User guide

TRACE

Transport sector climate action co-benefit evaluation tool

Developed with support from:

ICAT | INITIATIVE FOR Climate Action Transparency

trace

NEW CLIMATE INSTITUTE

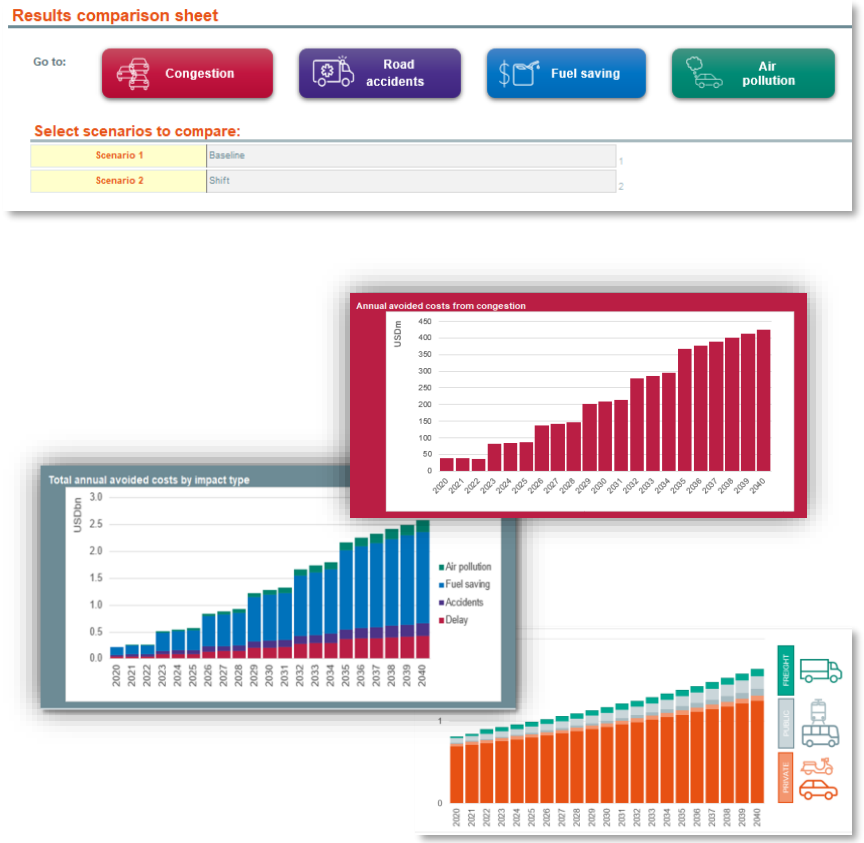
Introducing TRACE

TRACE assesses wider benefits of decarbonising urban transportation. Co-benefits and related cost reductions are often not taken into account in decision processes, likely because they are not easy to capture. TRACE enables a better understanding of these additional benefits, which can support a paradigm shift from ‘effort sharing’ the global burden of tackling climate change to a degree of ‘opportunity sharing’ the positive impacts of decarbonisation at a more local level.

TRACE quantifies and monetises key co-benefits of decarbonisation pathways for the urban transport sector. Rather than an in-depth analysis of the impacts, the tool signals key opportunities, highlights how they derive from climate action and points to where further assessment may be helpful to develop compelling policy instruments that can deliver ambitious climate action and provide important contributions to a range of sustainable development objectives. TRACE includes a dashboard to easily compare the impact assessment between emission reduction pathways, highlighting cost savings for key co-benefits between a “business-as-usual” scenario and decarbonisation scenarios.

We recommend using TRACE in addition to decarbonisation pathway modelling. TRACE does not model the transport sector pathways themselves, but complements existing tools by facilitating analysis of the broader impacts associated with such pathways.

This document provides a step-by-step guide to setting up and using the model.



Model overview

Purpose and features of the main sections of the model

GENERAL	Setup scenario names, define parameters
INPUTS	Insert data for each scenario (e.g. transport activity by mode, fuel consumption, road infrastructure, wage data or projected fatalities from road accidents). A sheet in this section is dedicated to input data from air pollution calculations, which are assessed separately with the AIRPOLIM-T.
CALCULATIONS	Quantification of impacts based on pathway-specific and impact-specific inputs for each scenario
RESULTS	The dashboard shows comparisons between scenarios. Results sheets per scenario, broken down by impact are also available.
ADMIN	Fixed inputs (including fuel conversion rates, valuation of mortality…).

IMPORTANT NOTE:
Yellow cells throughout the file are input cells where the user needs to include either text or data. Non-yellow shaded cells typically denote where formulas are used to perform calculations or link to other cells.

Opening the Excel file

The file opens on the cover sheet with information on the tool, an overview of sheets and a list of acronyms and transport types.

