

# **THE NATCOM PROCESS IN CLIMATE CHANGE**

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**ENABLING ACTIVITIES FOR THE PREPARATION  
OF INDIA'S INITIAL NATIONAL COMMUNICATION  
TO THE UNFCCC**

*Executed by*

**MINISTRY OF ENVIRONMENT AND FORESTS  
GOVERNMENT OF INDIA**

*and supported by*

**GLOBAL ENVIRONMENT FACILITY**

**&**

**UNITED NATIONS DEVELOPMENT PROGRAMME**

# **BACKGROUND**

Implementation of India's Commitment under

## **UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE**

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### **OBJECTIVES**

- **STABILISATION OF GREENHOUSE GAS  
CONCENTRATION IN THE ATMOSPHERE**
- § **PREVENT DANGEROUS HUMAN INTERFERENCE  
WITH THE CLIMATE SYSTEM**
- § **ENABLE ECONOMIC DEVELOPMENT IN A  
SUSTAINABLE MANNER**

# **COMMITMENTS**

## **DEVELOPING COUNTRIES**

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- ➡ PREPARE NATIONAL COMMUNICATIONS GIVING INVENTORY OF GHGs BY SOURCES AND REMOVAL BY SINKS**
- ➡ GENERAL DESCRIPTION OF STEPS TAKEN OR ENVISAGED TO IMPLEMENT THE COMMITMENTS**
- ➡ UNDERTAKE SUSTAINABLE DEVELOPMENT ACTIVITIES**

# **NATIONAL COMMUNICATION FROM NON-ANNEX I PARTIES**

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**Article 4** and **Article 12.1** of the Convention

## **Communication of Information Related To Implementation**

In accordance with Article 4, paragraph 1. Each Party shall communicate to the Conference of Parties, through the Secretariat, the following elements of information:

- A national inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, to the extent its capacities permit, using comparable methodologies to be promoted and agreed upon by the Conference of Parties;

- A general description of steps taken or envisaged by the Party to implement the Convention; and
- Any other information that the Party considers relevant to the achievement of the objective of the convention and suitable for inclusion in its communication, including, if feasible, material relevant for calculations of global emission trends.

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**India's NATCOM:  
Approach, Components and  
Institutional Arrangements**

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# What Requires To Be Done

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Emanates from general commitments under the Convention. The Preparation of Initial National Communication include:

- **Inventories of GHGs by sources and removals by sinks**
- **Promote sustainable development, resource conservation and sink enhancement**
- **Take climate change considerations into national planning process**
- **Promote and cooperate**
  - Scientific Research**
  - Training**
  - Public Awareness**

# Approach to NATCOM Preparation

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- ❖ Broad based Participatory Planning Process for
  - ★ Development of Comprehensive Inventory GHGs for 1994
  - ★ Improve its reliability vis-a-vis reducing uncertainties of GHG emission coefficients in key source categories (IPCC guidelines and methodologies)
- ❖ Capacity Building and networking of National Institutions and Agencies through
  - ★ Consultative Meetings
  - ★ Planning and Training Workshops

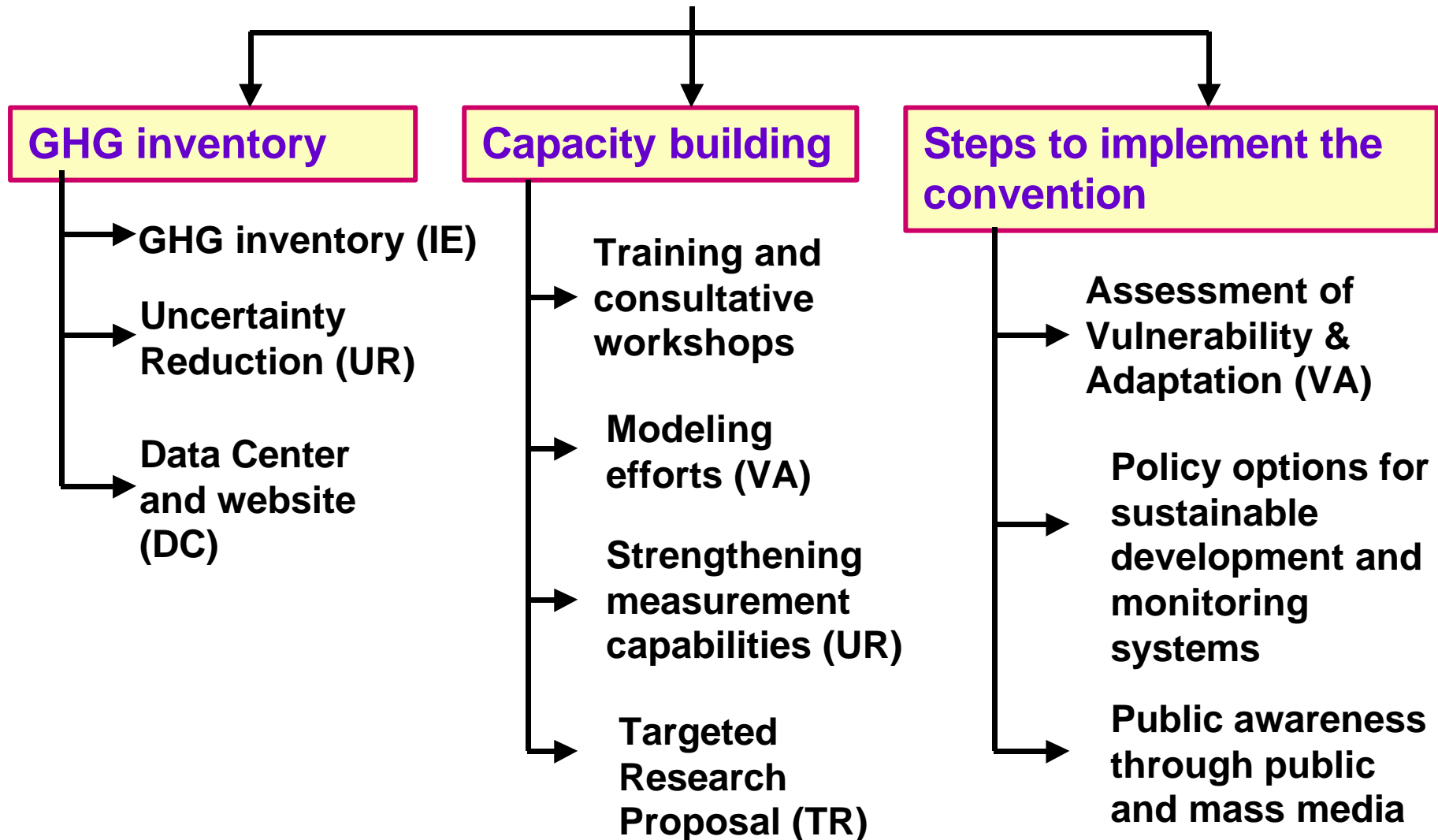
## CONTD.....

