# MRVing transport projects at City Level:

## lesson learn from IGES MRV Transport project in ASEAN cities

*The 5th high level seminar on Environmentally Sustainable Cities (HLS ESC)*

*Thematic Session A3: Air Quality and Transport*

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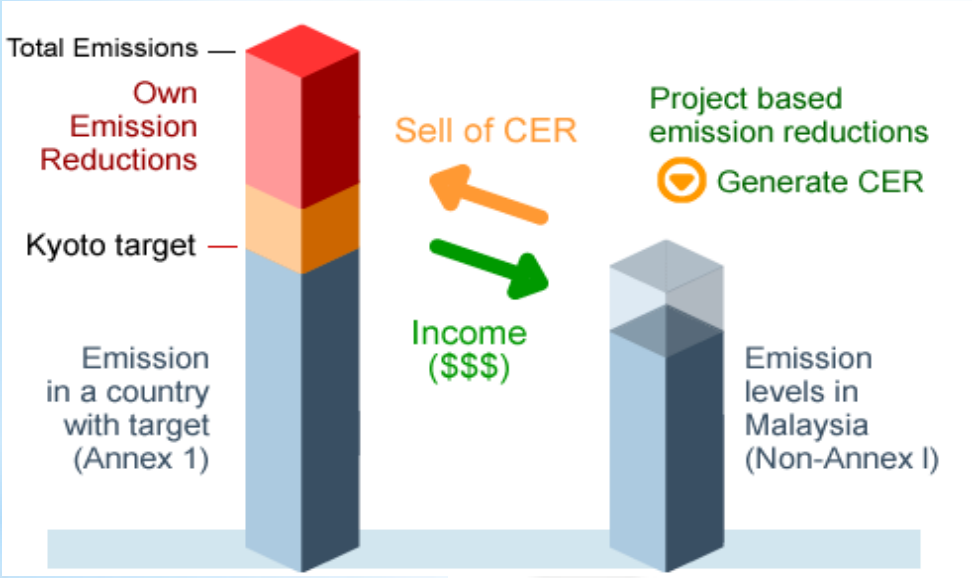
# Outlines

- Transport and Climate Change
- Joint Credit Mechanism
- Case Studies at 5 cities in ASEAN

# Transport and CDM – current status

- **C**lean **D**evelopment **M**echanism – one of the 'flexibility mechanisms' under the Kyoto Protocol
- stimulates sustainable development and emission reductions in developing countries while giving industrialized countries some flexibility in how they meet their emission reduction limitation targets

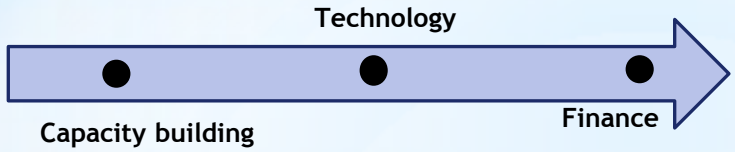



| Category | % |
|---|---|
| 1. Energy ind. (ren/non-ren) | 74.6 |
| 13. Waste handling and disposal | 10.9 |
| 4. manufacturing ind. | 4.2 |
| 10. Fugitive emiss(solid/oil/gas) | 2.6 |
| 15. Agriculture | 2.4 |
| 5. Chemical Ind. | 1.4 |
| 3. Energy demand | 1.3 |
| 8. Mining/mineral prod. | 1 |
| 14. Afforestation/reforestation | 0.6 |
| **7. Transport** | **0.3** |
| 11. Fugitive emiss (halon/SF6) | 0.3 |
| 9. Metal production | 0.2 |
| 2. Energy distr. | 0.1 |