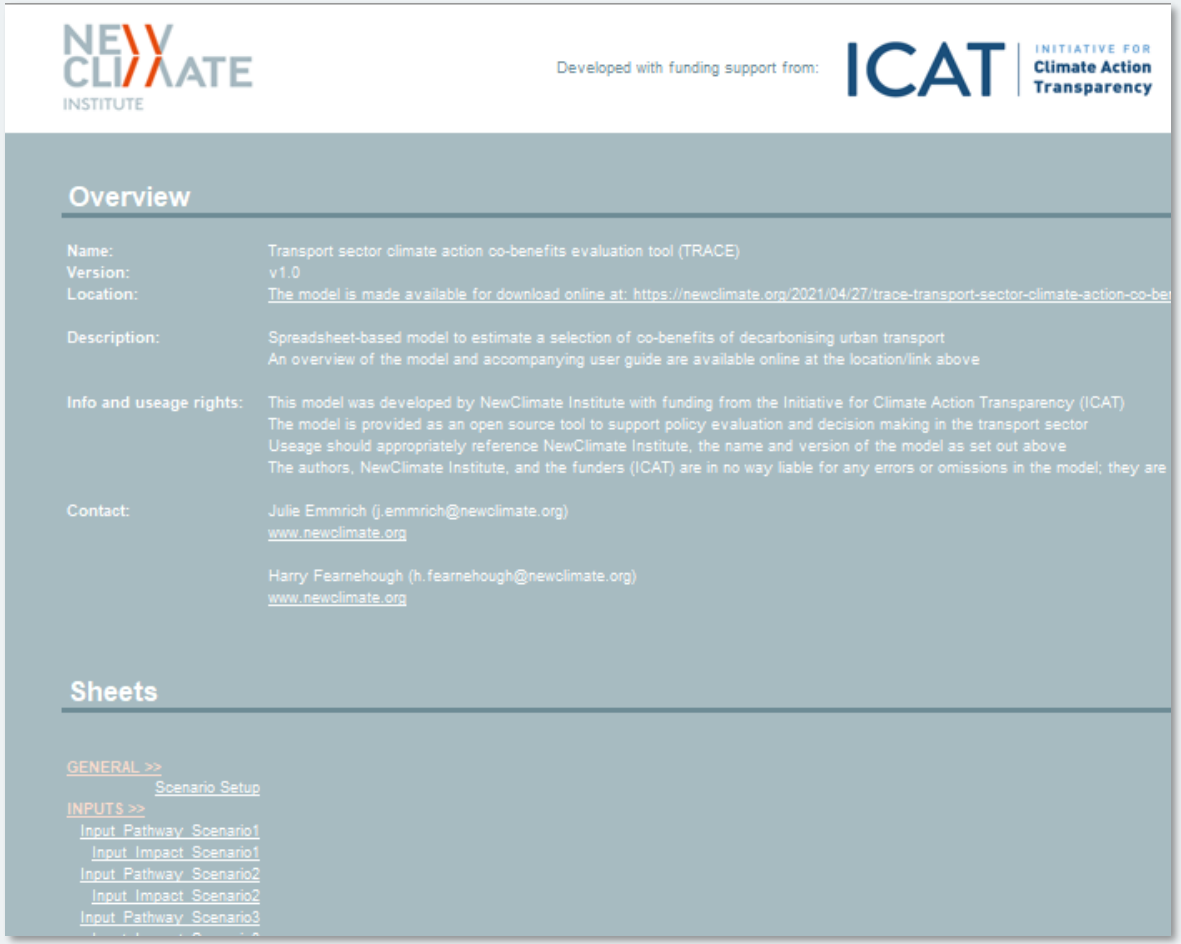
GENERAL > >

INPUTS > >

CALC > >

RESULTS > >

ADMIN > >



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Overview

Name:	Transport sector climate action co-benefits evaluation tool (TRACE)
Version:	v1.0
Location:	The model is made available for download online at: https://newclimate.org/2021/04/27/trace-transport-sector-climate-action-co-be
Description:	Spreadsheet-based model to estimate a selection of co-benefits of decarbonising urban transport An overview of the model and accompanying user guide are available online at the location/link above
Info and useage rights:	This model was developed by NewClimate Institute with funding from the Initiative for Climate Action Transparency (ICAT) The model is provided as an open source tool to support policy evaluation and decision making in the transport sector Useage should appropriately reference NewClimate Institute, the name and version of the model as set out above The authors, NewClimate Institute, and the funders (ICAT) are in no way liable for any errors or omissions in the model; they are
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Sheets

GENERAL >>
Scenario Setup
INPUTS >>
Input_Pathway_Scenario1
Input_Impact_Scenario1
Input_Pathway_Scenario2
Input_Impact_Scenario2
Input_Pathway_Scenario3

Transport types (and acronyms)

Transport type	Full name and/or explanation
Passenger transport	
Walking	Pedestrian activity, including walking and running
Cycling	Non-motorised and electric bicycles
LDV	Light-duty vehicles such as cars and small vans
2W	Two- and three-wheeled vehicles, such as scooters, motorcycles and motorised tricycles
Buses	Large buses that run on dedicated bus lanes
Light rail	Light rail, e.g. tramway
Freight transport	
HDV large	Heavy-duty vehicles, such as freight trucks and delivery trucks
HDV small	Heavy-duty vehicles, such as freight trucks and delivery trucks
Small cargo	Small delivery vehicles, including small delivery trucks, also in the form of three-wheeler

