



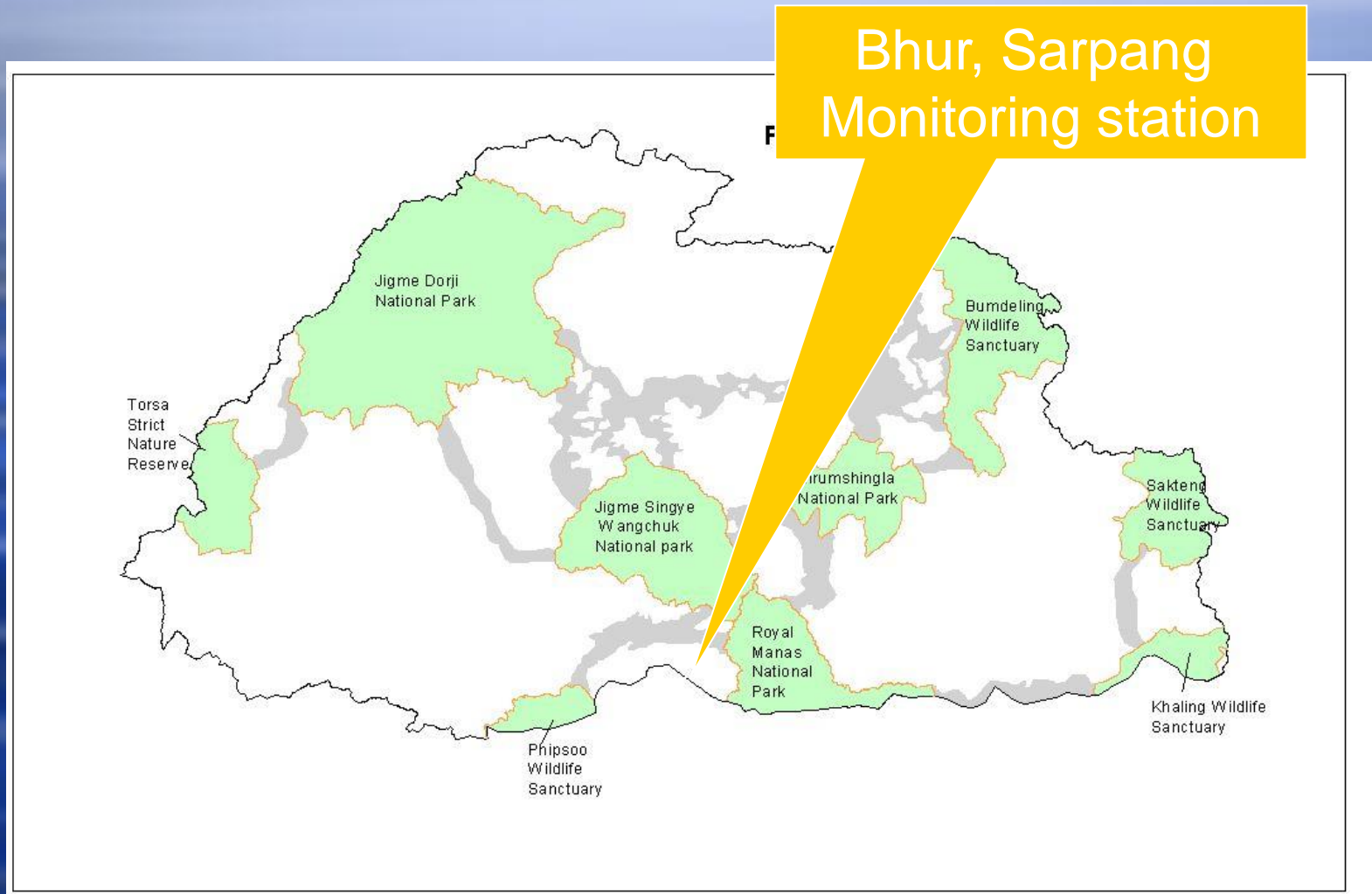
# Male' Declaration Bhutan Program

Nedup Tshering

# Brief History

- ◆ 2002 Bhutan signed the Phase 1
  - ◆ Prepared the baseline information
- ◆ 2004 Bhutan signed the Phase 2
  - ◆ Installed one monitoring station
  - ◆ Collection of data
- ◆ 2006 - Phase 3

