Time Series Estimates Made for Indonesia's GHG Inventory Included in SNC

Presented by

Rizaldi Boer

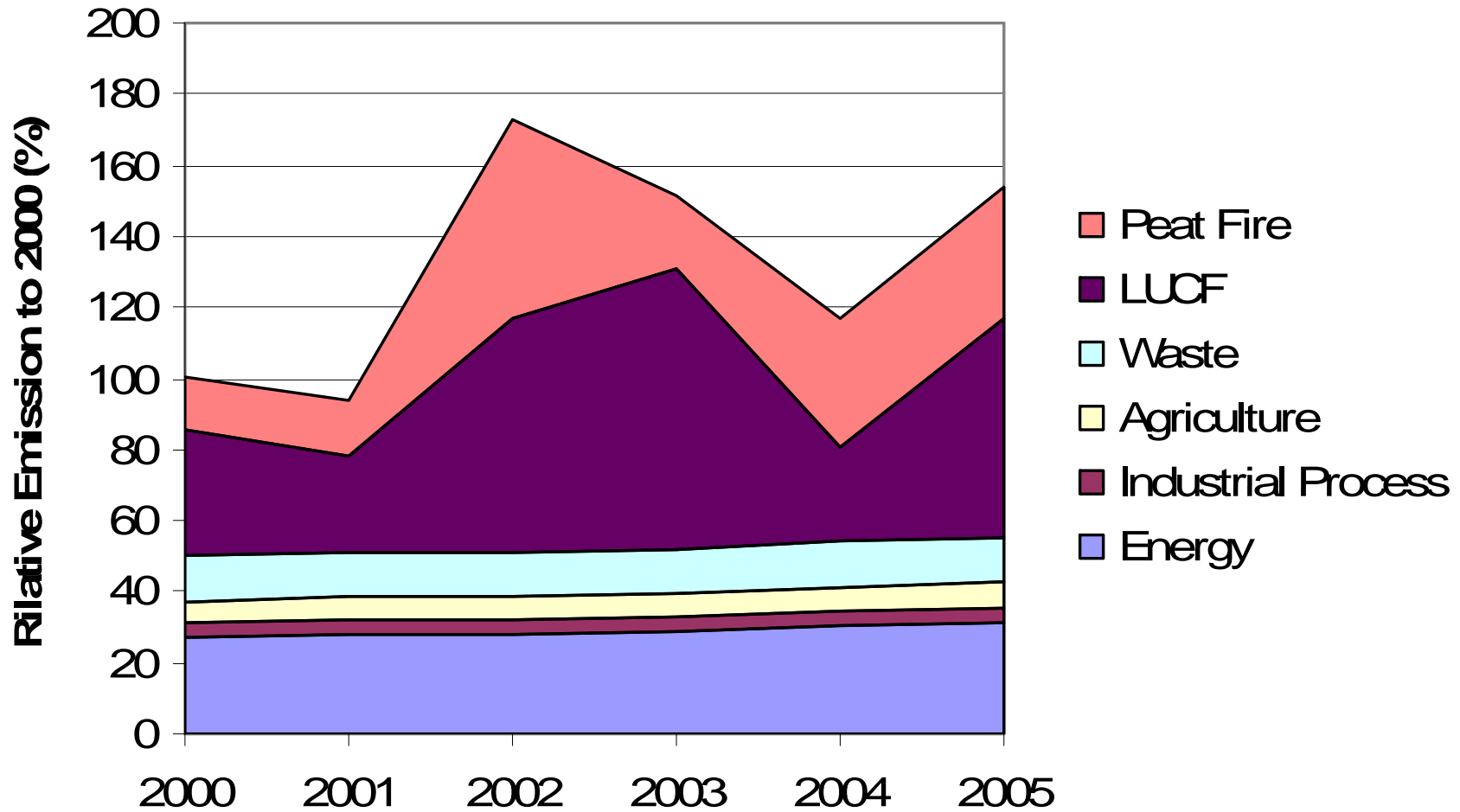## MINISTRY OF ENVIRONMENT, REPUBLIC OF INDONESIA

OUTLINE

- **GHG Emission Trend of Indonesia**
