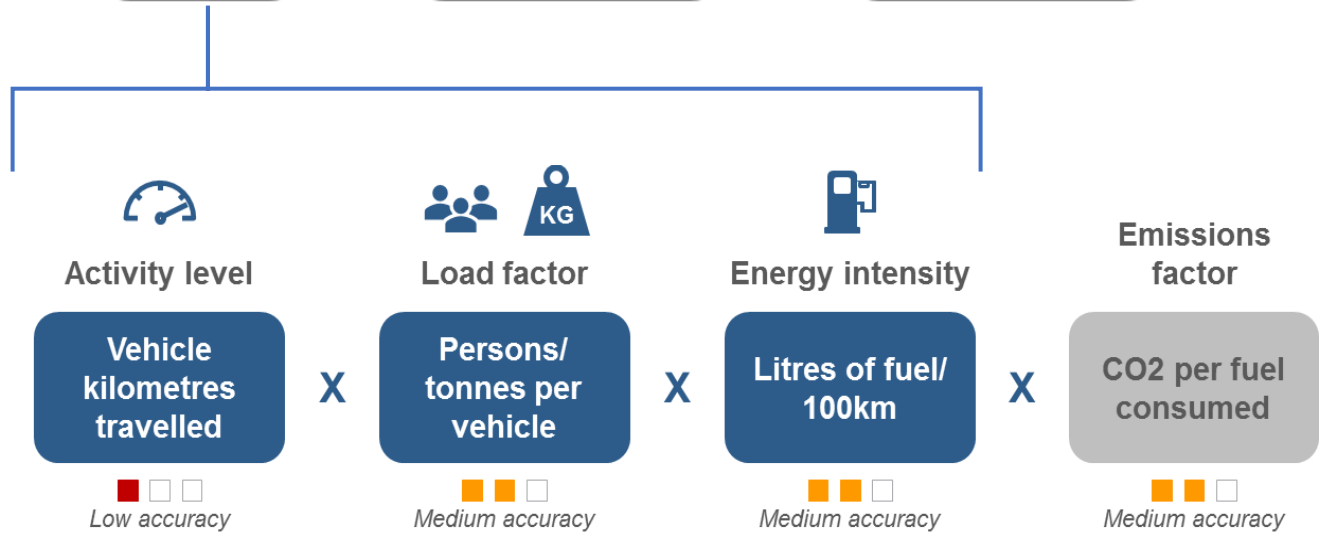
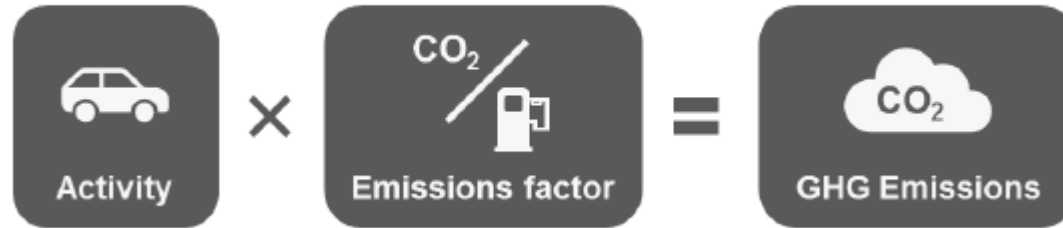


Data collection for Climate Change Mitigation Potential Analysis and Scenario Development in Uganda's Transport Sector

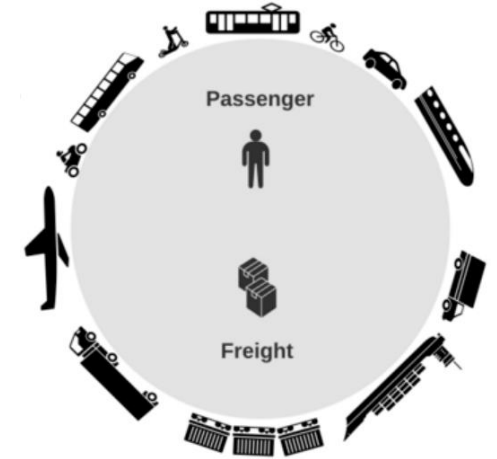
How to identify data needs for MRV

GHG Emission Model (Bottom-Up Method)

Basic GHG Emissions Equation



(Sheldon et al., 2022)



Mode Specific

Activity:

The cumulative sum of distances traveled by passengers or freight

Emission factor: Rate at which an activity produces GHG (or any other pollutant releases) to the atmosphere