# Monitoring station



# Monitoring station



# Monitoring station



# Monitoring station



# Monitoring station

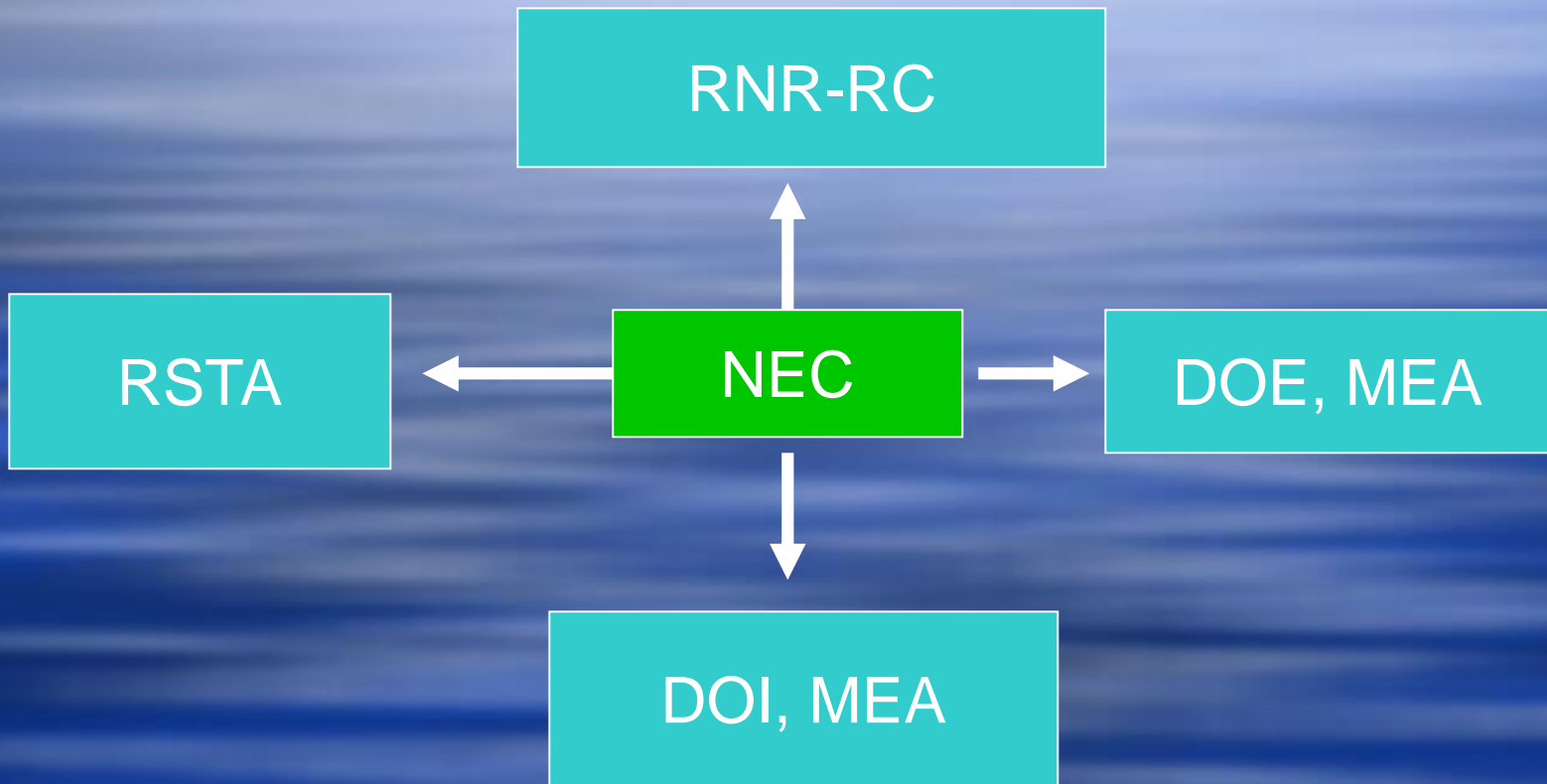


# Monitoring station

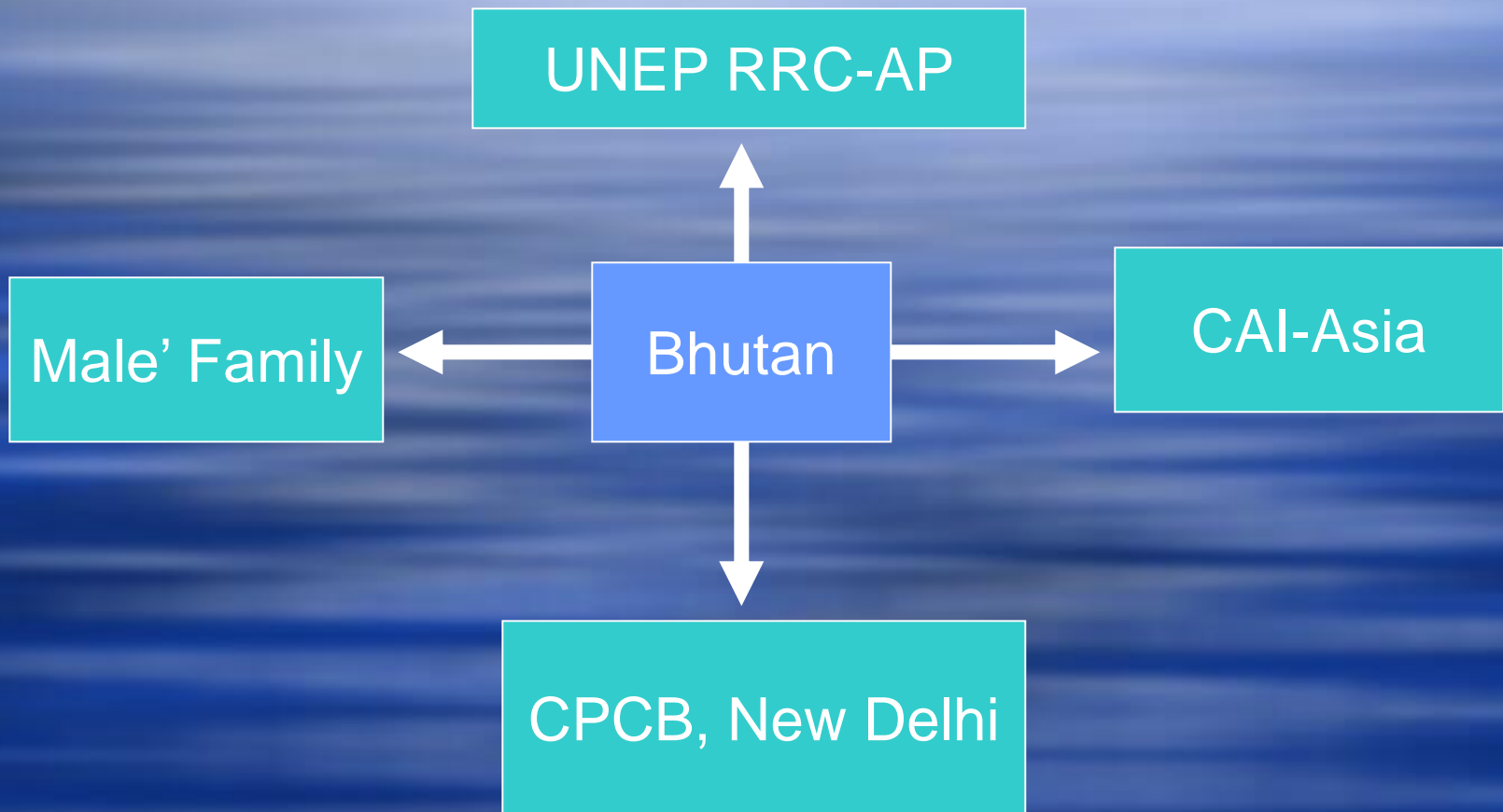




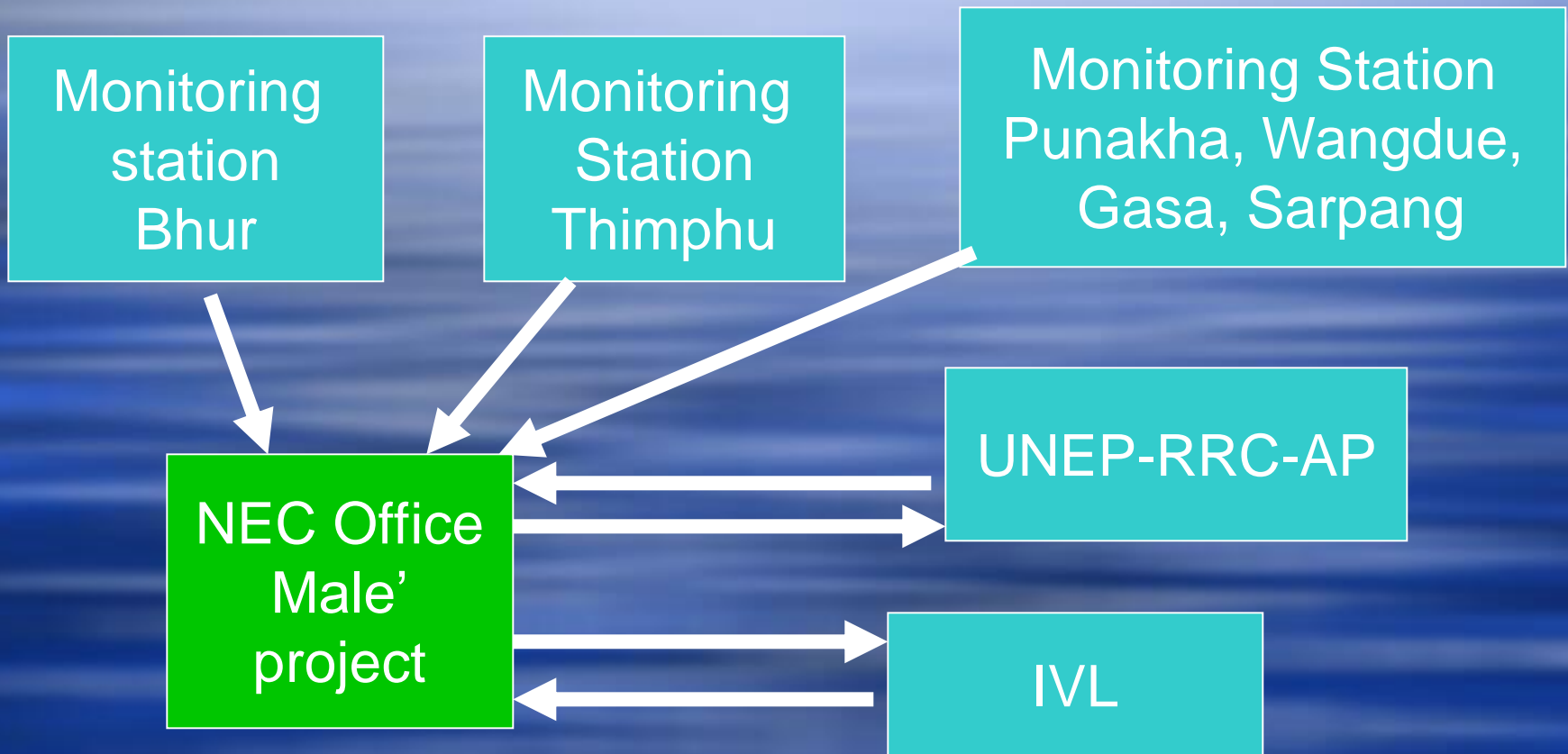
