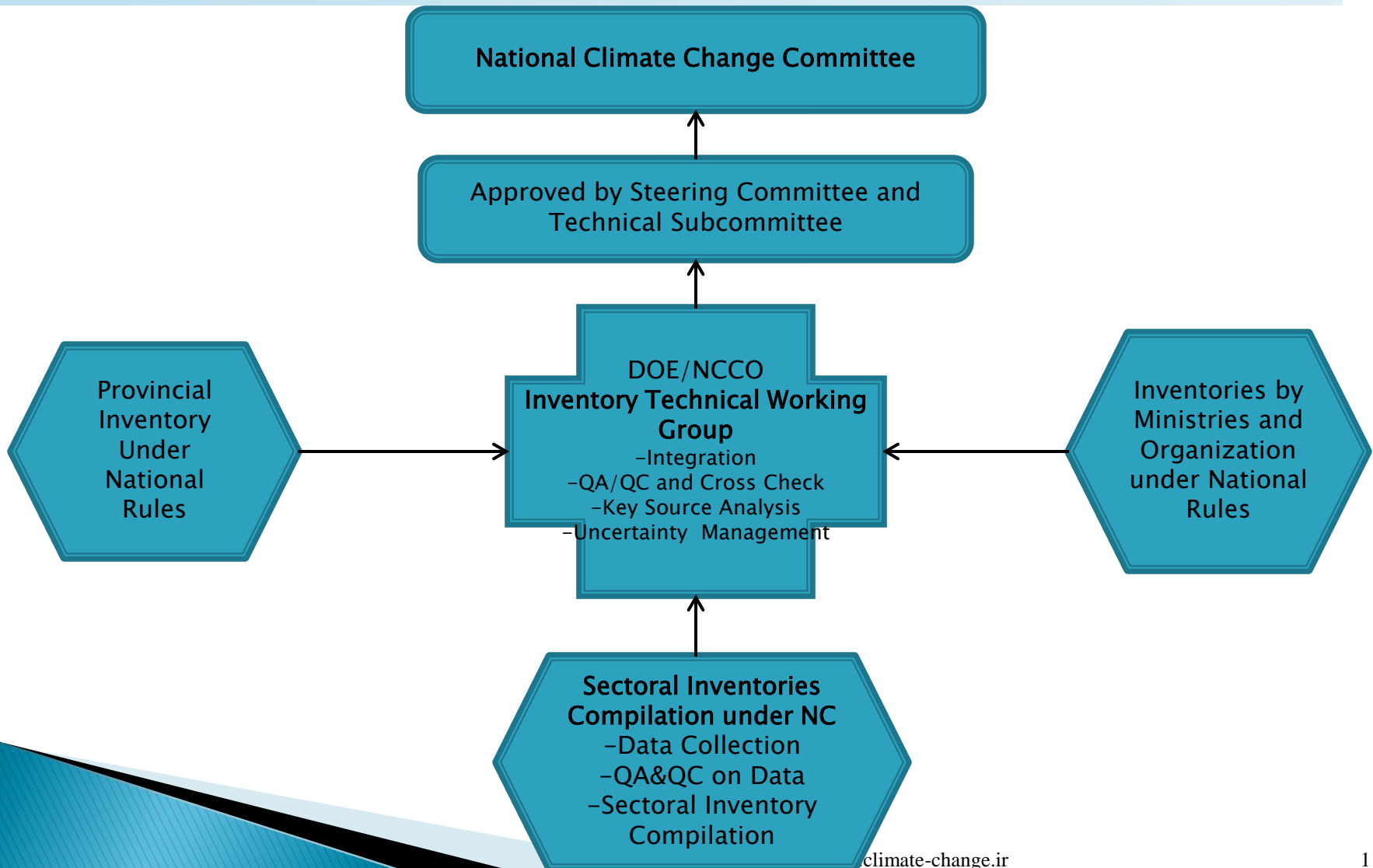
# Institutional Arrangement for GHGs Inventory

Sectors	Involved Organizations for Activity Data	Uncertainty	
		Activity Data	Emission Factor
Energy: Fuel Combustion Fugitive Emissions	<ul style="list-style-type: none"> <li>-Ministry of Energy (Power)</li> <li>-Ministry of Petroleum and its subsidiary companies</li> <li>-Ministry of Industry, Mines and Trade</li> </ul>	<p>AD uncertainty in energy sector is low, 2 yearbook, energy and hydrocarbon Balance are published by MOP and MOE in yearly bases</p> <p>Just in energy sector there is a huge uncertainty in Volume of Flared gases</p>	<p>There is huge uncertainty for CH4 emission from Oil and Gas Processing and Distribution.</p> <p>Also Huge uncertainty for CO2 venting in Oil and Gas Processing units.</p>
Industrial Process (IPPU)	<ul style="list-style-type: none"> <li>-Ministry of Industry, Mines and Trade</li> <li>-Custom and Trade (import/export) authorization</li> </ul>	<p>For mineral and metal products, the uncertainty is low. There information are published annually in MIMT Statistical Yearbook. There is huge uncertainty in Chemical industries which it is double counted with information is published by National Petrochemical Co.</p> <p>Also there is huge uncertainty in AD for HFCs and PFCs which used and imported.</p>	<p>There is not NEF, we use default emission factor, but the uncertainty is low.</p>

# Institutional Arrangement for GHGs Inventory

Sectors	Responsible Organizations for Activity Data	Uncertainty	
		Activity Data	Emission Factor
Agriculture	–Ministry of Agriculture	AD uncertainty in agriculture, especially ruminant population is medium, although MOA is publishing ruminant population and rice cultivated area annually in statistical yearbook.	There is huge uncertainty for CH <sub>4</sub> emission from enteric fermentation and rice cultivation and also agricultural soil.
Forestry and Land-use	– Ministry of Agriculture – Forestry, Rangeland and Watershed Management Organization	AD uncertainty in forest sector, especially biomass volume and its density in different land use is very high, although FRWMO is publishing forest area, area which afforested and reforested and harvested annually in statistical yearbook, but it is not in a consistent format with Inventory data type	There is huge uncertainty for carbon content in dry matter of wood/biomass with respect to local species in forest and rangelands.
Waste	– Ministry of Energy (water and Waste Water Organization) –Ministry of Industry –Ministry of interior (Municipality Organization)	AD uncertainty in municipal/industrial Waste Water treatment is low. The major uncertainty is in volume and type of municipal solid waste.	The uncertainty in EF is high, because there is not accurate data on composition of waste within the country.

# Institutional Arrangement for GHGs Inventory



# Gaps and constraints:

## Data :

- ▶ The data not published in continuous basis in a few sectors and also the published data not consistence with inventory template.
- ▶ The uncertainty of collected data and information especially in Agriculture, forestry and land use change is high. Also the national an international published data on forestry and rang-lane is inconsistent.
- ▶ There is not specific data set for import/export of HFCs/PFCs/SF6 to the country. So we have to apply bottom-up approach with higher uncertainty.

## Emission Factor:

- ▶ Lack of country specific EFs and also lack of financial and technical supports for development of EFs.
- ▶ Uncertainty of Default EFs for Venting, Flaring and Fugitive emissions in oil and gas industries is very high.

# Recomendations

- Organizing regional conference and workshops for exchanges of views on preparation of Inventory like the WGIA and GIR programs for CIS and Western Asia
- International/ Regional Cooperation for development of regional emission factors
- Establishment of a roster of expert for region on inventory
- Establishment of a FAQ systems for region for technical cooperation



**Thanks for your  
kind attention**