

Experience developing GHG Inventories in Mexico with a focus on LULUCF components

Carlos Zermeño y José Carlos Fernández

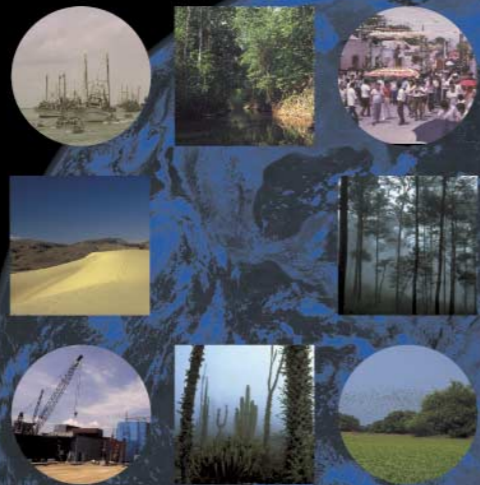
Mexico's National Communications

M • É • X • I • C • O

PRIMERA COMUNICACIÓN NACIONAL ANTE LA CONVENCION MARCO DE LAS NACIONES UNIDAS SOBRE EL CAMBIO CLIMÁTICO



México
2a Comunicación Nacional
ante la Convención Marco
de las Naciones Unidas
sobre el Cambio Climático



MÉXICO TERCERA COMUNICACIÓN
NACIONAL ANTE LA CONVENCION
MARCO DE LAS NACIONES UNIDAS
SOBRE EL CAMBIO CLIMÁTICO

Secretaría de Medio Ambiente y Recursos Naturales
Instituto Nacional de Ecología

México
CUARTA COMUNICACIÓN NACIONAL
ANTE LA CONVENCION MARCO DE
LAS NACIONES UNIDAS SOBRE EL
CAMBIO CLIMÁTICO

1997

(1990)

2001

(1996)

2006

(2002)

2009

(2006)

... 2012

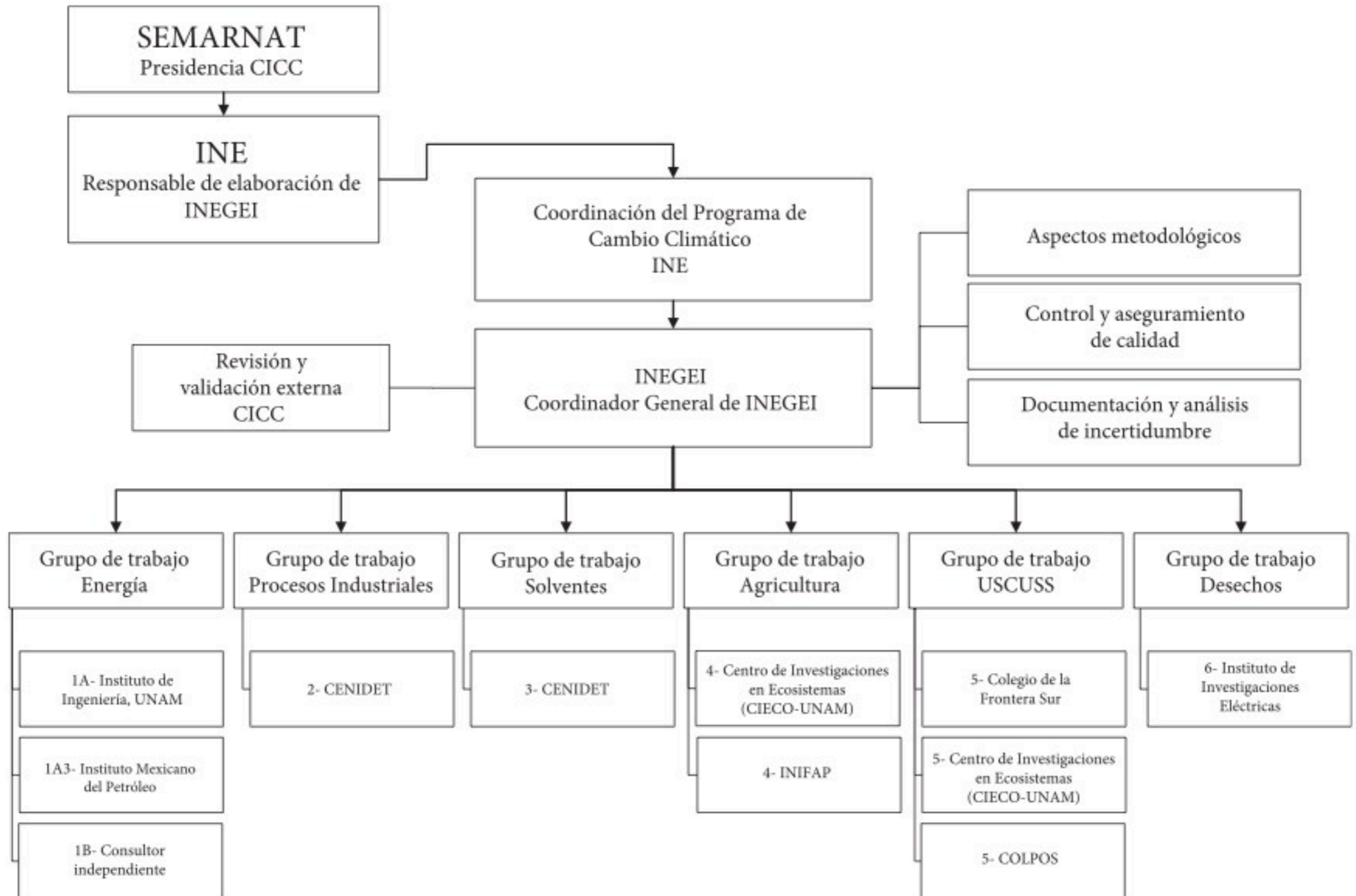
Legal arrangements

The National Institute of Ecology has, as its functions:

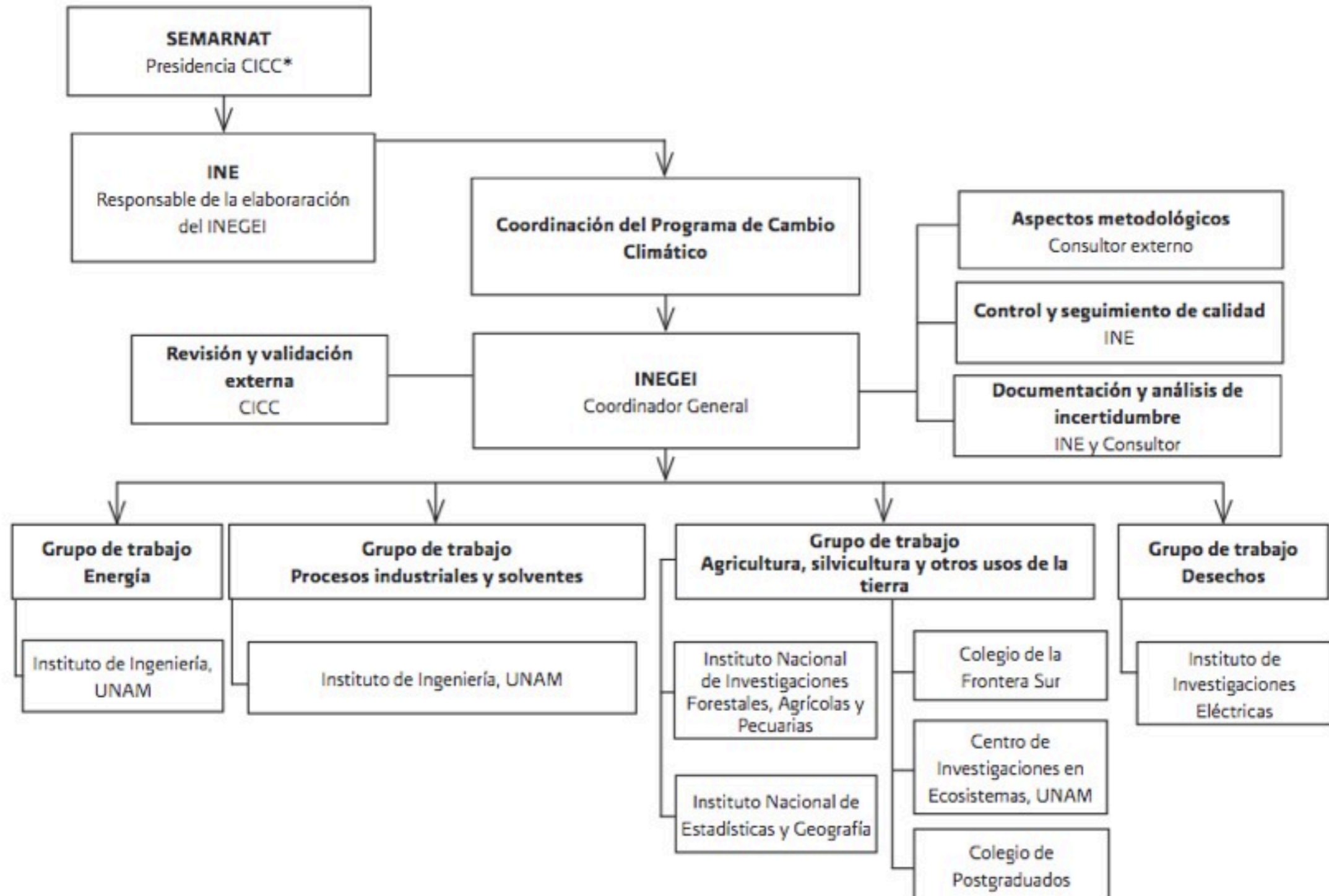
“Promover y coordinar estudios para la actualización, mejoramiento y sistematización permanente del inventario nacional de emisiones de gases de efecto invernadero;” (Reglamento Interior de la Semarnat, as ammended in 2006)

Canales de transmisión post-producción del reporte - reporte externo

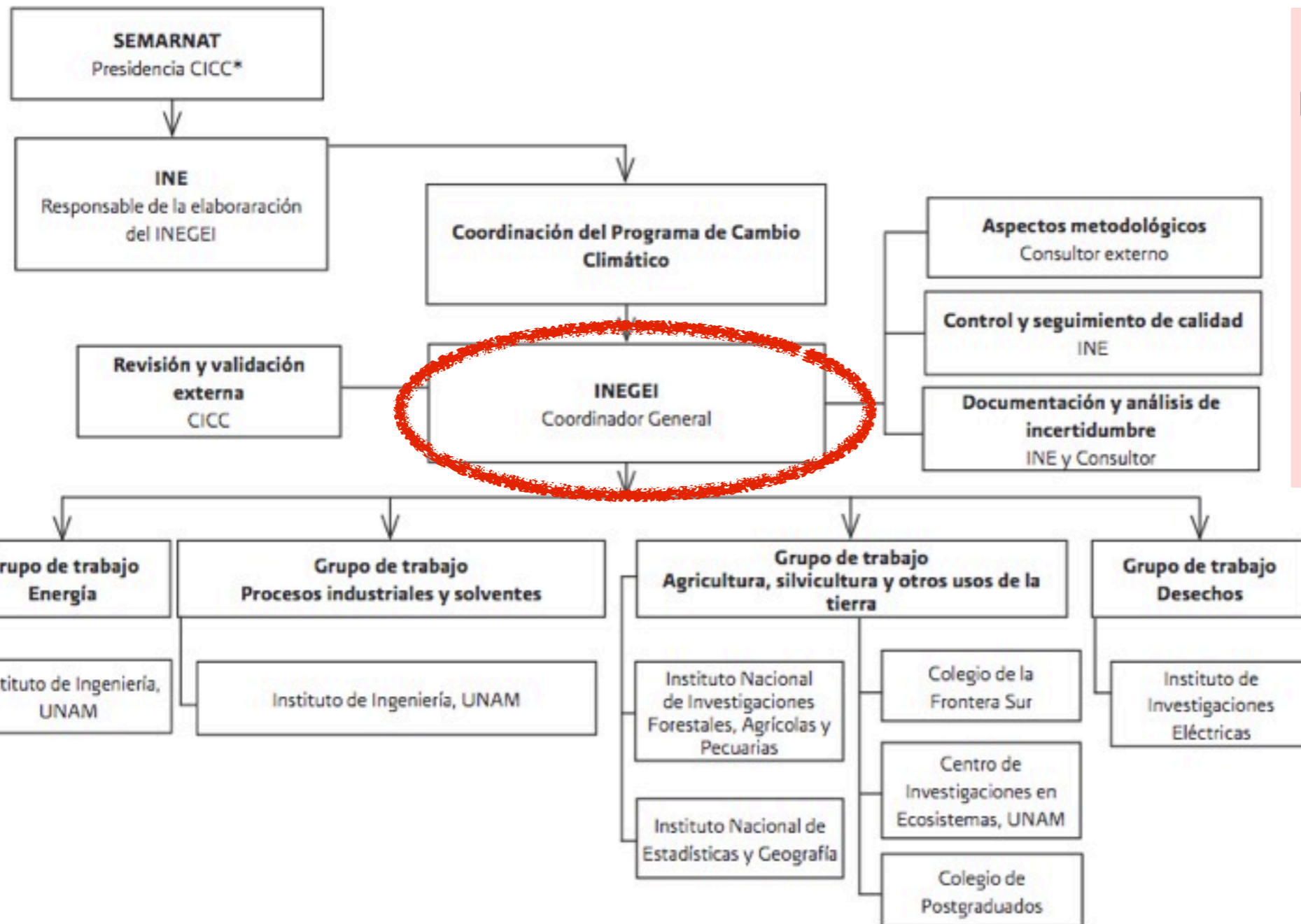
Institutional arrangements for the 1990-2002 GHG Inventory



