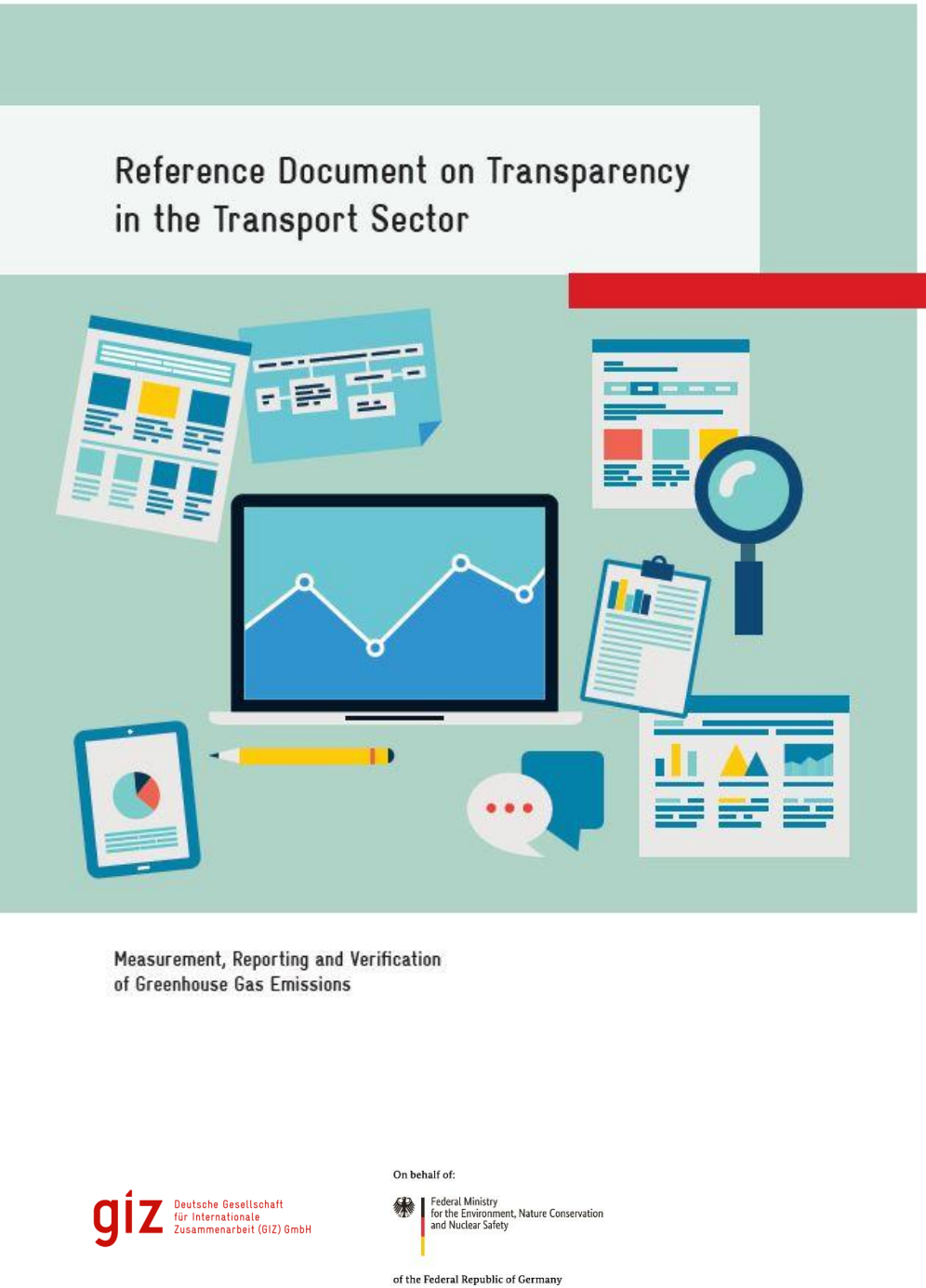



giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

# Experiences with GHG Baselines and Monitoring in the Transport Sector

**Christiana Hageneder, Senior Advisor, GIZ**

12 December 2018

COP24 side event: GHG baselines, monitoring methodologies and tools to support MRV at national level

# Transport Volume of the Compendium

1. Intra-urban mass rapid transit investments
2. Comprehensive urban transport programmes
3. Vehicle efficiency improvement programmes
4. Alternative fuels incentives
5. Inter-urban rail infrastructure
6. Freight transport infrastructure investments to shift mode
7. National fuel economy standards
8. Fuel pricing policies