Setting up the tool

General set up of key parameters and scenarios

GENERAL > >

Scenario_Setup

INPUTS > >

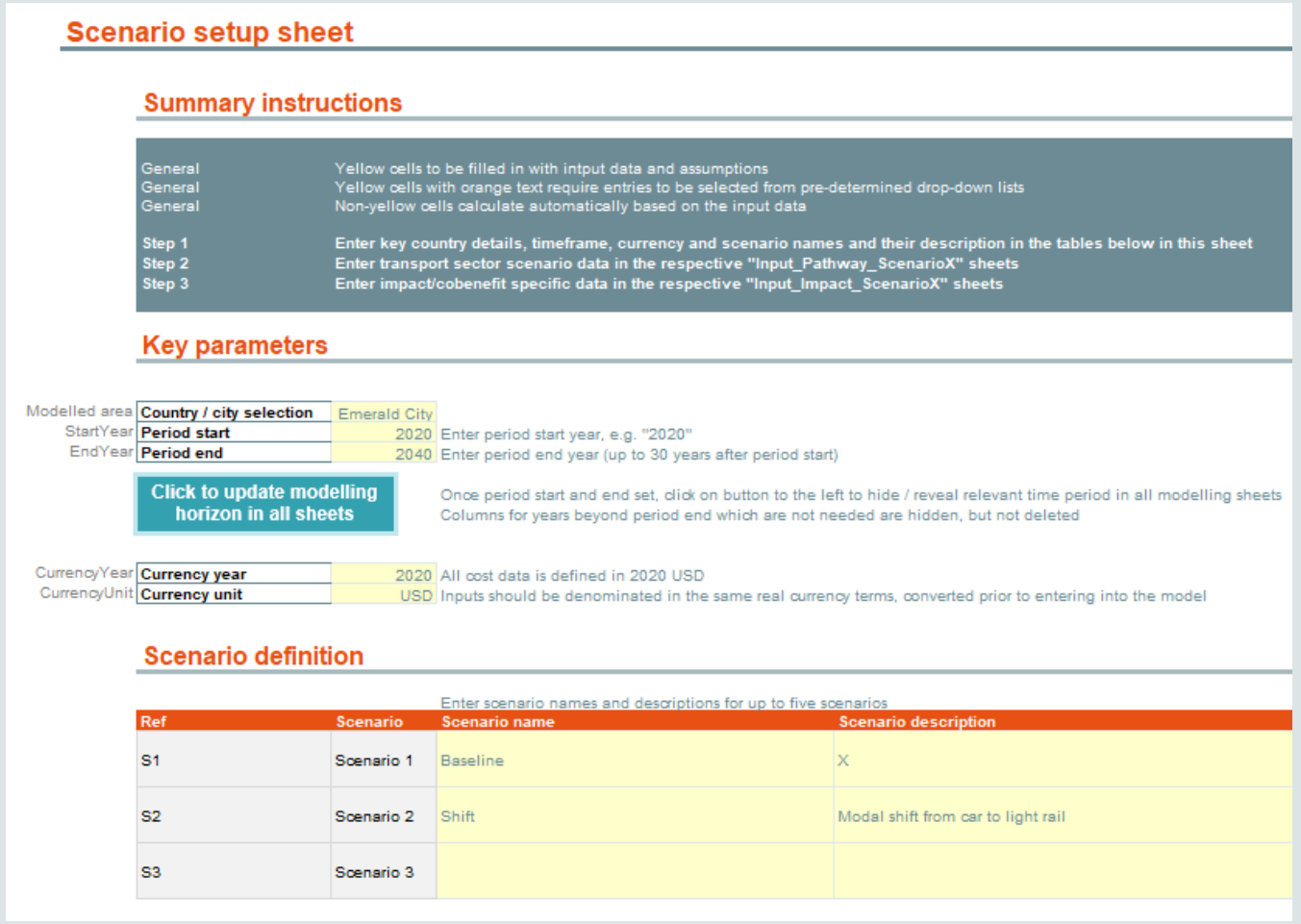
CALC > >

RESULTS > >

ADMIN > >

- Enter **key parameters** including name of modelled area, time period and currency denomination.
- After inserting the period start and end, click the box to update the modelling horizon in all sheets (hides / unhides columns as relevant)

- Enter **scenario names** and their description (the latter is optional).



Scenario setup sheet

Summary instructions

General	Yellow cells to be filled in with intput data and assumptions
General	Yellow cells with orange text require entries to be selected from pre-determined drop-down lists
General	Non-yellow cells calculate automatically based on the input data
Step 1	Enter key country details, timeframe, currency and scenario names and their description in the tables below in this sheet
Step 2	Enter transport sector scenario data in the respective "Input_Pathway_ScenarioX" sheets
Step 3	Enter impact/cobenefit specific data in the respective "Input_Impact_ScenarioX" sheets

Key parameters

Modelled area	Country / city selection	Emerald City	
StartYear	Period start	2020	Enter period start year, e.g. "2020"
EndYear	Period end	2040	Enter period end year (up to 30 years after period start)

Click to update modelling horizon in all sheets

Once period start and end set, click on button to the left to hide / reveal relevant time period in all modelling sheets
Columns for years beyond period end which are not needed are hidden, but not deleted

CurrencyYear	Currency year	2020	All cost data is defined in 2020 USD
CurrencyUnit	Currency unit	USD	Inputs should be denominated in the same real currency terms, converted prior to entering into the model

Scenario definition

Enter scenario names and descriptions for up to five scenarios

Ref	Scenario	Scenario name	Scenario description
S1	Scenario 1	Baseline	X
S2	Scenario 2	Shift	Modal shift from car to light rail
S3	Scenario 3		

Setting up the tool

Data inputs

GENERAL > >

INPUTS > >

CALC > >

RESULTS > >

ADMIN > >

Input_Pathway_Scenario1

Input_Impact_Scenario1

Input_Pathway_Scenario2

Input_Impact_Scenario2

Input_Pathway_Scenario3

Input_Impact_Scenario3

Input_AIRPOLIM-T

- Insert annual data for each of the emissions pathway scenarios for the selected time period.