How to identify data needs for MRV

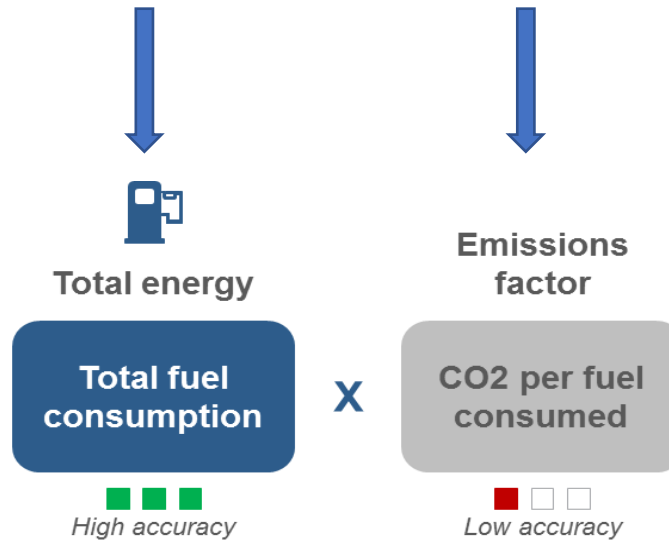
GHG Emission model (Top-Down method)

Basic GHG Emissions Equation



(Sheldon et al., 2022)

Top-down methodology



(Sheldon et al., 2022)

How to identify data needs for MRV

Mitigation Potential Analysis - Data





How is the sector developing/changing?

- ✓ Vehicle ownership/usage growth rates
- ✓ Expected changes in the vehicle fleet characteristics
- ✓ Expected developments in the different transportation sub-sectors
- ✓ Policies in transport, energy, environment?

What is the accounting period?

- ✓ e.g., In Uganda: historic (2003 – 2019), baseline (2019), future (2020-2050)

ASIF Framework (Schipper et al 2000)

Measure category	Measure description	Effect of measure	
A – Avoid	Avoiding journeys where possible		Reduction in total vehicle kilometres travelled (VKM)
S – Shift	Modal shift to lower-carbon transport systems		Shift of VKM from higher to lower emission modes
I – Improve	Improving the energy intensity of travel		Increase in fuel economy (distance travelled per litre of fuel)
F – Fuel	Reducing carbon intensity of fuel consumed		Reducing carbon intensity of fuels, so lowering emissions per litre of fuel consumed

Data Challenges

CHALLENGE	'WORKAROUND'
Fuel economy, emission factors, carbon content data was not readily available	<p>Secondary data</p> <ul style="list-style-type: none"> Mutenyo et al. (2015) Baseline survey on Uganda's National Average Automotive Fuel Economy IPCC default CO₂ emission factors for the various fuel types (Source: IPCC, 2006)
Vehicle Kilometers Travelled (Road sector), Missing	<p>Estimation based [Mode Share (MCC) X Total Travel Demand Estimate (VKM)] on Secondary data/ previous studies/reports</p> <ul style="list-style-type: none"> Expressway Development Master Plan Travel Demand Modelling Report (UNRA,2020) National Integrated Transport Master Plan (MoWT , 2021)
Data aggregated at a much higher level	Not used/eliminated
Decentralisation of data	Joint stakeholder consultation meetings
Bureaucracy in government processes	<p>Liaison/coordinating government body :</p> <ul style="list-style-type: none"> Climate Change Department (CCD) in the Ministry of Water and Environment & Environment Liaison Office, Ministry of Works and Transport

Transportation MRV Data Management

❑ RECOMMENDATIONS

- ✓ Mandatory periodic vehicle inspection
- ✓ Create a function for MRV in Transportation ministries with full mandate to collect this data + policy demanding transport operators / fuel import companies to remit relevant data (ref. EPDs) + training
- ✓ Traditional infrastructure-based data sources along major transport networks e.g., pneumatic loops, traffic surveillance
- ✓ Multi-sectoral transportation database (Open Source – within limit)
- ✓ Legislation supporting innovative ways for the continuous data collection on both passenger and freight vehicles
 - Mandatory capturing of vehicle mileage data whenever paying for annual third-party insurance
 - Vehicles individual identifiers that are captured/registered at every gas re-fill

An aerial photograph of a multi-lane highway bridge spanning across a body of turquoise water. The bridge has several lanes in each direction, with white lane markings. Several vehicles, including cars and trucks, are visible on the bridge. The word "Thankyou" is written in a white, sans-serif font across the center of the image, overlapping the bridge and the water.

Thankyou