- ❖ Participation of policy makers, planners and researchers for developing linkages between climate change issues and developmental/economic processes
- ❖ Articulate the Indian and regional requirements for further targeted research in climate change and related areas

# Components of India's NATCOM

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## NATCOM



# Interlinkages

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## Uncertainty Reduction

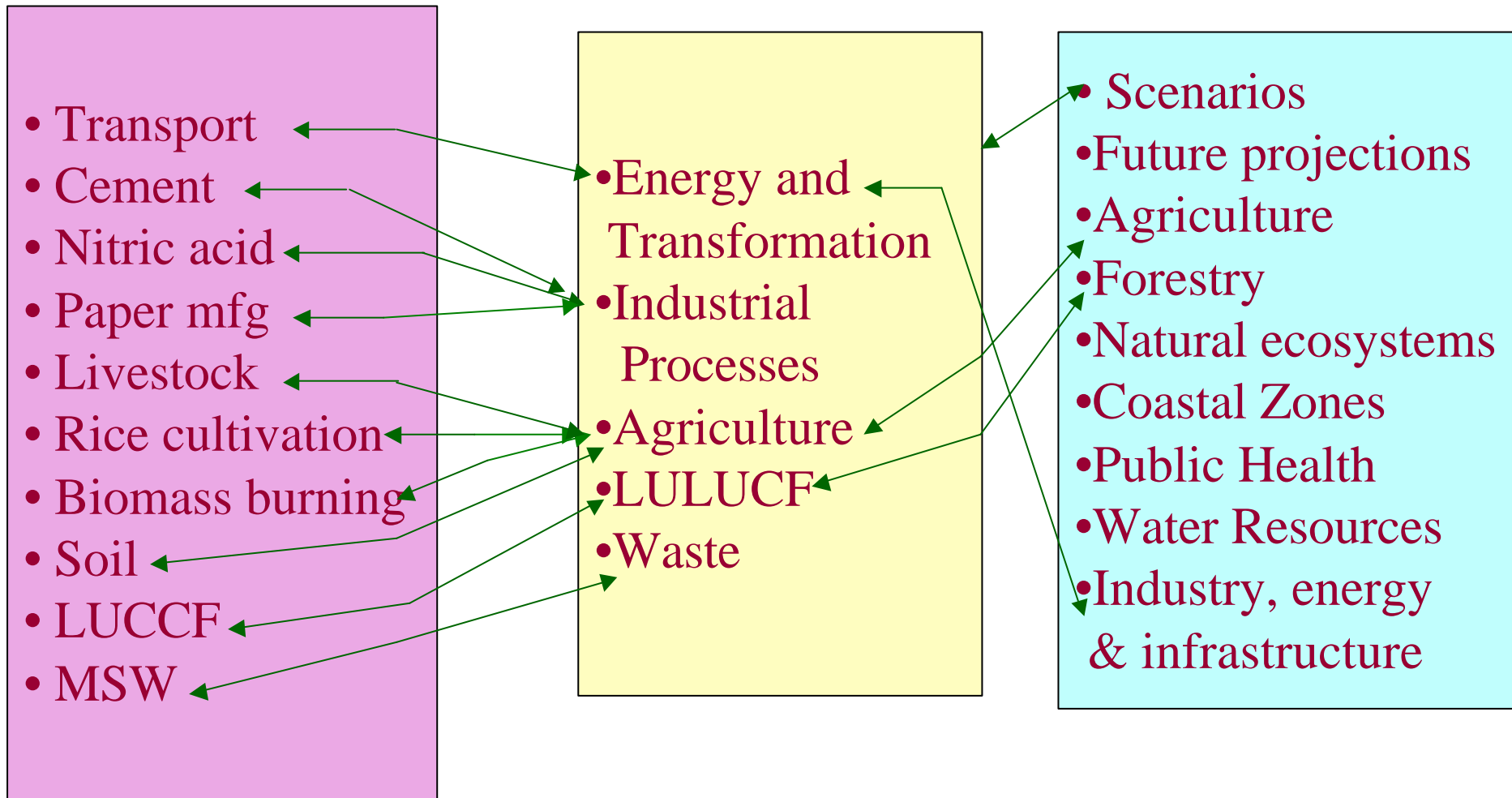
- Transport
- Cement
- Nitric acid
- Paper mfg
- Livestock
- Rice cultivation
- Biomass burning
- Soil
- LUCCF
- MSW