# Networking within Bhutan



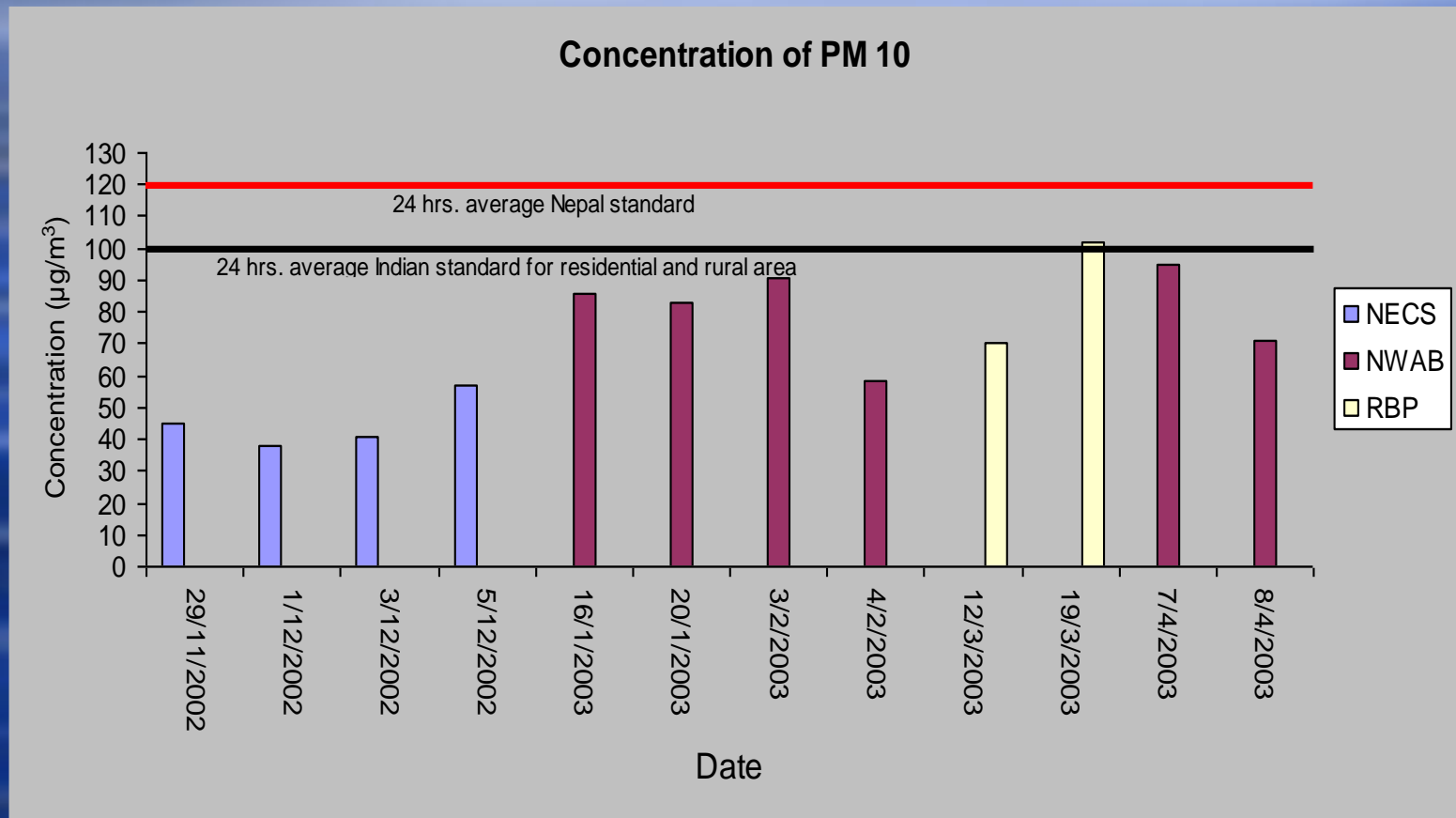
# Regional Networking



# Samples and data

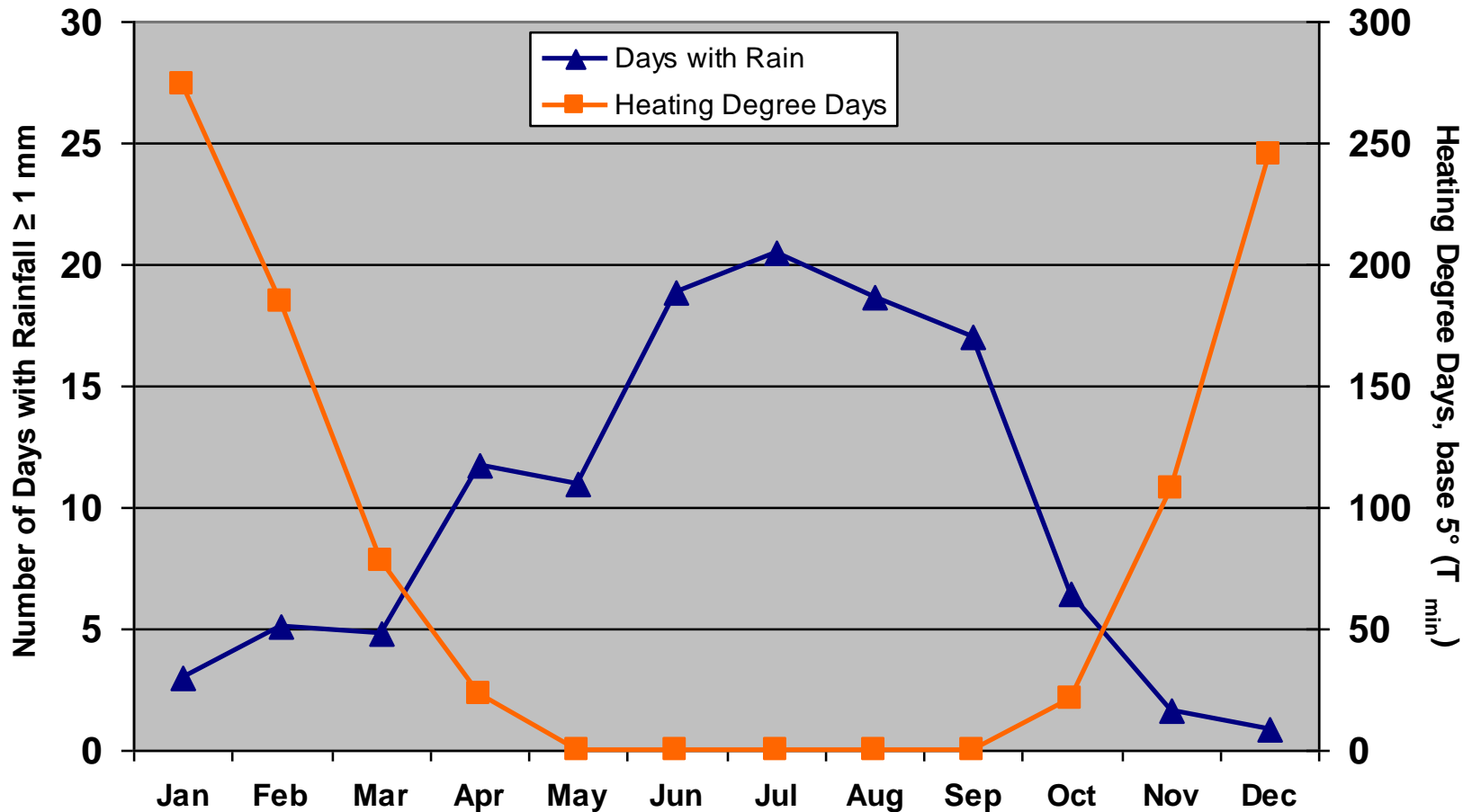


# PM<sub>10</sub> Concentration



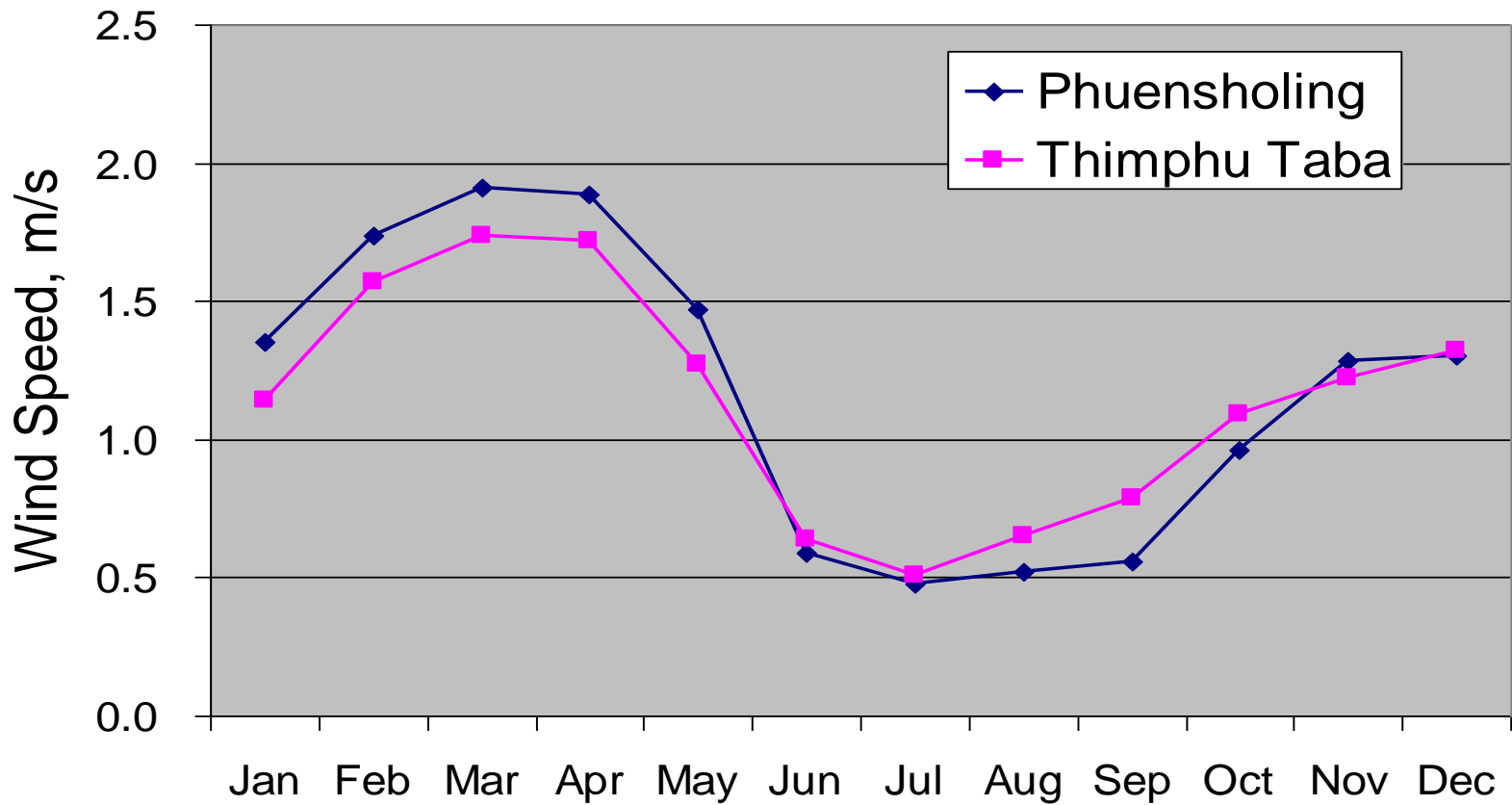
# Data Meteorology

## Thimphu - Days with Rain, Heating Degree Days

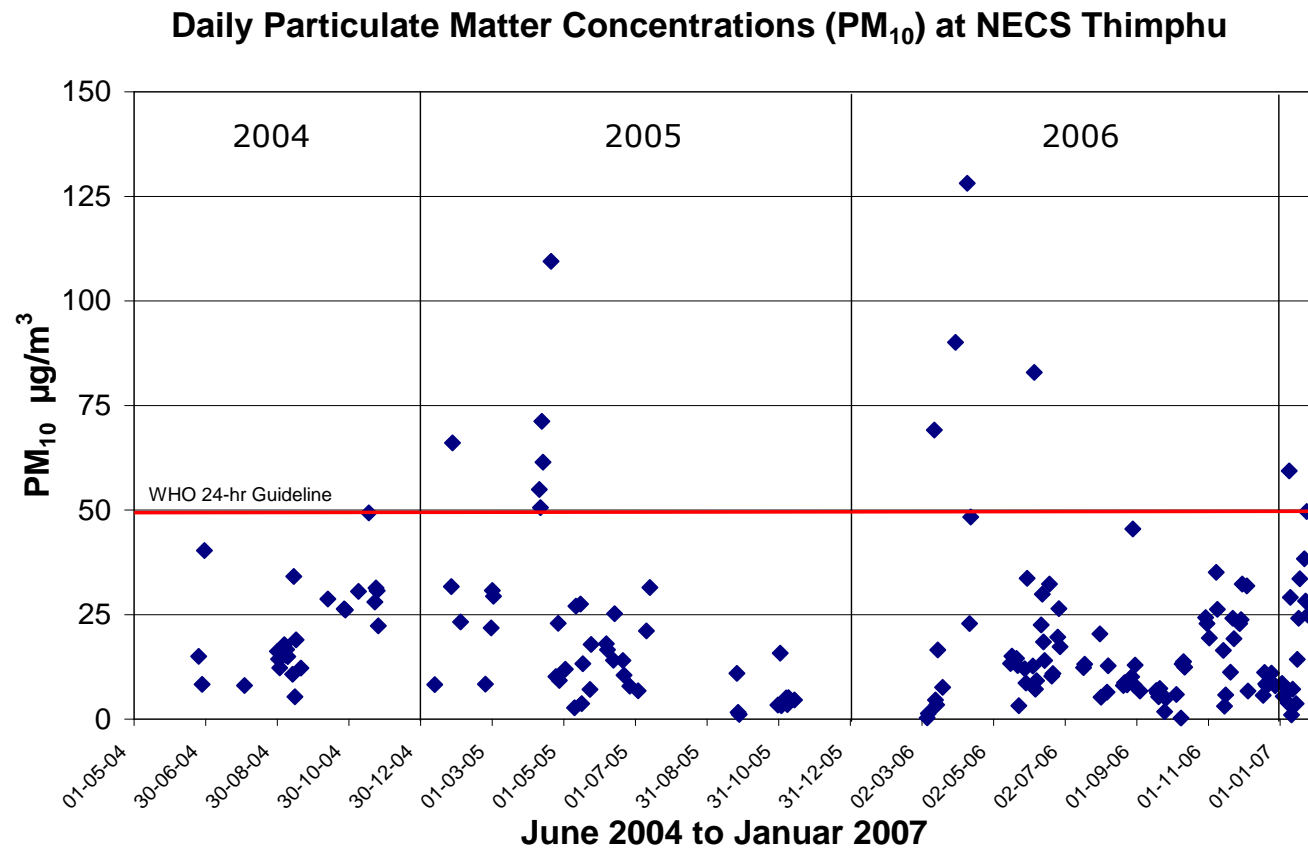