- First, insert **population and GDP** projections for the selected time period.
- Insert **transport activity** (total person kilometres travelled by transport mode) for transport modes, by vehicle and fuel type (e.g. gasoline light-duty vehicles).

- Insert annual **vehicle occupancy** rates by transport mode (freight transport vehicles are assumed to have one driver), **load factor** for freight vehicles and the **average distance travelled** by vehicle type.

Transport sector pathways

Use this sheet to input general data on the urban transport sector pathway for the scenario
The scenario data in this sheet is used across the calculations for different impact types

General input data		Unit	2020	2021	2022
Population	Population	k people	10,000	10,200	10,404
GDP	GDP	USDk	50,000,000	52,500,000	55,125,000
GDP / capita	GDP / capita	USD /capita	5,000	5,147	5,298

Transport activity by transport mode and fuel type				Unit	2020	2021	2022
Activity	Walking		ActivityWalking	pkm			
Activity	Cycling		ActivityCycling	pkm			
Activity	LDV	Electricity	ActivityLDVElectricity	pkm			
Activity	LDV	Diesel	ActivityLDVDiesel	pkm			
Activity	LDV	Gasoline	ActivityLDVGasoline	pkm	100,000,000,000	103,000,000,000	106,090,000,000
Activity	LDV	CNG-LPG	ActivityLDVCNG-LPG	pkm			
Activity	2W	Electricity	Activity2WElectricity	pkm			
Activity	2W	Diesel	Activity2WDiesel	pkm			
Activity	2W	Gasoline	Activity2WGasoline	pkm	5,000,000,000	5,150,000,000	5,304,500,000
Activity	2W	CNG-LPG	Activity2WCNG-LPG	pkm			
Activity	Bus	Electricity	ActivityBusElectricity	pkm			
Activity	Bus	Diesel	ActivityBusDiesel	pkm	2,000,000,000	2,200,000,000	2,420,000,000
Activity	Bus	Gasoline	ActivityBusGasoline	pkm	2,000,000,000	2,200,000,000	2,420,000,000
Activity	Bus	CNG-LPG	ActivityBusCNG-LPG	pkm			
Activity	Light rail	Electricity	ctivityLight railElectricity	pkm	20,000,000,000	21,000,000,000	22,050,000,000
Activity	Light rail	Diesel	ActivityLight railDiesel	pkm			
Activity	Light rail	Gasoline	ctivityLight railGasoline	pkm			
Activity	Light rail	CNG-LPG	ctivityLight railCNG-LPG	pkm			
Activity	HDV large	Electricity	ivityHDV largeElectricity	tkm			
Activity	HDV large	Diesel	ActivityHDV largeDiesel	tkm	1,000,000,000	1,050,000,000	1,102,500,000
Activity	HDV large	Gasoline	tivityHDV largeGasoline	tkm			

Vehicle occupancy			Unit	2020	2021	2022
Occupancy	LDV	OccupancyLDV	person/vehicle	1.8	1.8	1.8
Occupancy	2W	Occupancy2W	person/vehicle	1.2	1.2	1.2
Occupancy	Bus	OccupancyBus	person/vehicle	50.0	50.0	50.0
Occupancy	Light rail	OccupancyLight rail	person/vehicle	100.0	100.0	100.0
Occupancy	HDV large	OccupancyHDV large	person/vehicle	1.0	1.0	1.0
Occupancy	HDV small	OccupancyHDV small	person/vehicle	1.0	1.0	1.0
Occupancy	Small cargo	OccupancySmall cargo	person/vehicle	1.0	1.0	1.0

Load factor			Unit	2020	2021	2022
Load	HDV large	LoadHDV large	tonne/vehicle	10.0	10.0	10.0
Load	HDV small	LoadHDV small	tonne/vehicle	1.0	1.0	1.0
Load	Small cargo	LoadSmall cargo	tonne/vehicle	0.2	0.2	0.2

Average annual distance travelled			Unit	2020	2021	2022
Distance	LDV	DistanceLDV	vkm	15,000	15,000	15,000
Distance	2W	Distance2W	vkm	8,000	8,000	8,000
Distance	Bus	DistanceBus	vkm	40,000	40,000	40,000
Distance	Light rail	DistanceLight rail	vkm	30,000	30,000	30,000
Distance	HDV large	DistanceHDV large	vkm			
Distance	HDV small	DistanceHDV small	vkm			
Distance	Small cargo	DistanceSmall cargo	vkm			

Setting up the tool

Data inputs

- GENERAL > >
- INPUTS > >
- CALC > >
- RESULTS > >
- ADMIN > >

- Input_Pathway_Scenario1
- Input_Impact_Scenario1
- Input_Pathway_Scenario2
- Input_Impact_Scenario2
- Input_Pathway_Scenario3
- Input_Impact_Scenario3
- Input_AIRPOLIM-T

- Each impact assessment requires additional data, such as road infrastructure, income data, projected fatalities from road accidents, or cost of fuel.
- The input sheet is split by impact type. To easily navigate the sheet between the sections **click the impact type** at the top of the sheet to get to the relevant input section and on **return to top of page** to return.