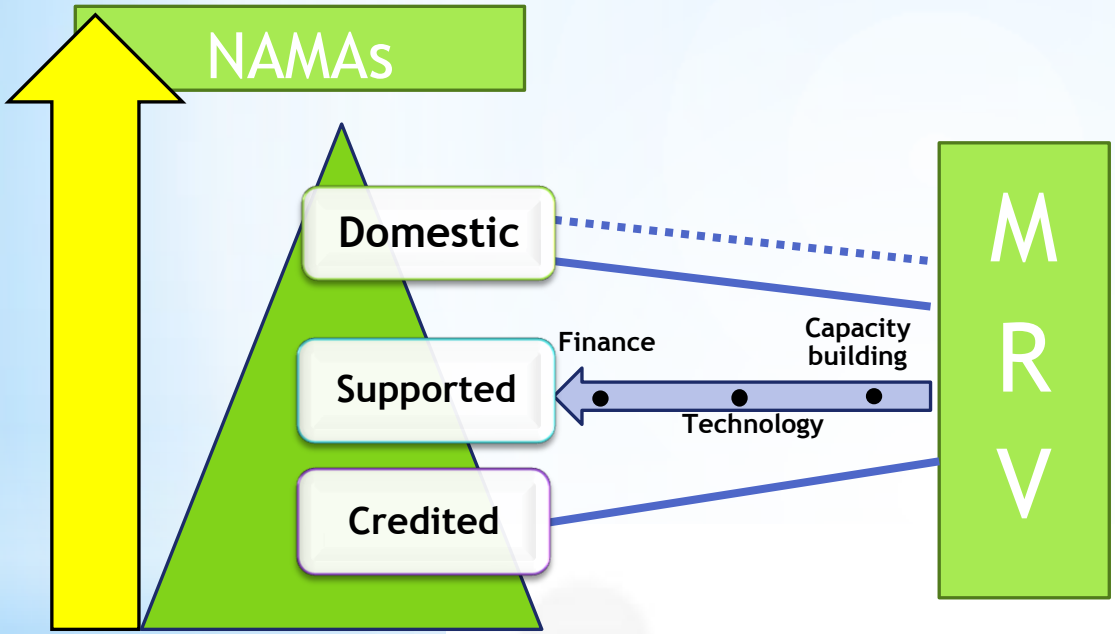
*only 27 in transport out of 7426 registered CDM projects (as of 31 January 2014) and 67% of projects are in China and India*

# Transport NAMAs – Bali Action Plan (2007) and Copenhagen Accords (2009)

1(b)(ii):




***in a measurable, reportable and verifiable manner***




**MRV is Important !!**

**COP 19 - Warsaw**

Transport NAMA database

Partnership on Sustainable Low Carbon Transport

Transport Day 2013 • Warsaw

# MRV is important to assess Avoid - Shift - Improve (A-S-I)

Source of map: ESC model city

**BRT**

Moto-Tricycle

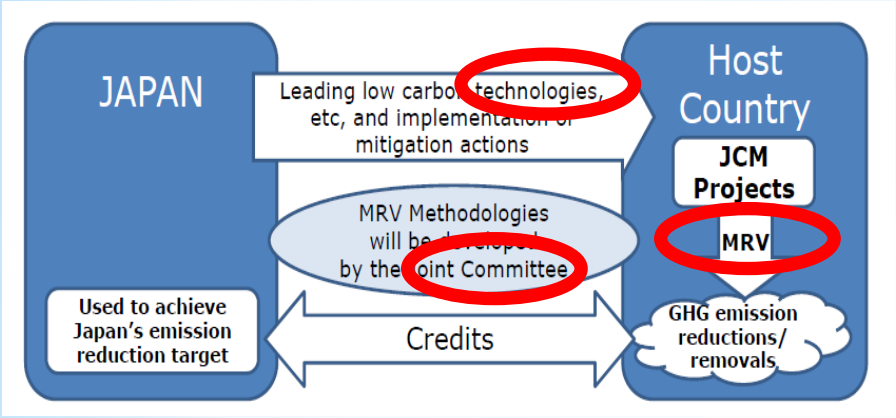
Source:

