



FRLs development



Tran Van Chau LEAF Project - SNV
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Contents of the Presentation

I. Requirements of development RLs

II. Update from SBSTA 38th, 13 June 2013

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WHY WE HAVE TO ESTABLISH THE FRLS At Provincial Level ?

WHY WE HAVE TO ESTABLISH THE FRLS?

Requirements of UNFCCC

1. Decision 1. P paragraph 71 item c COP16

- **Require** :A national forest reference emission level and/or forest reference level, if appropriate, as an **interim measure, subnational forest reference emission levels and/or forest reference levels**, in accordance with national circumstances, and with provisions contained in decision 4/CP.15, and with any further elaboration of those provisions adopted
- by the Conference of the Parties;

Decision 12/CP.17

WHY WE HAVE TO ESTABLISH THE FRLS at Provincial Level?

2. Decision 799 approved by VN Prime Minister

KEY TASKS to 2015: Setting up the temporary RELs/FRLs at the national level and in the pilot provinces taking consideration to the specific conditions of Vietnam, the provisions of the UNFCCC and the financial and technical support provided by the international community.

WHY WE HAVE TO ESTABLISH THE FRLS?

3. Support to the PRAP answers the question of Potential emission reduction How many CO₂e? and Where?
4. Support to national level to allocate the revenue of REDD+ (RLs works at Watershed of PFES)
5. Integrate to national level.

Update from SBSTA 38th, 13 June 2013

ADVANCE VERSION of Subsidiary Body for Scientific
and Technological Advice Thirty-ninth session Warsaw,
11–16 November 2013

“SBSTA 38 also agreed to continue its work on guidance for the technical assessment of the proposed forest reference emission levels and/or forest reference levels, as requested in decision 12/CP.17, paragraph 15, on the basis of the elements contained in document FCCC/SBSTA/2013/3/Add.2, with the aim of completing that work and preparing any recommendations for a draft decision on the matter for consideration and adoption at COP 19”

Should we wait for the guidance of SBSTA?

- No detail guidance so far and may be in the future also
- Parties have to submit the Proposals on RLs
- We have to do by ourselves

THE MODALITY TO DEVELOP RLs AT A GLANCE

Reference level Decisions Tool

1. Determine **Scope** of Activities

2. Finalize **Forest Definition**

3. Determine **Scale** (National or Summed Subnational)

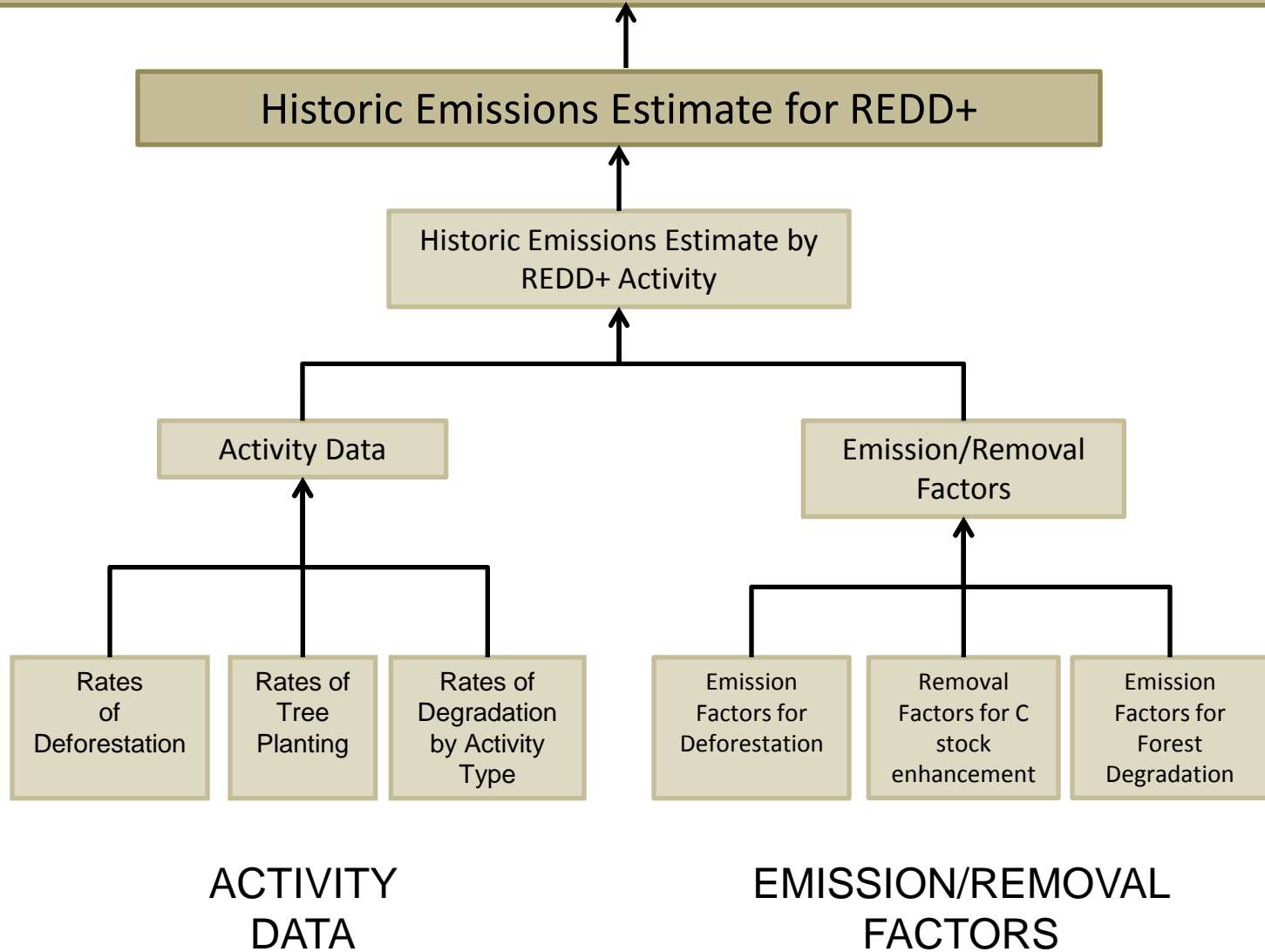
4. Determine Which **Pools/Gases** to Include