Institutional arrangements for the 1990-2006 GHG Inventory

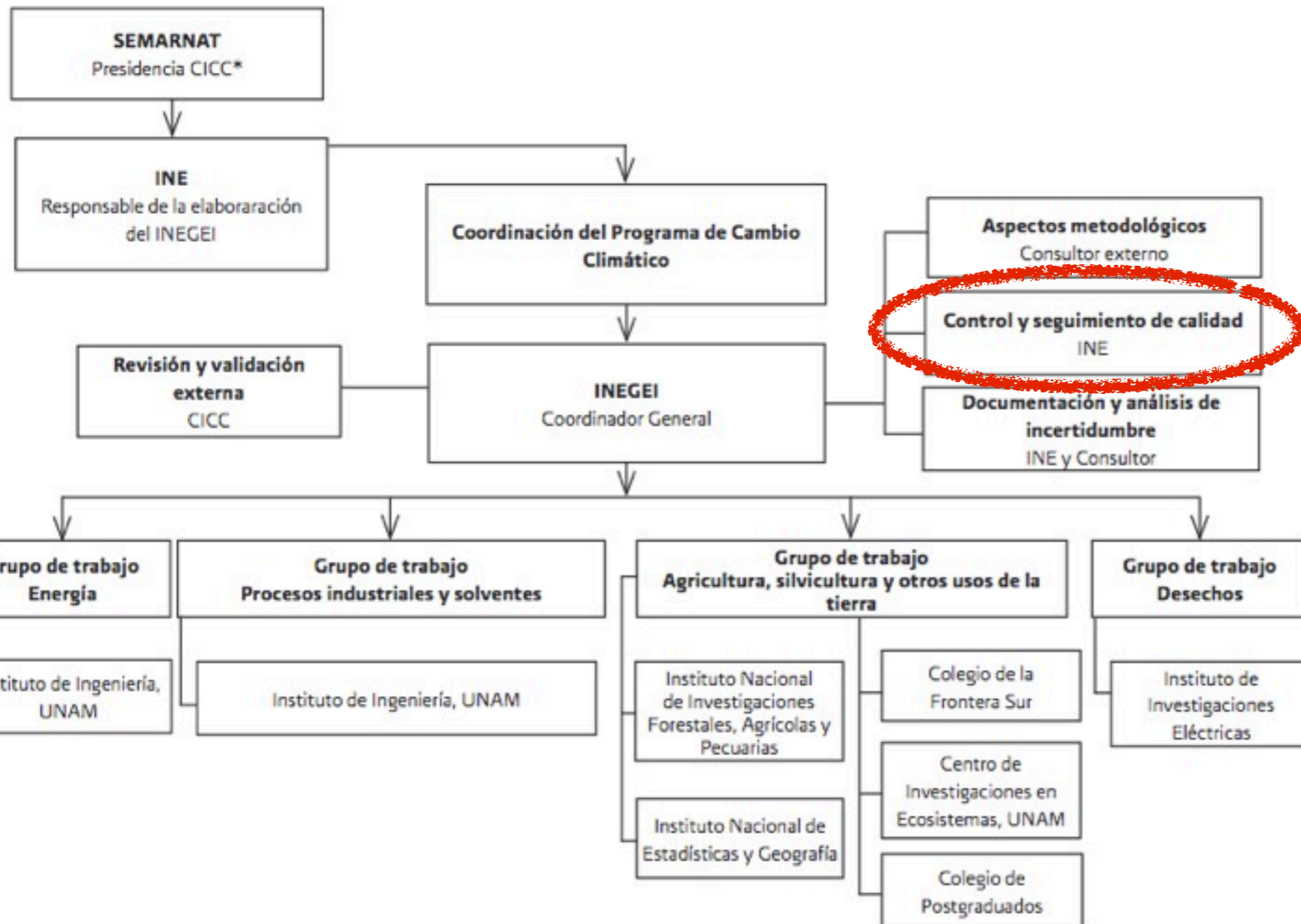


Institutional arrangements for the 1990-2006 GHG Inventory



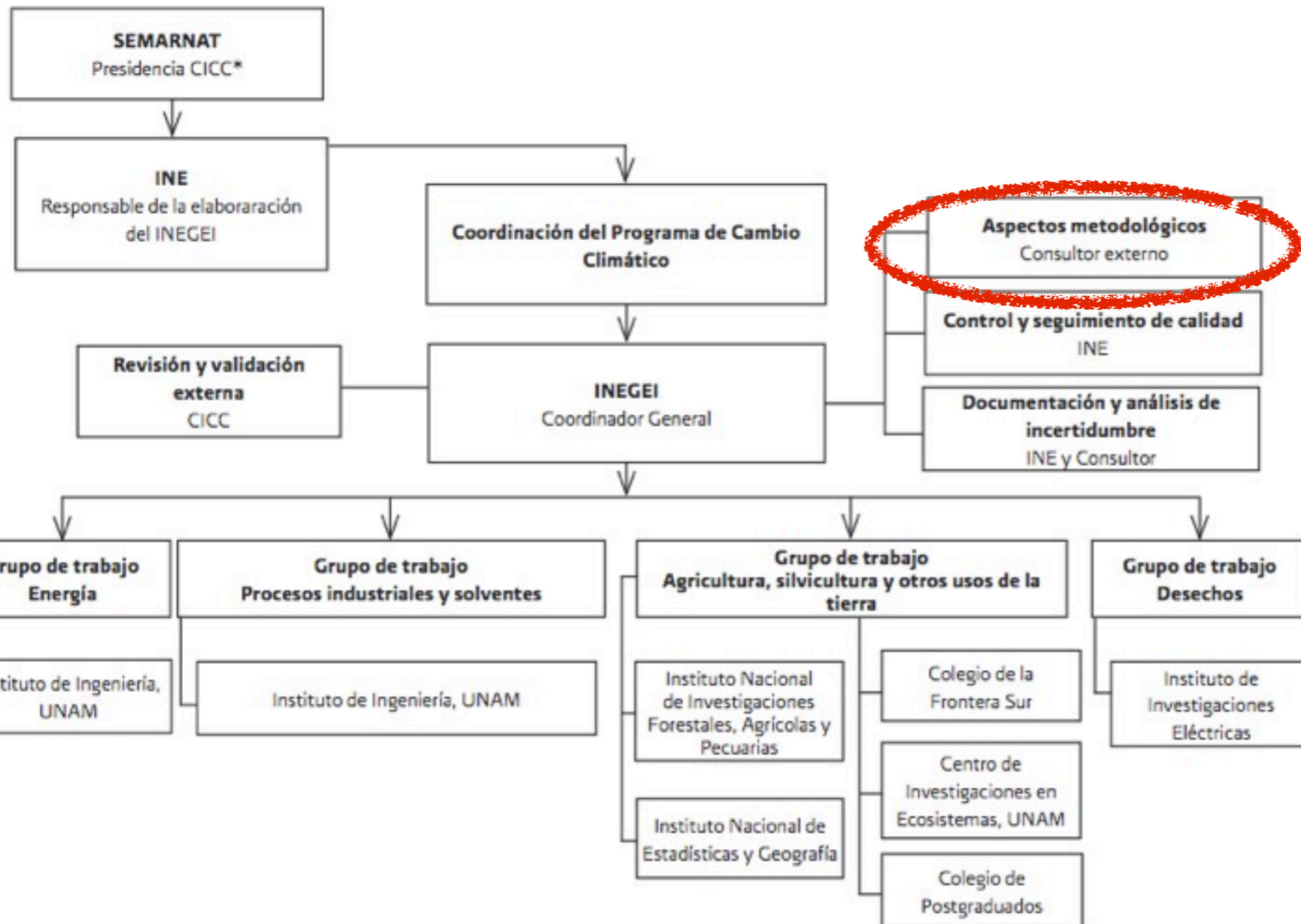
- Supervises & coordinates preparation & development.
- Maintains contacts
- Coordinates information requests
- Convenes key meetings
- Establishes objectives & deadlines
- Supervises final text.
- Supervises GHG-I cycle.

Institutional arrangements for the 1990-2006 GHG Inventory



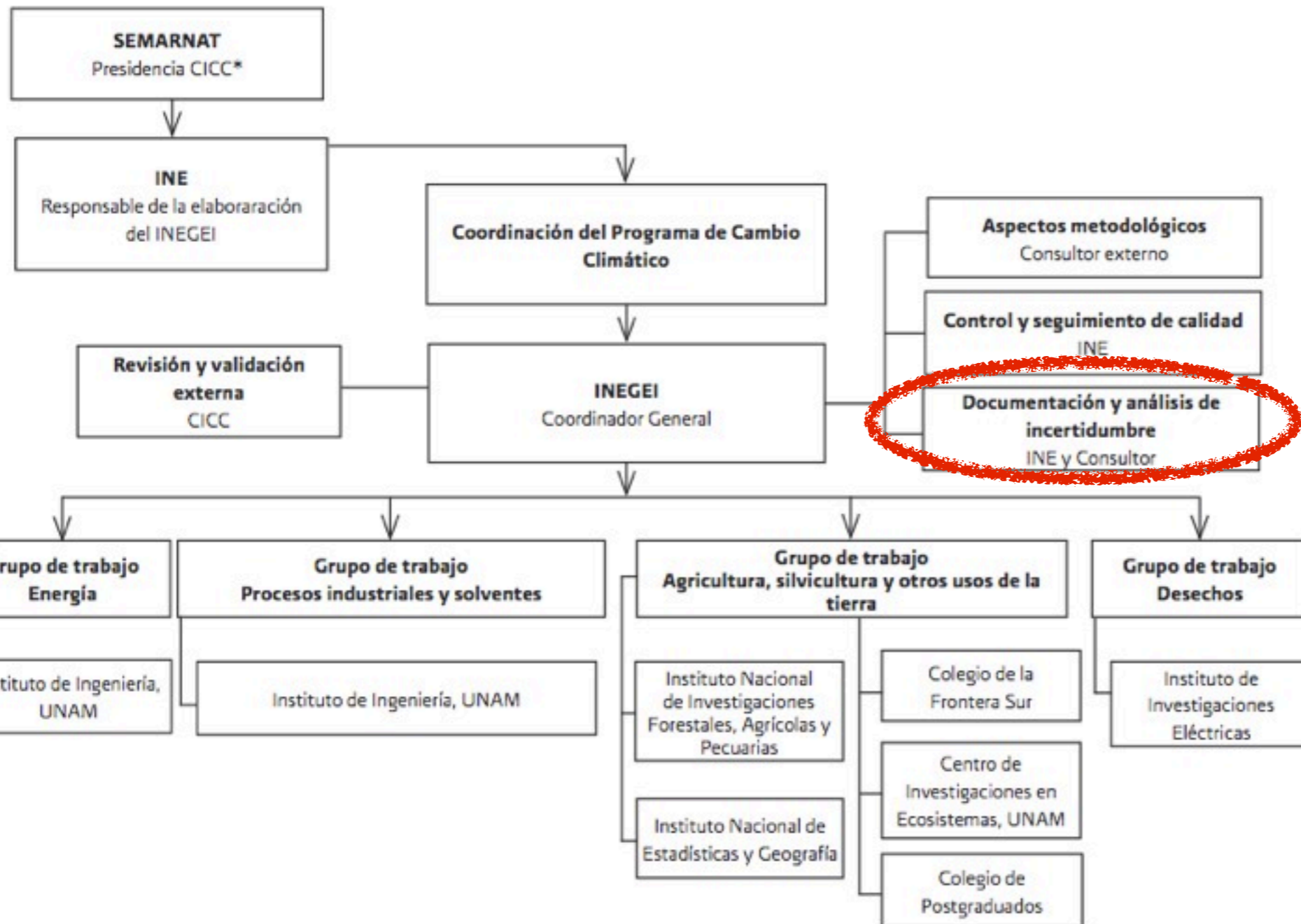
- Prepares & maintains Q Plan
- Supervises application of QA/QC
- Supervises QA/QC application
- Recommends
- Coordinates revision of GHG-I with external experts

Institutional arrangements for the 1990-2006 GHG Inventory



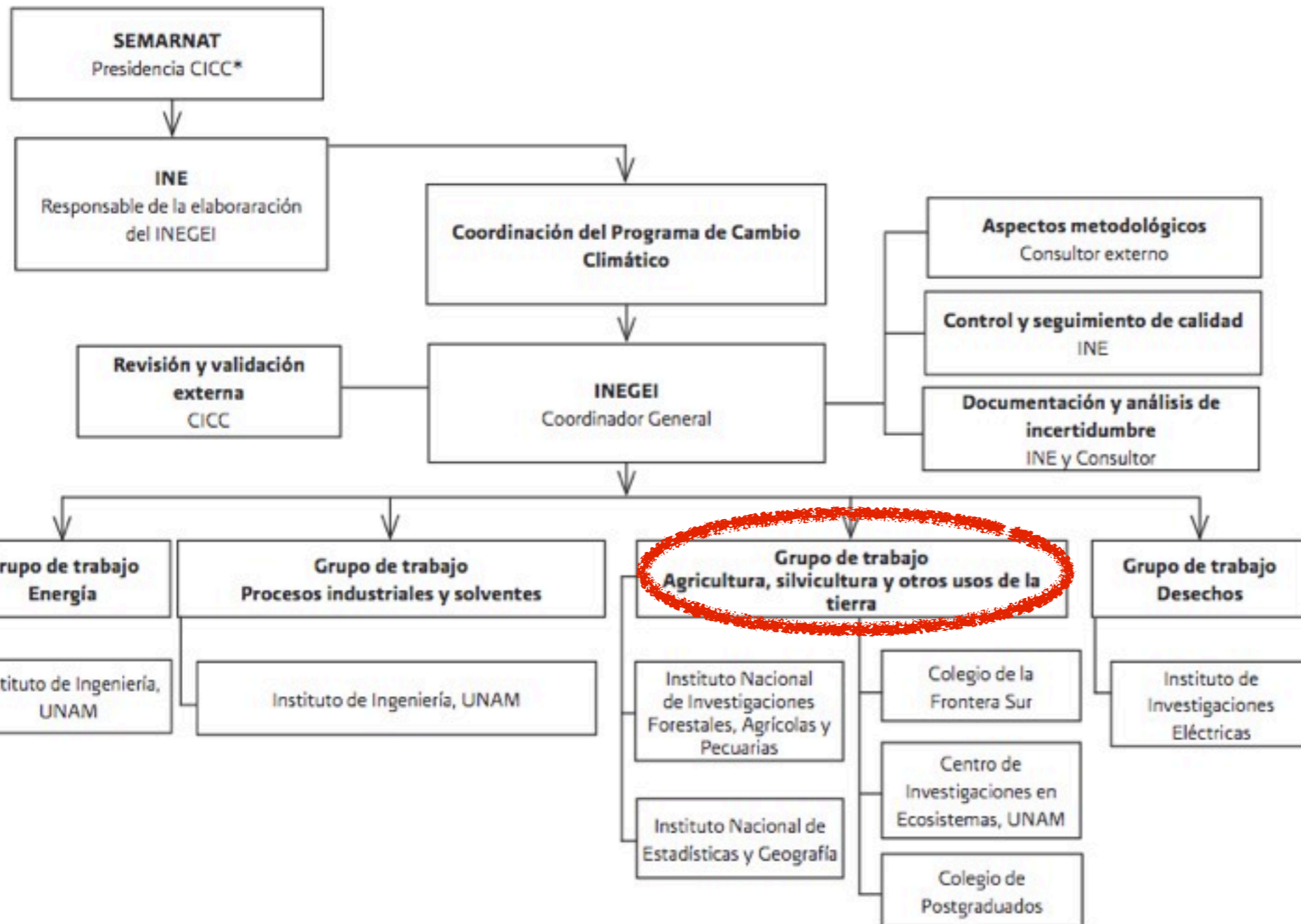
- Defines methodologies to apply
- Defines guidelines to develop and update GHG-I
- Advises Category coordinators in the election of emission factors

