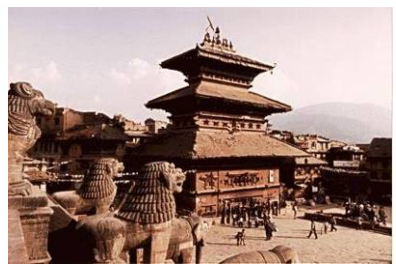
# Malé Declaration Implementation in NEPAL

**Ministry of Environment, Science and Technology**
**International Centre for Integrated Mountain Development**


# Nepal

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# Nepal in Brief

- Total Area 147181 Sq Km
- Population 26.2 Million
- Rural population 88%
- Urban 12%
- Geographical Division Land Population

| | | |
|---|---|---|
| Himalayan region | 35% | 7.45% |
| Hills and Mountain | 42% | 44.46% |
| Low land Terai | 23% | 47.49% |

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# NIA and NFP, National Committee members

NFP: Ministry of Environment Science and Technology (MoEST), Government of Nepal

NIA: International Centre for Integrated Mountain Development(ICIMOD), Kathmandu

Member:

- Institute of Agriculture and Animal Science (IAAS) TU, Chitwan
- Clean Air Network Nepal-representing from NGOs
- Center for Pollution Studies, Institute of Engineering (IoE-TU) representing from academic institutions
- Department of Hydrology & Meteorology, GoN

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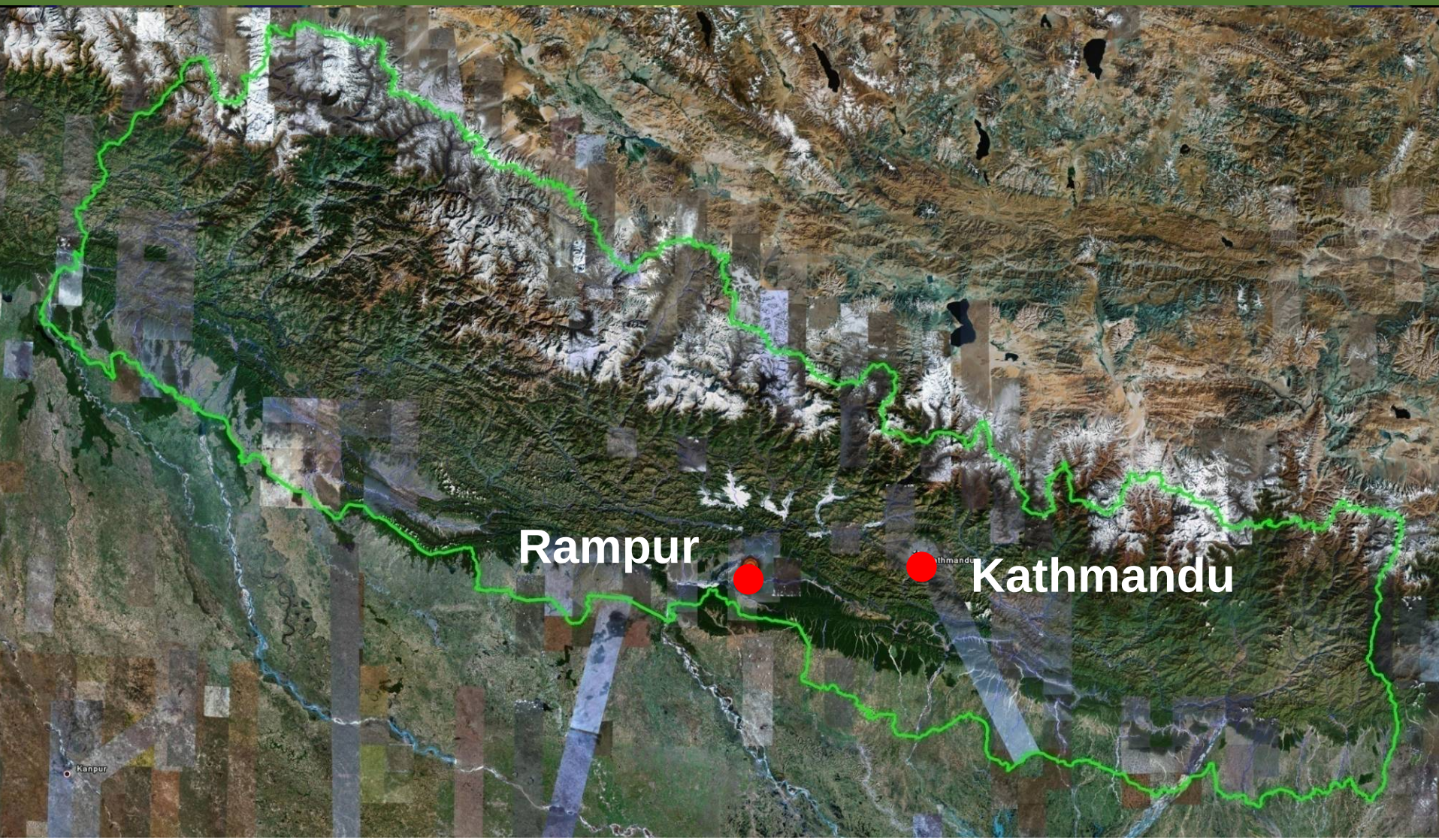
# Monitoring site