Setting up the tool

Data inputs

GENERAL > >

INPUTS > >

CALC > >

RESULTS > >

ADMIN > >

Input_Pathway_Scenario1

Input_Impact_Scenario1

Input_Pathway_Scenario2

Input_Impact_Scenario2

Input_Pathway_Scenario3

Input_Impact_Scenario3

Input_AIRPOLIM-T

- Note that the setup of the **Input_Impact_Scenario1** sheet is slightly different than for alternative scenarios.
- Insert the **length of mixed traffic roads** (a standard road used by transport modes such as cars, trucks, buses, bicycles) for the modelled urban area (multiply by the average number of lanes if relevant).
- The tool estimates congestion indicators based on scenario data entered in the **Input_Pathway_Scenario1** sheet and derives an **average speed travelled in congested state** which is applied to “mixed traffic roads”.

- Choose the **transit type by transport mode.**
- Enter the average **travel speed by transit type** below. The estimated travel speed for mixed traffic rows can be overwritten if alternative data exists.

Urban road infrastructure

Road length	Unit	2020
Mixed traffic roads	km	50,000

Travel speed of transport modes

Travel speed in congested state		Unit	2020	
Transport activity by cars	ActivityLDV	pkm	100,000,000,000	
Vehicle fleet	LDV	vehicles	3,703,704	
GDP / capita		USD	5,000	
Average km driven per vehicle		thousand km/vehic	15.00	
Average road length per vehicle		m/vehicle	13.50	
Average vehicle per urban dweller		vehicle/urban dwe	0.37	
Average delay per vehicle kilometer		h/vehicle-km	0.0058	Calculation based on
Average speed travelled in congested state		km/h	42.76	Estimated average spee

Transport mode	Transit type
LDV	Mixed traffic roads
2W	Mixed traffic roads
Bus	Dedicated bus lane
Light rail	Light rail
HDV large	Mixed traffic roads
HDV small	Mixed traffic roads
Small cargo	Mixed traffic roads

Travel speed by transit type	Unit	2020	2021
Free-flow traffic	km/h	57.00	57.00
Mixed traffic roads	km/h	42.76	42.76
Dedicated bus lane	km/h	50.00	50.00
Light rail	km/h	50.00	50.00
Rail	km/h		-
Other	km/h		-

Setting up the tool

Data inputs

GENERAL > >

INPUTS > >

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RESULTS > >

ADMIN > >

Input_Pathway_Scenario1

Input_Impact_Scenario1

Input_Pathway_Scenario2

Input_Impact_Scenario2

Input_Pathway_Scenario3

Input_Impact_Scenario3

Input_AIRPOLIM-T

- Road length data and Travel speed by transit type are taken from the **Input_Pathway_Scenario1** sheet.

- **Choose the transit type by transport mode**, which may be different than in scenario 1.

Urban road infrastructure

Road length	Unit	2020
Mixed traffic roads	km	50,000

Travel speed of transport modes

Rows left empty on purpose (to align with Scenario 1 sheet)

Transport mode	Transit type
LDV	Mixed traffic roads
2W	Mixed traffic roads
Bus	Dedicated bus lane
Light rail	Light rail
HDV large	Mixed traffic roads
HDV small	Mixed traffic roads
Small cargo	Mixed traffic roads

Travel speed by transit type	Unit	2020	2021
Free-flow traffic	km/h	57.00	57.00
Mixed traffic roads	km/h	42.76	42.76
Dedicated bus lane	km/h	50.00	50.00
Light rail	km/h	50.00	50.00
Rail	km/h	-	-
Other	km/h	-	-

Setting up the tool

Data inputs

GENERAL > >

INPUTS > >

CALC > >

RESULTS > >

ADMIN > >

Input_Pathway_Scenario1

Input_Impact_Scenario1

Input_Pathway_Scenario2

Input_Impact_Scenario2

Input_Pathway_Scenario3

Input_Impact_Scenario3

Input_AIRPOLIM-T

- Insert income-related data to derive the cost of congestion; fatalities by transport mode to monetise road accidents; and fuel consumption by transport mode and fuel type for each scenario.

Income data

Income metrics		Unit	2020	2021	2022	2023	2024	2025	2026	2027
Average workdays per month		days	22	22	22	22	22	22	22	22
Average hours worked per day		h	8	8	8	8	8	8	8	8
Annual salary	Car driver	USD	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Annual salary	2&3 W driver	USD	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Hourly salary	Public transport user	USD	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Hourly salary	Freight vehicle driver	USD	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Hourly salary	LDV	USD	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
Hourly salary	2W	USD	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
Hourly salary	Bus	USD	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
Hourly salary	Light rail	USD	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
Hourly salary	HDV large	USD	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
Hourly salary	HDV small	USD	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
Hourly salary	Small cargo	USD	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37