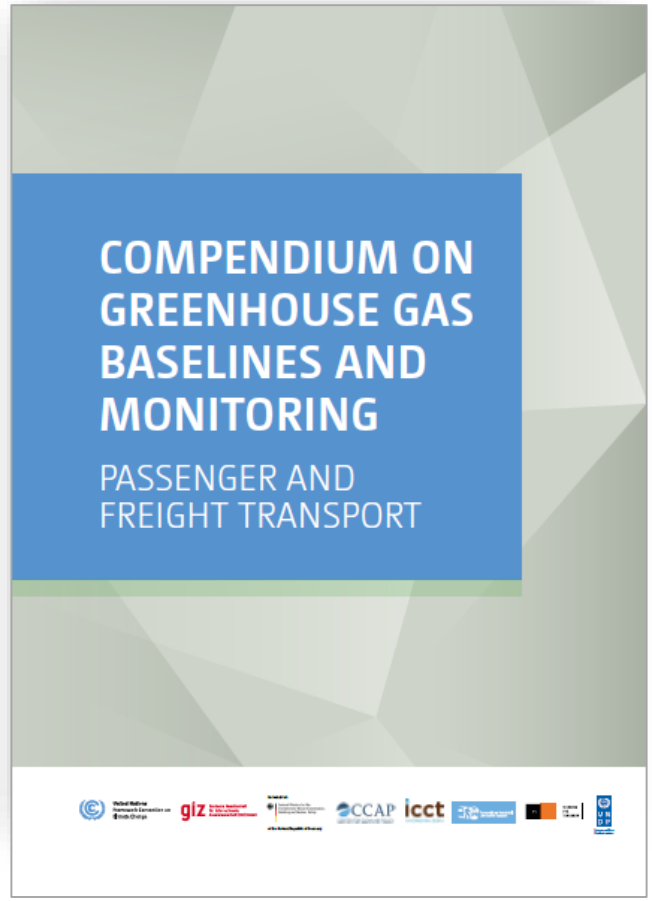
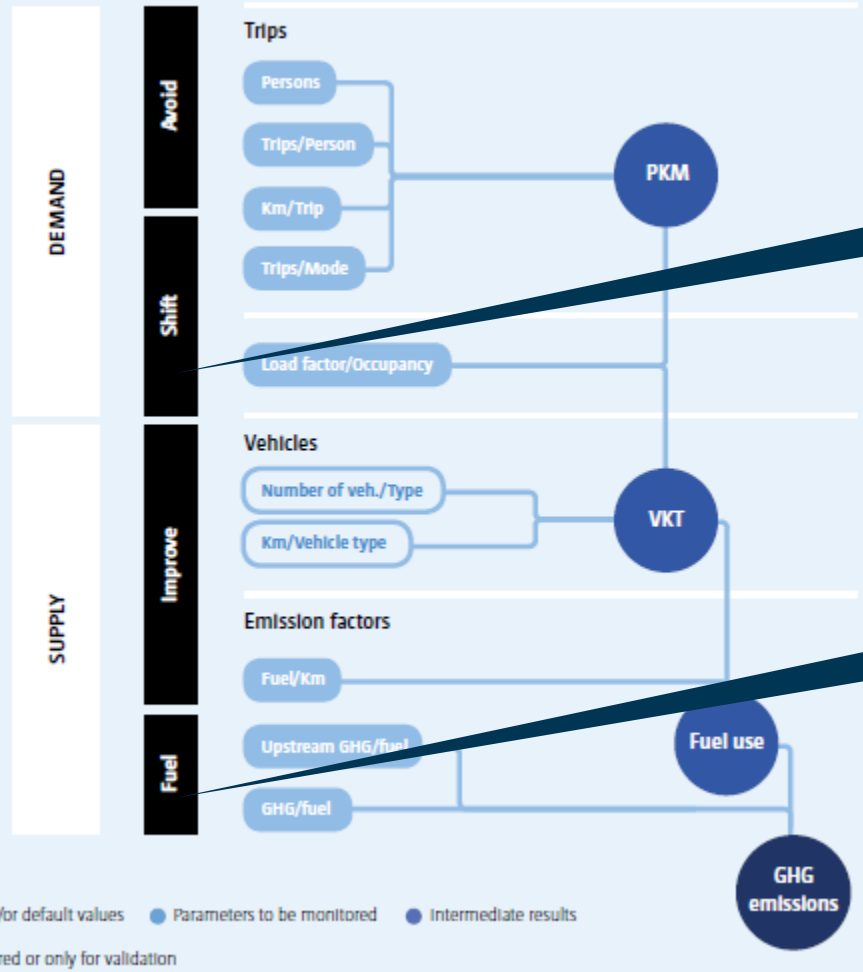