## Inventory Estimates

- Energy and Transformation
- Industrial Processes
- Agriculture
- LULUCF
- Waste

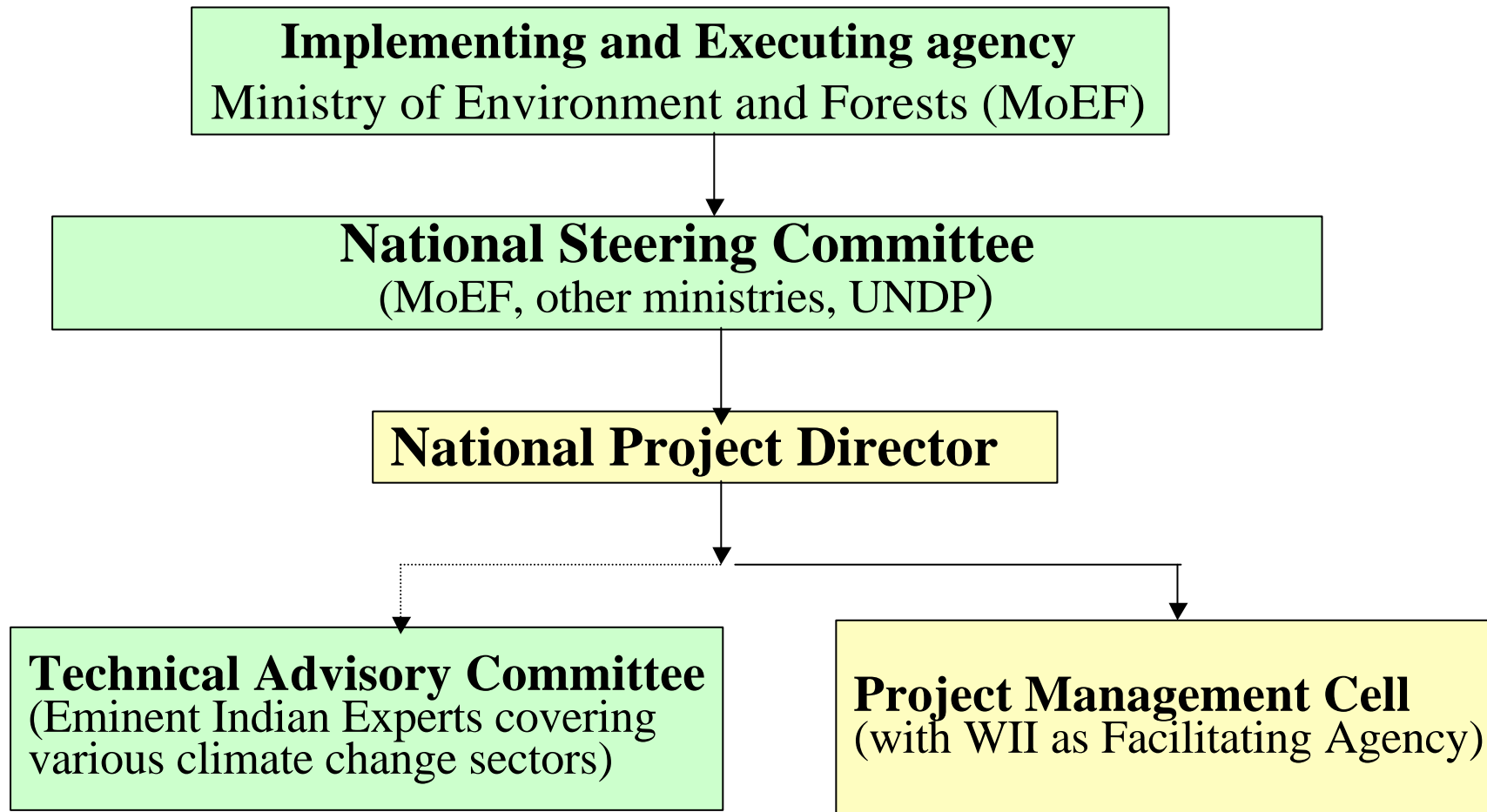
## Vulnerability Assessment

- Scenarios
- Future projections
- Agriculture
- Forestry
- Natural ecosystems
- Coastal Zones
- Public Health
- Water Resources
- Industry, energy & infrastructure