Impact type: Road accidents

Return to top of page

Number of fatalities	Unit	2020	2021	2022	2023	2024	2025	2026	2027
Walking	k								
Cycling	k								
LDV	k								
2W	k								
Bus	k								
Total	k	-	-	-	-	-	-	-	-

Impact type: Fuel saving

Return to top of page

LDE refers to litres of diesel equivalent fuel

Fuel consumption by vehicle and fuel type			Unit	2020	2021	2022	2023	2024	2025	2026	2027
LDV	Electricity	LDV_Electric	LDE m								
LDV	Diesel	LDV_Diesel	LDE m								
LDV	Gasoline	LDV_Gasolir	LDE m	4,500	4,635	4,774	4,917	5,065	5,217	5,373	5,534

Setting up the tool

Data inputs

- GENERAL > >
- INPUTS > >
- CALC > >
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- ADMIN > >

- Input_Pathway_Scenario1
- Input_Impact_Scenario1
- Input_Pathway_Scenario2
- Input_Impact_Scenario2
- Input_Pathway_Scenario3
- Input_Impact_Scenario3
- Input_AIRPOLIM-T

- Assessing air pollution health impacts is performed separately with the AIRPOLIM-T tool.
- The sheet “Input_AIRPOLIM-T” can be used to **integrate AIRPOLIM-T results directly into TRACE**. Analysis in AIRPOLIM-T should reflect the same scenarios as those included in TRACE to ensure consistency.

AIRPOLIM-T results

AIRPOLIM-T is a separate, standalone model that estimates health impacts from urban transport air pollutants
Results of analysis conducted in AIRPOLIM-T (for the same scenarios) is entered here and aggregated / compared to indicators for other impact types

Scenario 1

Impact type	Unit	2020	2021	2022	2023	2024	2025	2026	20
Premature deaths	number of deaths								
Years of life lost	total years								
Health impact costs	USDk	-	-	-	-	-	-	-	

Scenario 2

Impact type	Unit	2020	2021	2022	2023	2024	2025	2026	20
Premature deaths	number of deaths								
Years of life lost	total years								
Health impact costs	USDk	-	-	-	-	-	-	-	

Scenario 3

Impact type	Unit	2020	2021	2022	2023	2024	2025	2026	20
Premature deaths	number of deaths								
Years of life lost	total years								
Health impact costs	USDk	-	-	-	-	-	-	-	

Understanding the underlying calculations

Calculation sheets

- All calculations are automated based on the input sheets, as well as fixed data included in the admin sheet.
- All of the steps and calculations are available to review in the calculation sheets for each scenario for full transparency.
- **Click the impact buttons** to get to the dedicated section and hit return to top of page to return.