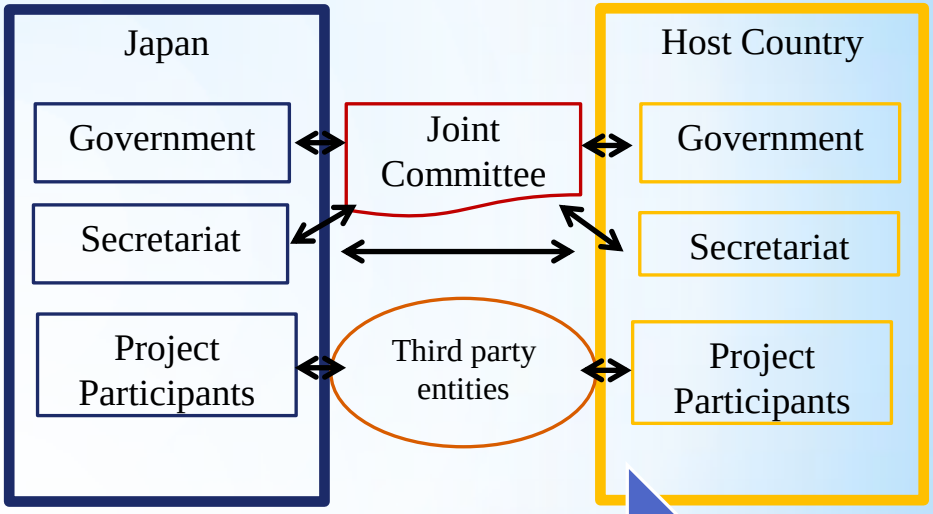
## ASEAN Context

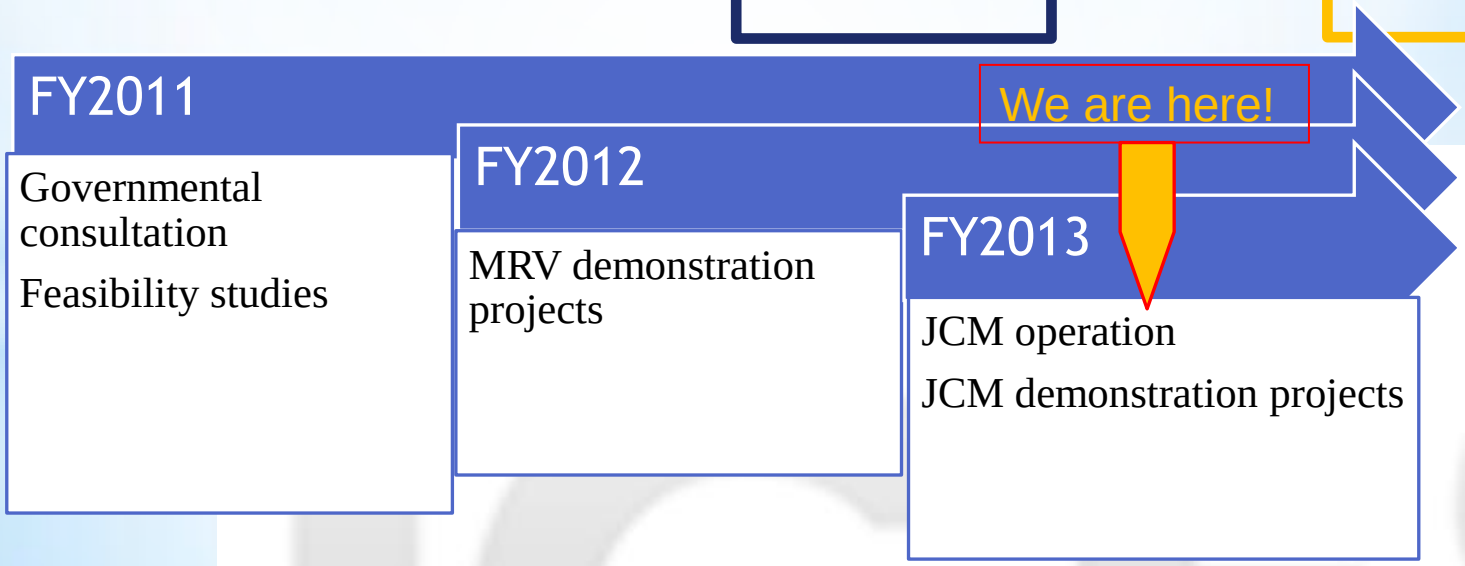
**A diversity of needs and priorities…**

**A different status and condition …**

# Japan propose a **Joint Credit Mechanism (JCM)** as a part of "Framework for various approaches (FVA)" for long-term cooperative action under the UNFCCC (i.e., beyond 2020)




*"The JCM starts its operation as a non-tradable credit mechanism".*

Source: Adopted from Government of Japan (2014)