# Project Implementation Arrangements

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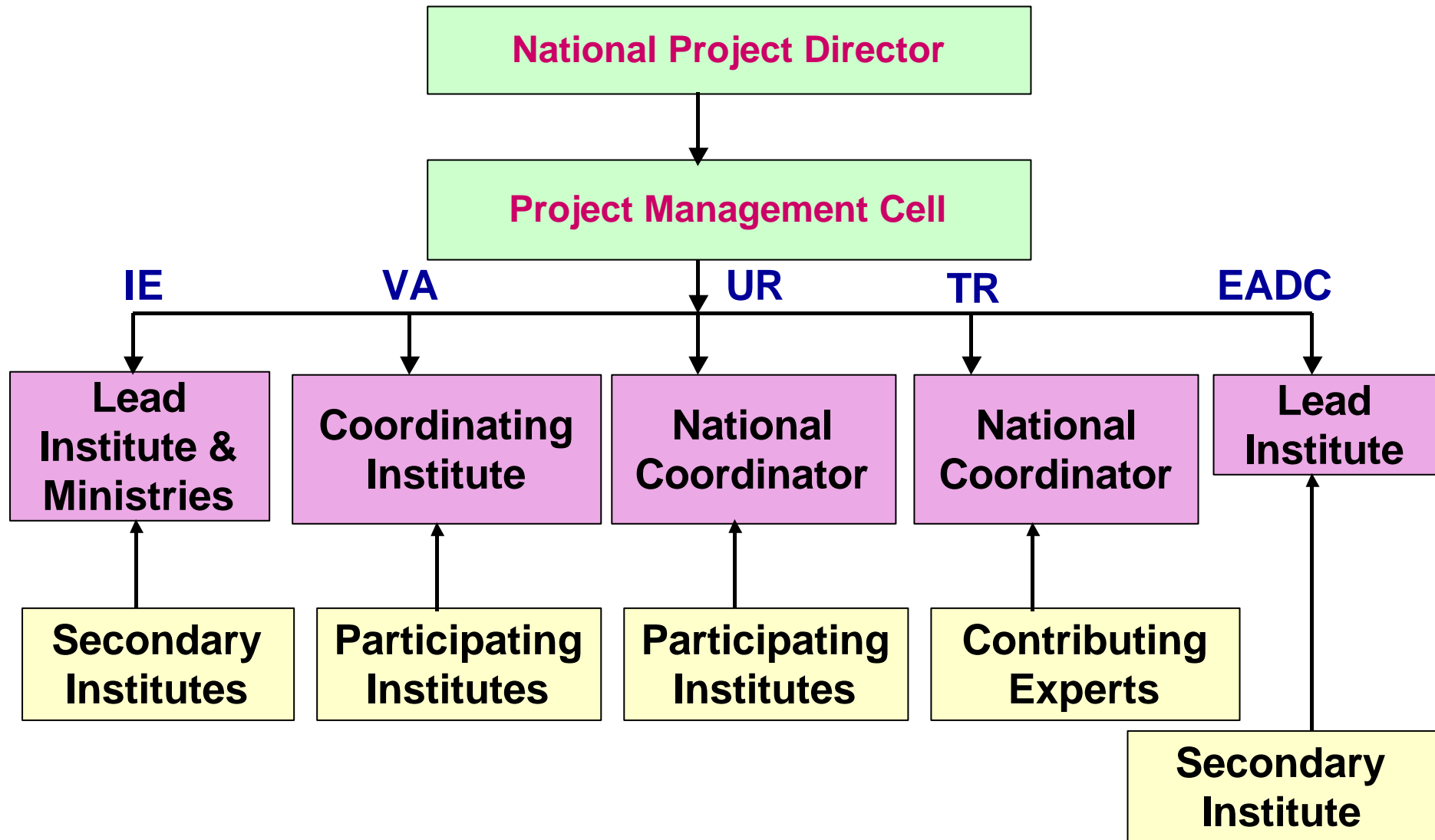
# Implementation Plan

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- Broad based participatory approach involving almost 100 institutions and over 350 Experts
  - ★ Government Ministries and Departments (Central, State)
  - ★ Government Institutions (FRI, FSI)
  - ★ Autonomous Institutions (IIMs, IITs, IISc)
  - ★ Scientific Institutions
    - ☞ CSIR labs (over 15 involved)
    - ☞ IARI labs and extension services
    - ☞ ISRO (SAC, NRSA)
  - ★ Universities (JU, JNU, DU, KU, TU, JKU)
  - ★ Industry Federations (CII, FICCI, CMA)
  - ★ NGOs (TERI, DA, AFPRO)
  - ★ Private organizations (DCA)
- Sub contract various activities to the above agencies
- Extensive monitoring, workshops and consultative meetings
- Synthesis, review and final NATCOM report