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# Monitoring site

**Country:** Nepal

**Location:** Institute of Agriculture and Animal Science, Rampur, Chitwan

**Site type:** Rural site, 15 km south of the Royal Chitwan National Park

**Latitude:** $27^{O}$ 38’ 52.8” N

**Longitude:** $84^{O}$ 20’ 47.7” E

**Altitude:** 165 mamsl

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# Regular Monitoring Parameter at IAAS, Rampur:

**High Volume Sampler**

$PM_{10}$ TSP $SO_2$ $NO_2$

**Passive Samples:**

$SO_2$ $NO_2$ $O_3$

**Rain Water Chemistry (Wet and Bulk rain):**

Water volume, pH, Conductivity, Temperature,
Acidity (free and total as caco3),
Alkalinity (Phenolphthalein and Methyl orange),
Hardness ($Ca^{+2}$ and $Mg^{+2}$), $SO_4^{-2}$, $K^+$, $Cl^-$, $NO_3^-$

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# Instruments

## High Volume Sampler


## Passive Sample

## Automatic Weather Station

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# Instruments

Wet Only Collector

Bulk Collector

Laboratory

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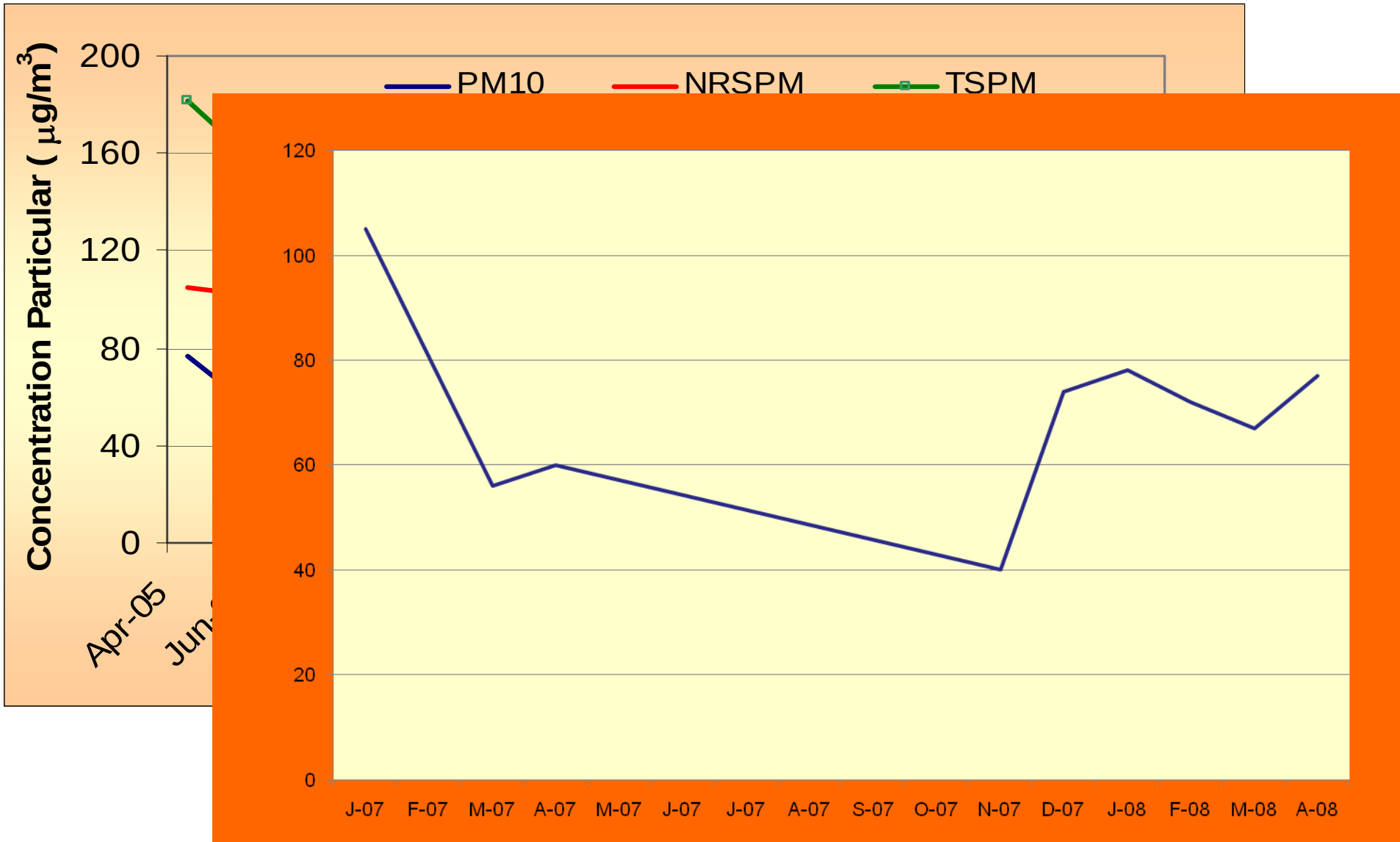
# HVS

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# Phase III Activities - Impact assessment

- Emission inventories
- Rapid Urban assessment of Kathmandu City
- Impact on corrosion to assess the rate of corrosion in materials
- Impact on crop to assess the risk caused by ozone.