Institutional arrangements for the 1990-2006 GHG Inventory



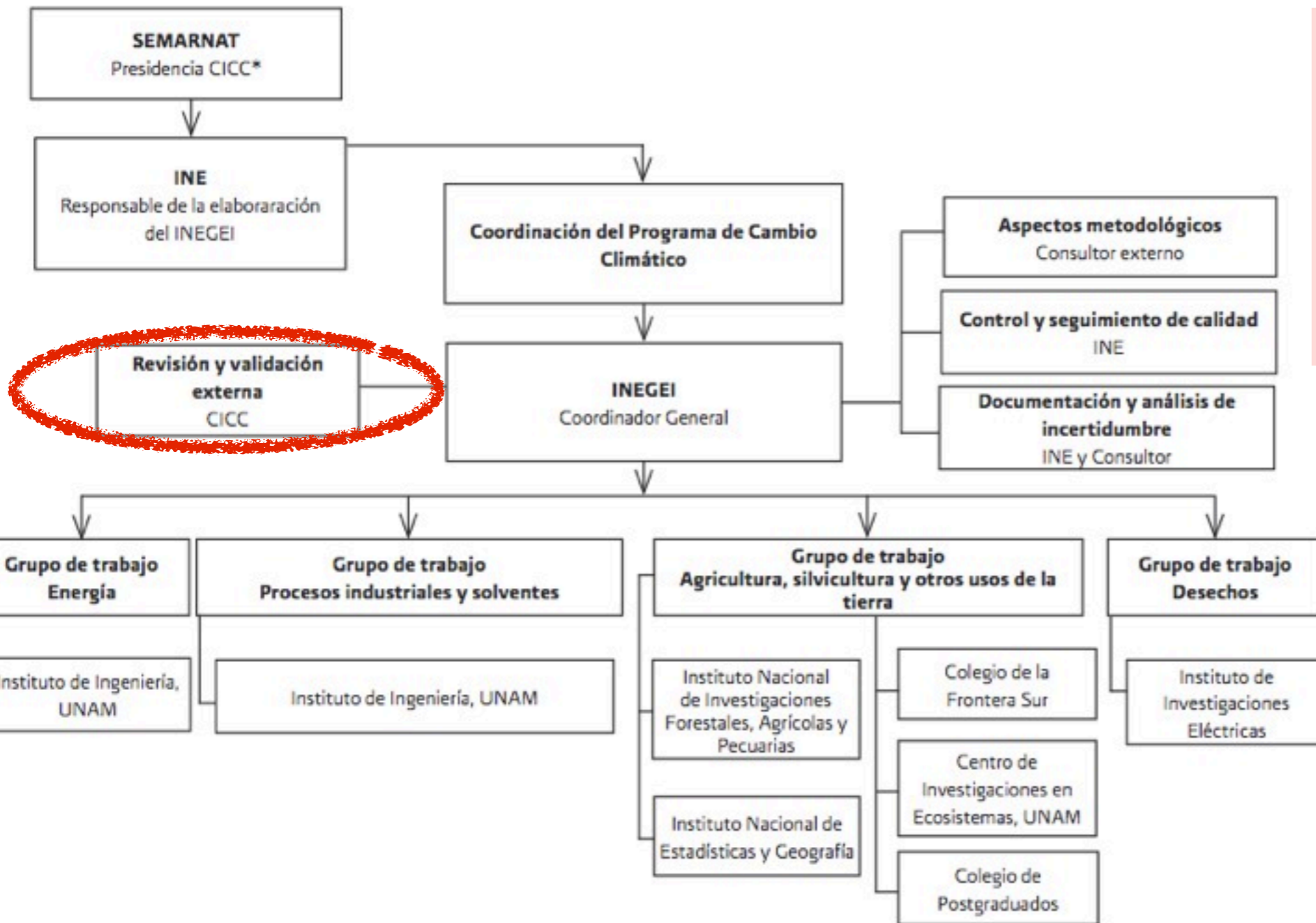
- Coordinates preparation of GHG-I text.
- Codifies and maintains printed and digital archives.
- Prepares and maintains data archives, base information and results
- Safeguards documents
- Oversees publication & distribution

Institutional arrangements for the 1990-2006 GHG Inventory



- CATEGORY COORDINATOR:
- Selects and collects base data
- Supervises consultants
- Prepares text to report per category
- Applies QC procedures
- Estimates uncertainties
- Executes corrective actions to ensure quality

Institutional arrangements for the 1990-2006 GHG Inventory

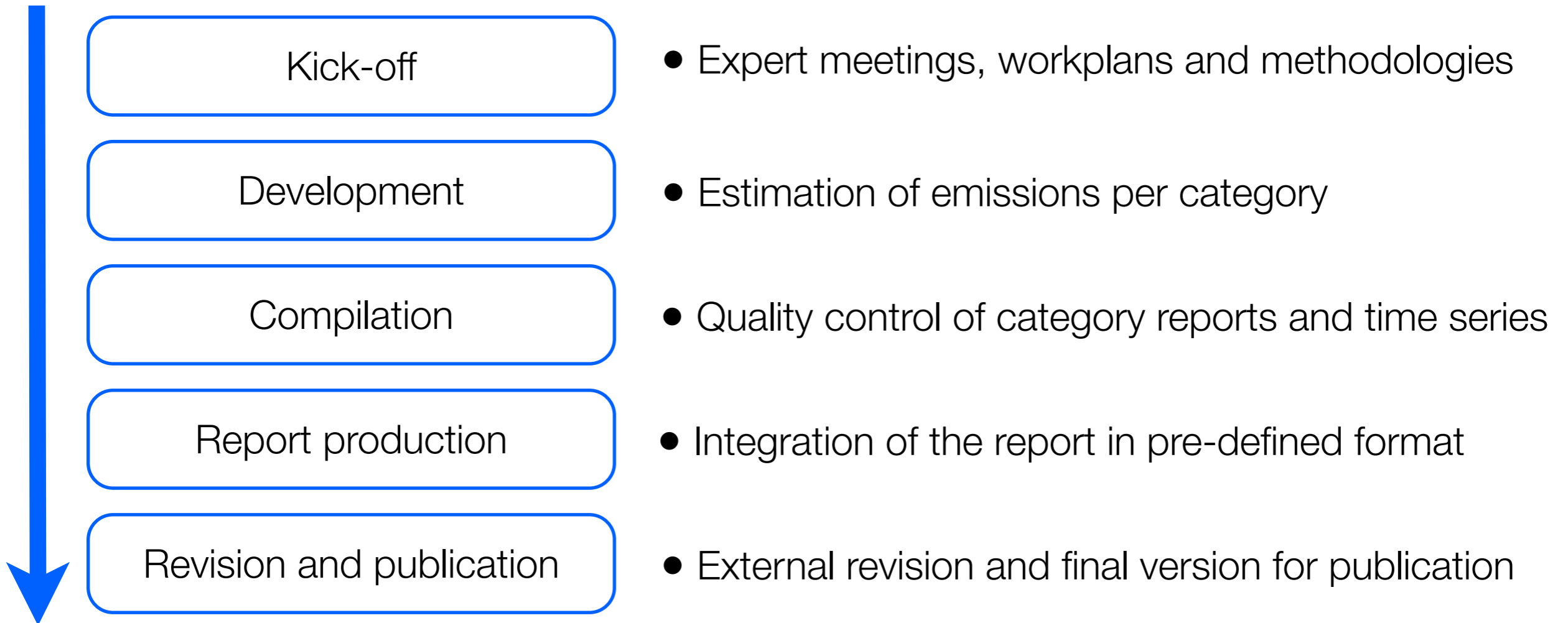


- Applies quality assurance
- Recommends improvements
- Validates and verifies content of the report and estimations
- Suggests corrections to the Inventory prior to publication

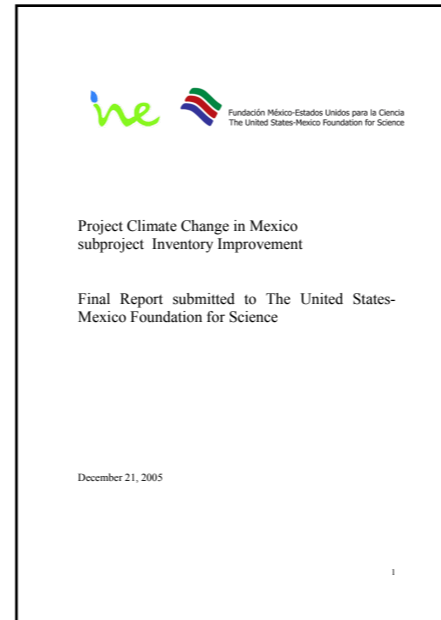
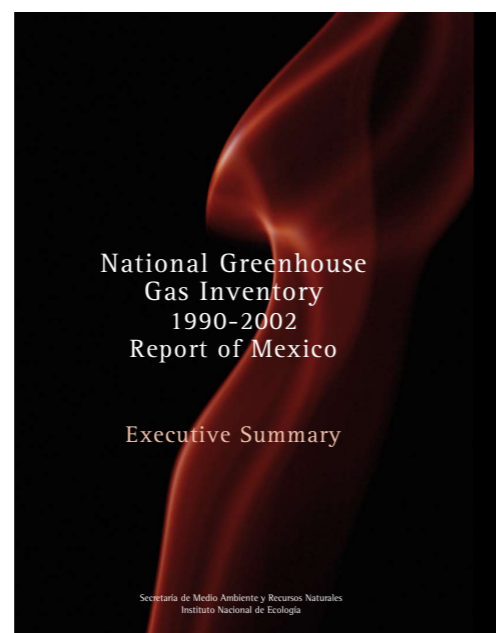
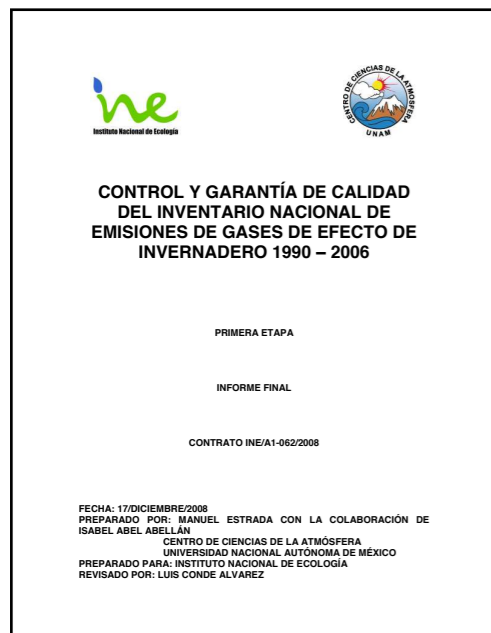
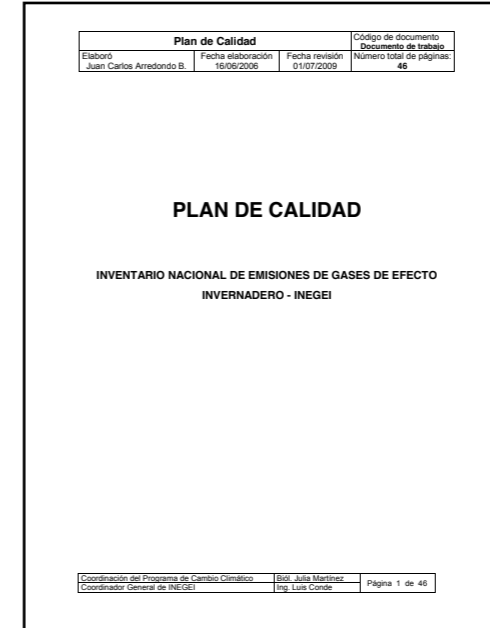
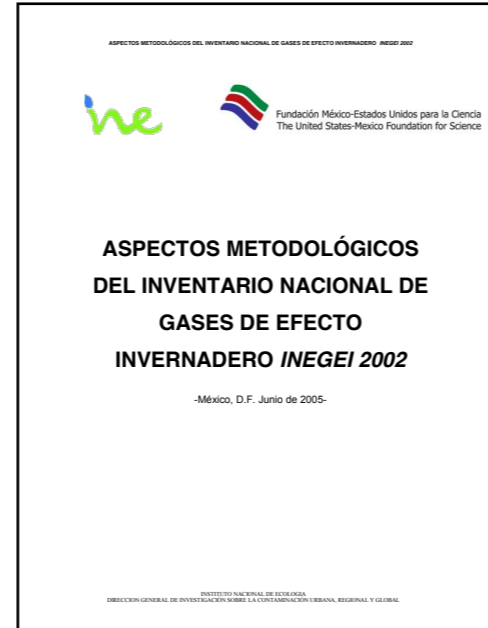
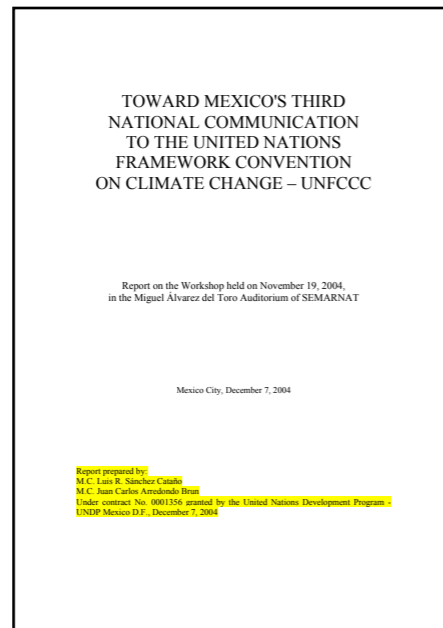
Other institutional collaborations for the 1990-2006 GHG Inventory

Institutions and Companies	Emmission categories
Secretary of Energy (SENER)	Energy
National Electricity Commission (CFE) Mexican Geological Service National Institute of Statistics and Geography (INEGI) Secretary of Economy DUPONT Mexico & Quimobásicos S.A. de C.V.	Industrial processes and Solvents
National Forestry Commission (Conafor) National Biodiversity Commission (Conabio) Secretary of Environment and Natural Resources (Semarnat) National Institute of Statistics and Geography (INEGI) Secretary of Agrarian Reform (SRA)	Agriculture and LULUCF
National Water Commission (CNA) Secretary of Social Development (SEDESOL) Secretary of Environment and Natural Resources (Semarnat)	Waste

Process of elaboration of the GHG Inventory



Other documentation



- Reference manuals (translation)
- Consultation reports
- Methodological report
- Inventory improvement analysis
- Quality Assurance Plan
- Quality Control Reports

Web access to current and past inventories

The screenshot shows the homepage of the Instituto Nacional de Ecología (INE) website. At the top, there is a navigation bar with links for 'Inicio', 'Directorio', 'Contacto', 'English', 'Mapa de Sitio', and 'RSS'. The main header features the logos for 'GOBIERNO FEDERAL SEMARNAT' and 'Instituto Nacional de Ecología', along with the website address 'INE.gob.mx' and a search bar. Below the header is a menu with categories: 'ACERCA DEL INE', 'AREAS DEL INSTITUTO', 'PUBLICACIONES', 'ESTUDIOS Y ASESORÍAS', 'CENTRO DOCUMENTAL', and 'TRANSPARENCIA'. The main content area is titled 'Iniciación Líneas de investigación' and includes social media sharing options (Email, Print, Share, Facebook Like) and a search icon. The primary article is 'Informes del Inventario Nacional de Emisiones de Gases de Efecto Invernadero 1990 - 2006', with a sub-header 'SUBTEMAS SOBRE CAMBIO CLIMÁTICO'. The article text states that reports from 2008 and 2009 are provided for the update of the 1990-2006 inventory. A list of seven categories is shown: 1. Energía, 2. Procesos Industriales y Solventes, 3. Agricultura, 4. Uso del suelo, Cambio del Uso del Suelo y Silvicultura, 5. Desechos, 6. Control de Calidad (segunda etapa) with sub-items 'Informe Final', 'Anexo 1', and 'Anexo 2', and 7. Control de Calidad del Inventario (primera etapa). A timestamp indicates the last update on January 10, 2011, at 16:44. The footer contains the address 'Periférico 5000, Col. Insurgentes Cuicuilco, Delegación Coyoacán, C.P. 04530, México, D.F. Tel: 5424-6400', a link for 'Comentarios sobre este Sitio de Internet', and copyright information for 2010.