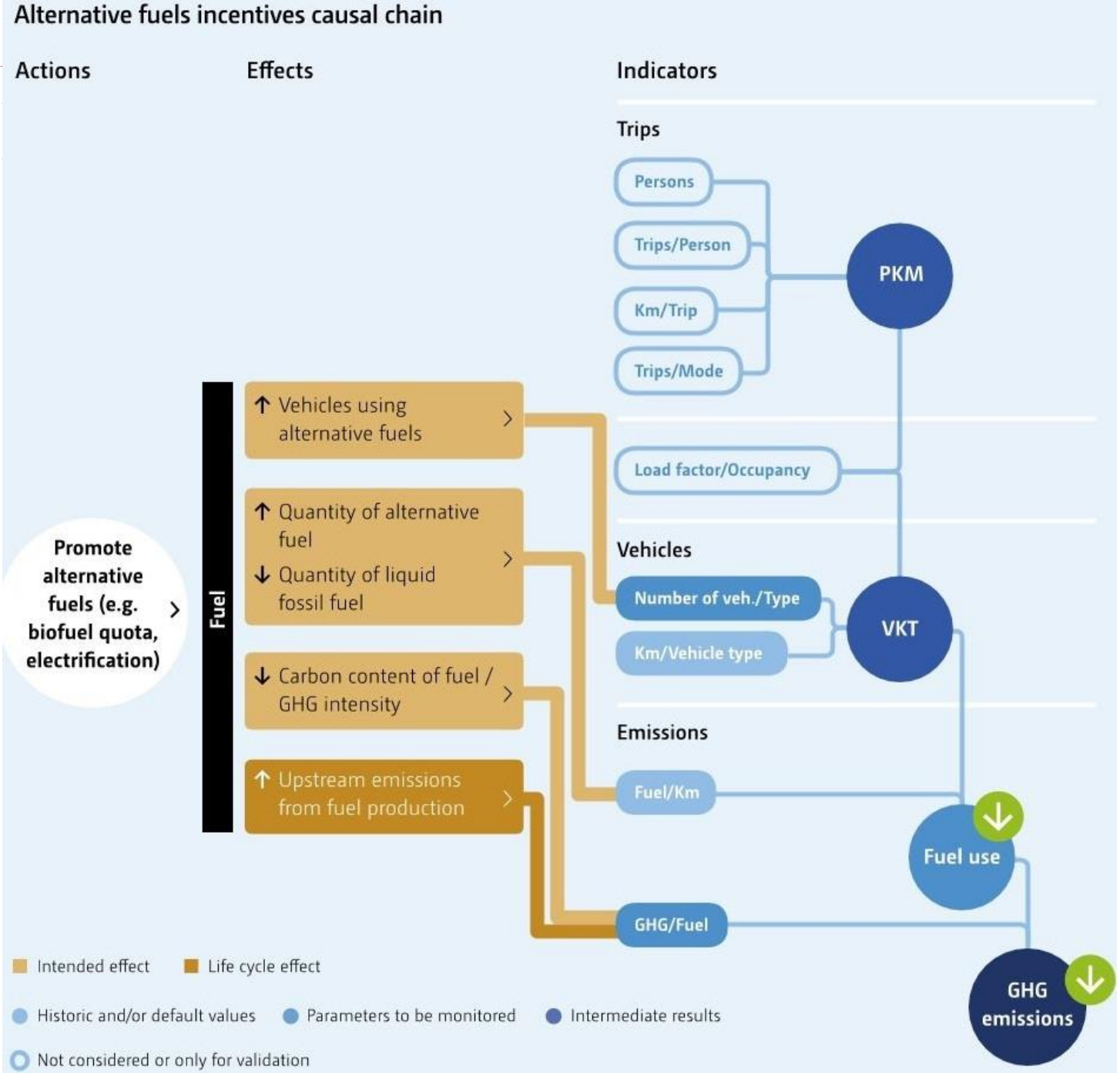
Figure 2
Bottom-up model of greenhouse gas generation from transport