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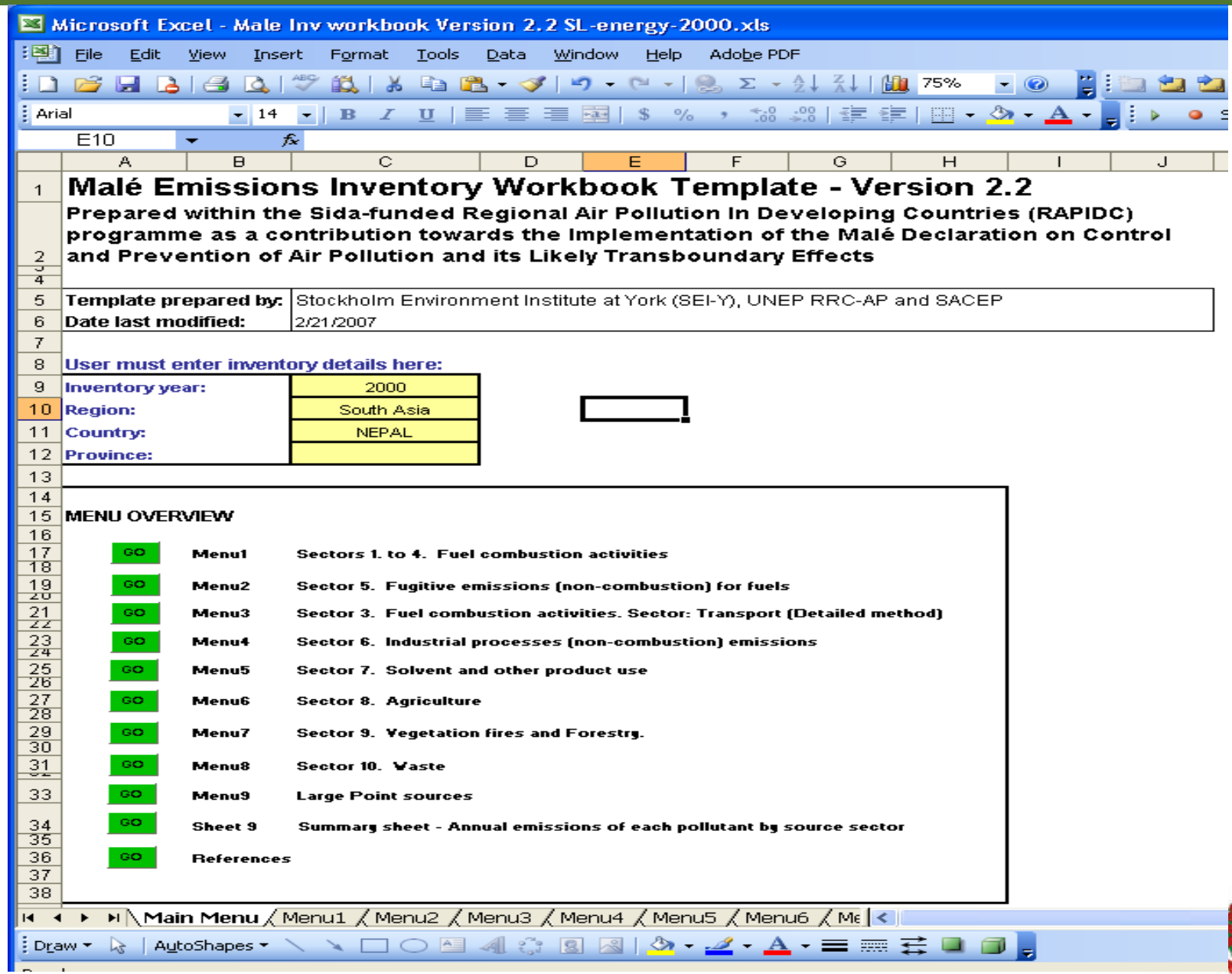
# Emission Inventory

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