- **Process of collecting Activity Data and Developing Emission Factors for Rice Cultivation**
- **GHG emission series from rice cultivation**
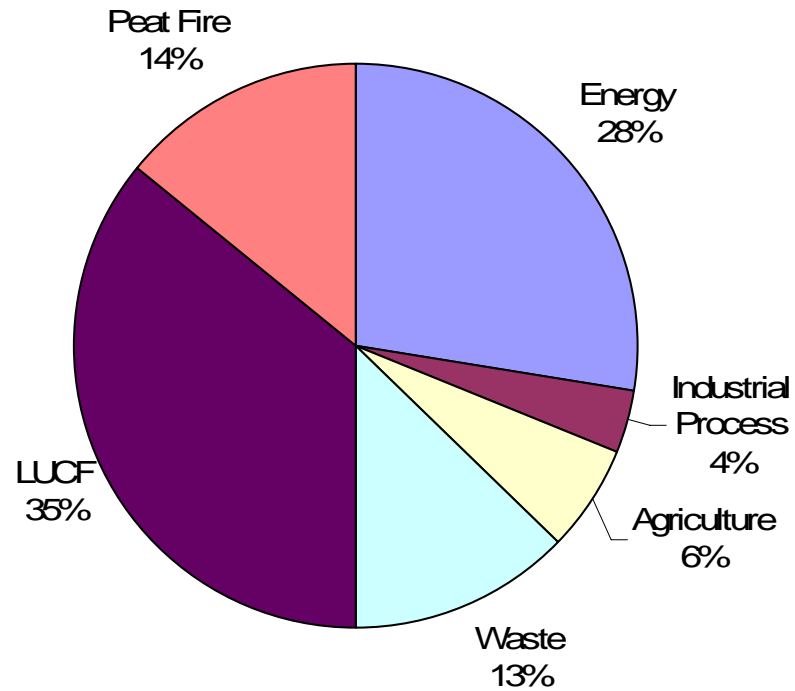- **Next Step**
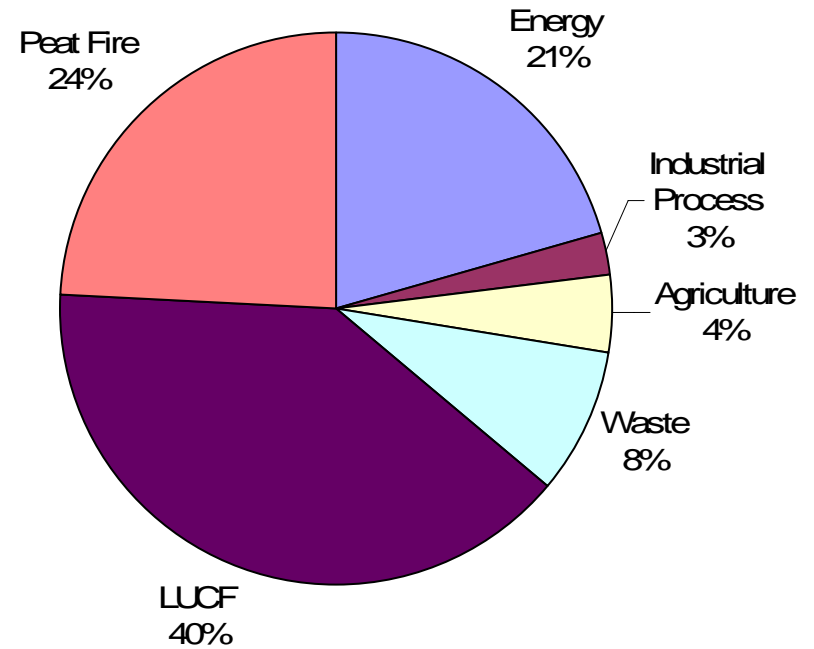
CO$_2$e emission trend by sector from 2000-2005