# Mitigation actions are grouped by main effect …

E.g. mass rapid transit investments

Alternative fuels incentives




Source: Causal chain: Figure 14 of the Compendium

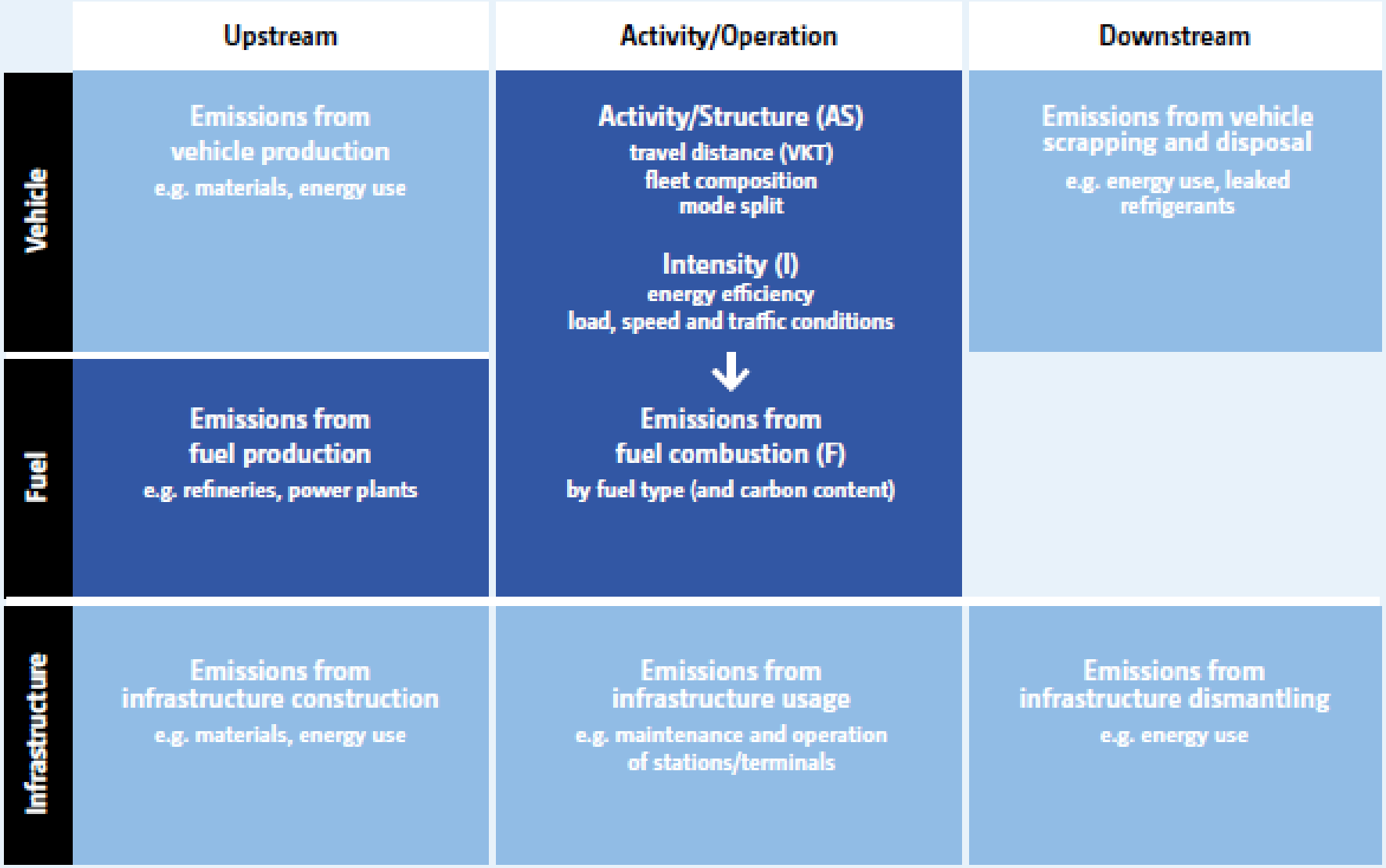
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

## For each action a causal chain is used to illustrate the main effects at a glance

Shows the variables that are targeted by the mitigation action components and how they should be affected