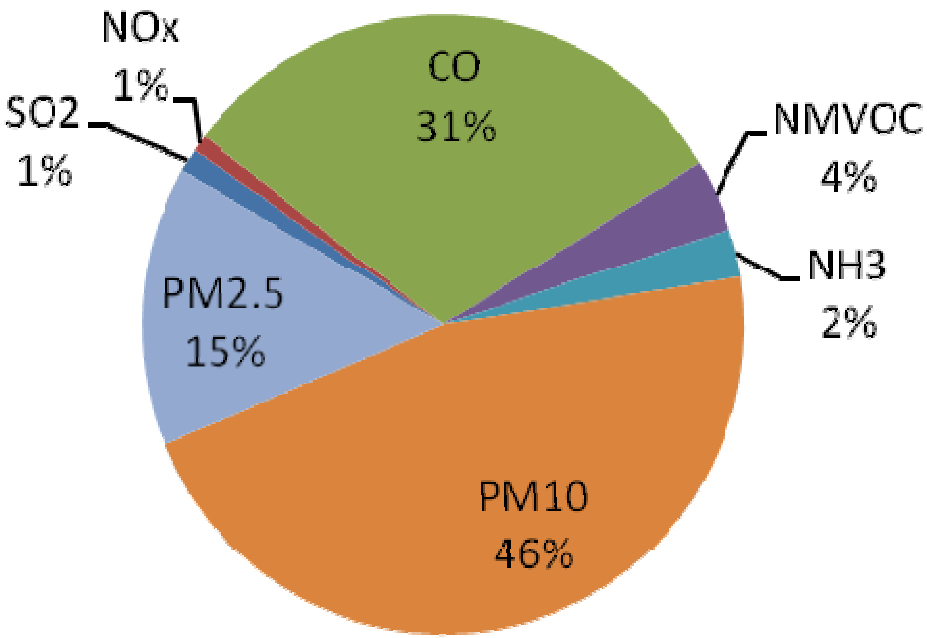
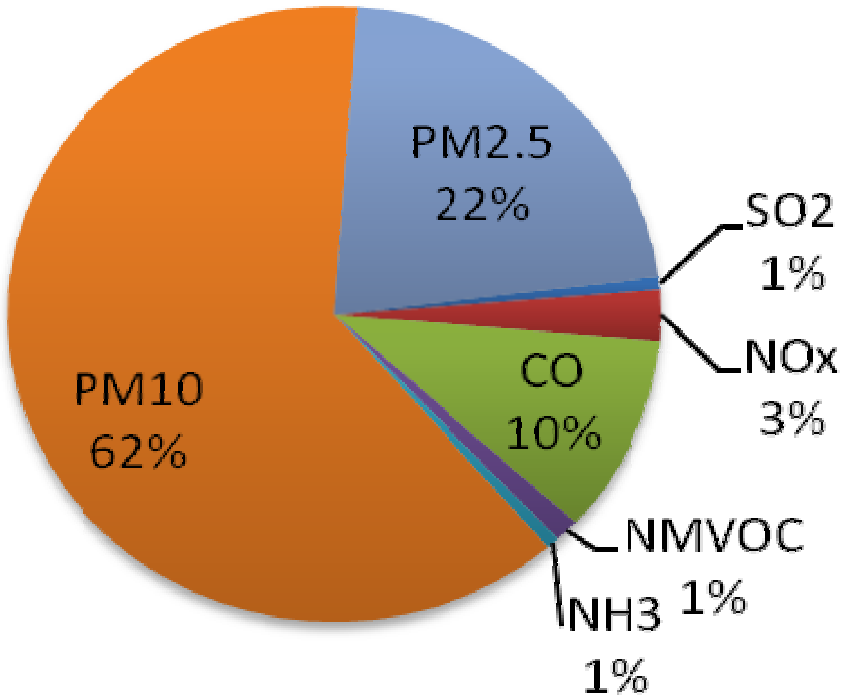
# Total Emission of the Pollutants

