

Setting national emissions baselines in selected developing countries

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Aim of the publication

1. Provide overview of current practices
2. Show differences and commonalities in countries' approaches to baseline setting
3. Explain motivation of choices made
4. Highlight good examples and lessons learnt
5. Identify significant capacity gaps and how to overcome them
6. Inspire other developing countries
7. Inform discussion on guidelines

Structure of the Publication

PART I

- Introduction
- Methodological choices
- Assumptions and sensitivity analyses
- Data Collection and use
- Transparency, stakeholders and review
- Conclusions

Part II

- Individual country experiences

Overview of current practices (Model choice, Energy-based emission)

Country	Approach	Model
Brazil (UFRJ)	Bottom-up	MESSAGE
China (ERI)	Bottom-up and top-down	IPAC (ERI) and others
Ethiopia	Bottom-up	McKinsey model
India (TERI)	Bottom-up and top-down	MARKAL/TIMES; NCAER-CGE etc.
Indonesia	Bottom-up (and top-down)	LEAP
Kenya	-	-
Mexico	Bottom-up	LEAP
South Africa (ERC)	Bottom-up (and top-down)	MARKAL/TIMES
Thailand	Bottom-up	LEAP
Vietnam	Bottom-up	LEAP

Differences in capacities and national circumstances motivate choices

- Familiarity, data flexibility and ease-of-use matters

*“... many Indonesians either at national level or local level, already experienced in using the LEAP model.” **Indonesia***

*“LEAP’s main strengths reside in its flexibility, ease of use, and the capacity to analyze, assess GHG emissions from energy and choose appropriate policies” **Vietnam***

*“MARKAL provides a great deal of flexibility in the level of detail that can be incorporated into the model structure...” **India (TERI)***

- Capacity to invest in human capital matters

*“MARKAL/TIMES models are generally data-intensive; For the LTMS model, it took two Senior Researchers, together with several other ERC staff members, all new to MARKAL, a period of more than a year to complete the model with little ad-hoc assistance from international researchers experienced in MARKAL.” **South Africa (ERC)***

National/international data sources used for key drivers in projections

Country	GDP	Population	Fossil fuel prices
China (ERI)	National	National	-
India (TERI)	National	National	International (IEA)
Mexico	National	National	-
South Africa (ERC)	National	National	National
Thailand	National	National	-

Lessons learnt: Data issues

Challenges and gaps

- Different base years are used
- Lack of activity data for IPCC categories
- Data collection for forestry and agriculture most challenging
- Lack of data on regional distribution of energy consumption
- Some IPCC emissions default factors not suitable to local circumstances

Practises on including policies and measures and technology improvements

- **Baselines with or without existing measures?**
 - *Depends on the purpose of the baseline*
 - *LTMS (2007) contains both “Growth without constraints” (GWC) without existing, implemented policies and “current development plans” where these policies are included. **South Africa (ERC)***
- **How to calculate the impact of measures?**
 - *“The success of policies in terms of achieving the extent they are set out to do and/or achieving this as per the planned timelines is also an issue for consideration – how should the actual achievement be viewed vis-à-vis the planned target in a baseline?” **India (TERI)***
- **If and how to include technology improvements?**
 - *Technology learning curves. IPAC modelling, **China (ERI)**.*

Addressing uncertainty

- Sensitivity analysis on key drivers: GDP, population and energy prices
 - Mexico; South Africa and others
- Presenting baselines as a range
 - South Africa
- Presenting multiple baseline scenarios
 - India; China

Revision / up-date of baseline

- How and when to revise business-as-usual scenarios?
 - For example in response to changes in key drivers such as GDP and fuel prices?
- *“By using a dynamic approach, Indonesia’s BAU Baseline will be updated regularly as a result of better data, information and method.”* **Indonesia**
- *Regular revisions of the baseline. General Law of Climate Change, 2012.* **Mexico**

Stakeholder involvement and review

- National stakeholder process
 - South Africa: Valuable stakeholder engagement (both at the technical level and at high/political level)
 - Other examples: Mexico, India etc.
- International review
 - South Africa: World Bank Peer review (2008) and MAPS process
- International studies: Understanding differences across models and studies
 - Studies on Mexico: OECD (2009); DEA/DK (2012-)

Thank you

For more information see
Climate Change Expert Group (CCXG)
website:

<http://www.oecd.org/env/cc/ccxg>

Danish Energy Agency website:

<http://www.ens.dk/en-US/Info/FactsAndFigures/nama/workstream/Sider/Forside.aspx>