Inicio | Directorio | Contacto | English | Mapa de Sitio | RSS

GOBIERNO FEDERAL SEMARNAT Instituto Nacional de Ecología INE.gob.mx

ACERCA DEL INE AREAS DEL INSTITUTO PUBLICACIONES ESTUDIOS Y ASESORÍAS CENTRO DOCUMENTAL TRANSPARENCIA

Iniciación Líneas de investigación

Enviar por correo Imprimir Share Facebook Like

Informes del Inventario Nacional de Emisiones de Gases de Efecto Invernadero 1990 - 2006

Se presentan a continuación los informes realizados en el 2008 y 2009 para la actualización del Inventario Nacional de Emisiones de Gases de Efecto Invernadero 1990 - 2006.

1. Energía
2. Procesos Industriales y Solventes
3. Agricultura
4. Uso del suelo, Cambio del Uso del Suelo y Silvicultura
5. Desechos
6. Control de Calidad (segunda etapa):
 - o Informe Final
 - o Anexo 1
 - o Anexo 2
7. Control de Calidad del Inventario (primera etapa)

Última actualización el Lunes, 10 de Enero de 2011 16:44

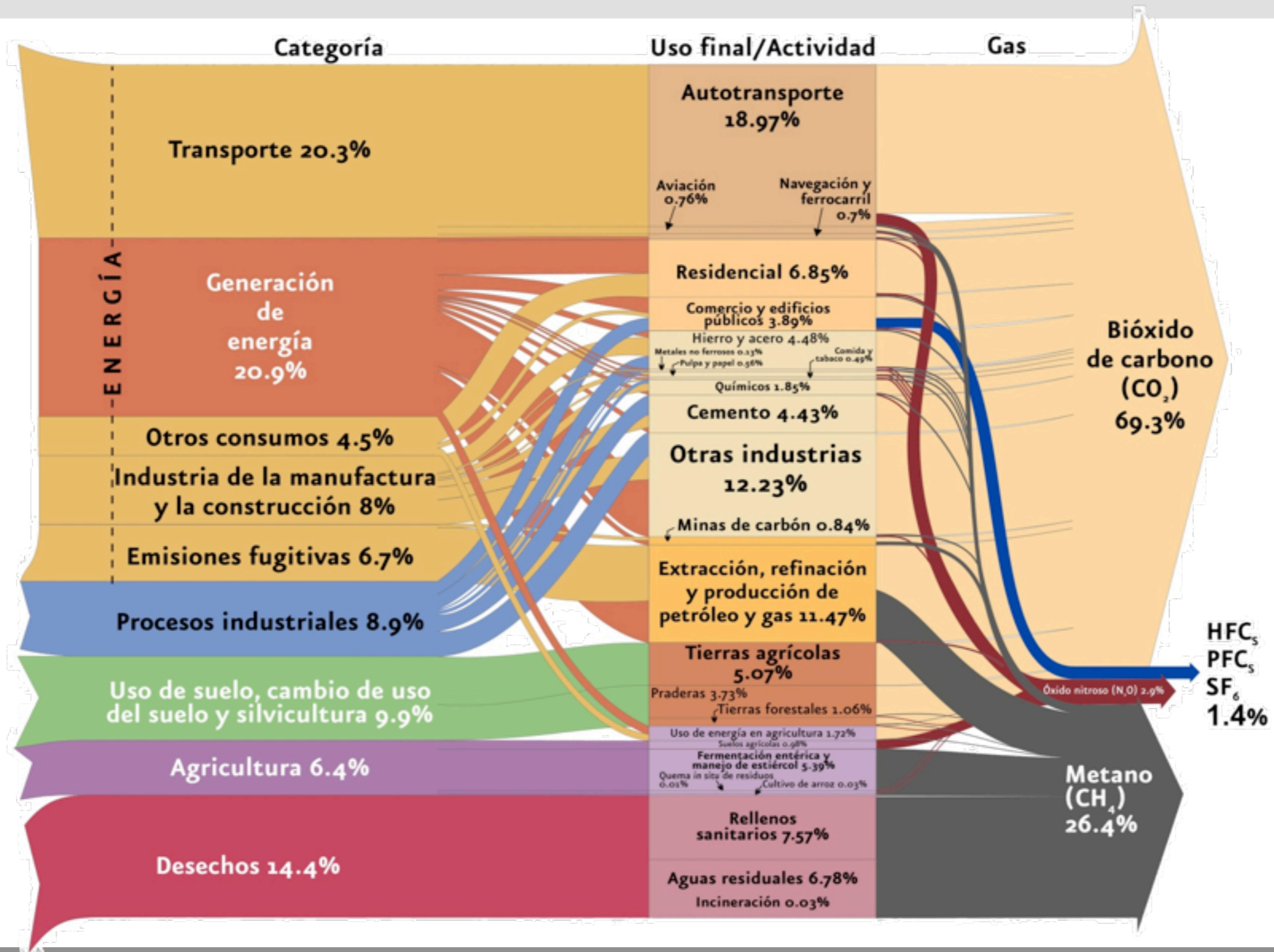
Periférico 5000, Col. Insurgentes Cuicuilco, Delegación Coyoacán, C.P. 04530, México, D.F. Tel: 5424-6400

Comentarios sobre este Sitio de Internet

INSTITUTO NACIONAL DE ECOLOGÍA, MÉXICO - ALGUNOS DERECHOS RESERVADOS © 2010 - POLÍTICAS DE PRIVACIDAD

<http://www.ine.gob.mx/cpcc-lineas/597-cpcc-inventario>

Contribución relativa de México a las emisiones de GEI - 4ta comunicación (2006)

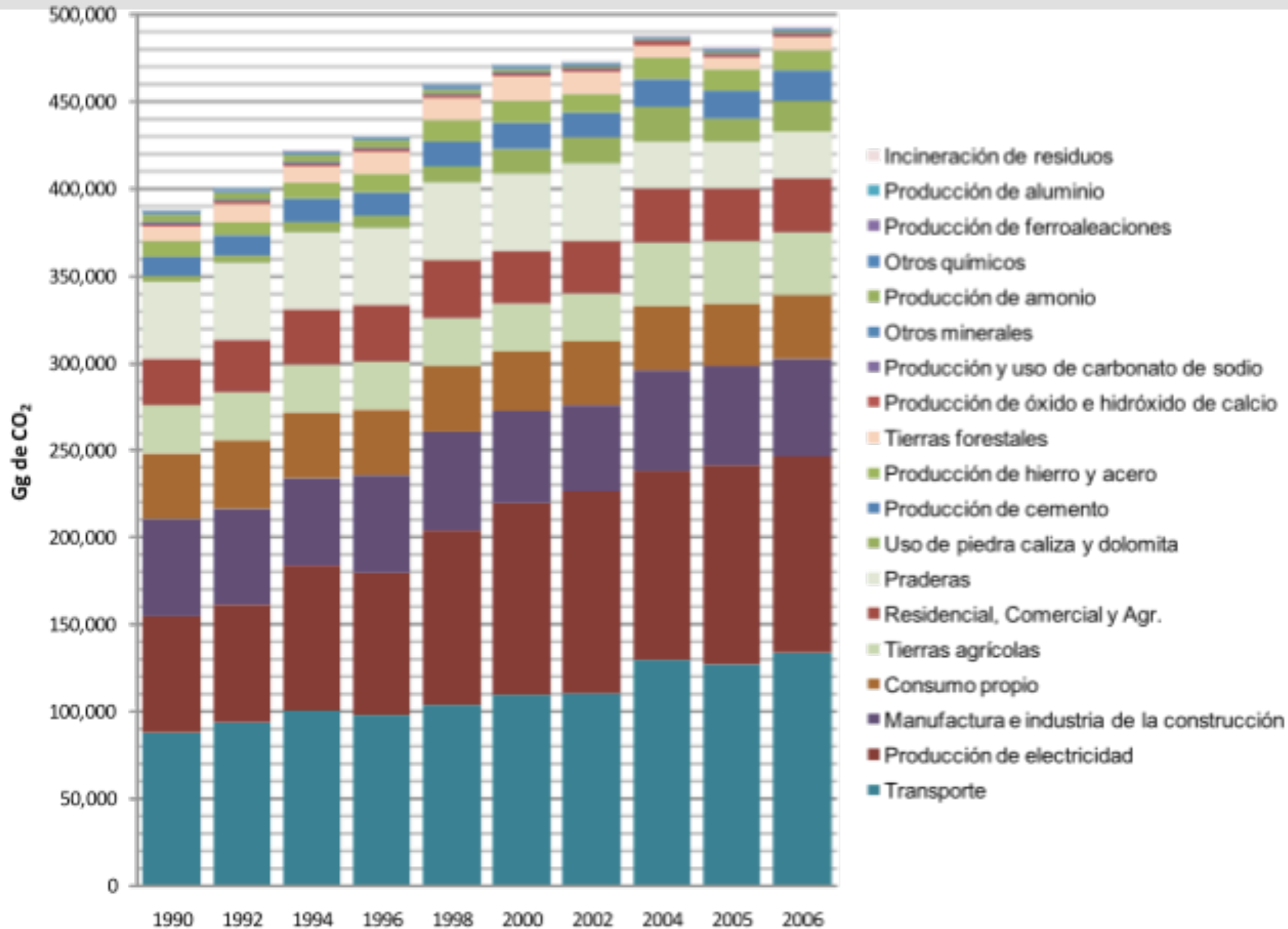


709 millones de tCO₂ eq

Tendencia de emisiones por Gas



CO₂



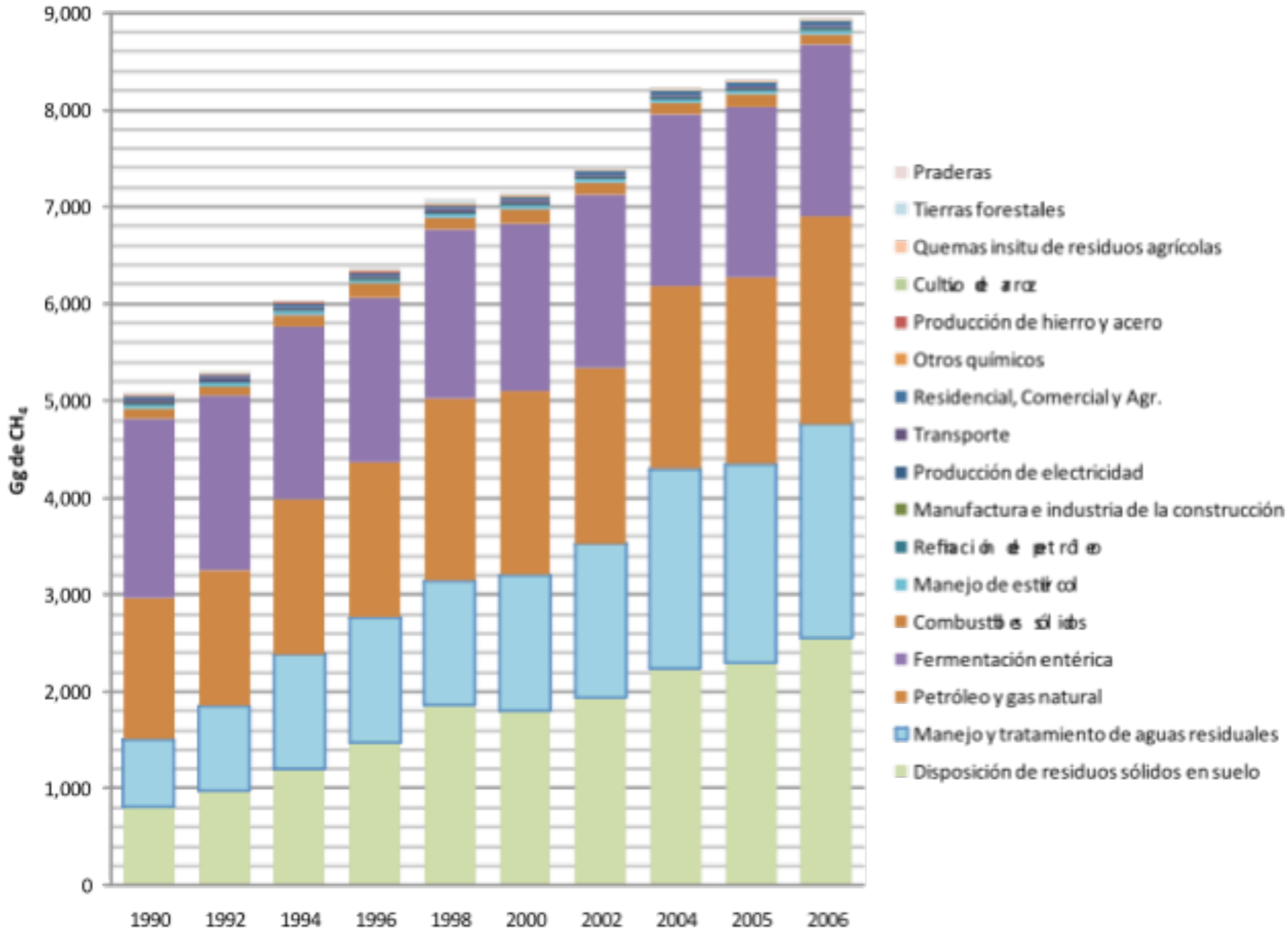
493 millones de t CO₂eq (69.3%) del total en 2006