## Nepal 2002




## Kathmandu 2005

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# Rapid Urban Assessment

- To quantify the emissions and pollutants from various sources of Kathmandu valley,

- passive samples exposed in an area of ~418 $Km^2$

  TSP – 60 samplers,

  $SO_2$ – 20 samplers and

  $NO_2$ - 40 samplers

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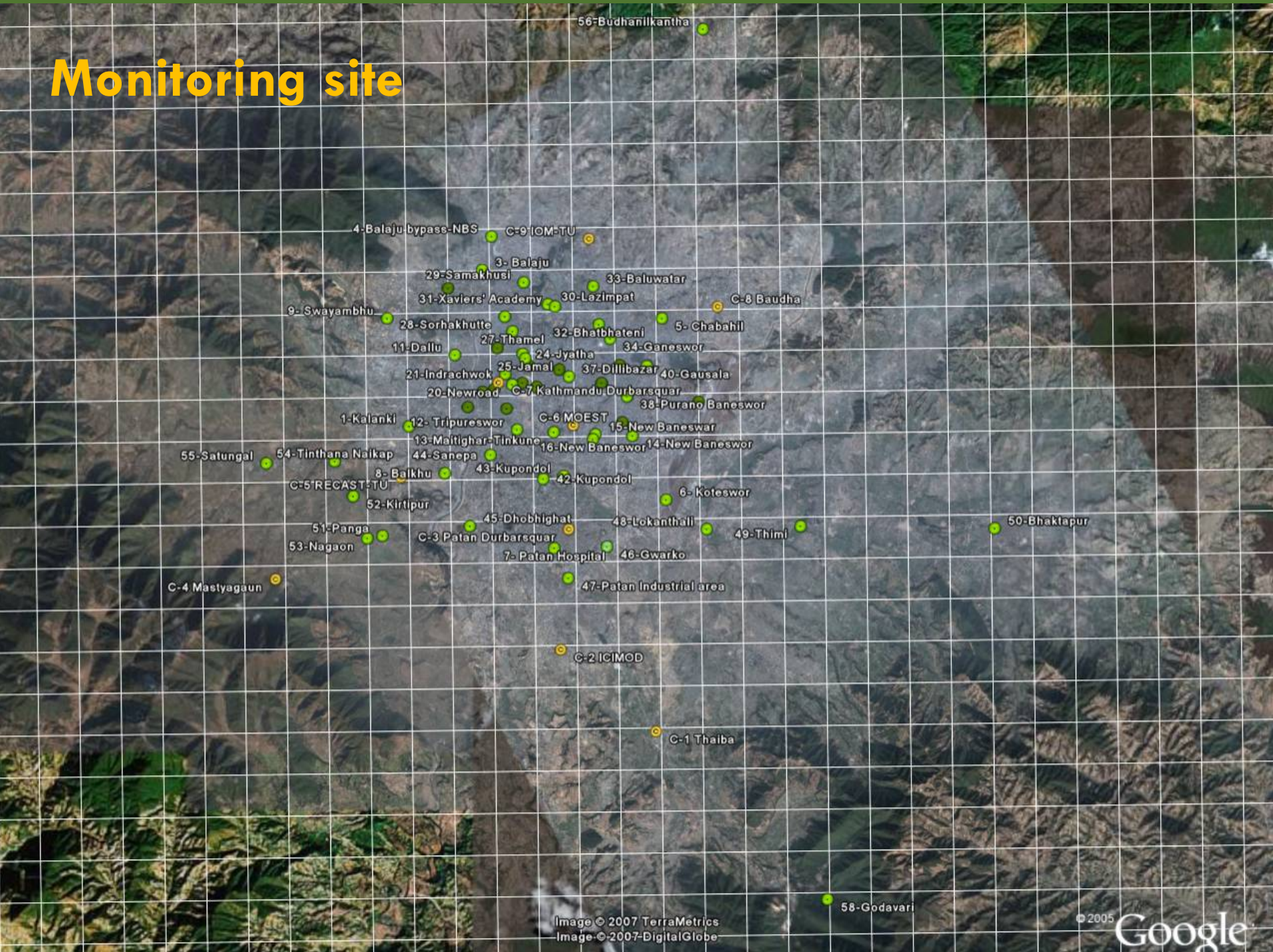
# Monitoring site