5. Link REDD+ to a **National Forest Inventory?**

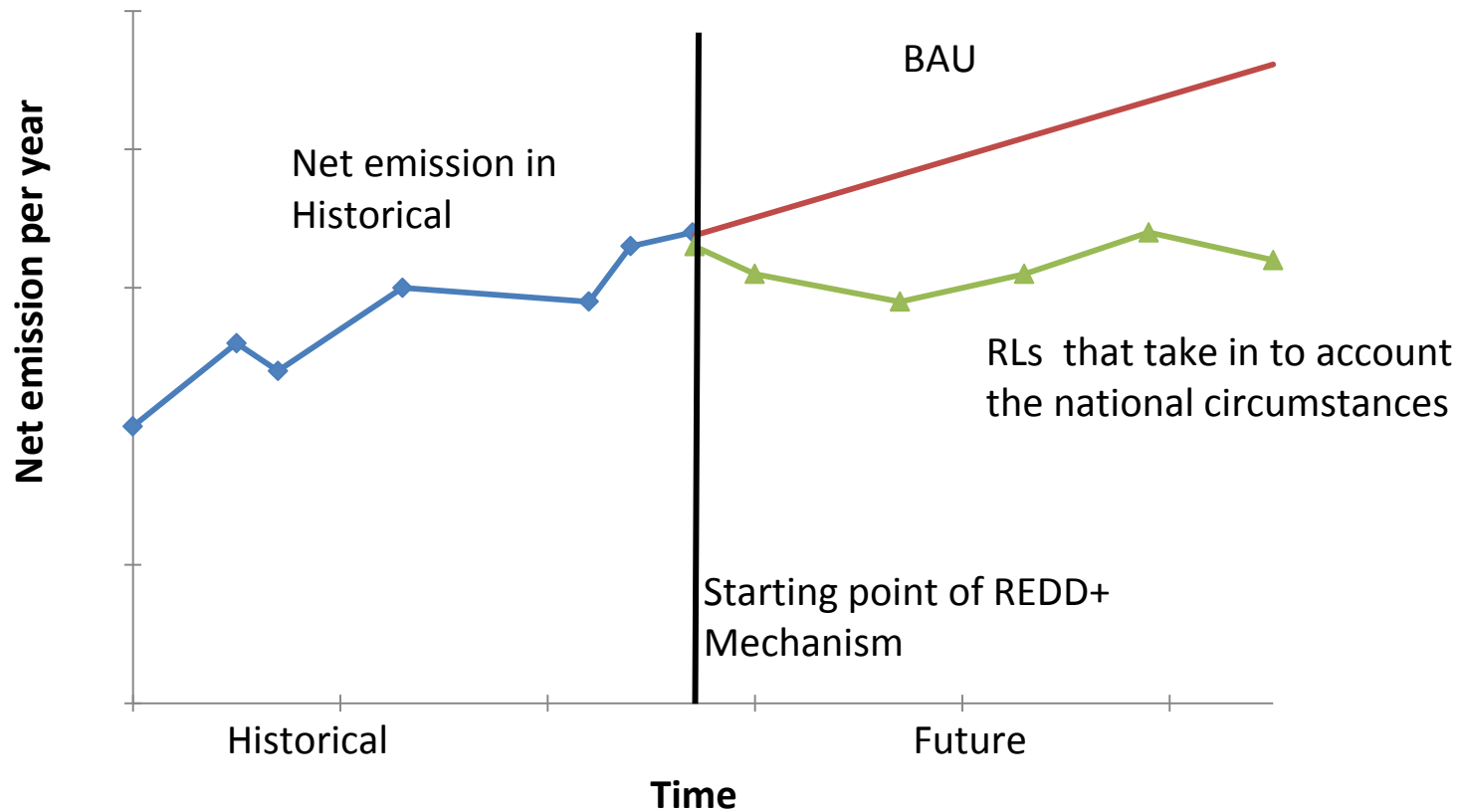
6. Adjust for **National Circumstances?**

7. Should a **Location Analysis** Be Included?

Emissions Estimate Projected into Future / Adjusted for National Circumstances



RLs



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Review of methodologies for the establishment of Reference Levels and Reference Levels

Three main steps of Establishing FRLs

1. Establish Historical Reference
2. Projection of BAU line (Business as usual line)
3. Extrapolate the RLs (take in to account the policies issues, and national circumstances)

Establish Historical Reference Levels

- 1. FCCA to for AD (at least 10 years)**
- 2. NIF analysis for EF**
- 3. Establish Historical emission Level**