Note: Peat Fire emission was taken from van der Warf et al., 2007
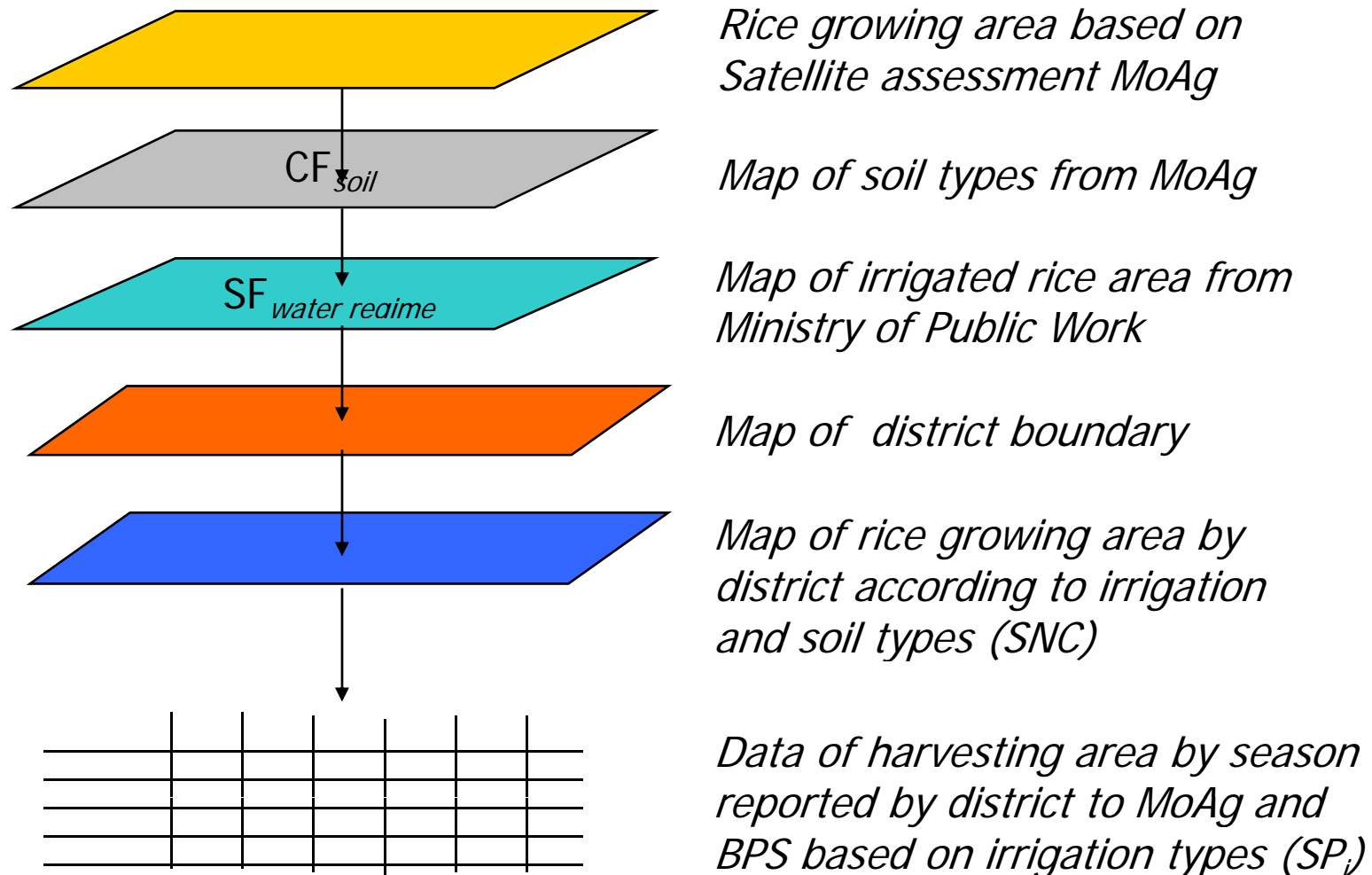