# Key features of JCM:

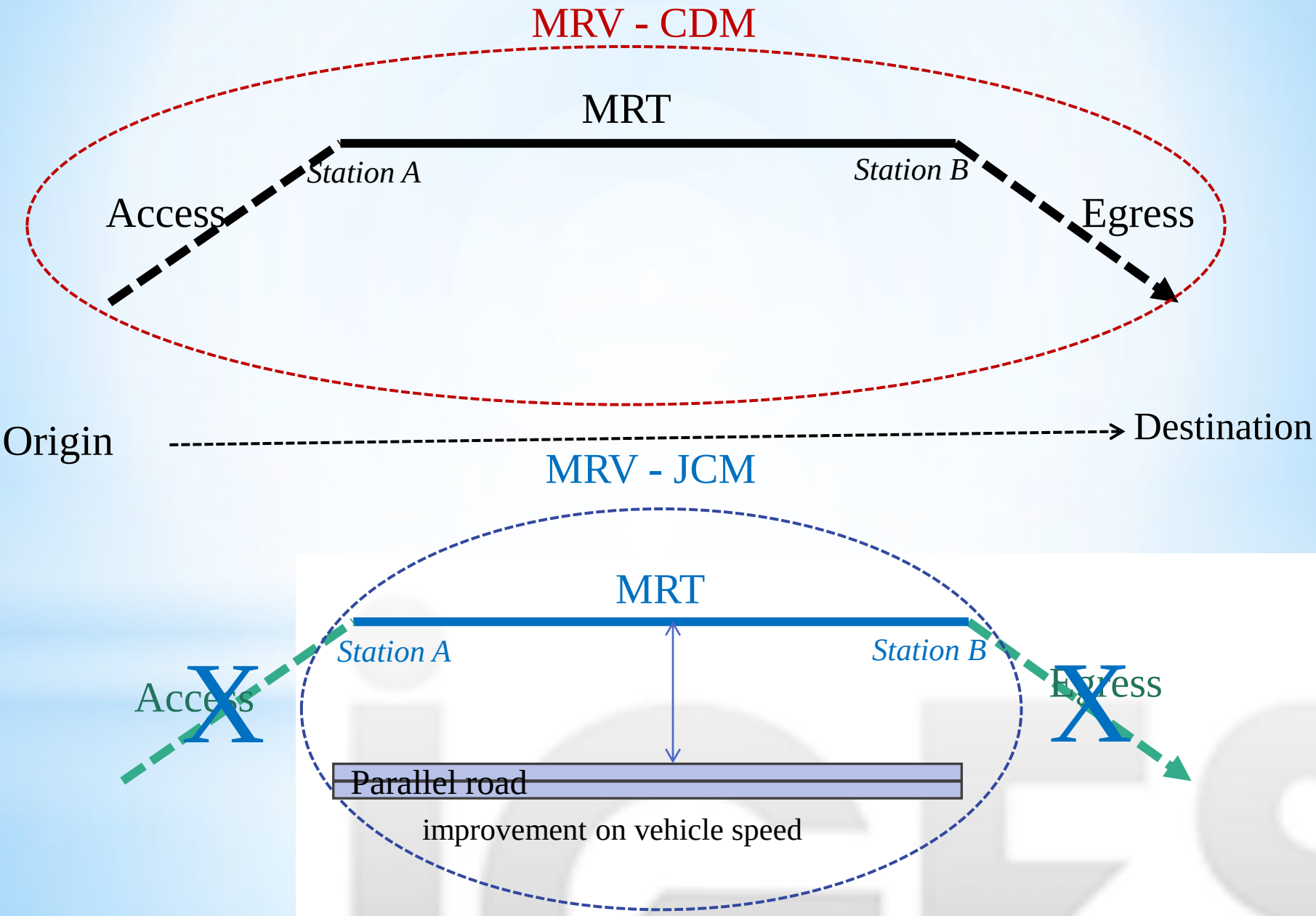
- JCM aims to MRV GHG reduction in a simpler way
- Various approaches… must: meet standards deliver real, permanent, additional and verified mitigation outcomes

## How to simplify transport MRV methodologies? (learn from CDM experiences)

| STEP 1 | STEP 2 | STEP 3 |
|---|---|---|
| *use of initial default values* *(ex-ante estimation)* | *With / Without Monitoring (Top-down / Bottom-up)* | *adjusted values* *(ex-post verification)* |