Projection of BAU line (Business as usual line)

Methodology of Projection of BAU

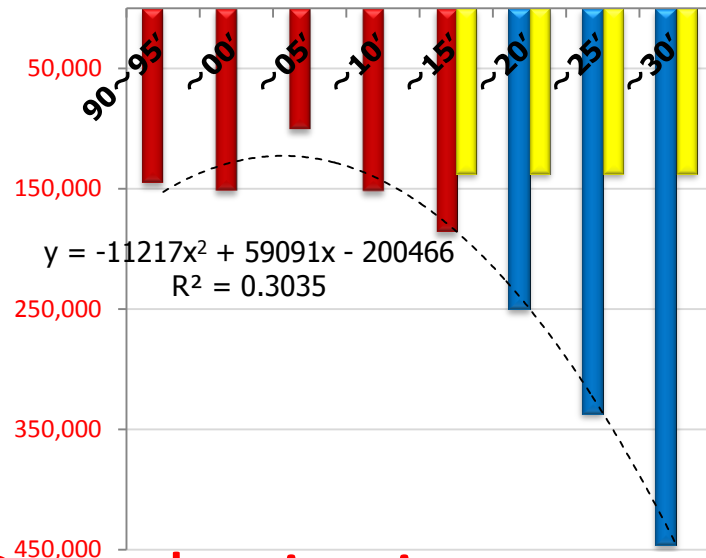
1. Mathematical models
2. Econometric modelling
3. Dynamic land use modelling
4. Others (Average Etc.)



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Extrapolated mathematical models



$\Sigma(\text{Estimate Average})=547 \text{ (MCI)}$
 $\Sigma(\text{Estimate Polynominal})=1,217 \text{ (MCI)}$

- Sample size is not enough to apply the mathematical method

Sources : JICA Vietnam Study

Dynamic land use modelling

- 1. The GEOMOD2 model (Pontius et al., 2001).**
- 2. The CLUE-S model (Verburg et al., 2002).**
- 3. LAND CHANGE MODELER (CLARK Uni Lab)**

LAND CHANGE MODELER (CLARK University Lab)

Predict land use change in the future based on the some physical conditions drivers: roads system, Elevations, Slope.

(Source :Amintas Brandão Jr GISDE master program 2009- 1011, Clark University)

Dynamic land use modelling (other models can apply)

4. MCE (Multi criteria Evaluation) (CLARK Uni Lab) Can employ some other factor related to social – economic drivers and trade off

MCE - multi-criteria evaluation

MCE procedure to be used

Boolean intersection Ordered weighted average

Weighted linear combination

Constraints :

Constraint filename

ABANDON_LAND

Number of constraints :

1

Remove file ...

Output image :

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Title :

Factors

Factor filename	Factor weight
SLOPE_FUZZY	0.2427
ELEVATION_FUZZY	0.1408
ROAD_FUZZY	0.5758
WATER_FUZZY	0.0406

Number of factors :