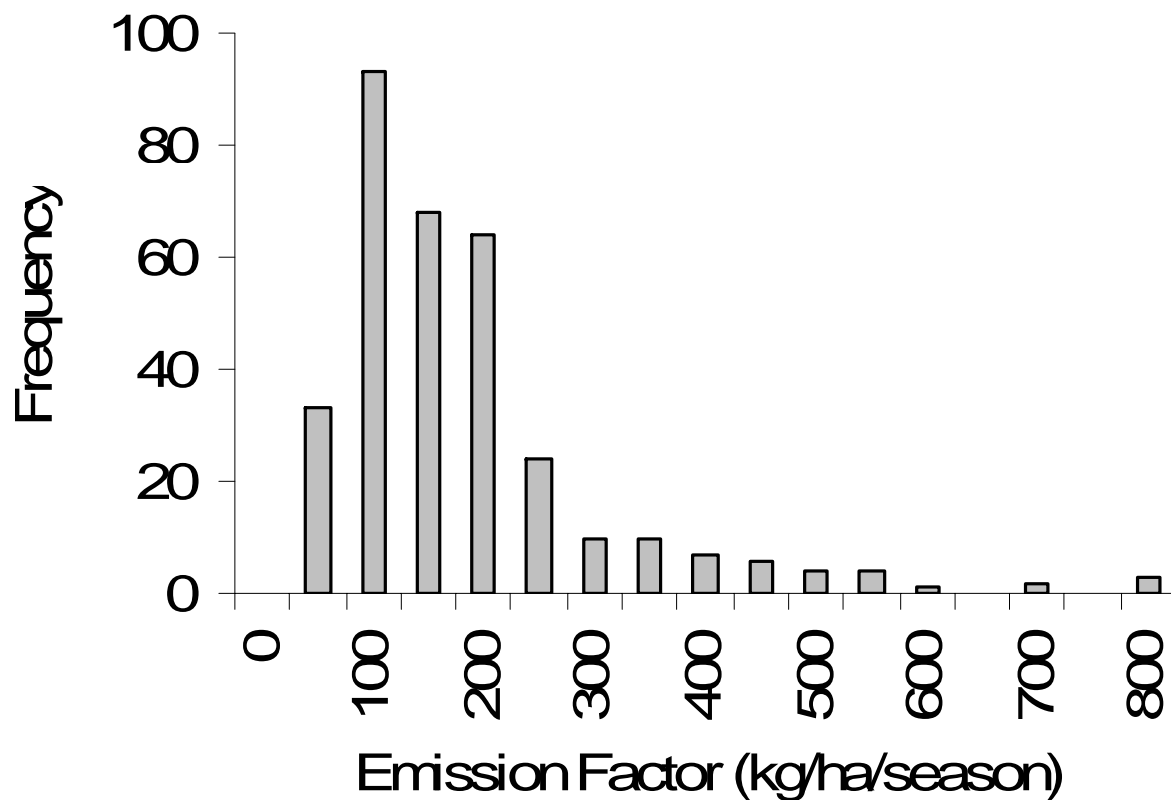
Share of Sectoral Emission