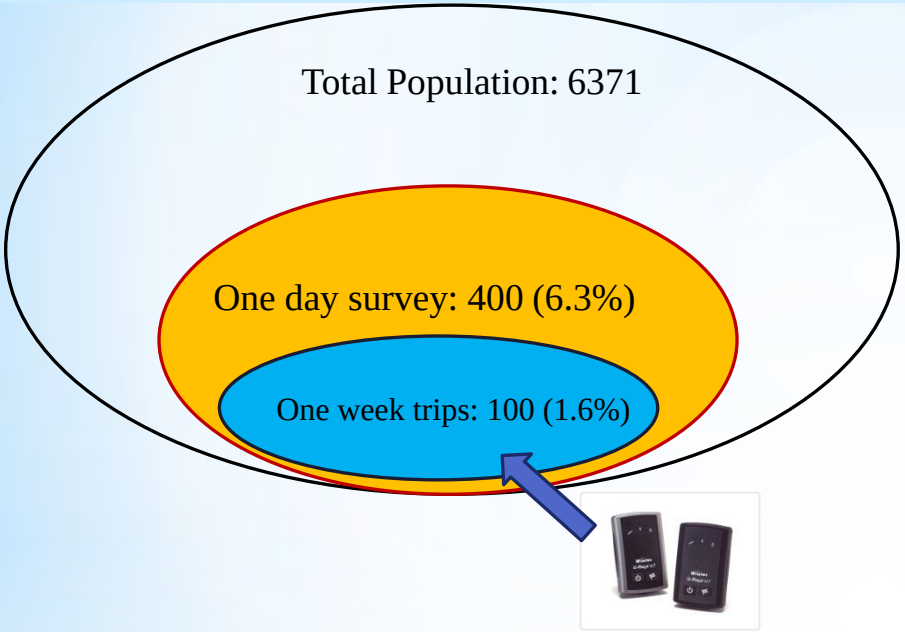
- Use of default values
- Benchmarking
- With/Without monitoring (Top Down/Bottom Up)
- Adjustment of initial values after verification

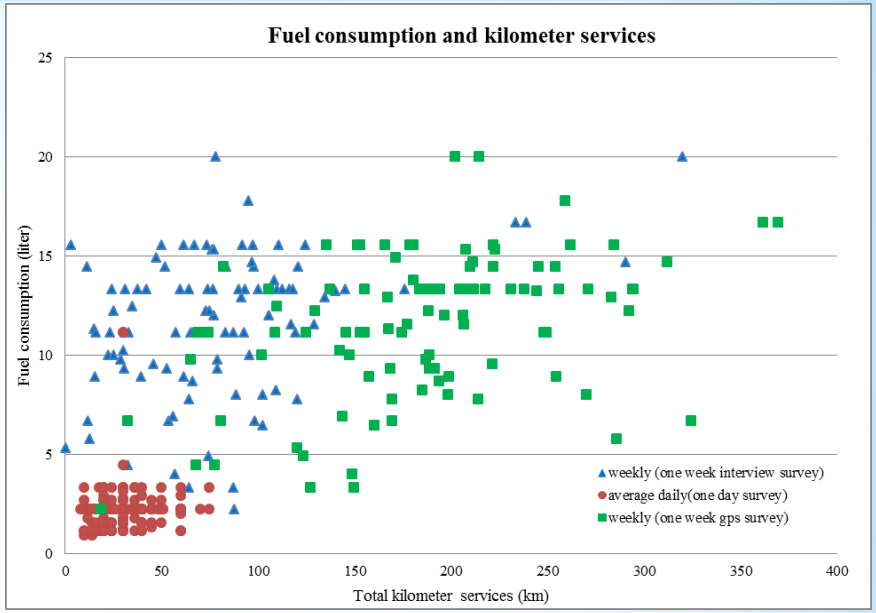
# An example of different approach of MRV Public Transport System



# IGES Experiences on MRVing Transport Projects in ASEAN cities under the Joint Credit Mechanism (JCM)

## Case Study-1: Informal Transit System- *a case study of motorcycle taxi in Bandung (2012)*




| *Baseline Emission ($tCO_2$/year)* | | One Day | One Week | GPS Survey |
|---|---|---|---|---|
| 1 | With Monitoring Fuel Consumption | 11410.28 | 11198.98 | 11198.98 |
| 2 | Without Monitoring Fuel Consumption | 6363.93 | 4475.35 | 8974.52 |
| 3 | Comparison Without/With (%) | 55.77% | 39.96% | 80.14% |