Figure 3

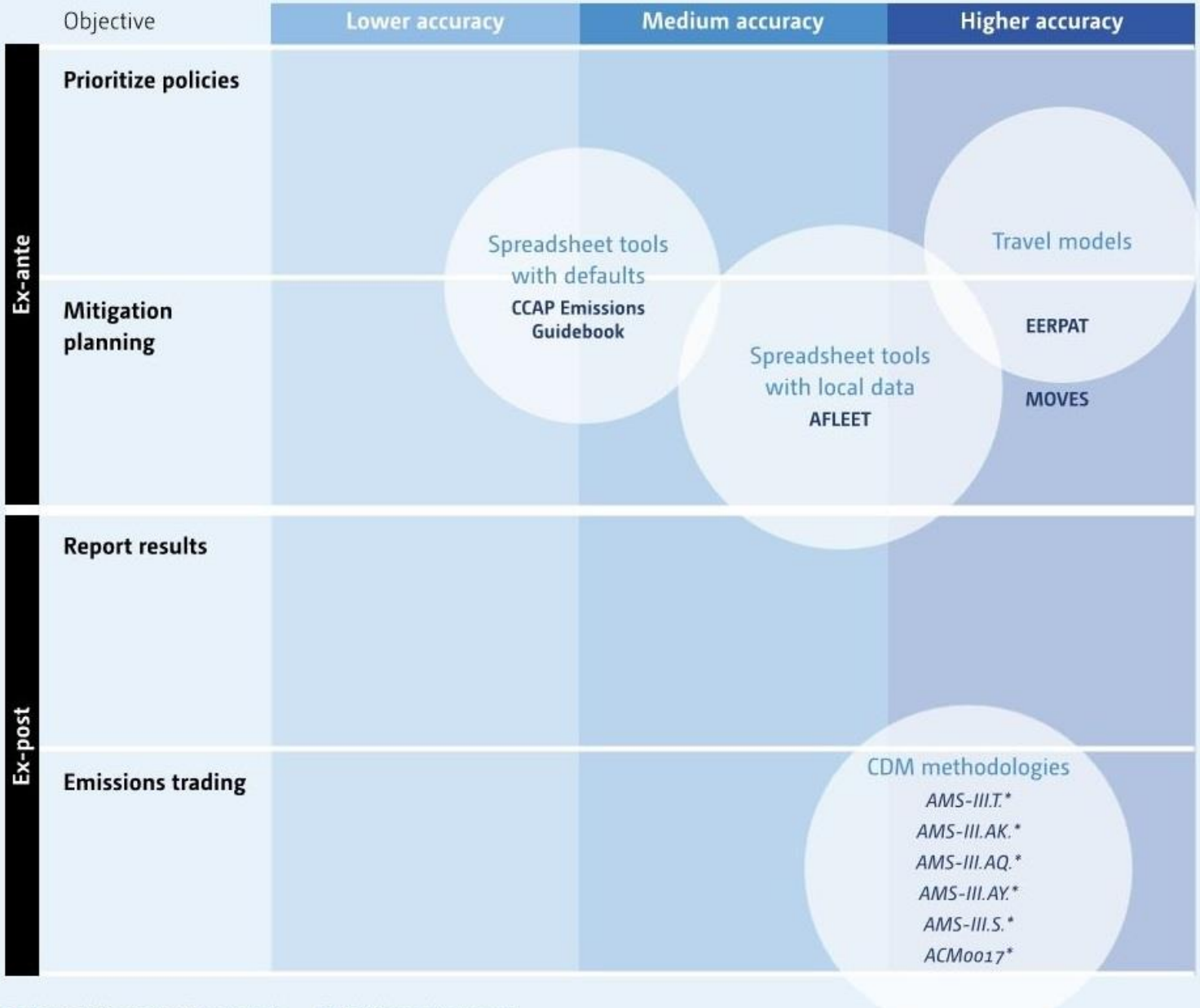
## Mapping life cycle GHG emissions in the transport sector




giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

# System boundaries

Navigating classes of available methods and associated tools for alternative fuels mitigation actions