2000

Peat Fire
14%

Energy
28%

Industrial
Process
4%

Agriculture
6%

Waste
13%

LUCF
35%

2005

Peat Fire
24%

Energy
21%

Industrial
Process
3%

Agriculture
4%

Waste
8%

LUCF
40%

Formula for Estimating Rice

- $CH_4 \; Emission_{rice} = A*CF_{soil}*SF_{water\;regime}*EF_{rice}$

  - $CH_4 \; Emission_{rice}$ = annual methane emission from rice cultivation (Gg CH_4/year)
  - A = seasonal harvested area (ha/year)
  - CF_{soil} = Correction factor of different soil types
  - $SF_{water\;regime}$ = Scaling facor of different water regime. For continuous flooded is equal to 1
  - EF_{rice} = Methane emission factor from rice (kg CH_4/ha)

Process of Determining Rice Area by soil types and irrigation

Rice growing area based on Satellite assessment MoAg

CF_{soil}

Map of soil types from MoAg

$SF_{water\ regime}$

Map of irrigated rice area from Ministry of Public Work

Map of district boundary

Map of rice growing area by district according to irrigation and soil types (SNC)

Data of harvesting area by season reported by district to MoAg and BPS based on irrigation types (SP_i)
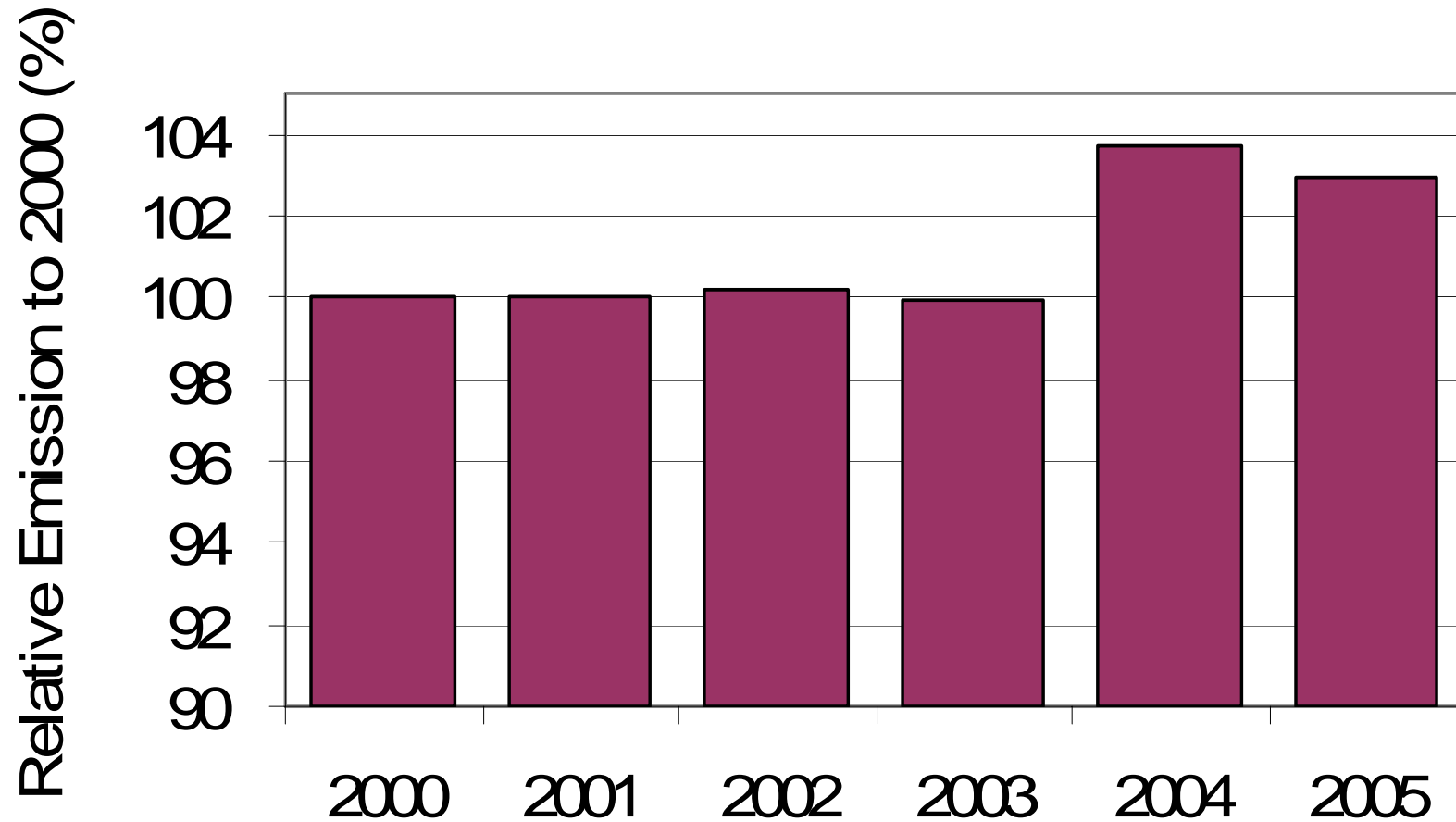
Rice Emission Factors