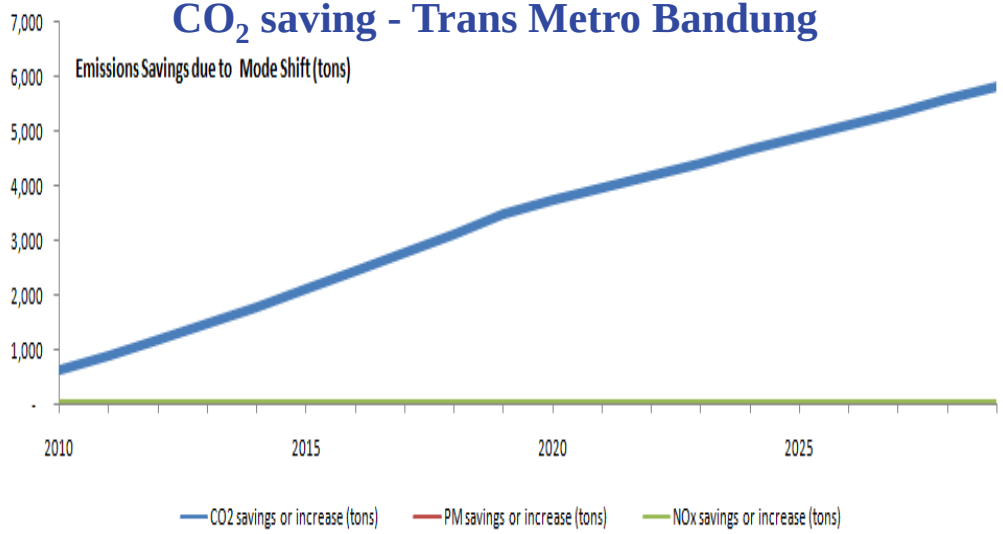
### *Informal Transit system – Data Selection and Reliability*

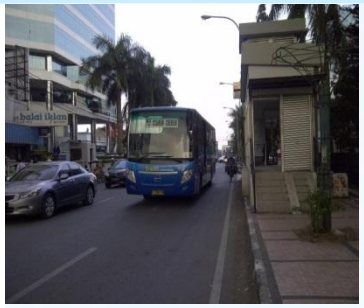
**(1) Monitoring: Cost-effectiveness – Reliability**

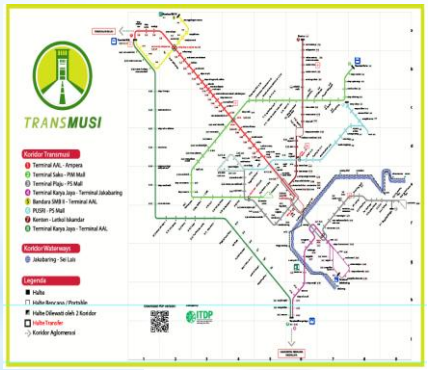
**(2) Trip characteristics (no fixed route and schedule) → Expansion factor & Non-linear relationship**