4

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Retrieve parameters

Save parameters

OK

Close

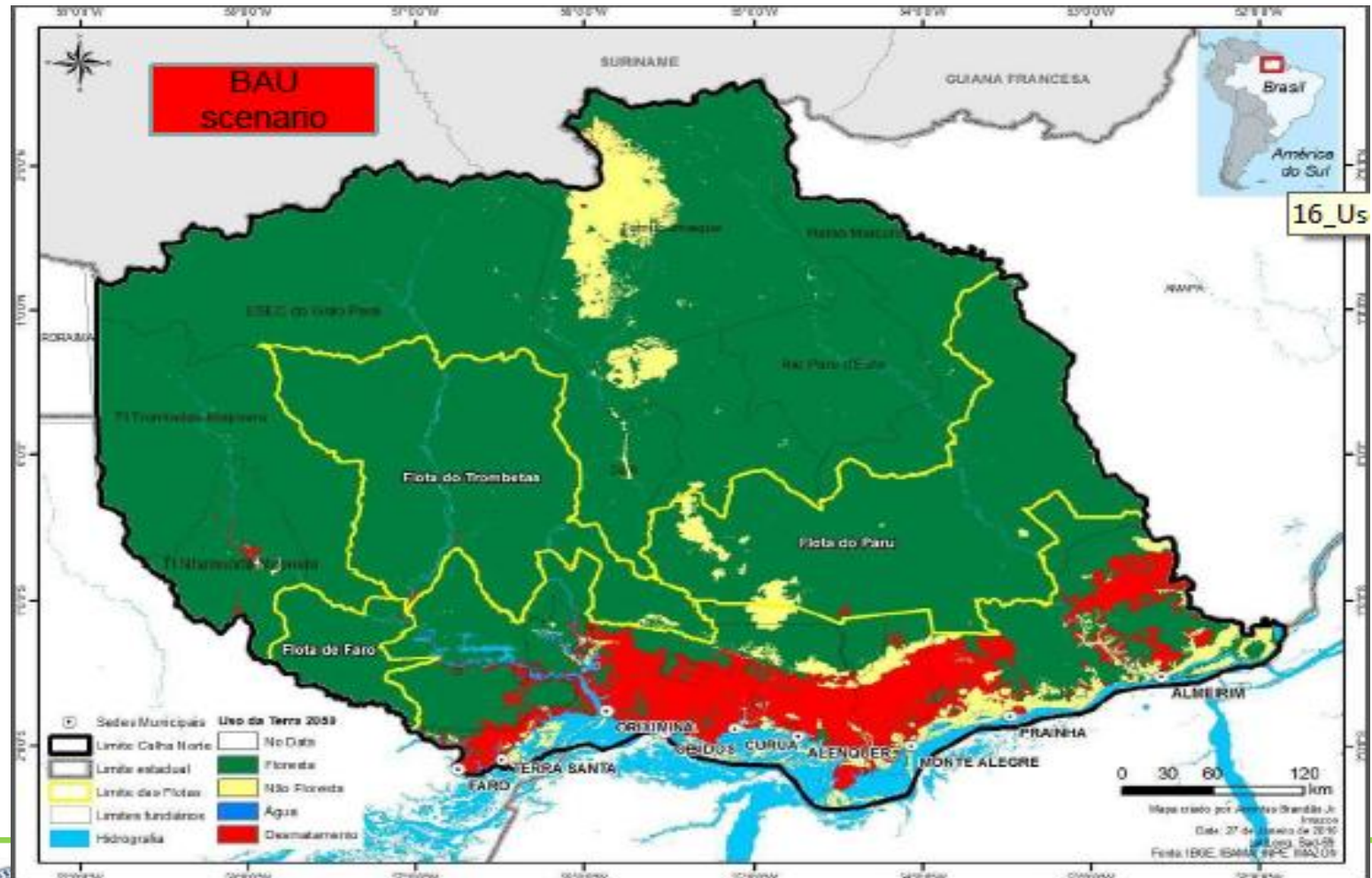
Help

Forest cover change 2008

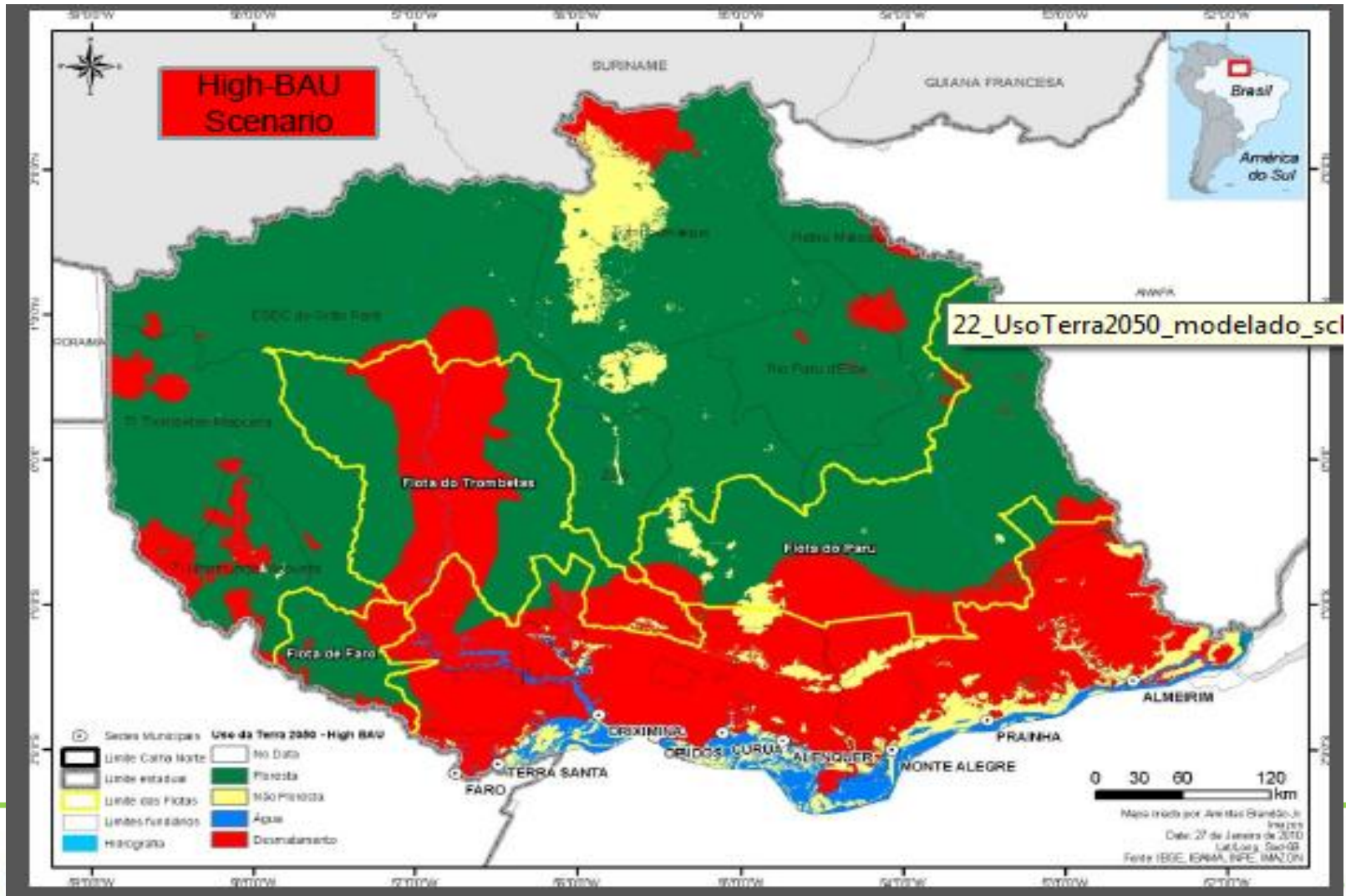


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Prediction of forest cover change 2020