Tendencia de emisiones por Gas



CH₄

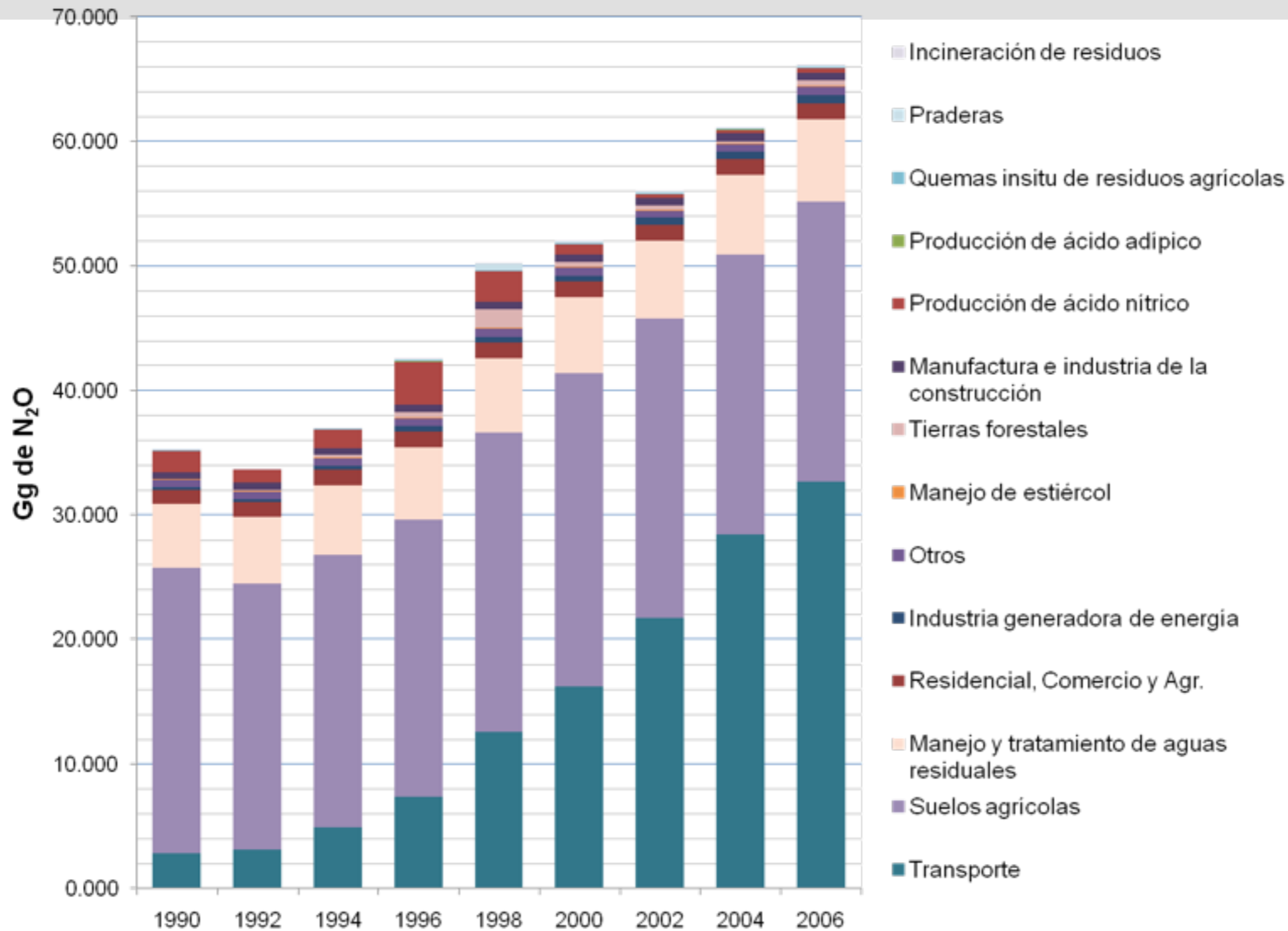


185 millones de t CO₂eq (26.4%) del total en 2006



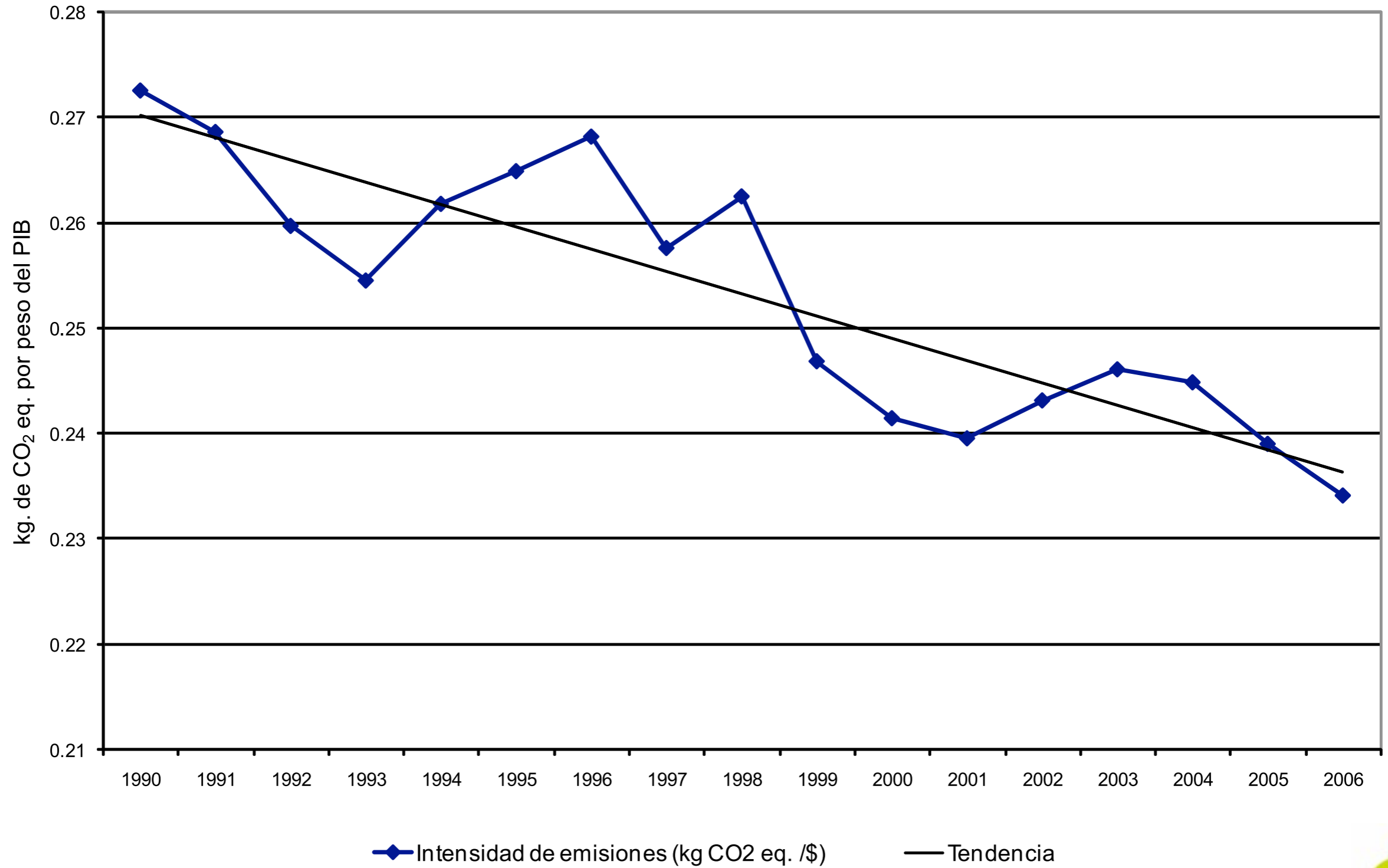
Tendencia de emisiones por Gas

N₂O

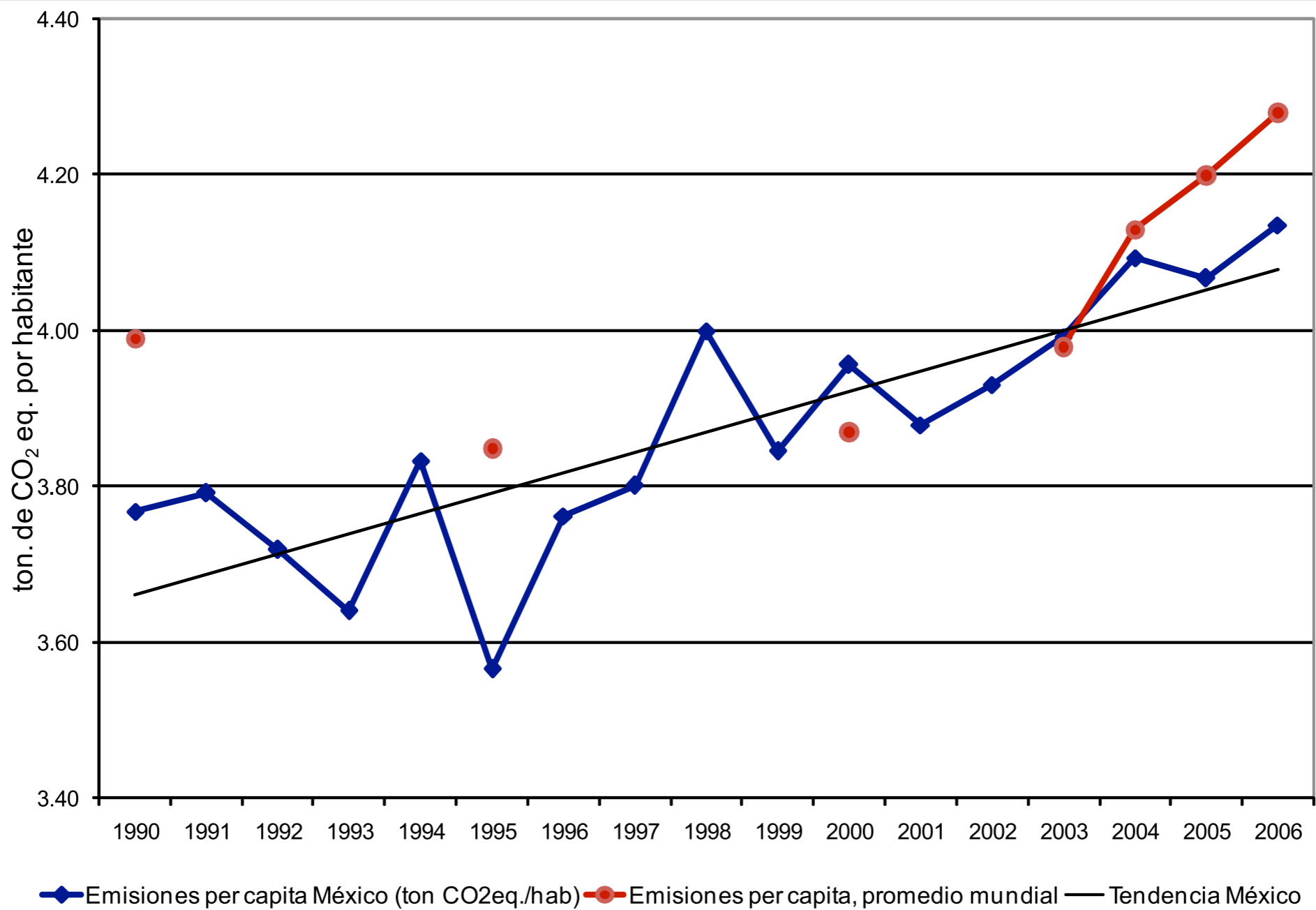


21 millones de t CO₂eq (2.9%) del total en 2006

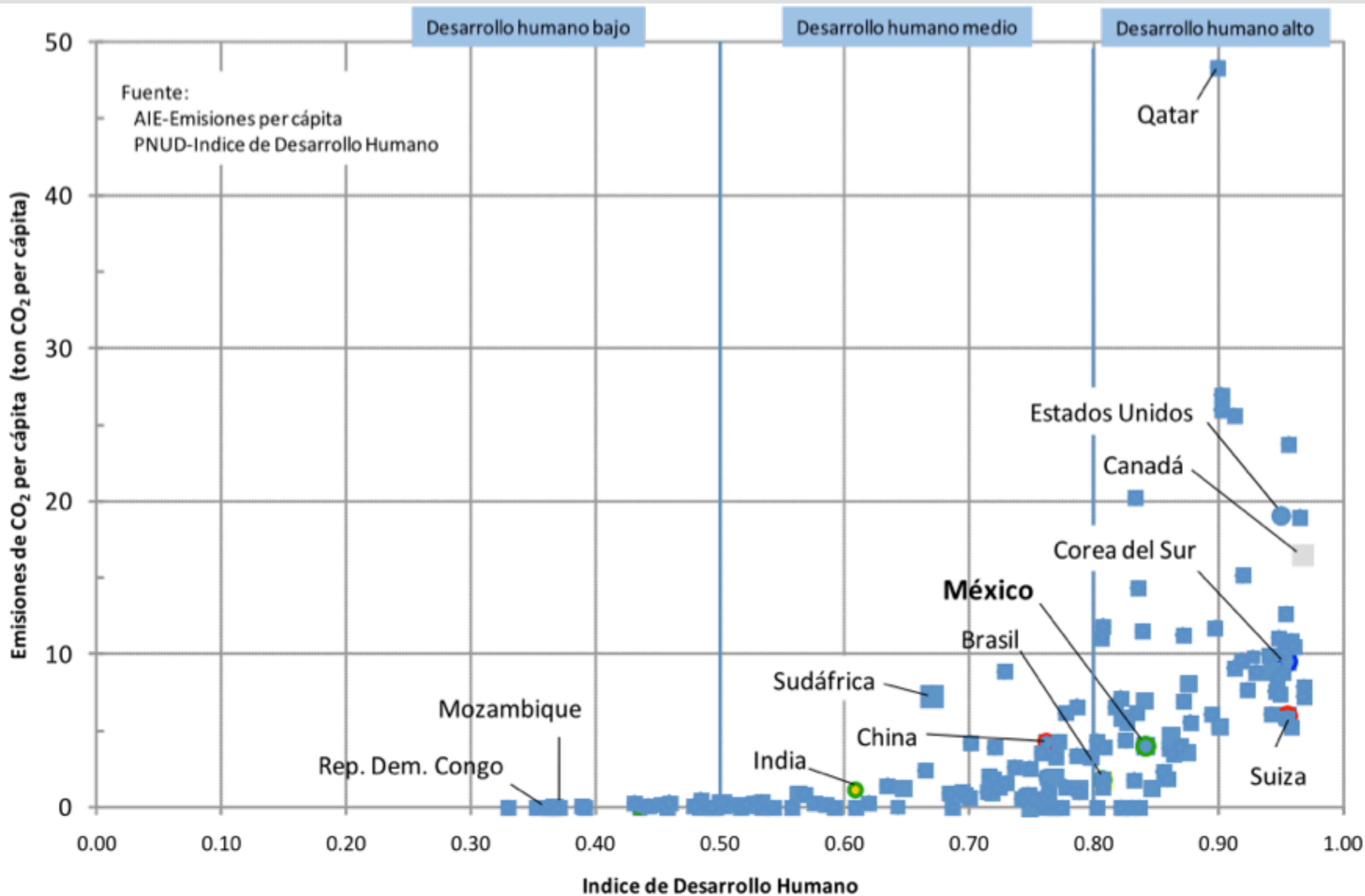
Intensidad de emisiones (Kg CO₂ eq / \$ PIB)