Source: Navigation: Figure 15 of the Compendium

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

## Guidance is provided on the selection of analysis tools

Navigation maps help users judge

- Level of accuracy of the tool
- Objective of analysis
- Nature of tool

In addition to the maps the Volume also has a tabular guide and descriptions

# Tabular guides on the selection of analysis tools provide more detail…

**Disaggregate emissions models for alternative fuels mitigation actions**

Ease of use/data collection: Highly resource and data intensive

| Name | Application / summary | Scope | Developer | Methodology documentation | Data collection guidance | Defaults provided | Cost of tool |
|---|---|---|---|---|---|---|---|
| MOVES | Emissions model | Requires VKT and speed inputs | US EPA | Very good | Fair | Defaults for USA – allows user input for other areas | Free |
| EERPAT | Non-spatial disaggregate model | Includes emissions module | US Federal Highway Administration | Very good | Good | Defaults for USA – allows user input for other areas | Free |
| AFLEET | Emissions and costs model for fleets | Fleet data and fuel costs | Argonne National Laboratory | Good | Good | Defaults for USA including WTW upstream emissions | Free |

Source: Disaggregate emissions models: Table 29 of the Compendium

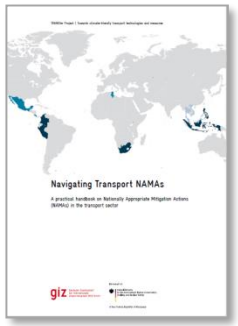
The Volume has a tabular guide and descriptions of all existing tools for each mitigation action type

# Joint webinar series on the Transport Volume

- 6 webinars held so far
- All recordings can be found at:

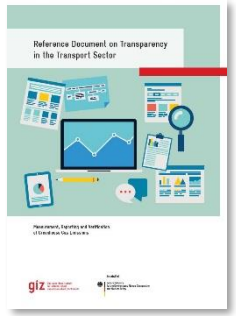
https://www.changing-transport.org/webinar-series-on-methodologies-for-baselines-and-monitoring-in-the-transport-sector/

# GIZ's Guidance on MRV in Transport




## 2015: Navigating Transport NAMAs: Handbook (Chapter 2: MRV)

→ Offers practical advice on NAMA selection, MRV, finance and registration. It builds upon a high number of examples




## 2016: Reference Document on MRV in Transport (new updated 2018 version)

→ Guidance on how to develop comprehensive and consistent national systems for MRV of transport related emissions

## 2017: Bottom-Up GHG Inventory and MRV of Measures

→ Explains synergies and limitations of using transport sector bottom-up GHG inventories for the MRV of measures


## 2017: Compendium on GHG Baselines and Monitoring

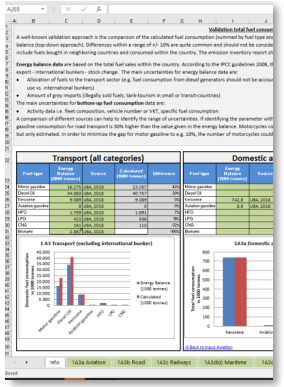
→ Guidance on available methodologies for MRV of transport mitigation actions

## 2018: A Beginners Guide to Emissions Accounting in Transport

→ Introduces key principles for quantifying GHG emissions in transport and literature

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

# GIZ tools for quantifying emissions



## TrIGGER: Transport Inventory and Greenhouse Gas Emissions Reporting Tool

→ A simple bottom-up spreadsheet model to calculate national transport GHG inventories. Developed with the Institute for Environment and Energy (IFEU).