Prediction of forest cover change in high scenario 2020



Extrapolate the RLs

Methodology of Extrapolate the RLs

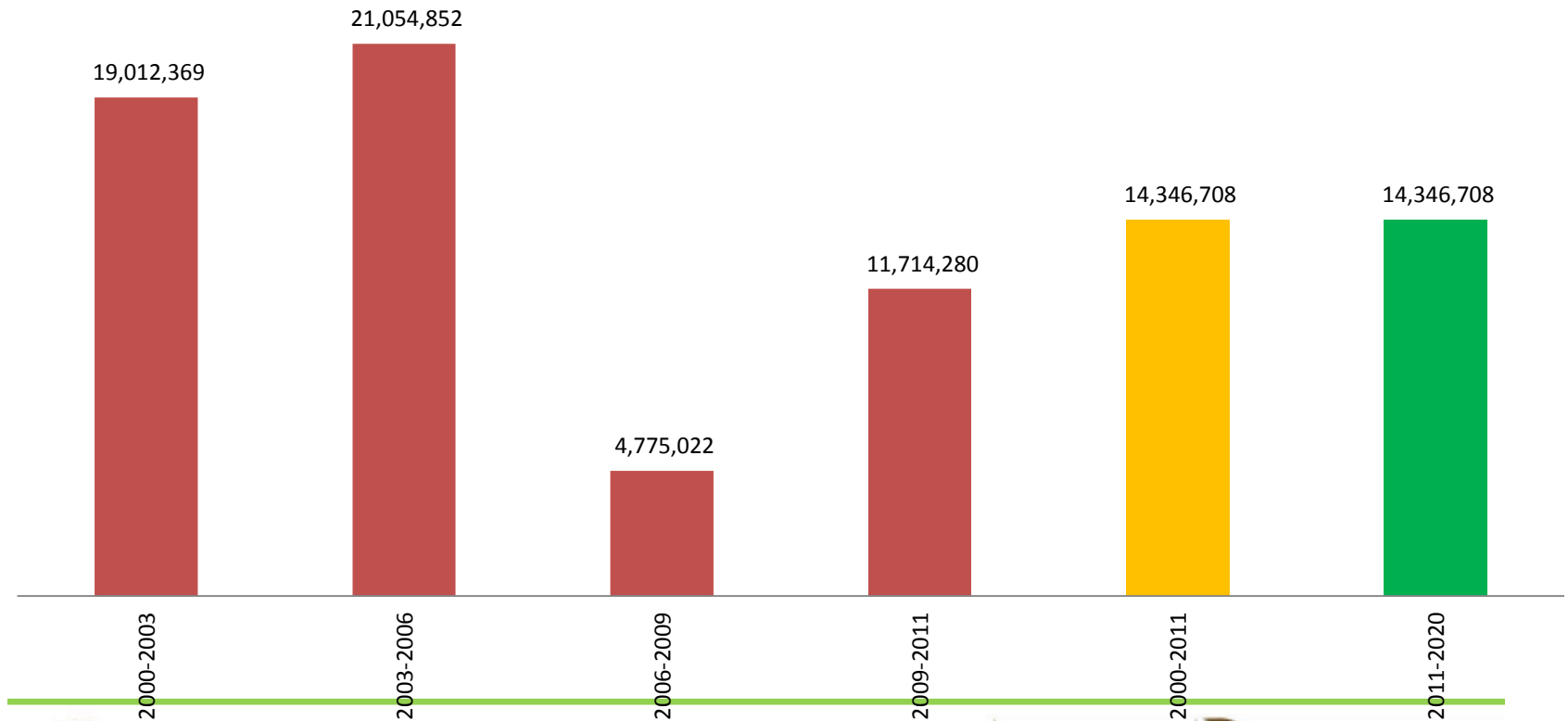
Not clear on Methodology so far (need Take in to account country circumstances required by UNFCCC)

Adjusted Historical Based (AHB) method projects the future emission based on historic emission adjusted to national or subnational circumstances such as population, forest cover proportion (proportion of land area covered by forest, in percentage), etc.

