

Malé Declaration Implementation in NEPAL

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



Nepal



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%

NIA and NFP, National Committee members

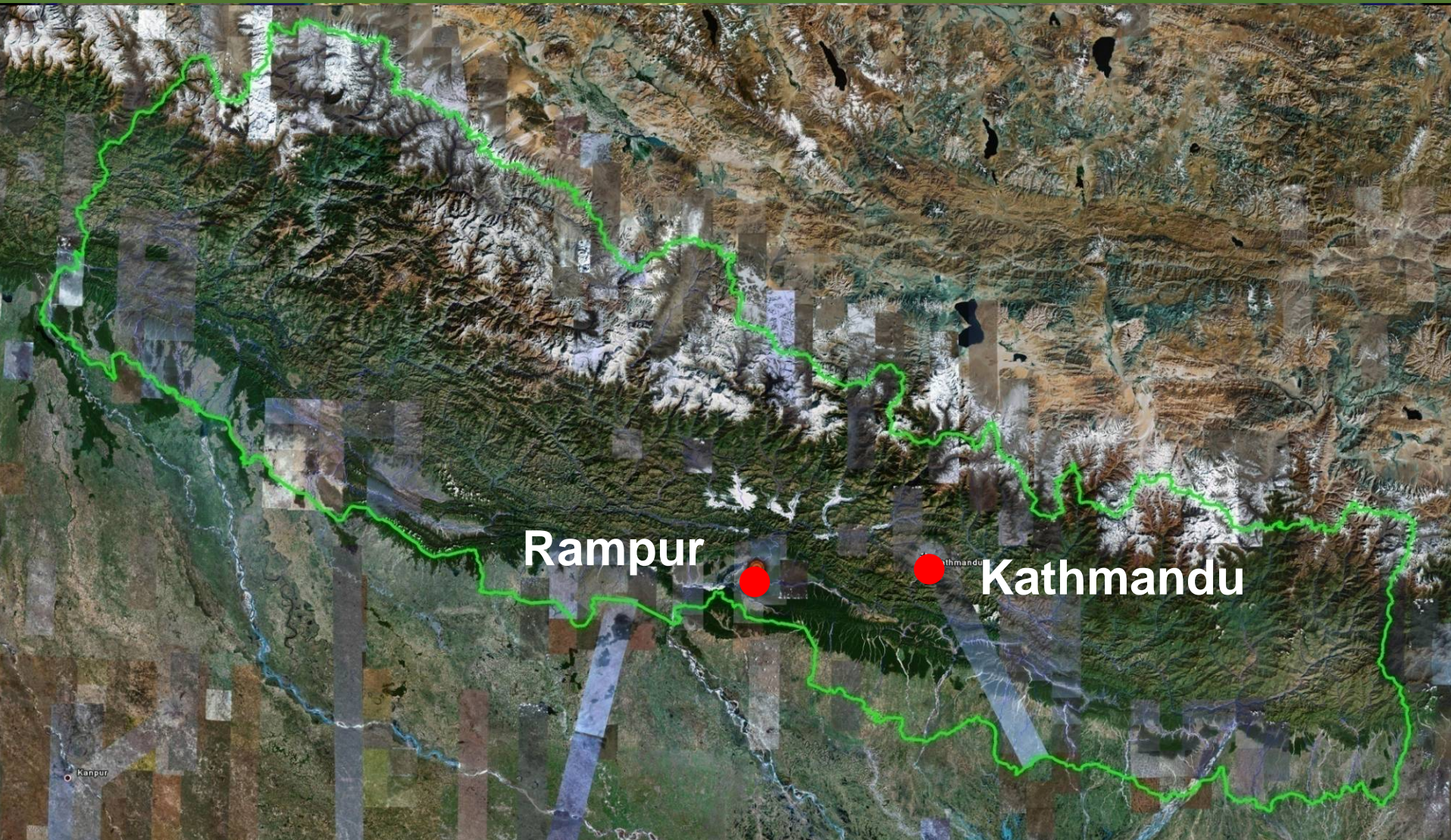
NFP: Ministry of Environment Science and Technology
(MoEST), Government of Nepal

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

Monitoring site



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° 38' 52.8" N

Longitude: 84° 20' 47.7" E

Altitude: 165 mamsl

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 CaCO_3),
Alkalinity (Phenolphthalein and Methyl orange),
Hardness (Ca^{+2} and Mg^{+2}), SO_4^{-2} , K^+ , Cl^- , NO_3^-

High Volume Sampler



Passive Sample



Automatic Weather Station

Instruments

Wet Only Collector



Bulk Collector



Laboratory

HVS

Concentration Particular ($\mu\text{g}/\text{m}^3$)