# Case Study-2: BRT (semi-BRT) System – *case studies in Bandung and Palembang*

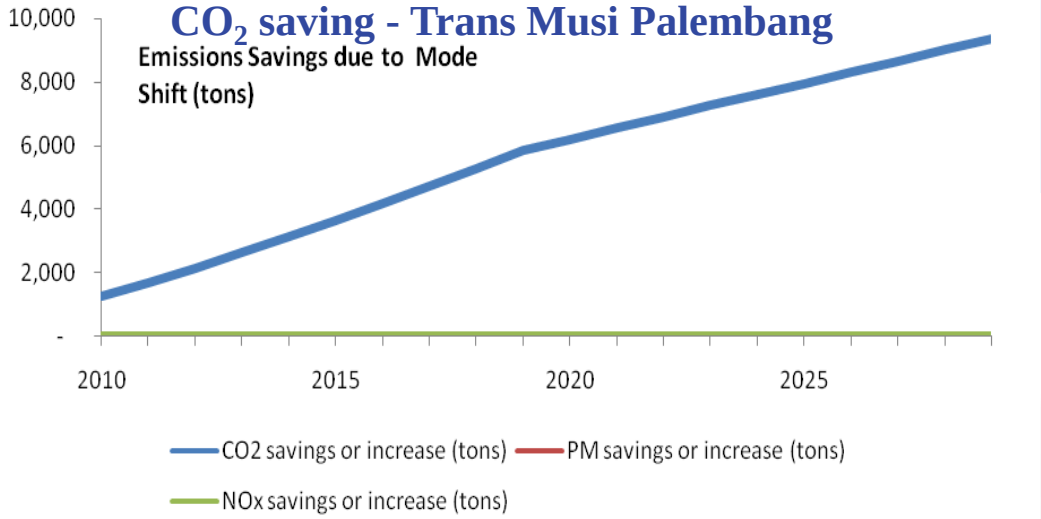
## $CO_2$ saving - Trans Metro Bandung



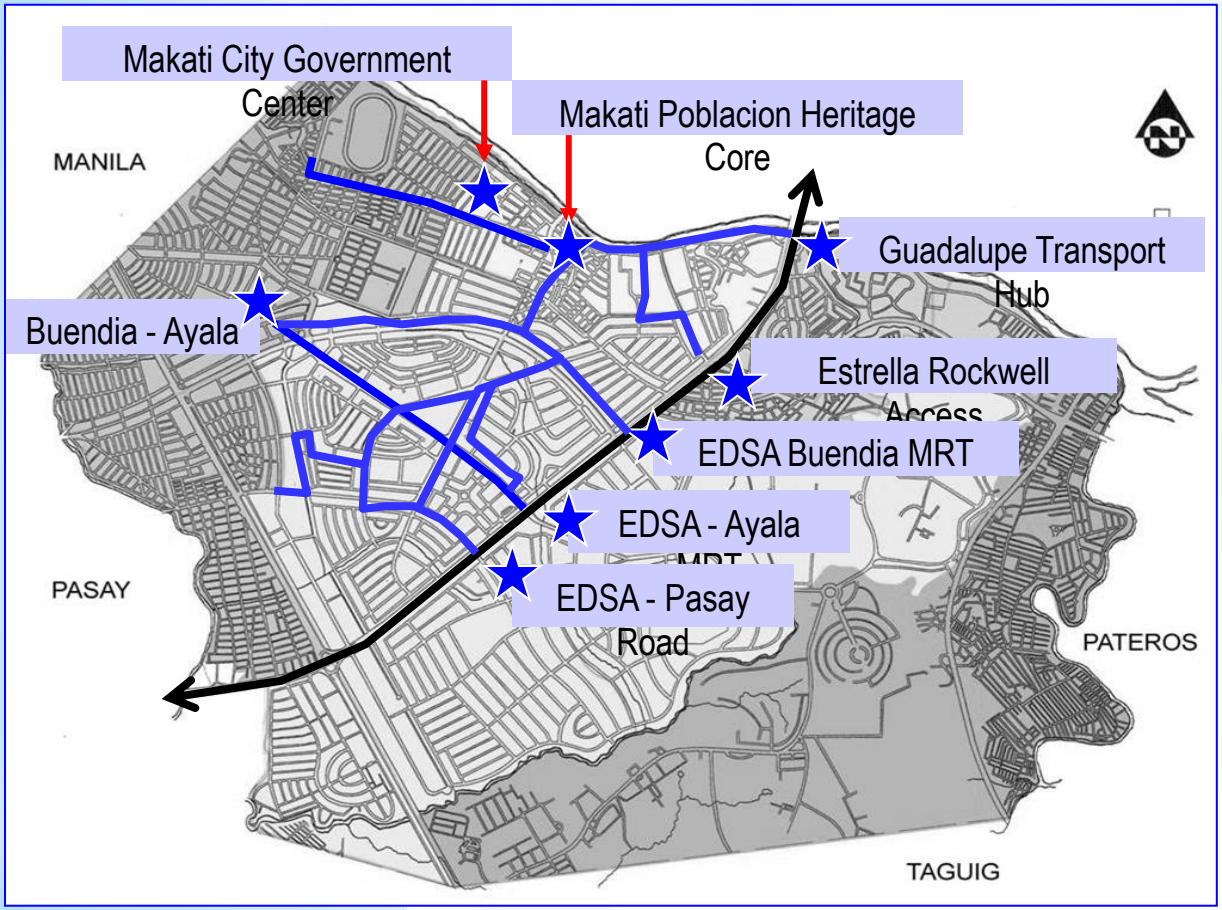



## $CO_2$ saving - Trans Musi Palembang




***Greater impact on CO2 saving → wider coverage areas and integrated system***

# Case -4: Non-motorized transport project – *a case study in Makati city*




Proposed Expanded Makati Pedestrian Walkway Network

Makati City Transport Development Strategy (2011 – 2020)

30.4 km. Walkway Network for a healthier, low carbon City

| Emissions Savings | CO2 |
|---|---|
| **Savings (tons) in 10 years** | 47,420.26 |
| **Average savings (tons/year)** | 15,806.75 |

*A great number of $CO_2$ emission due to non-motorized project in urban areas*

# Key messages

- Climate change – transport project : low performance
- MRV is critical component and bridging the gap between climate and transport sector
- JCM offers more flexible and simpler MRV
- Key findings from the case study:

  (i) Informal transit system: cost-effectiveness, expansion factor and non-linearity.