# Institutional Mechanism for NATCOM Components

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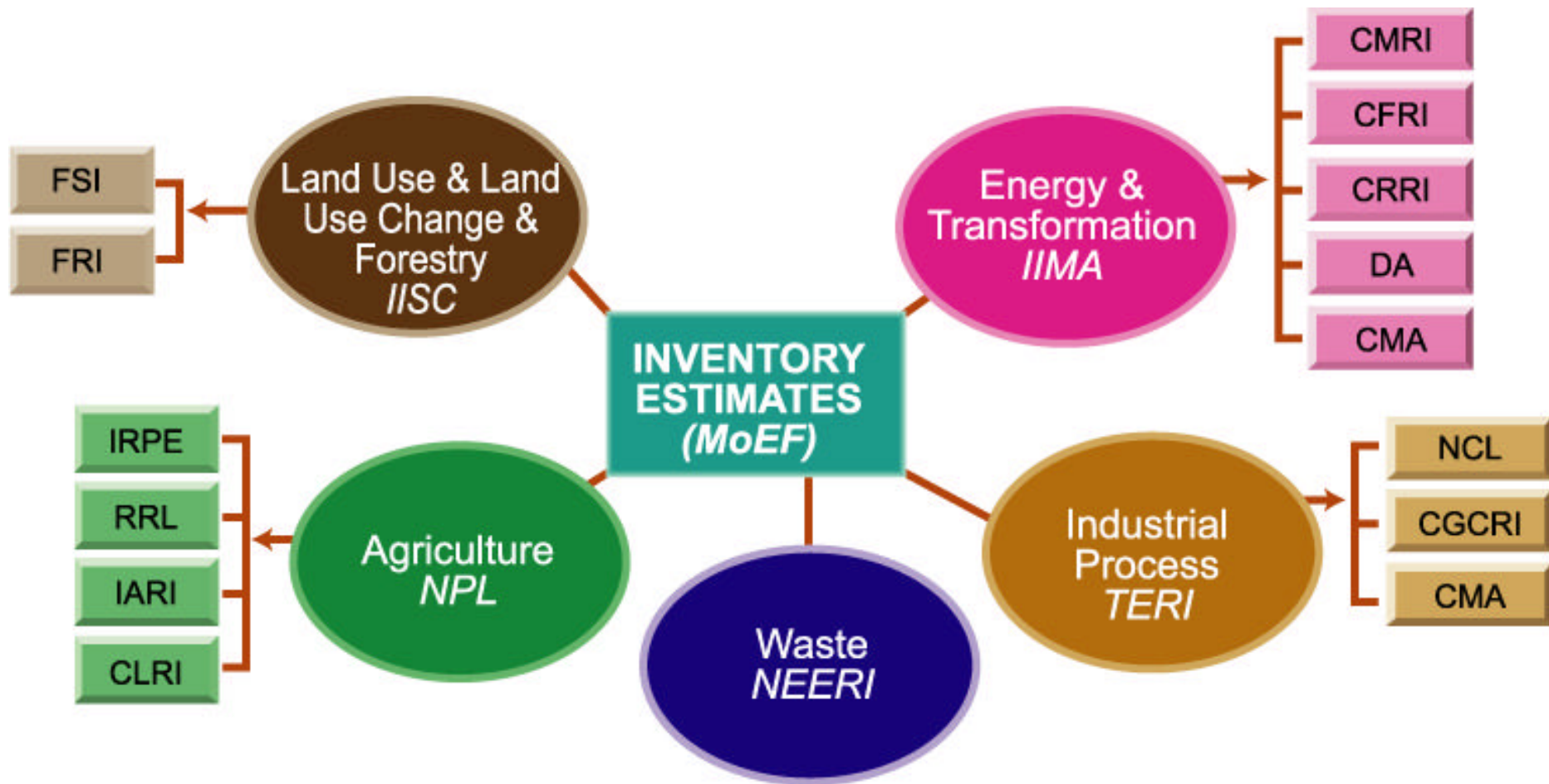
# Institutions Directly Involved

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A. Inventory Estimation	19
B. Uncertainty Reduction	18
C. Vulnerability Assessment and Adaptation	33
D. Data Center and Website development	2
E. Targeted Research proposal	11
F. Ministries/ Departments	15

<b>Total</b>	<b>96</b>
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# Inventory Estimation: Institutional Arrangement