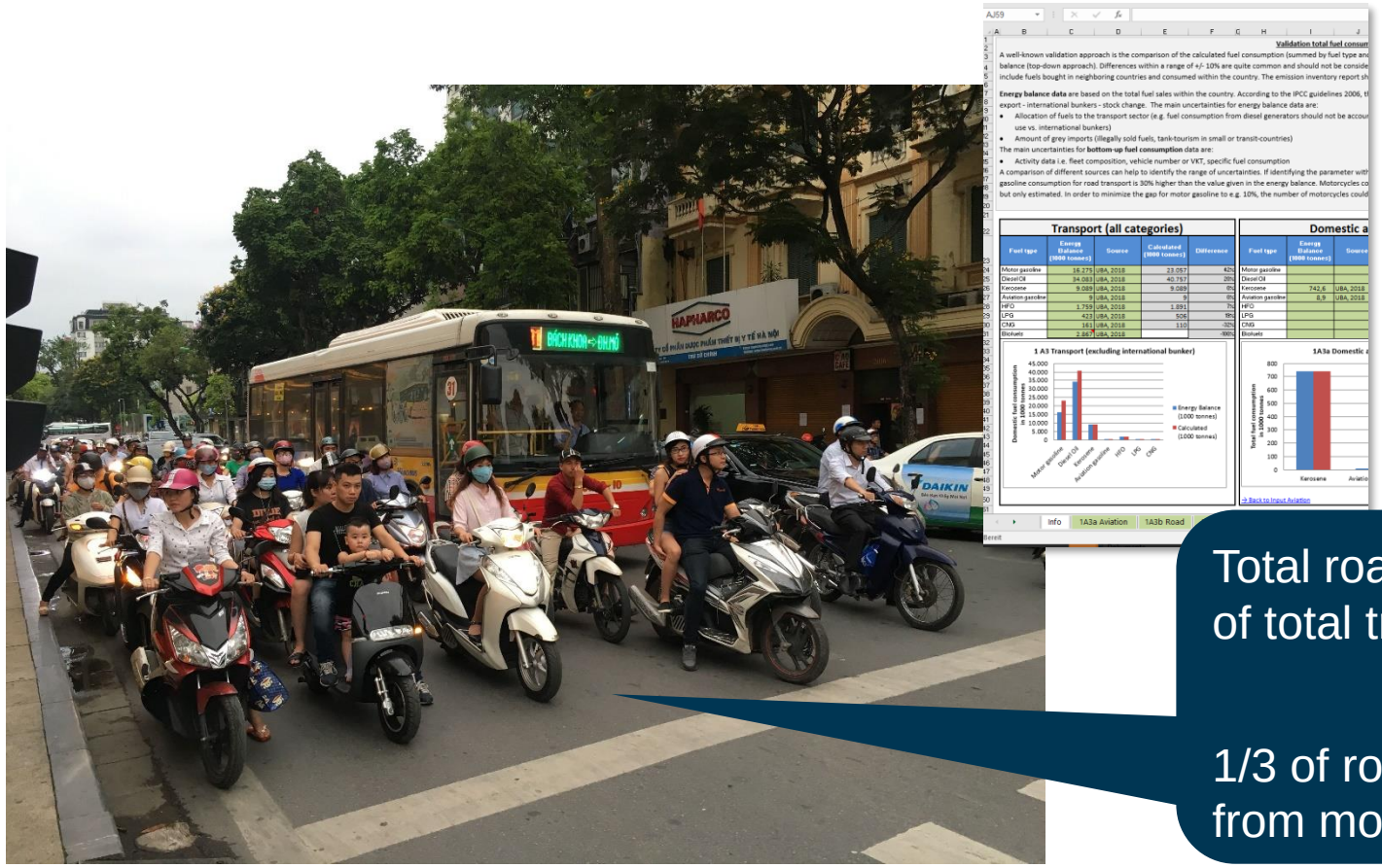
https://www.changing-transport.org/tool/trigger/

## FESET: Fuel Economy Standards Evaluation Tool

→ A spreadsheet tool to calculate emission reductions from the introduction of new light duty vehicle fuel economy or $CO_2$ standards. Developed by the International Council for Clean Transportation (ICCT).