200

160

120

80

40

0

Apr-05

Jun-05

PM10

NRSPM

TSPM

120

100

80

60

40

20

0

J-07

F-07

M-07

A-07

M-07

J-07

J-07

A-07

S-07

O-07

N-07

D-07

J-08

F-08

M-08

A-08

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.**

Emission Inventory

Microsoft Excel - Male Inv workbook Version 2.2 SL-energy-2000.xls

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	A	B	C	D	E	F	G	H	I	J
1	Malé Emissions Inventory Workbook Template - Version 2.2									
2	Prepared within the Sida-funded Regional Air Pollution In Developing Countries (RAPIDC) programme as a contribution towards the Implementation of the Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects									
3										
4										
5	Template prepared by:	Stockholm Environment Institute at York (SEI-Y), UNEP RRC-AP and SACEP								
6	Date last modified:	2/21/2007								
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8	User must enter inventory details here:									
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11	Country:	NEPAL								
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18	GO	Menu3	Sector 3. Fuel combustion activities. Sector: Transport (Detailed method)							
19	GO	Menu4	Sector 6. Industrial processes (non-combustion) emissions							
20	GO	Menu5	Sector 7. Solvent and other product use							
21	GO	Menu6	Sector 8. Agriculture							
22	GO	Menu7	Sector 9. Vegetation fires and Forestry.							
23	GO	Menu8	Sector 10. Waste							
24	GO	Menu9	Large Point sources							
25	GO	Sheet 9	Summary sheet - Annual emissions of each pollutant by source sector							
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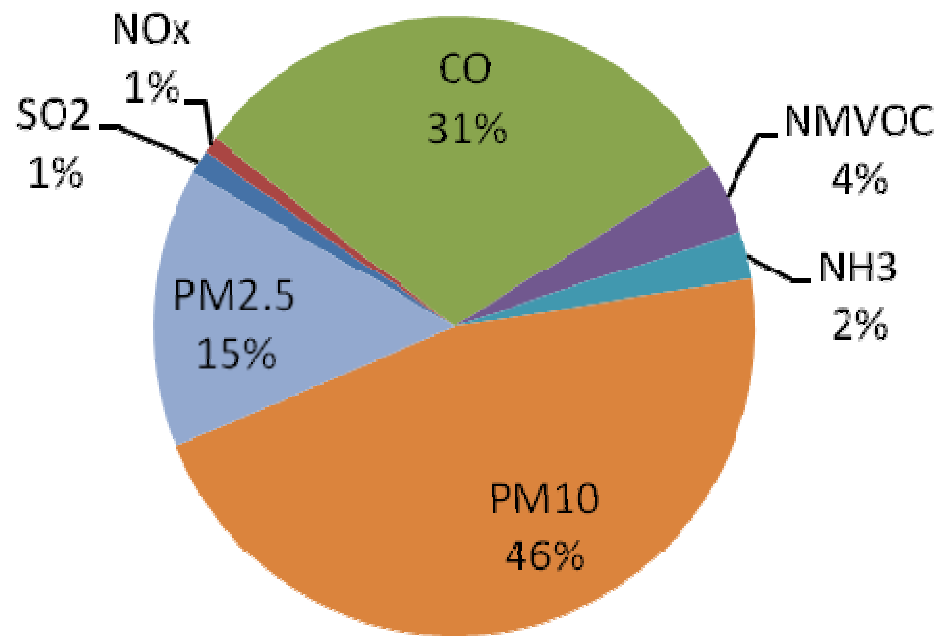
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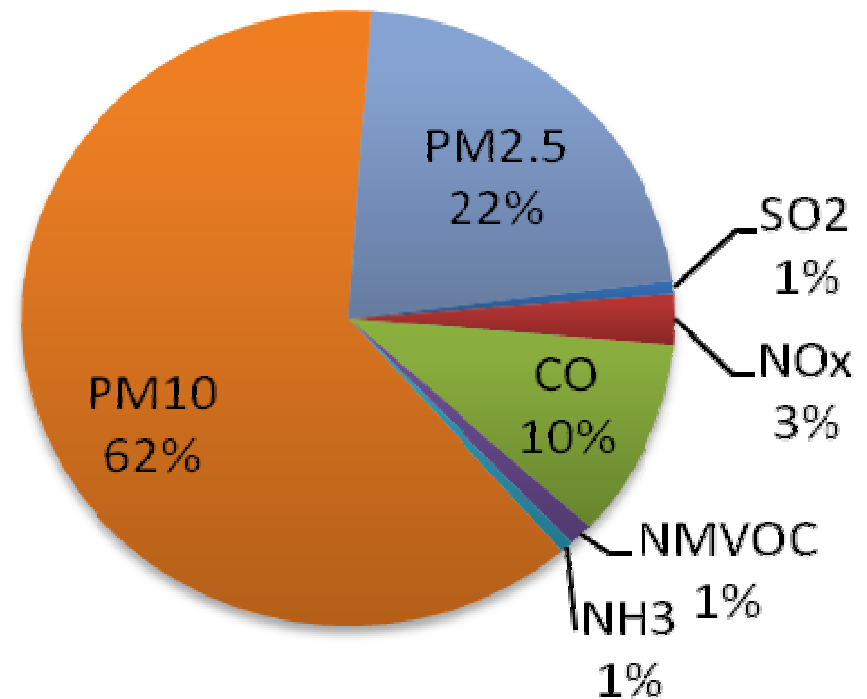