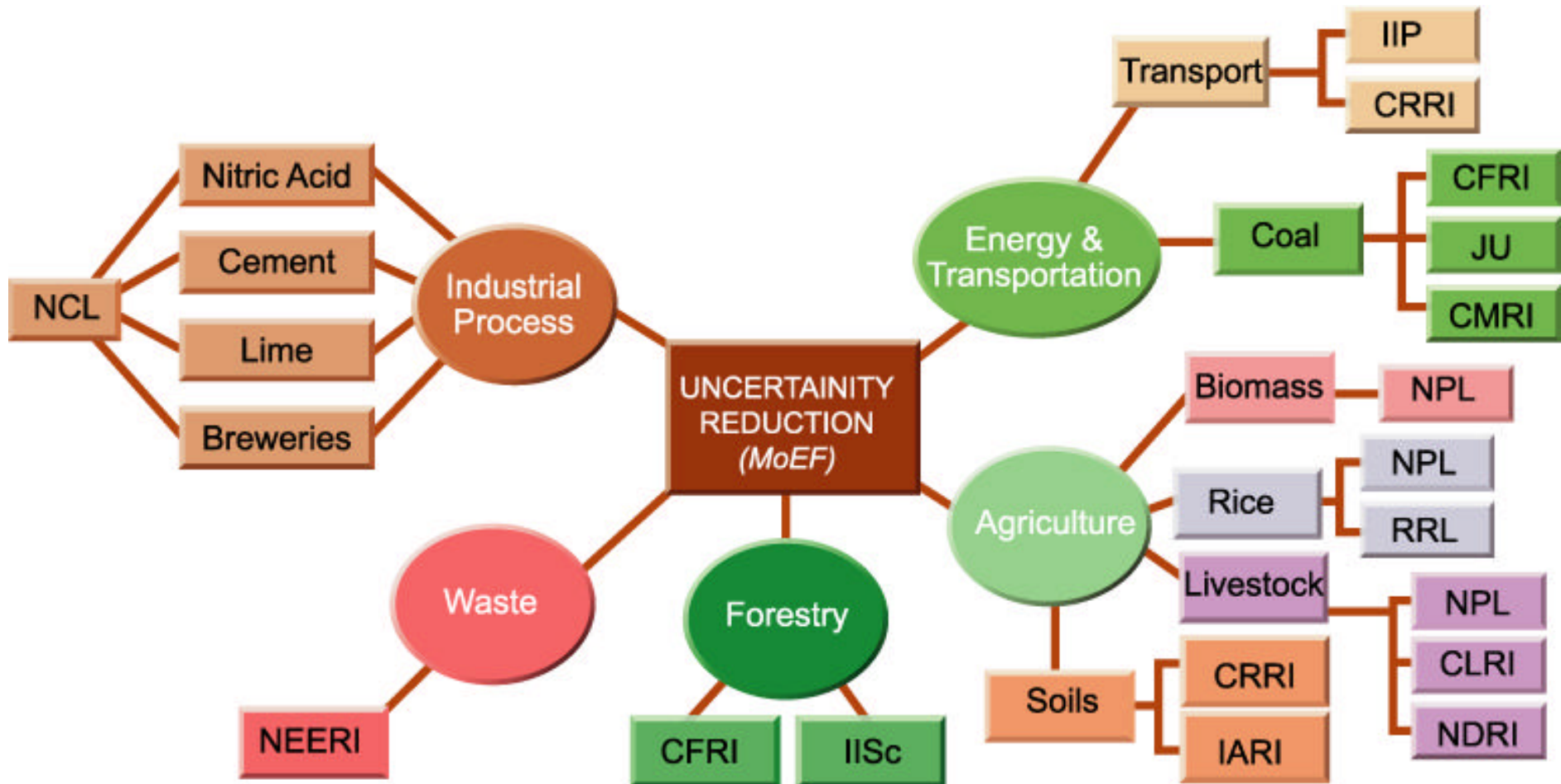


# IE: Geographical Institutional Distribution

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# Uncertainty Reduction : Institutional Arrangement