# Corrosion Study

- To assess the rate of corrosion at the defined sites, ideally close to a place where environmental variables are measured using exposure of standard samples.

- Rack were exposed on NINE sites
  November, 2006 to November 2007

  - One mini rack expose this year
  November, 2007 to November, 2008

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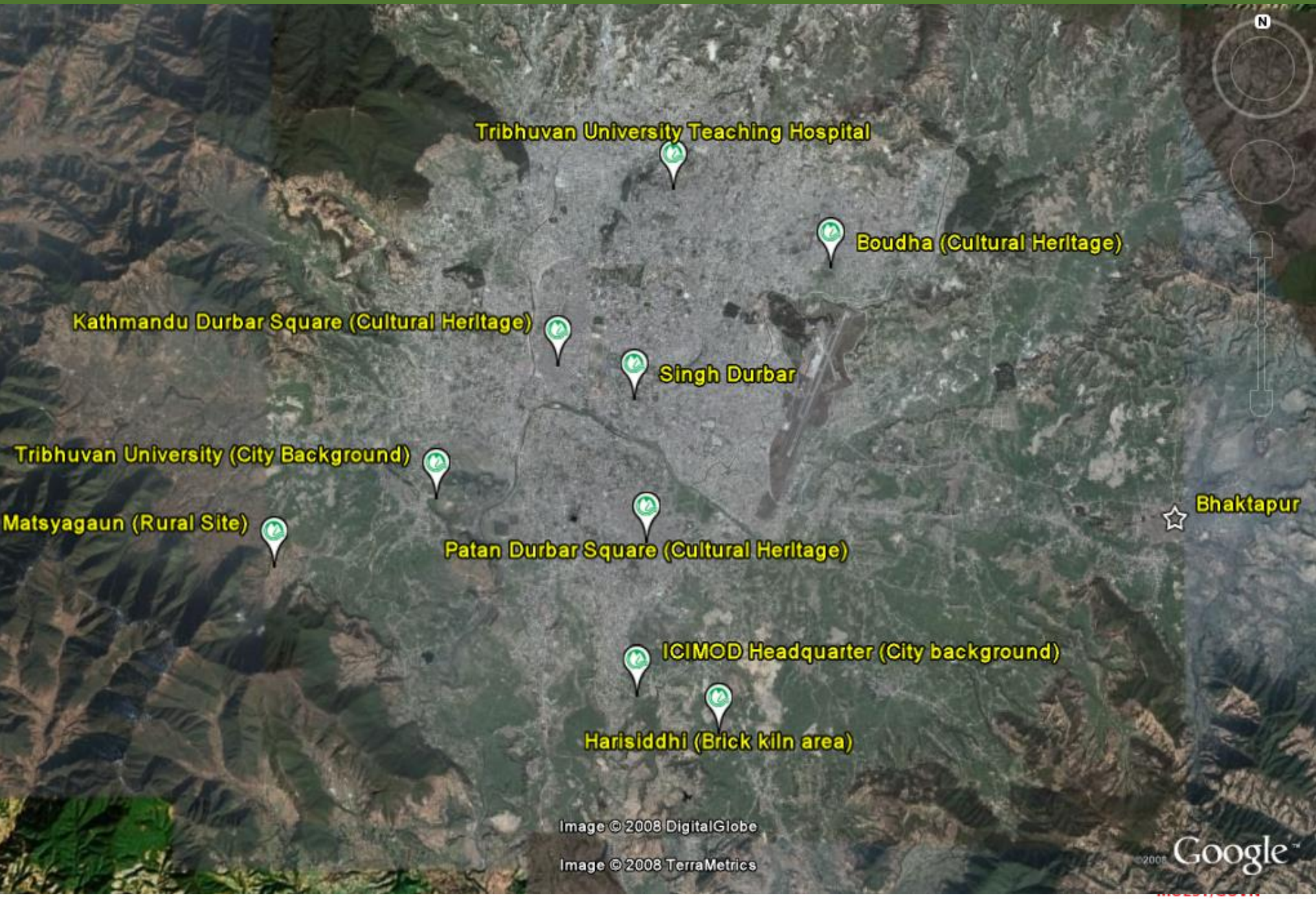
# Monitoring Sites