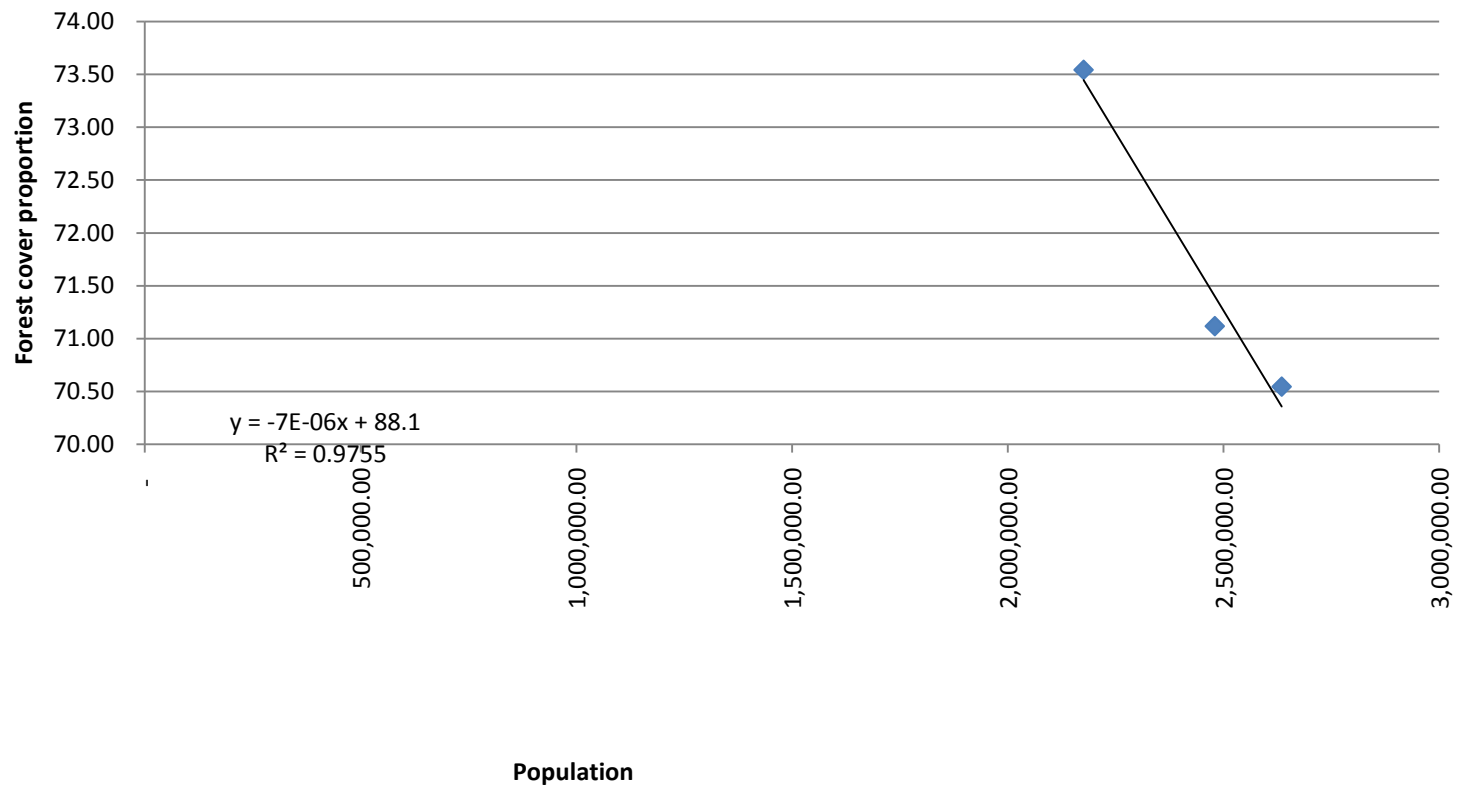
- Adjusted Historical Based (AHB) method projects the future emission based on historic emission adjusted to national or subnational circumstances such as population, forest cover proportion (proportion of land area covered by forest, in percentage), etc.

Provisional Reference Emission Level of Central Sulawesi Draft

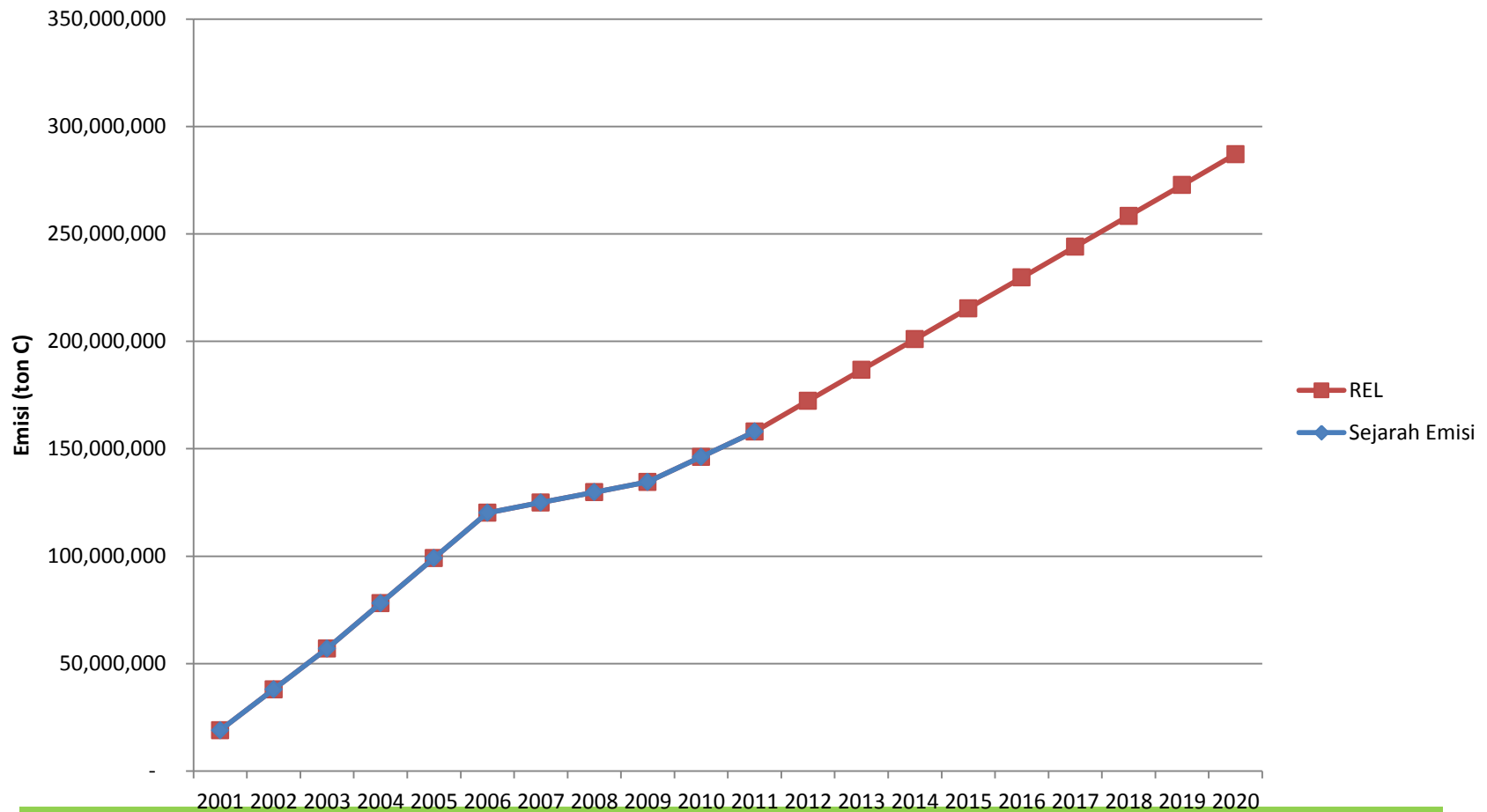
Annual Emission (ton Co2-eq/yr)