# UR: Geographical Institutional Distribution

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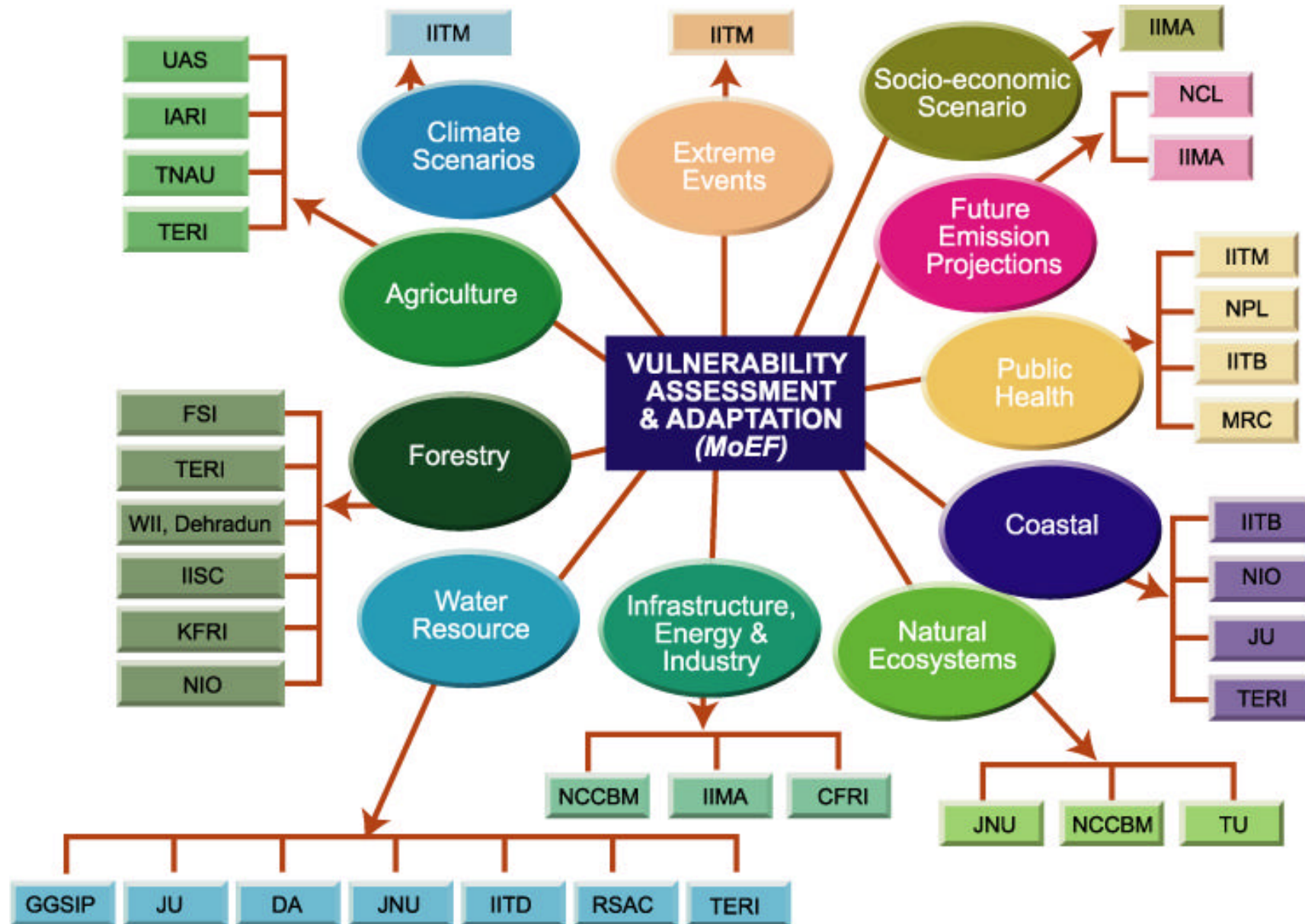


# Uncertainty Reduction Emission Coefficient Measurements

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- **Road transport**  $\text{CO}_2$ ,  $\text{N}_2\text{O}$ , other HC
- **Biomass burning for fuel**  $\text{CH}_4$ ,  $\text{N}_2\text{O}$
- **Cement, Nitric acid, Lime, Paper**  $\text{CO}_2$ ,  $\text{N}_2\text{O}$ ,  $\text{CH}_4$
- **Enteric fermentation in animals**  $\text{CH}_4$ ,  $\text{N}_2\text{O}$
- **Manure management**  $\text{CH}_4$ ,  $\text{N}_2\text{O}$
- **Rice paddy cultivation**  $\text{N}_2\text{O}$ ,  $\text{CH}_4$
- **Synthetic fertilizer application**  $\text{N}_2\text{O}$
- **Forest growth**  $\text{CO}_2$ ,  $\text{CH}_4$
- **Municipal Solid Waste**  $\text{CH}_4$

# Vulnerability Assessment and Adaptation: Institutional Arrangement



# VA: Geographical Institutional Distribution

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# Enabling Activity Data Center (EADC)