# Data Meteorology

## Monthly Average Wind Speed



# PM<sub>10</sub> data

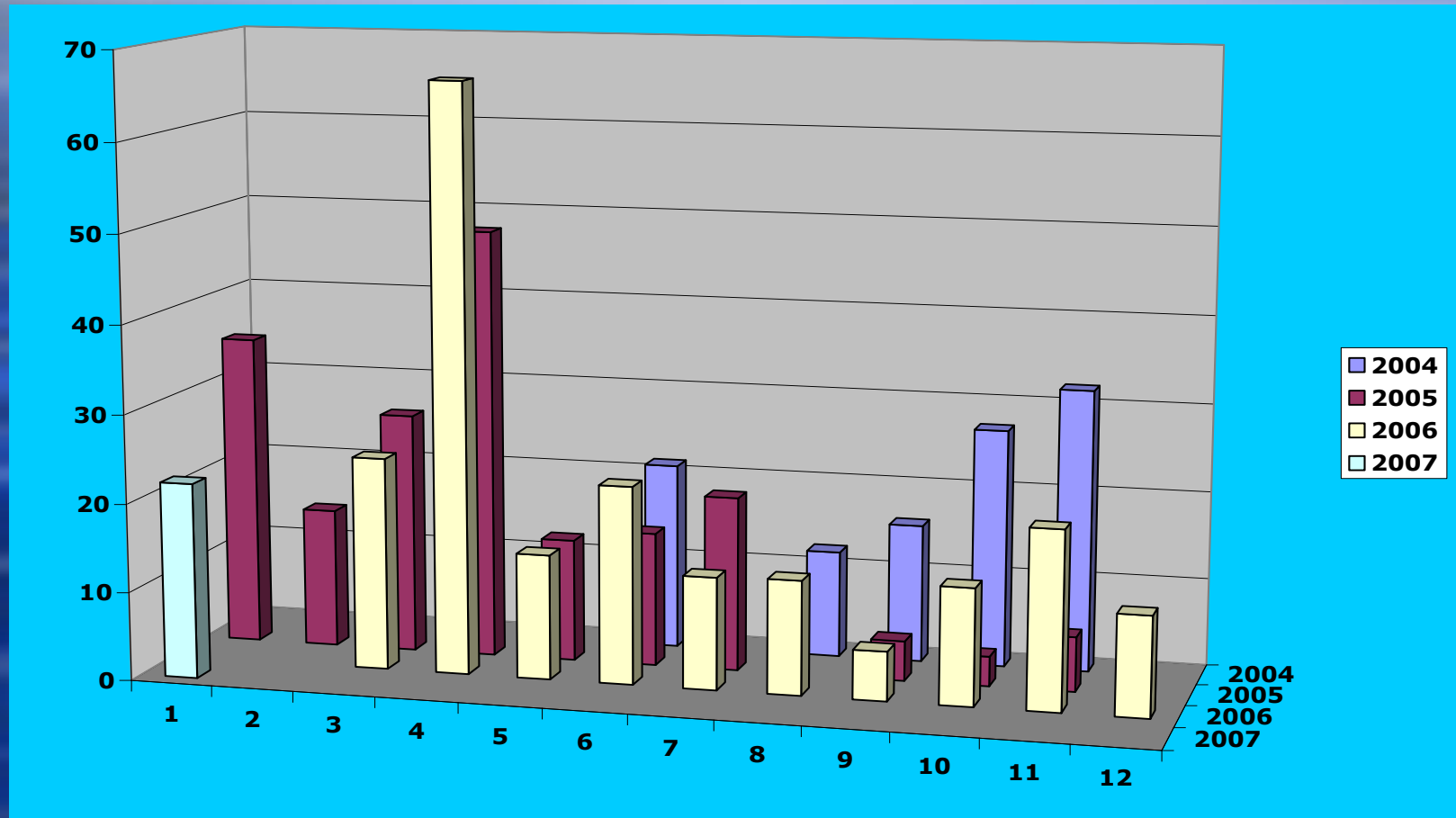


# 10 Highest PM<sub>10</sub> Samples

Date	PM <sub>10</sub> , µg/m <sup>3</sup>
10-Apr-06	128
21-Apr-05	109
31-Mar-06	90
6-Jun-06	83
13-Apr-05	71
13-Mar-06	69
27-Jan-05	66
14-Apr-05	61
9-Jan-07	59
11-Apr-05	55



# Monthly PM<sub>10</sub> – 2004-2007



# Phase 3

Task	Activities	Implementation Plan
1	Network Development	a) After every meeting held a report will be submitted to UNEP on the discussion b) A report will be compiled at the end of the phase 3.
2	Organize a National Stakeholders workshop meeting	A national workshop will be held in combination with the Communication Section of NEC
3	Monitoring and reporting	Collect and analyze data from the field and regularly monitor the data.
4	Emission Inventories, Scenarios and integrated assessment	Consultant will be recruited to development the emission inventory and develop scenarios and integrated development
5	Impact Assessment ÓCrop assessmentÓ	NEC will nominate a local institute as counterpart to the regional consultant. The Regional Consultant will hire by UNEP to assist the local institute.