GENERAL > >

INPUTS > >

CALC > >

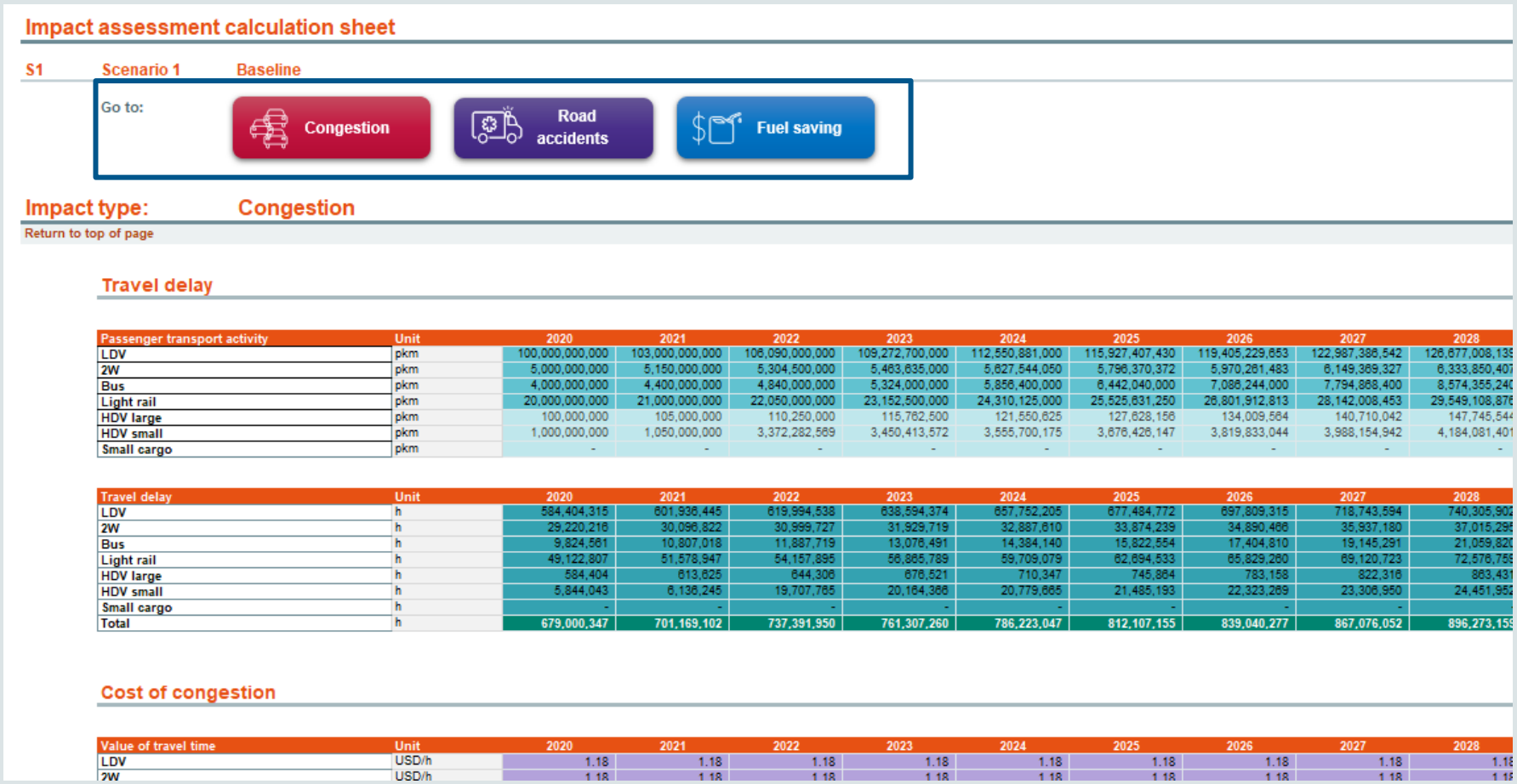
RESULTS > >

ADMIN > >

Calculation_Scenario1

Calculation_Scenario2

Calculation_Scenario3



Impact assessment calculation sheet

S1 Scenario 1 Baseline

Go to: Congestion | Road accidents | Fuel saving

Impact type: Congestion

Return to top of page

Travel delay

Passenger transport activity	Unit	2020	2021	2022	2023	2024	2025	2026	2027	2028
LDV	pkm	100,000,000,000	103,000,000,000	106,090,000,000	109,272,700,000	112,550,881,000	115,927,407,430	119,405,229,653	122,987,386,542	126,677,008,139
2W	pkm	5,000,000,000	5,150,000,000	5,304,500,000	5,463,635,000	5,627,544,050	5,796,370,372	5,970,261,483	6,149,369,327	6,333,850,407
Bus	pkm	4,000,000,000	4,400,000,000	4,840,000,000	5,324,000,000	5,856,400,000	6,442,040,000	7,086,244,000	7,794,868,400	8,574,355,240
Light rail	pkm	20,000,000,000	21,000,000,000	22,050,000,000	23,152,500,000	24,310,125,000	25,525,631,250	26,801,912,813	28,142,008,453	29,549,108,876
HDV large	pkm	100,000,000	105,000,000	110,250,000	115,762,500	121,550,625	127,628,156	134,009,564	140,710,042	147,745,544
HDV small	pkm	1,000,000,000	1,050,000,000	3,372,282,569	3,450,413,572	3,555,700,175	3,676,426,147	3,819,833,044	3,988,154,942	4,184,081,401
Small cargo	pkm	-	-	-	-	-	-	-	-	-

Travel delay	Unit	2020	2021	2022	2023	2024	2025	2026	2027	2028
LDV	h	584,404,315	601,936,445	619,994,538	638,594,374	657,752,205	677,484,772	697,809,315	718,743,594	740,305,902
2W	h	29,220,216	30,096,822	30,999,727	31,929,719	32,887,610	33,874,239	34,890,466	35,937,180	37,015,295
Bus	h	9,824,561	10,807,018	11,887,719	13,076,491	14,384,140	15,822,554	17,404,810	19,145,291	21,059,820
Light rail	h	49,122,807	51,578,947	54,157,895	56,865,789	59,709,079	62,694,533	65,829,260	69,120,723	72,576,759
HDV large	h	584,404	613,625	644,306	676,521	710,347	745,864	783,158	822,316	863,431
HDV small	h	5,844,043	6,136,245	19,707,765	20,164,366	20,779,665	21,485,193	22,323,269	23,306,950	24,451,952
Small cargo	h	-	-	-	-	-	-	-	-	-
Total	h	679,000,347	701,169,102	737,391,950	761,307,260	786,223,047	812,107,155	839,040,277	867,076,052	896,273,159