https://www.changing-transport.org/tool/feset/

# Example applications – Inventory Tool TRiGGER in Vietnam





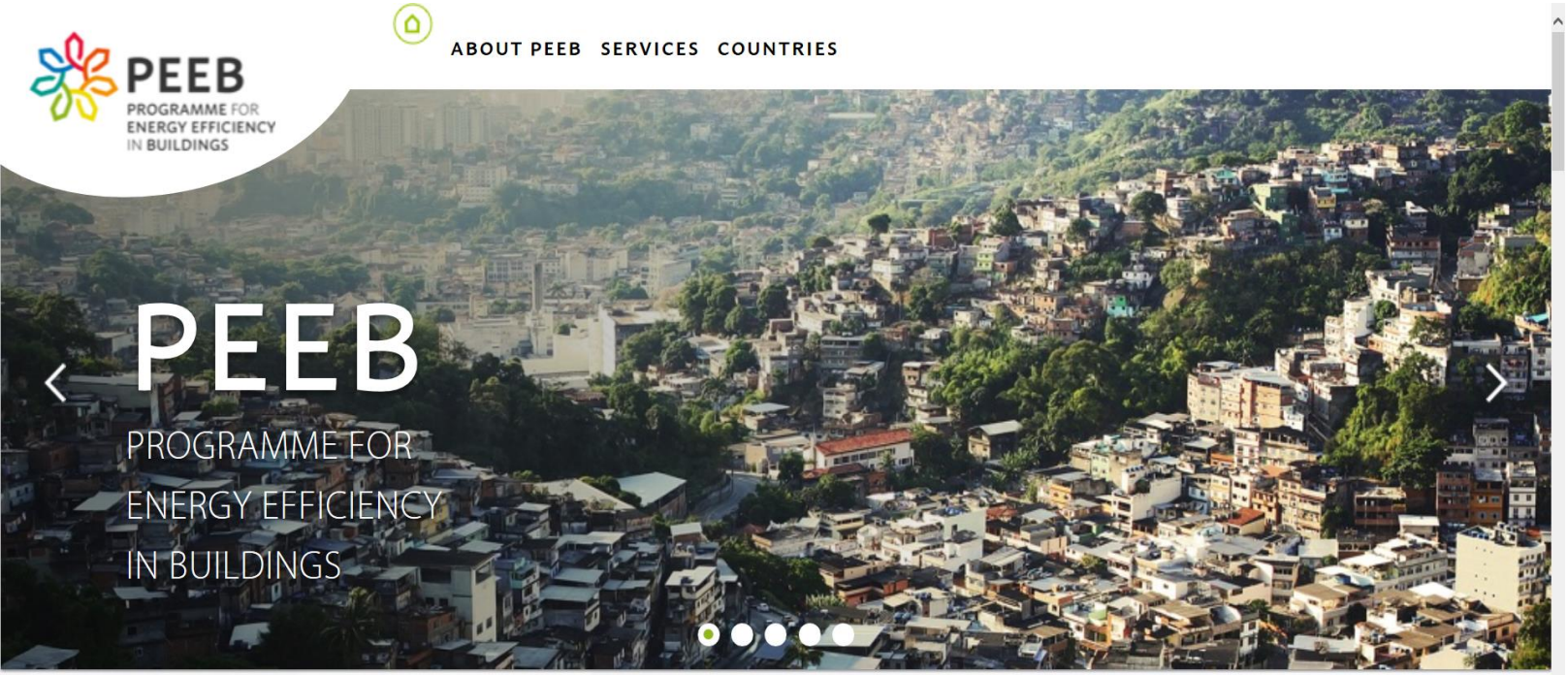

Total road transport emission: 29,8 Mt $CO_2$ (=90% of total transport emissions in Vietnam in 2015).

1/3 of road transport emissions in Vietnam result from motorcycles!

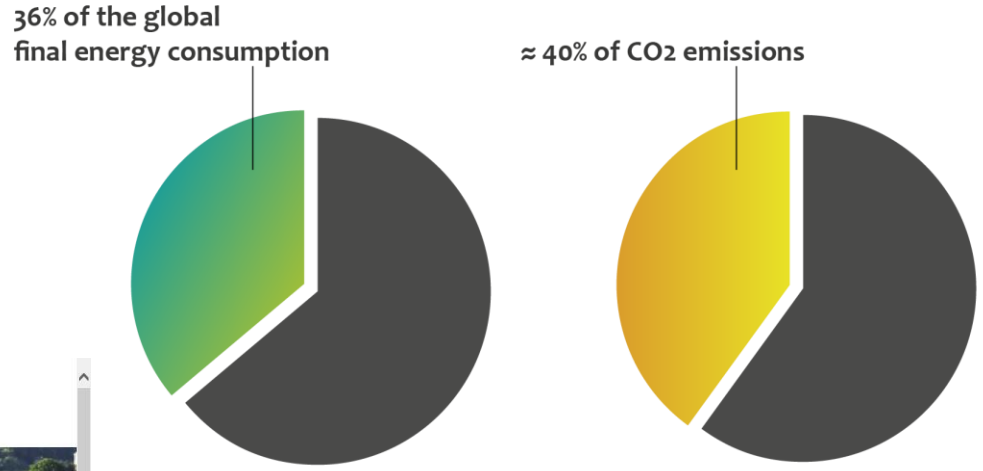
Photo credits: Daniel Bongardt

# Other relevant Sectors:

# Buildings and Construction Sector




www.peeb.build




giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

## Programme for Energy Efficiency in Buildings - PEEB

German and French Programme to support countries to reduce GHG in the buildings and construction sector

# Thank you!

Get in touch if you have further questions:

**christiana.hageneder@giz.de**

Or more specifically on Transparency in Transport:

**urda.eichhorst@giz.de**

Or find us on the web:

**www.changing-transport.org**