# Crop impact

To assess the biological impact of ambient ozone concentrations on growth and yield parameter of Mung-bean.

Mung Bean was planted at the IAAS, Rampur Chitwan using standardized bio-monitoring techniques

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# National Stakeholders' Meeting

Male Declaration on Control and Prevention of Air Pollution and its Likely Trans- boundary Effects for South Asia

**Report On**

**National Stakeholders' Meeting**

*Submitted to*
International Center for Integrated Mountain Development
Khumaltaar, Lalitpur, Nepal

*Submitted by*
Clean Air Network Nepal
Kamaladi, Ganeshsthan, Kathmandu
Nepal

April 15, 2008

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# Backtrajectory


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# Capacity Building Activities

| S.No | Date | Item | Venue |
|---|---|---|---|
| 1 | 30 - 31 Oct, 2007 | Regional Training on Stock at Risk under Corrosion Study | Ktm., Nepal |
| 2 | 28 Jan–1Feb 2008 | Workshop on Emission Inventory | AIT, Thailand |
| 3 | 11 -13 Feb 2008 | Training on Corrosion | Zambia |
| 4 | 4 Mar, 2008 | National Stakeholders' Workshop | Ktm., Nepal |
| 5 | 5 – 7 Mar, 2008 | Regional Workshop on Rapid Urban Assessment | Ktm,, Nepal |
| 6 | 11 - 13 Mar, 2008 | Workshop on Impact of air pollution on crop | AIT, Thailand |
| 7 | 25 - 28 Mar, 2008 | Regional refresher course | AIT, Thailand |
| 8 | 25 - 28 Mar, 2008 | Workshop Soil acidification | AIT, Thailand |

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# Future Activities

- Health Impact Assessment
- Modeling –IIAS, MATCH
- Stock at Risk – Corrosion
- Monitoring Stations
- Speciation of Samples
- Soil Acidification Studies
- Crop Impact
- Ozone concentrations
- Assist in conducting RUA for other countries

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**Each BSP biogas plant is said to save**
**4.6 tonnes of greenhouse gases from entering the atmosphere every year.**

**Reduce Emission from Degradation and Deforestation (REDD)**

**Nepal RPIN has been selected**

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Our Sincere Acknowledgement to SIDA
Thank You