Emisiones per cápita por consumo de energía en CO₂ eq en México



Comparación internacional de emisiones per cápita vs Índice de Desarrollo Humano 2006



Example: LULUCF arrangements

Activity data

INEGI produces national land cover and land use cartography

Conafor monitors land use changes annually, forest fire monitoring and management

Semarnat issues management permits

Emission factors

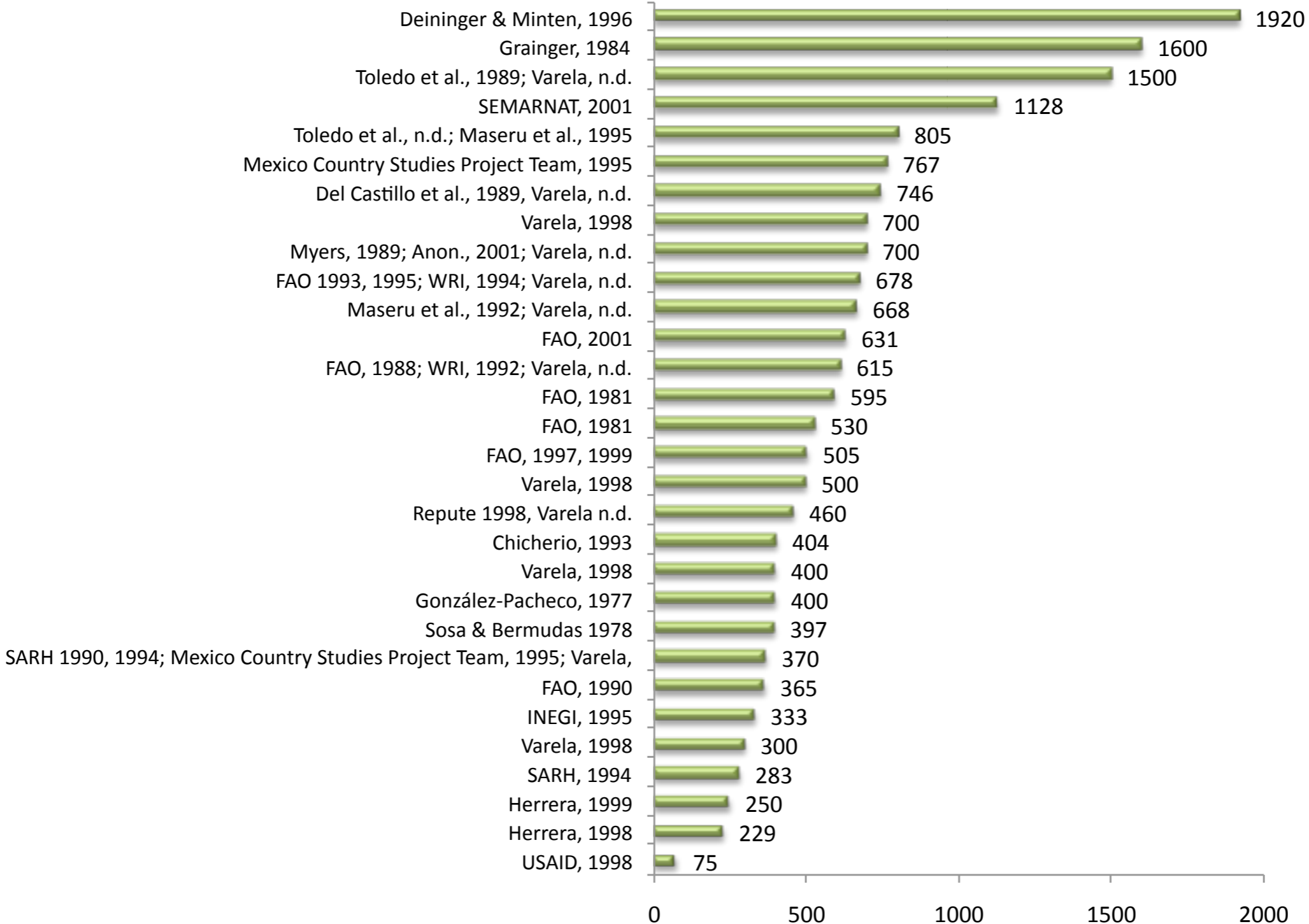
Conafor undertakes national forest inventory

GHG Inventory

INE established methodology and commissions studies and undertake QC

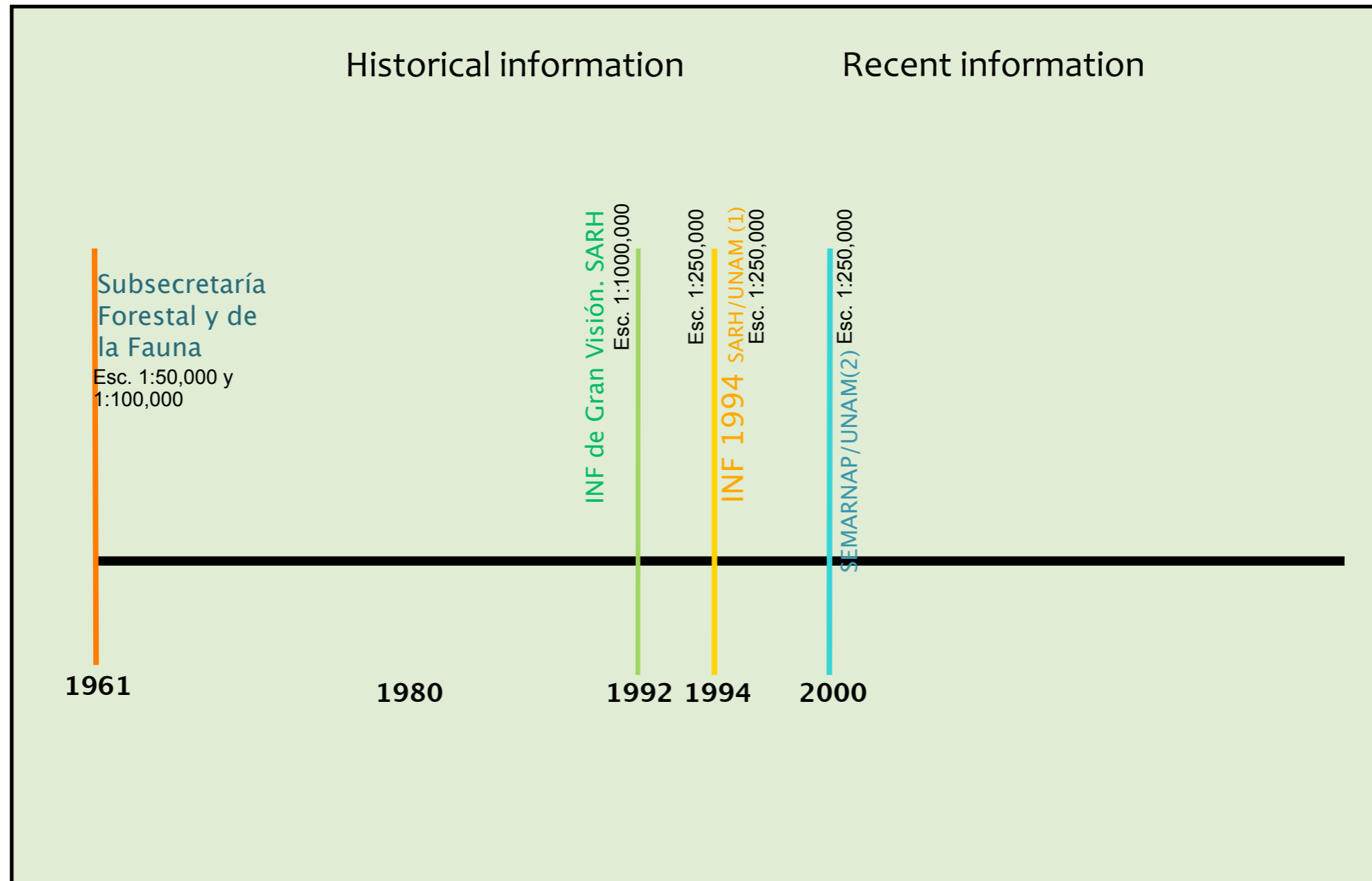
Research institutes integrate information and produce GHG Inventory data for LULUCF

Activity Data: Rates of deforestation for Mexico reported by author, year and rate reported ('000 ha/yr)

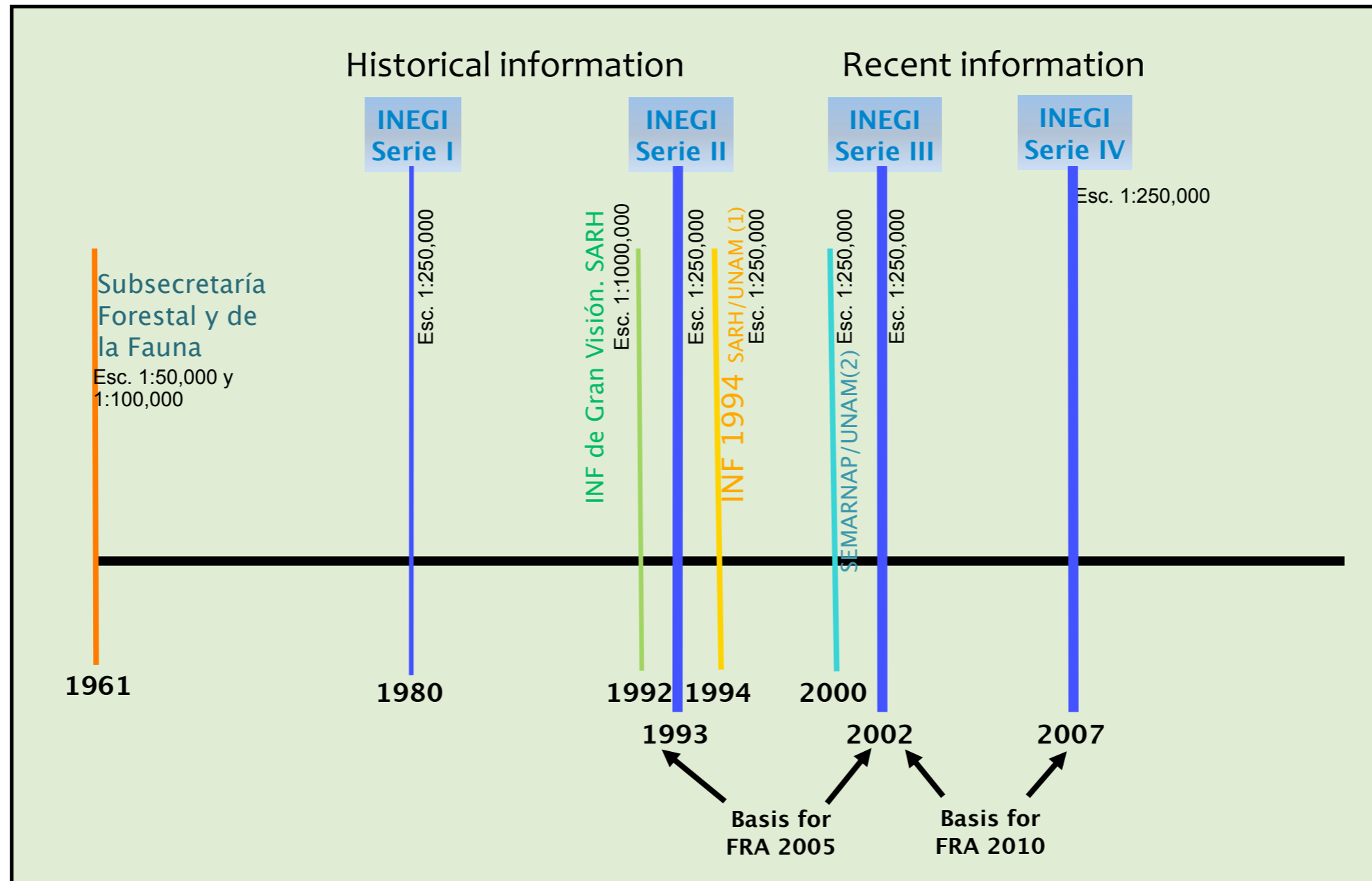


Fuente: Análisis Crítico de los Estimados de Tasa de Deforestación para México. 2002 ARD-BIOFOR IQC Consortium y Grupo Darum