The relationship of forest cover proportion and population in Central Sulawesi



Provisional REL calculated using historical based method

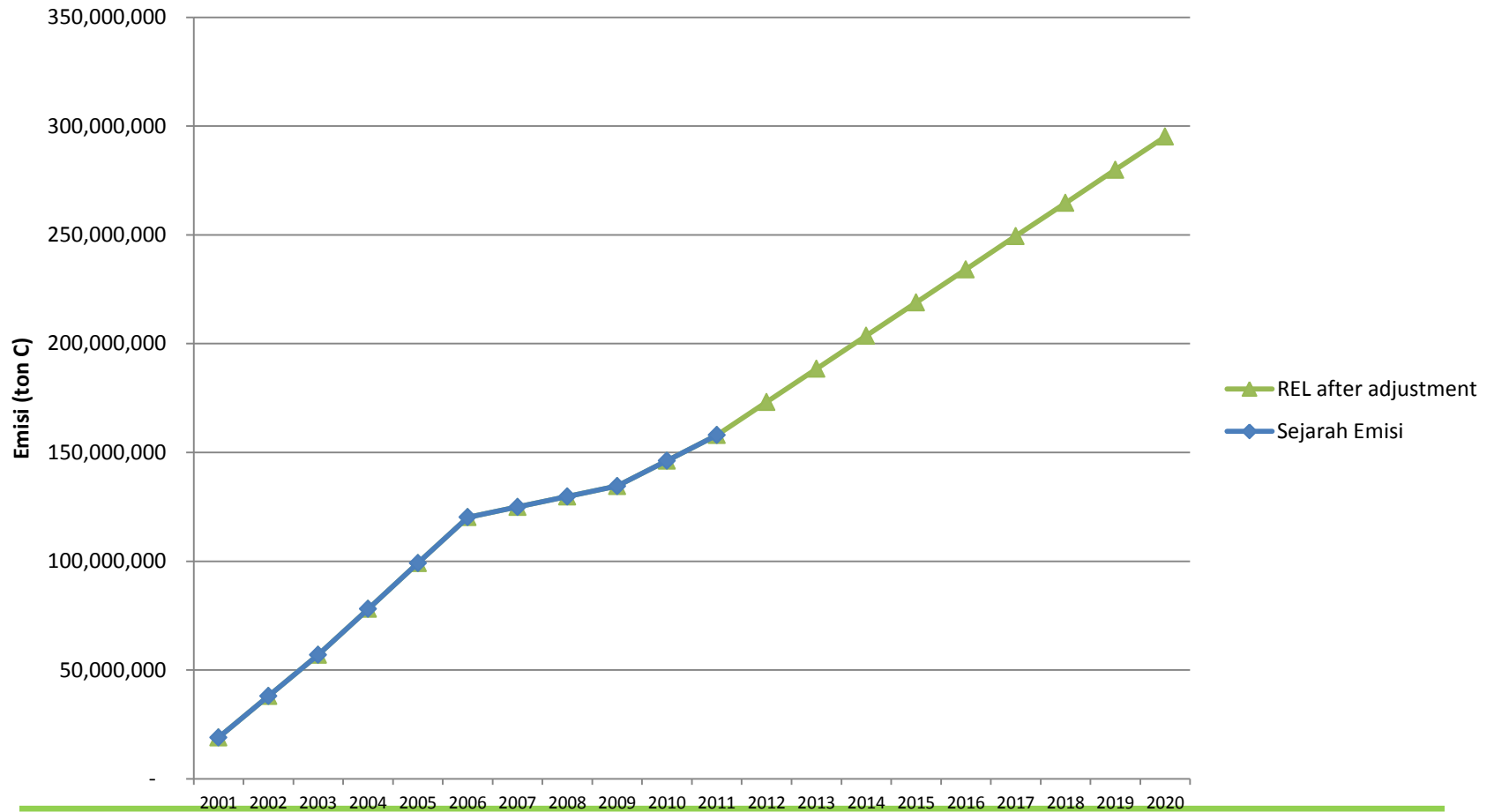


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Provisional REL after adjustment