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## **OBJECTIVE**

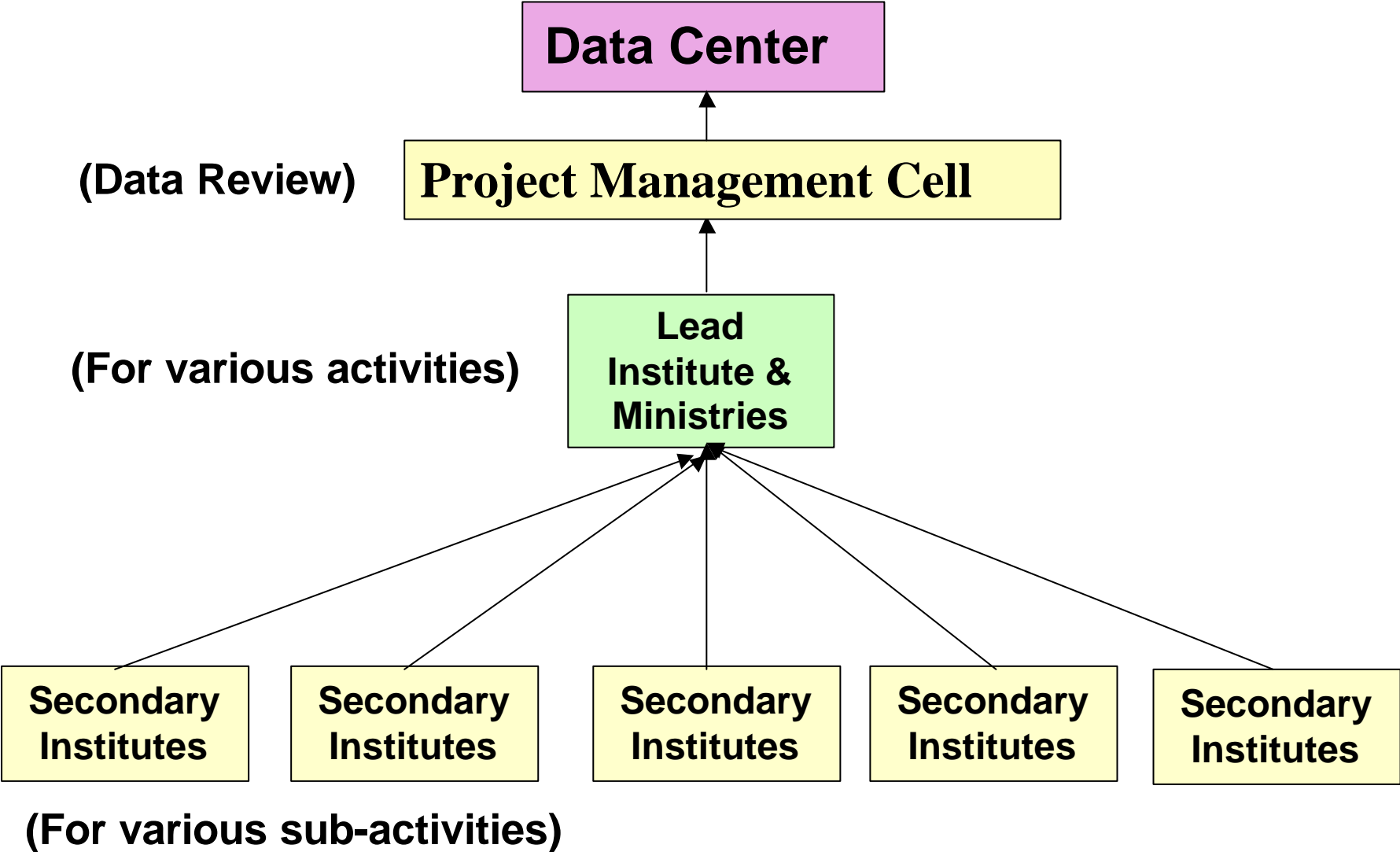
Development of a comprehensive data base of activity data, emission coefficients and other aspects of NATCOM.

## **ACTIVITIES**

- ☆ To archive the database generated
- ☆ To design interactive software programmes for data management and analysis
- ☆ To develop a website for dissemination of data reports and publications.

# Institutional Data Flow

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# EADC Activities & Outputs

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## DC Outputs

Top down & Bottom up databases  
Data Archives based on Sectors/Fuels/Gases/Regions/Years  
Graphs/Charts  
National Communication Website

## Data Management Activities

Hardware setting up  
Standardization  
Formatting  
Compilation  
Sanitation as per QA/QC practices  
Collation  
Interactive analysis  
Dissemination through website

## Website Activities

Domain creation  
Space/ channel organization, Hosting arrangements  
Content creation including site map, visual impacts, page design  
Create access codes/ passwords  
Register with Search Engines

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# **Targeted Research and Capacity Building**

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# Why Targeted Research

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**“To strengthen regional scientific capacity in order to respond to the climate change challenge as well as to lay the foundation for further national communications and implementation of the Convention”.**

# TR: Likely Components

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- Identification of technology and capacity building needs, modalities to acquire and absorb them, design and evaluate host projects.
- Capacity building for participation in systematic observation networks in the region.
- Studies leading to the preparation of national and regional capacities to address climate change, further improvement of remaining emission coefficients for India and the region.
- Maintenance and enhancement of regional capacities to prepare national communications on a continuous basis.
- Developing and strengthening activities for public awareness, education and access to information.

# Capacity Building

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## ★Workshops

- Facilitation and Planning (Inception, Targeted Research)
- Training (IE, VA, Good Practices, UR)
- Dissemination (IE, UR, V&A, Final)

## ★Institutional

- Strengthening infrastructure
- Data Center
- Inducting new Institutions

## ★Human Resources

- Trained man power

## Workshops conducted so far

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1. Inception 22<sup>nd</sup>-23<sup>rd</sup> Nov, 2001
2. Targeted Research 26<sup>th</sup> Nov., 2001
3. QA/QC workshop 27<sup>th</sup> – 30<sup>th</sup> Nov., 2001
4. GHG inventory training 3<sup>rd</sup> – 5<sup>th</sup> Dec., 2001
5. Future Socio-economic scenario 6<sup>th</sup> – 7<sup>th</sup> Dec., 2001
6. Training on V&A assessment 17<sup>th</sup> – 19<sup>th</sup> Dec., 2001
7. Awareness workshop on water resources 15<sup>th</sup> – 16<sup>th</sup> April, 2002
8. Pre-COP8 CC workshop 1 13<sup>th</sup> July, 2002
9. Pre-COP8 CC workshop 2 11<sup>th</sup> Sep., 2002

Numerous consultative meetings have been held for IE, UR & VA

5-6 more workshops to consolidate the results of the NATCOM process

# Project Outputs

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1. Inventory of greenhouse gases for 1994
2. Reduced uncertainties in GHG emission inventory estimates for some key source categories
3. Enhanced institutional and individual capacities
4. Data Center and Website
5. Identification of vulnerable hotspots in India
6. Roadmap for future climate change research requirements
7. Indian NATCOM Scenarios
8. Other information