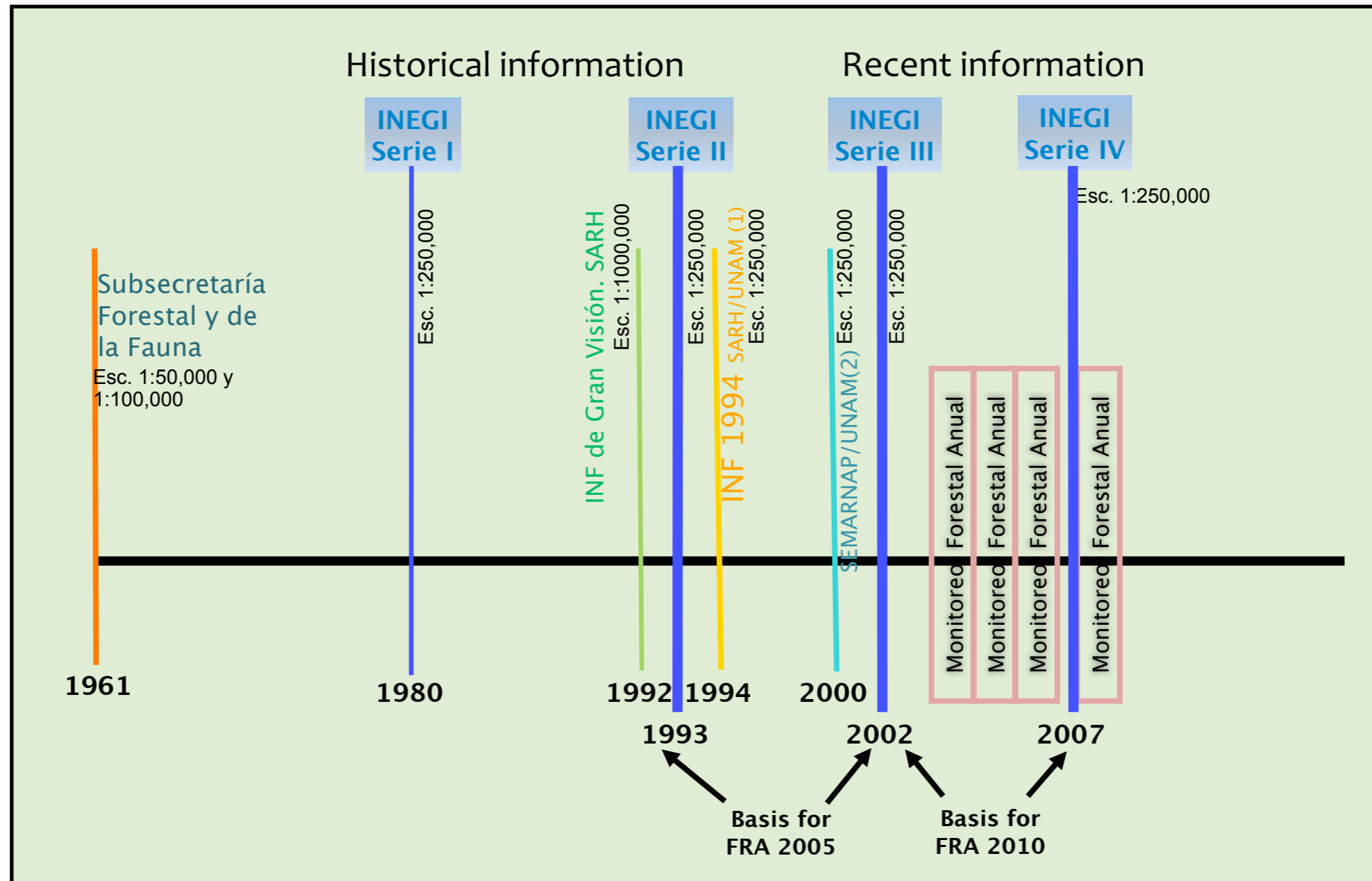
Activity Data: Gradual Integration and Synchronization



Activity Data: Gradual Integration and Synchronization

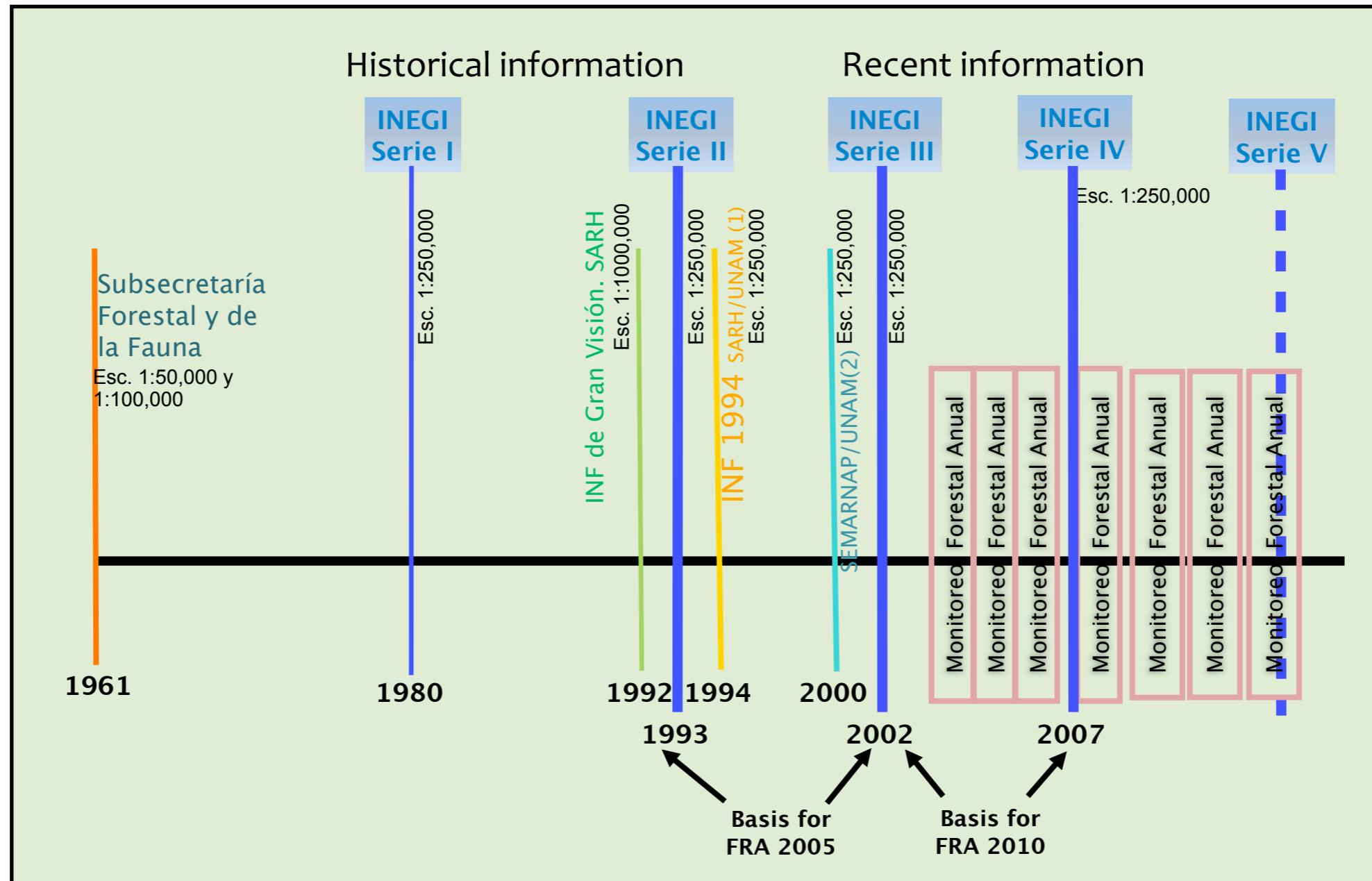


Activity Data: Gradual Integration and Synchronization



Annual Forest Cover Index set as key Forest Policy Instrument defined by the General Forestry Law

Activity Data: Future plans



Emission Factors: adapting the NFI methodology

INVENTARIO NACIONAL FORESTAL Y DE SUELOS 2004-2010
METODOLOGÍA PARA ENTREGA DE FOTOGRAFÍAS
CORRESPONDIENTES A LOS CONGLOMERADOS MUESTREADOS.

INVENTARIO NACIONAL FORESTAL Y DE SUELOS
Anexo Fotográfico al Manual de Muestreo
Re-muestreo 2010

COMISIÓN NACIONAL FORESTAL

COMISIÓN NACIONAL FORESTAL

Página 1 de 15

SEMARNAT SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

CONAFOR COMISIÓN NACIONAL FORESTAL

INVENTARIO NACIONAL FORESTAL Y DE SUELOS
Manual y procedimientos para el muestreo de campo
Re-muestreo 2010

COMISIÓN NACIONAL FORESTAL

COMISIÓN NACIONAL FORESTAL

1

SEMARNAT SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

INVENTARIO NACIONAL FORESTAL Y DE SUELOS 2004 - 2010

COMISIÓN NACIONAL FORESTAL

INVENTARIO NACIONAL FORESTAL Y DE SUELOS
Anexo Gráfico de Campo
Re-muestreo 2010

COMISIÓN NACIONAL FORESTAL

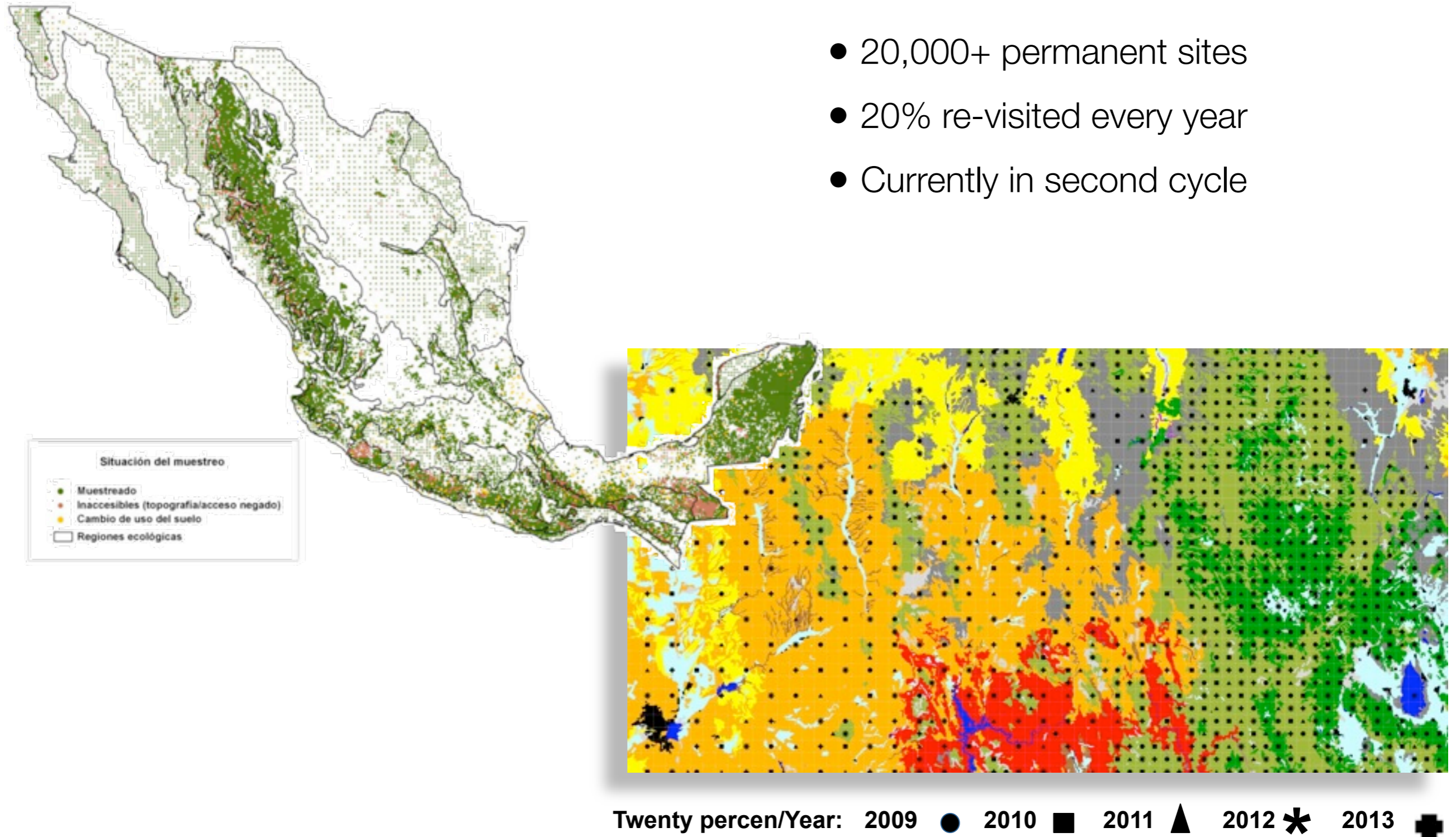
COMISIÓN NACIONAL FORESTAL

1

Conafor responsible for the NFI, methodology set by forest department of Ministry of Environment (Semarnat)