Total Emission of the Pollutants

Nepal 2002



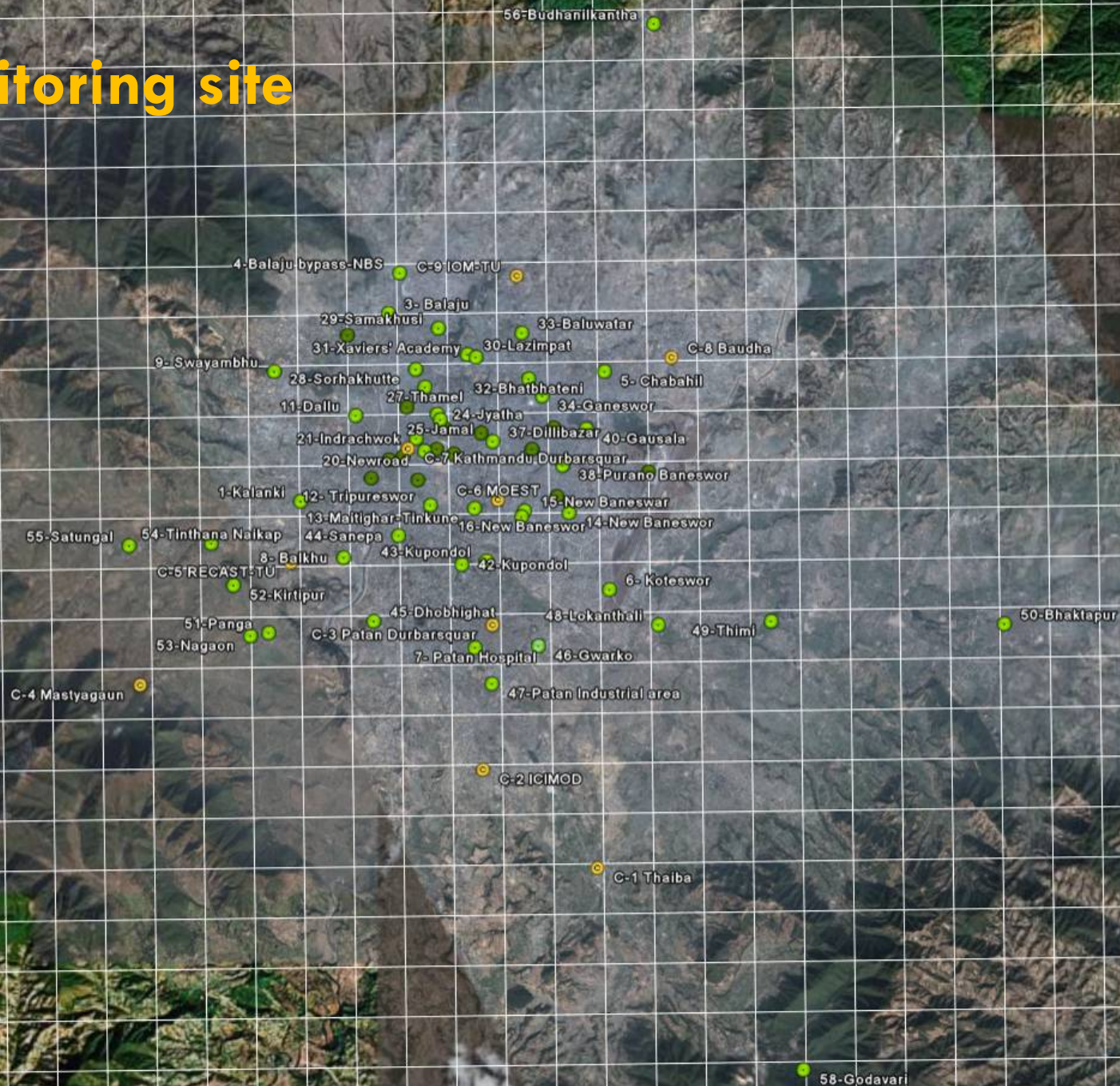
Kathmandu 2005



Rapid Urban Assessment

- To quantify the emissions and pollutants from various sources of Kathmandu valley,
- passive samples exposed in an area of ~418 Km²
 - TSP – 60 samplers,
 - SO₂ – 20 samplers and
 - NO₂ - 40 samplers