  (ii) Integrated and wider services gives better impacts on GHG reduction.

  (iii) Public transport gives benefit on the emission reduction, but it is a long-term

  (iv) Non-motorized transport project may also gives significant GHG emission reduction

  (v) Rapid transition in ASEAN cities creates several challenges for accurate quantification, including sufficient data, reasonable assumptions etc.

  (vi) Proper benchmarking and adjustment of initial values after verification are Important

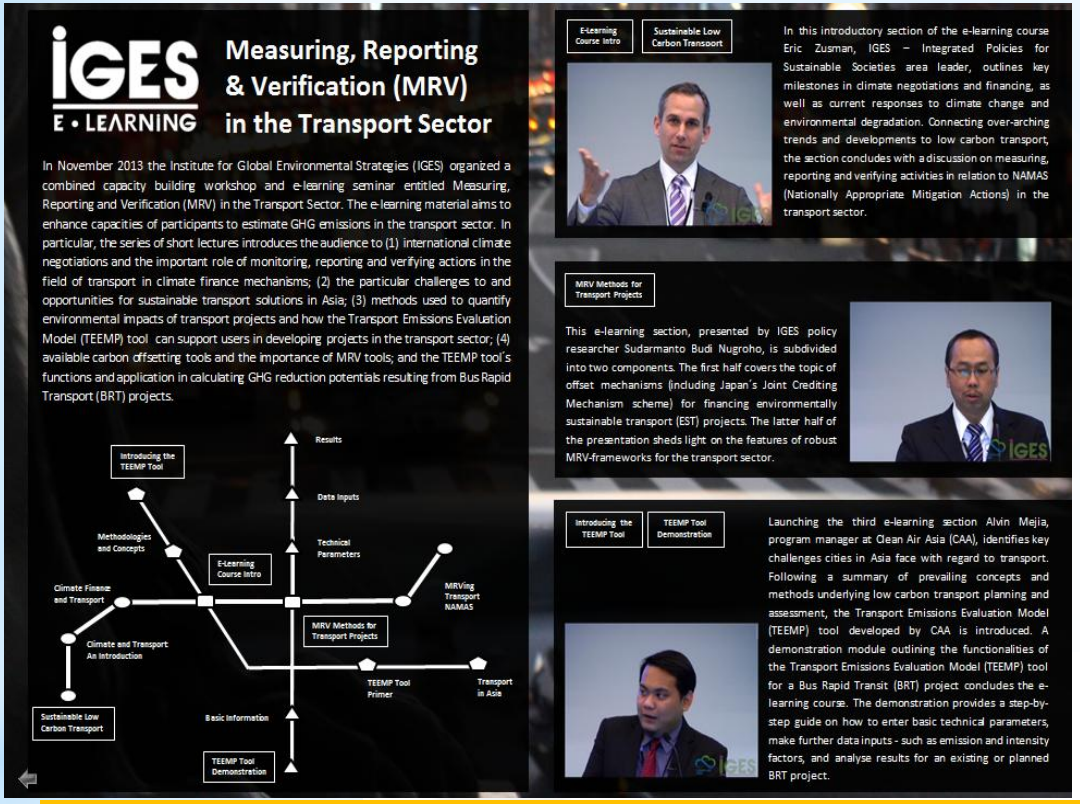
- Governance issues and Capacity Building are important to support MRV transport projects

# Appendix 1:

## E-Learning course on MRV in the Transport Sector

## The Institute for Global Environmental Strategies (IGES)

## By Integrated Policies for Sustainable Societies (IPSS) - Cities Team




### Modules:

1. Sustainable Low-carbon transport
2. MRV methods for transport projects
3. Introducing TEEMP tool
4. TEEMP Tool demonstration

**http://www.iges.or.jp/en/integrated-policy/cities/mrv_elearning.html**

*Thank you for your attention*

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