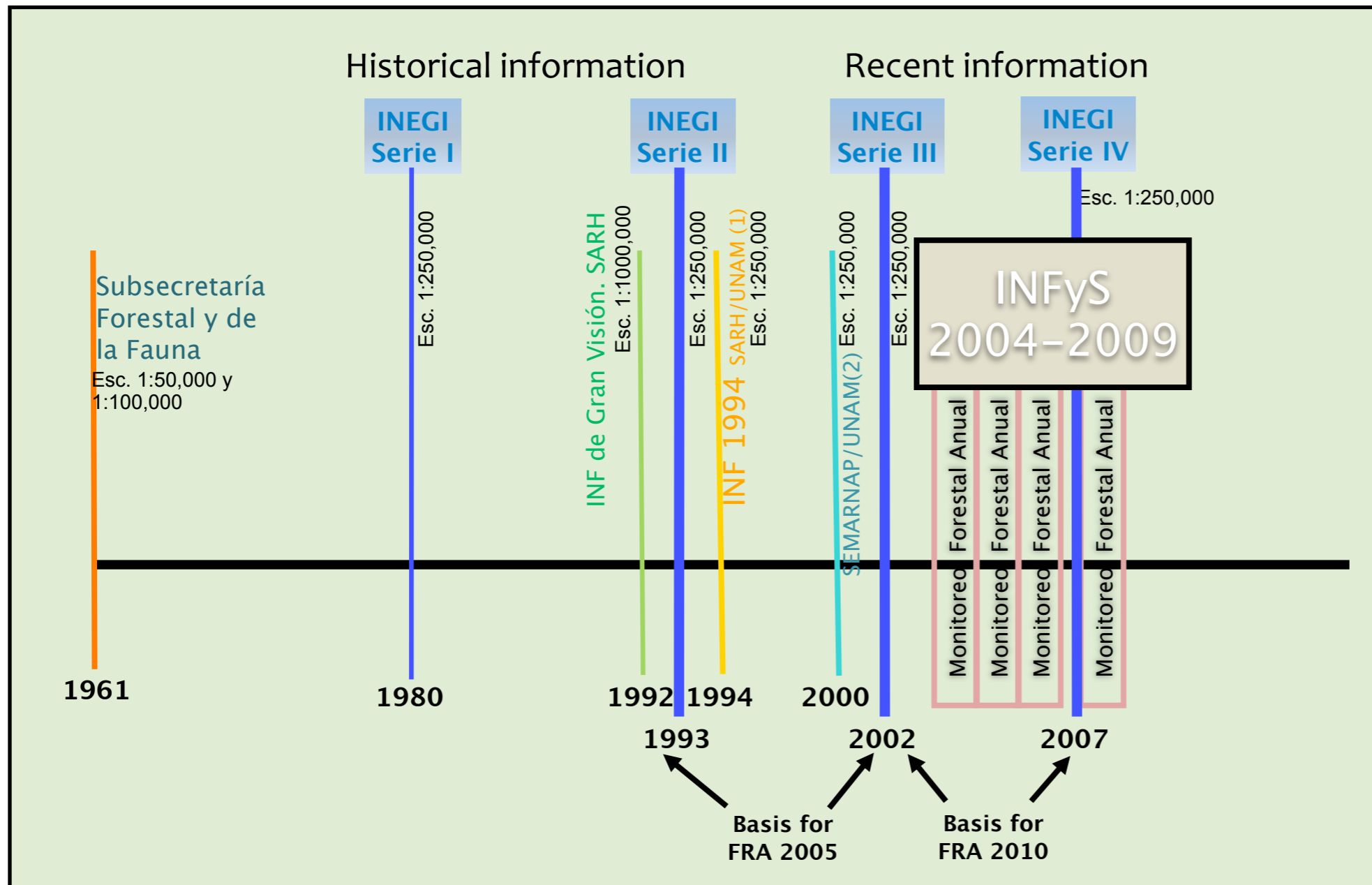
- Soil and deadwood protocols adapted to enable C pool measurements
- Also to enhance comparability with soil survey developed by the Ministry of Agriculture and Livestock

Emission factors: NFI Permanent Sampling sites



- 20,000+ permanent sites
- 20% re-visited every year
- Currently in second cycle

Key geospatial information being generated



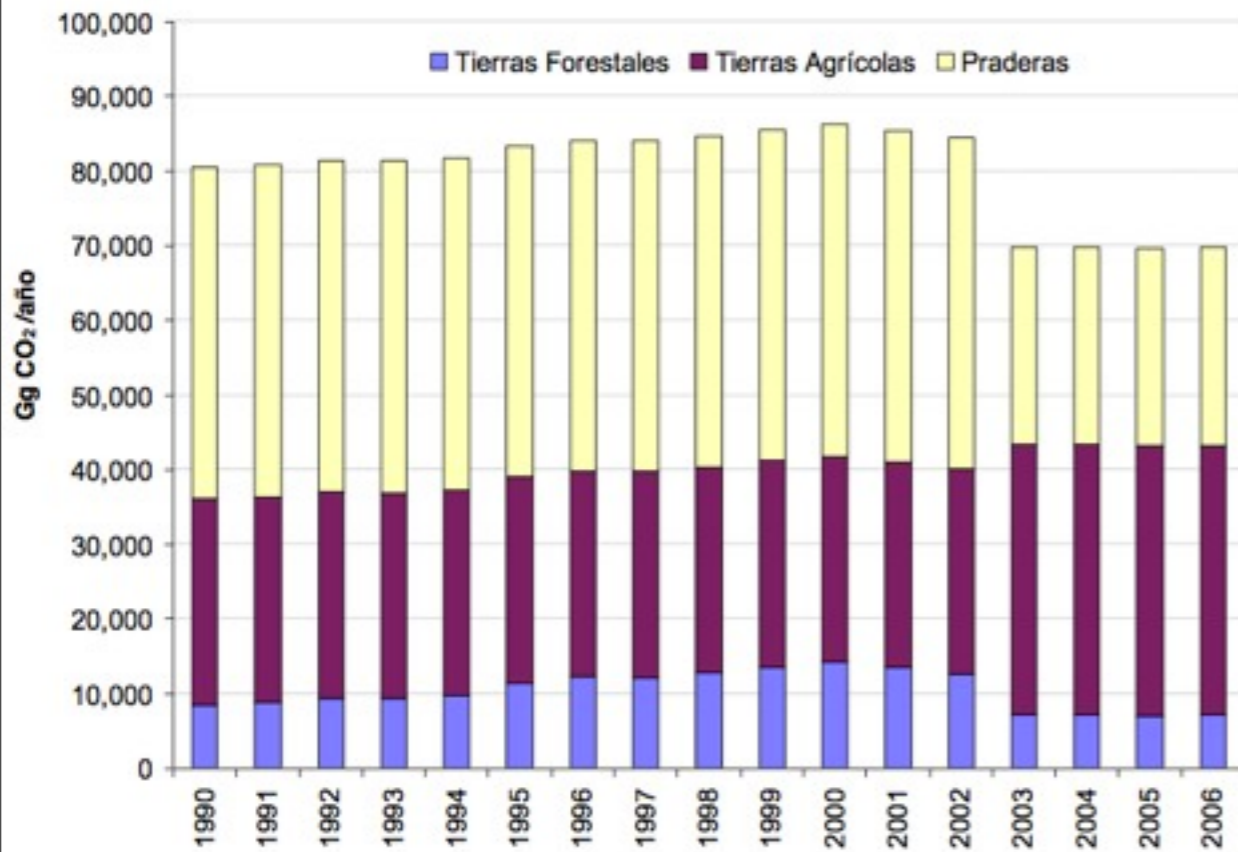
INEGI 5-yr land use/cover series

Conafor' annual forest cover monitoring and forest fire database

Conafor's NFI

Semarnat's management data in National Forest Information System

LULUCF results



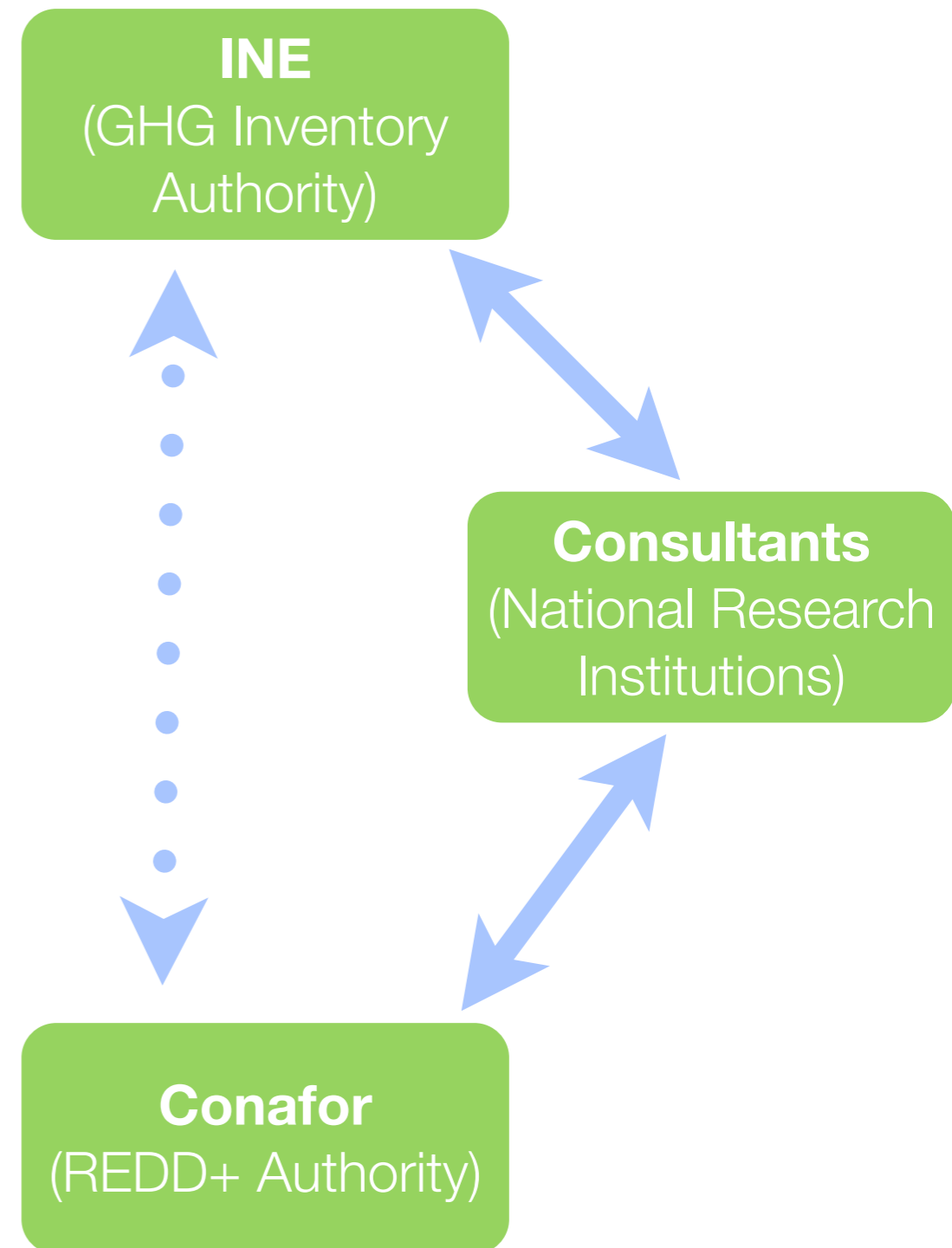
Net annual emissions from agriculture, forest and grasslands

Carbon flows from biomass reservoirs and soil (uncertainty in parenthesis)

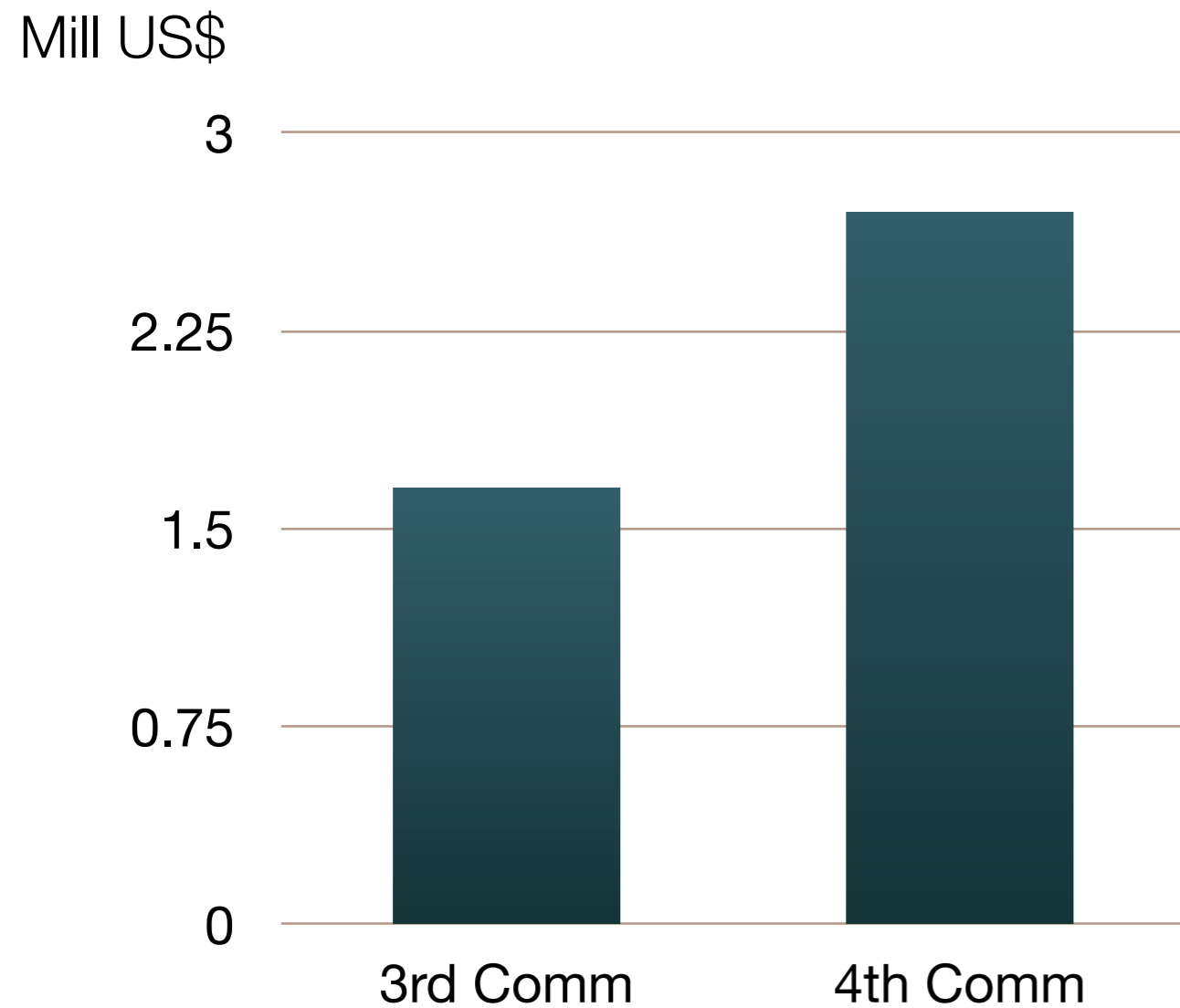
Categoría	Biomasa (Mt CO ₂)	Suelo (Mt CO ₂)
FL--> FL	-19,052,797 (58.1%)	-1,685,789 (30.0%)
CL--> FL	5,105,528 (33.7%)	1,583,512 (34.4%)
GL--> FL	4,215,066 (38.5%)	2,659,094 (24.4%)
FL--> CL	-24,877,689 (25.6%)	-10,298,363 (32.0%)
GL--> CL	-936,169 (82.6%)	
FL--> GL	-17,155,223 (26.0%)	-9,856,168 (28.0%)
CL--> GL	521,381 (81.2%)	
Emission total	69,777,612 (±44.3%)	

Current challenges

- Increase involvement of institutions generating information
- Increase capacity in government agencies to make a more regular and facilitated exchange of data
- Improve quality of data, particularly on forest management
- Coordinate generation of GHG-Inventory and REDD+ Reporting



Reflection on costs



However, this excludes the cost of key inputs such as the NFI and Land cover/use maps in the case of LULUCF, which would be the major part.