Problems and Solutions

Problems

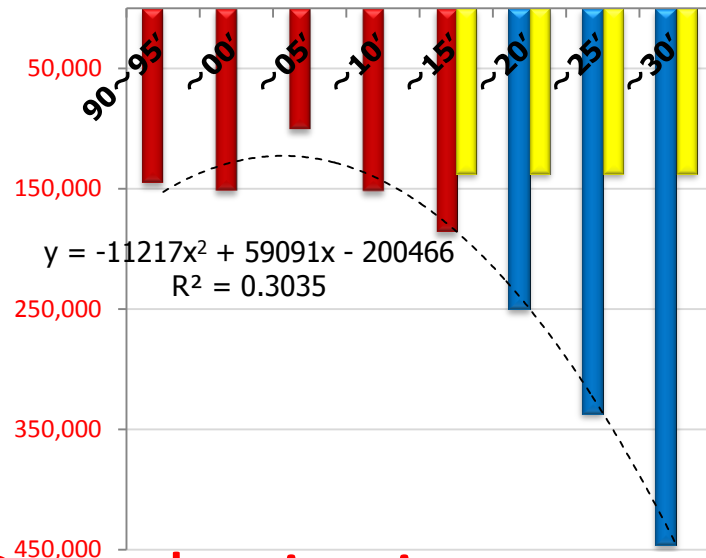
1. Mathematical models

Not enough historical data ,

RLs depend on underlines variables (Policies, Markets) that are unpredictable

$$Y = aX1 + bX2 + CX3 + dX4$$

Extrapolated mathematical models



$\Sigma(\text{Estimate Average})=547 \text{ (Mct)}$
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- Sample size is not enough to apply the mathematical method

Sources : JICA Vietnam Study

Problems

2. Econometric modelling and Dynamic land used model

- Lack of Historical data

- Spatial analysis works for two time periods

- Work well for Physical Variable

Dynamic land use modelling

4. MCE (Multi criteria Evaluation) (CLARK Uni Lab) Can employ some other factor related to social – economic drivers and trade off

MCE - multi-criteria evaluation

MCE procedure to be used

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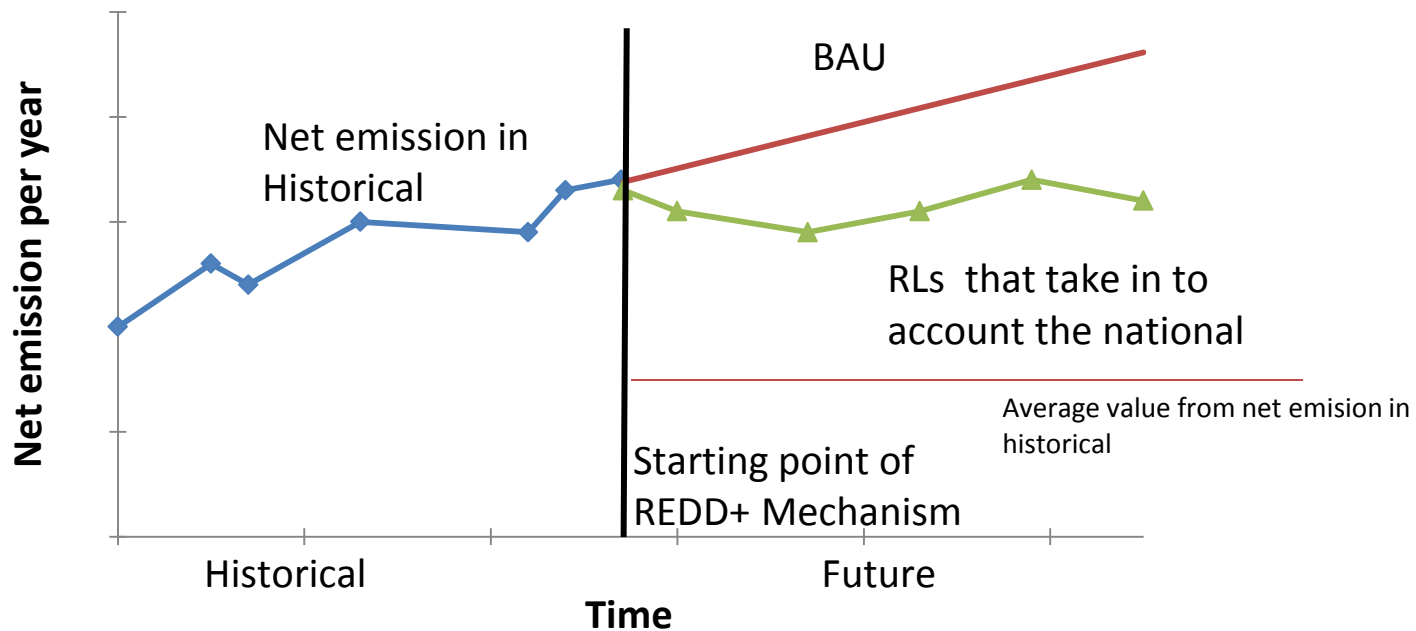
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Discussion

Discussion

If we cant figure it out, should we use the average value of Historical Emission ?



THANK YOU FOR YOUR ATTENTION!