- Average of emission factor is 169.9 kg/ha/season based on 349 field experiments conducted in 10 different soil types and 3 different water management using 22 rice varieties (all in Java)
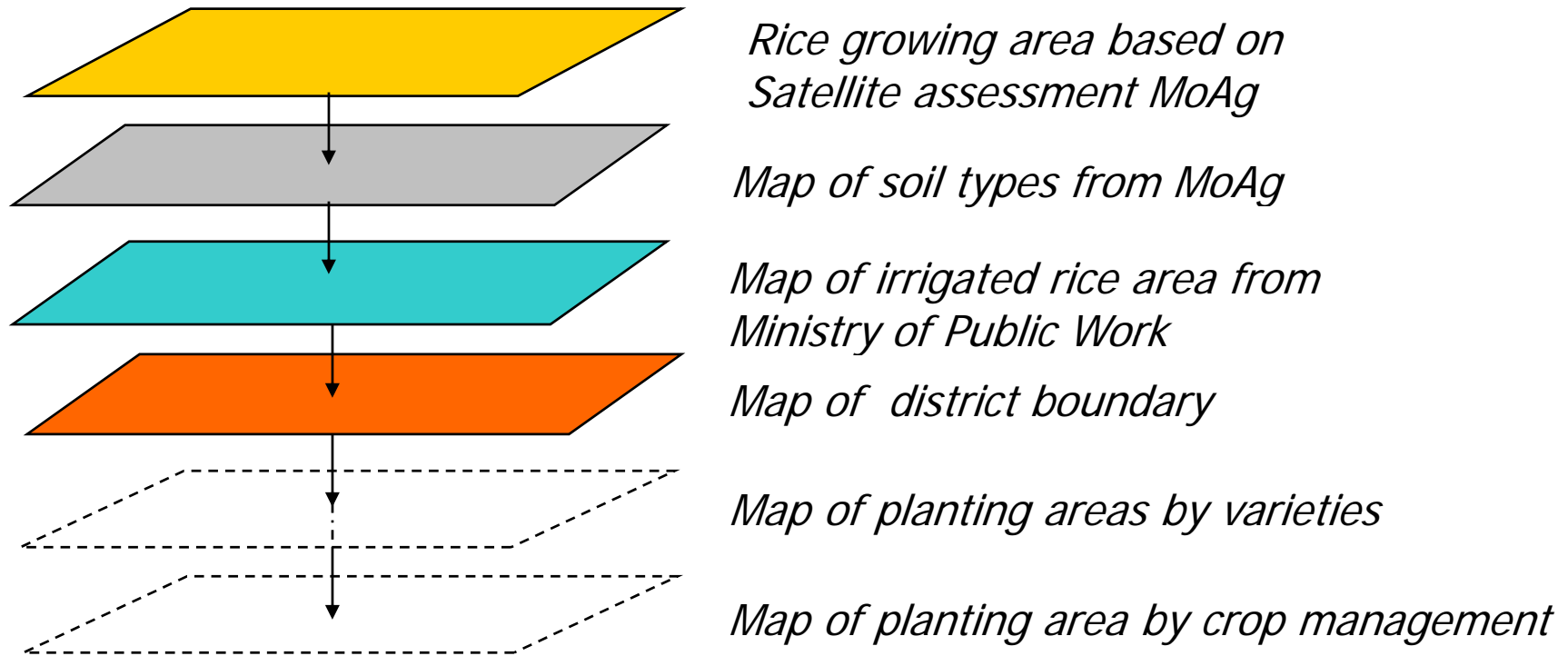
Emission Series from Rice

There is no much increase in CH_4 emission from rice cultivation

Next Step

- *Developing new scaling factor for variety (SF_v) and crop management (SF_{cm})*

- *CH_4 $Emission_{rice} = A*CFsoil*SFwr*SF_v*SF_{cm}*EF$*

Rice growing area based on Satellite assessment MoAg

Map of soil types from MoAg

Map of irrigated rice area from Ministry of Public Work

Map of district boundary

Map of planting areas by varieties

Map of planting area by crop management

This approach can assist the sector to evaluate the effectiveness of mitigation technologies intervention by district

THANK YOU