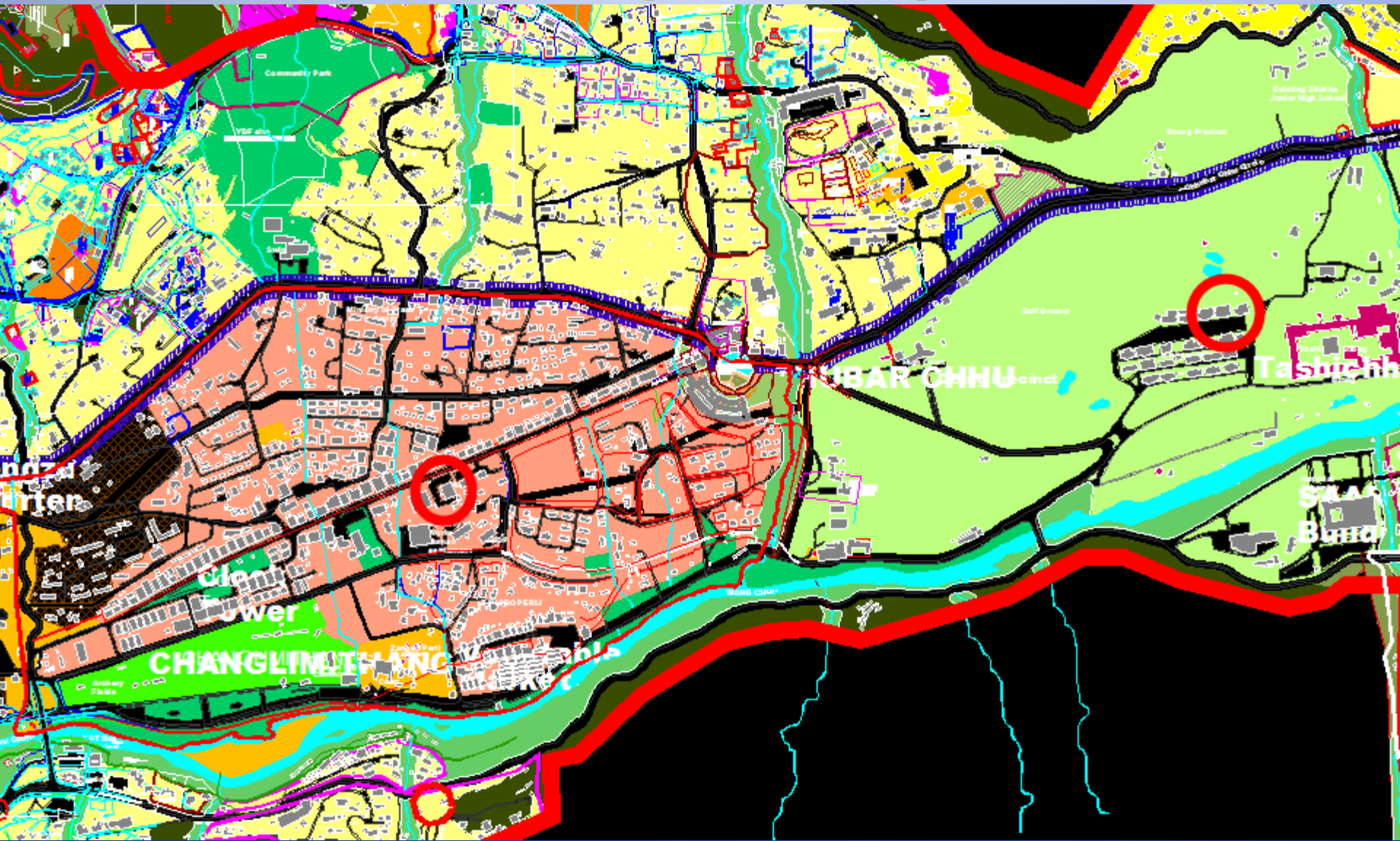
# Workplan Phase 3

Task	Implementation Plan	Jan/Feb 07	Mar/Apr 07	May/Jun 07	Jul/Aug 07	Sep/Oct 07	Nov/Dec 07
1	a) After every meeting held a report will be submitted to UNEP on the discussion		XXXXXX				
	b) A report will be compiled at the end of the phase 3.					XXXXXX	XXXXXX
2	a) A national workshop will be held in combination with the Communication Section of NEC			XXXXXX			
3	Collect and analyze data from the field and regularly monitor the data.		XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
4	Consultant will be recruited to development the emission inventory and develop scenarios and integrated development		XXXXXX	XXXXXX			
5	NEC will nominate a local institute as counterpart to the regional consultant. The Regional Consultant will assist the local institute.		XXXXXX	XXXXXX			

# Measurement Locations

- ◆ Thimphu
  - ◆ RICB, roof-top (urban background)
  - ◆ NECS, roof-top(suburban background)
  - ◆ Norzin Lam, curb side (urban traffic)
  - ◆ Rural location (rural background, upwind)  
Kabisa/Babisa
- ◆ Sarpang:
  - ◆ Gelephu town, Bhur, Sarpang Dzongkhag office
- ◆ Punakha,
  - ◆ Shagana,
- ◆ Wangdue
  - ◆ RNR centre,
- ◆ Gasa (rural background)

# Thimphu City







# Conclusion

- ◆ Existing data can be served as baseline data
- ◆ Limited technical capacity
- ◆ Strengthening of the existing facilities
- ◆ Need for more technical assistance for other parameters
- ◆ Difficulties in sharing information