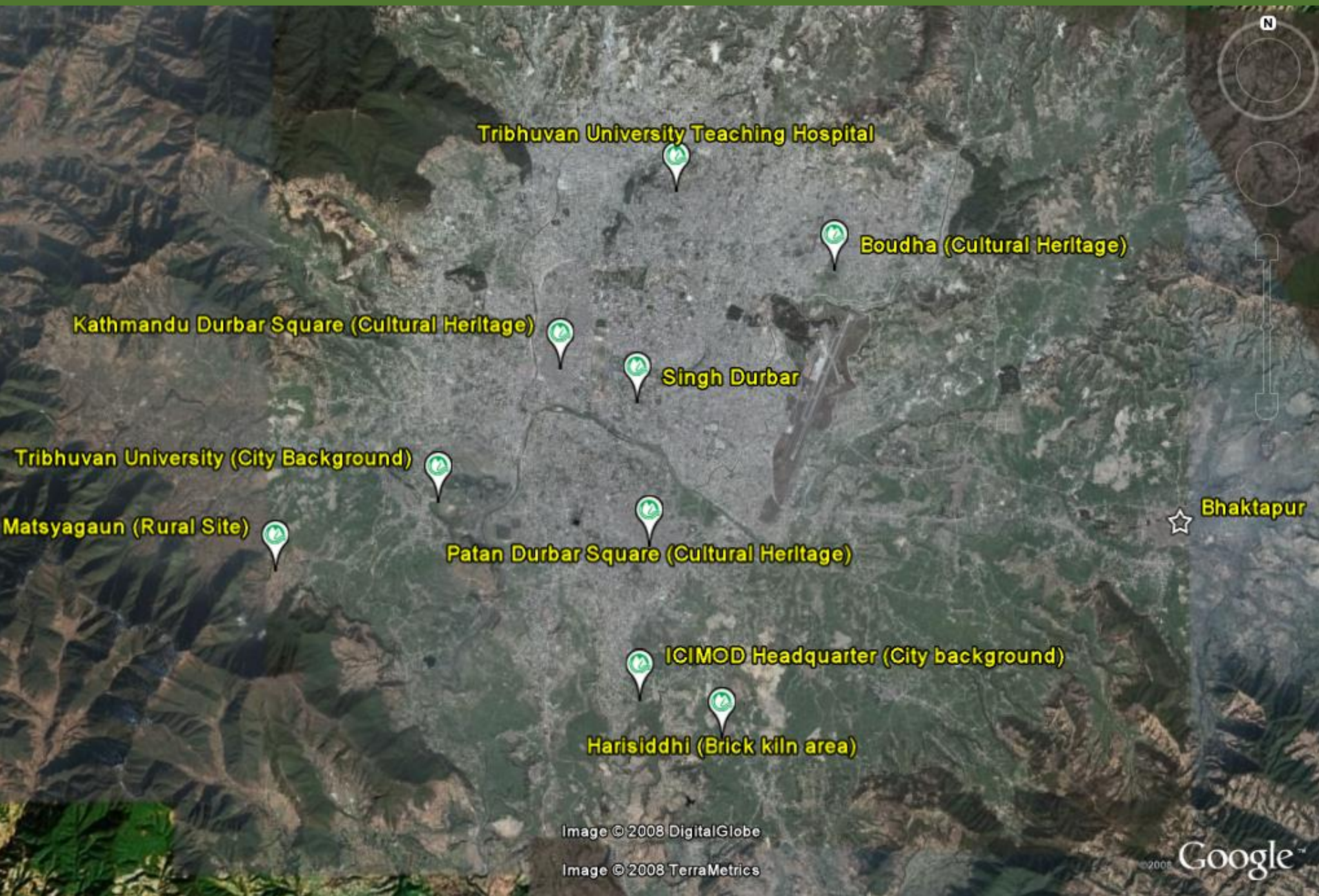
Monitoring site



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

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

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
Khumaltar, Lalitpur, Nepal

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

April 15, 2008



MOEST/GOVN

Backtrajectory





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

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**





 COMMUNITY DEVELOPMENT CARBON FUND

Date Monday, January 07, 2008

Pay Alternative Energy Promotion Center Nepal or bearer

Amount (in words) U.S. Dollars Five Hundred and Fourteen Thousand Seven Hundred and Eighty Six

Amount (in figure)	Currency
	US\$ 514,786

(Unless otherwise mentioned, all amounts are considered to be in US\$.)

Susan Jones

Reduce Emission from Degradation and Deforestation (REDD)

Nepal RPIN has been selected

Each BSP biogas plant is said to save

4.6 tonnes of greenhouse gases from entering the atmosphere every year.

Our Sincere Acknowledgement to SIDA

Thank You