Cost of congestion

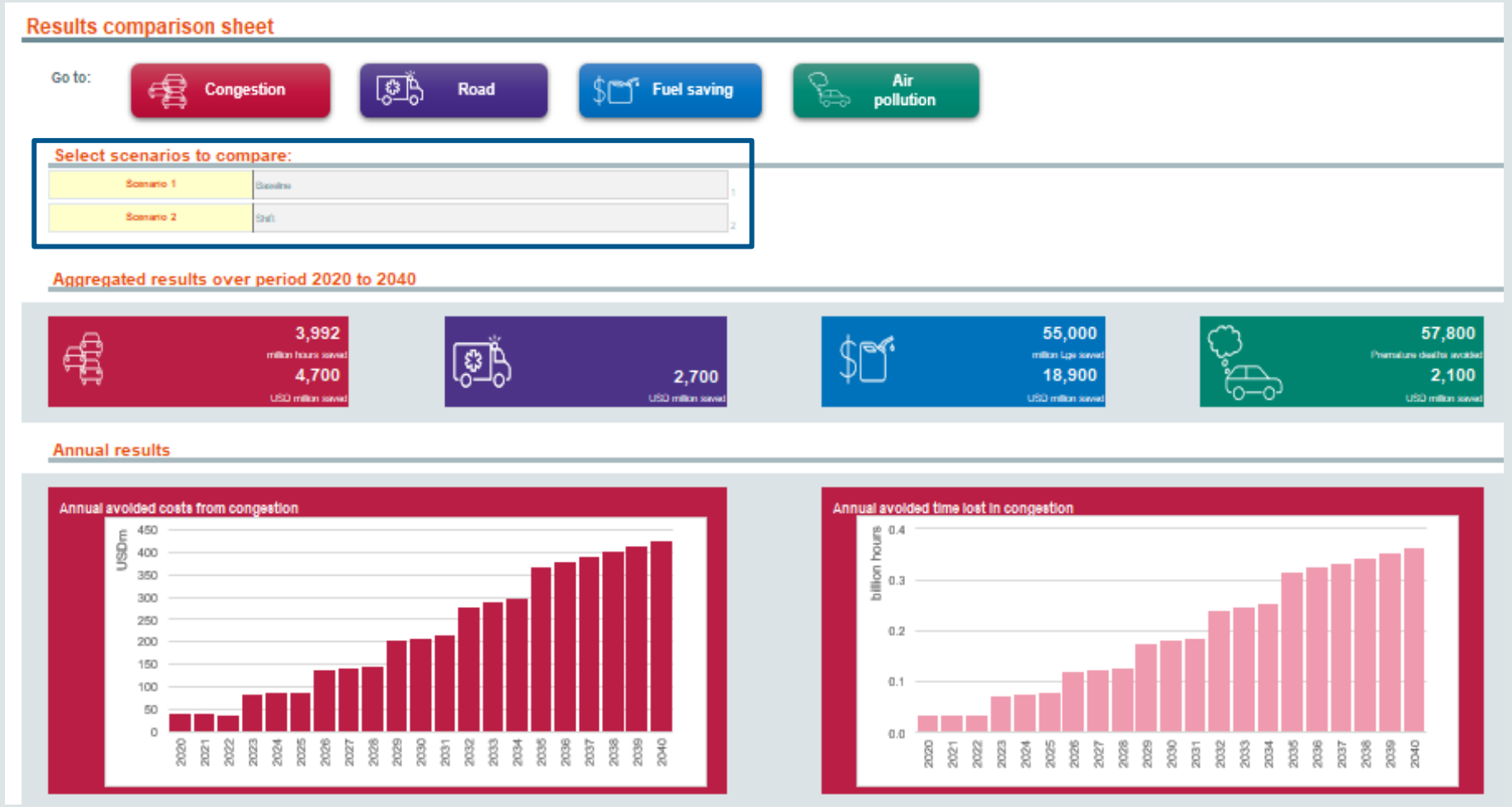
Value of travel time	Unit	2020	2021	2022	2023	2024	2025	2026	2027	2028
LDV	USD/h	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18
2W	USD/h	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18

TRACE dashboard

Results comparison sheet

- GENERAL > >
- INPUTS > >
- CALC > >
- RESULTS > >
  - DASHBOARD_Results
  - Results_Scenario1
  - Results_Scenari2
  - Results_Scenario3
- ADMIN > >

- **Select two scenarios** at the top left of the dashboard. The dashboard then provides a comparison between these two.



TRACE dashboard

Results comparison sheet

- The **impact assessment** from one scenario compared to another is aggregated per impact type over the modelled time period.

GENERAL > >

INPUTS > >

CALC > >

RESULTS > >

ADMIN > >

DASHBOARD_Results

Results_Scenario1

Results_Scenari2

Results_Scenario3

TRACE dashboard

Results comparison sheet

GENERAL > >

INPUTS > >

CALC > >

RESULTS > >

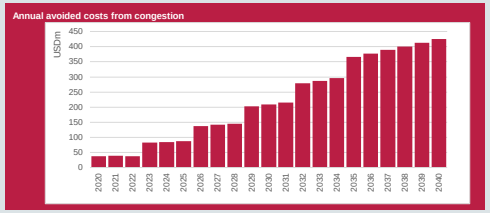
ADMIN > >

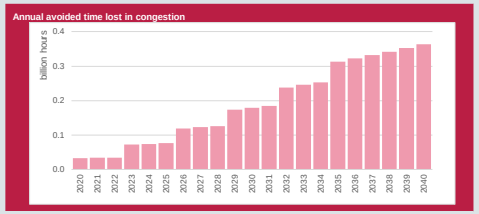
DASHBOARD_Results

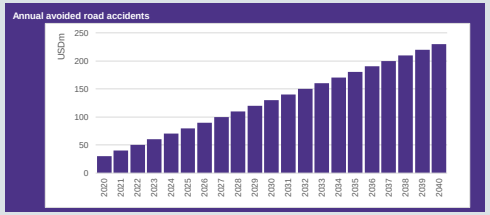
Results_Scenario1

Results_Scenari2

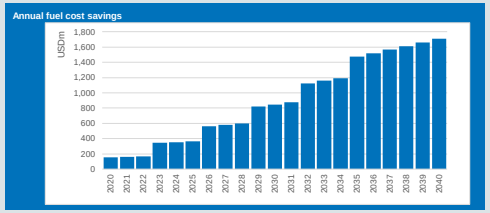
Results_Scenario3

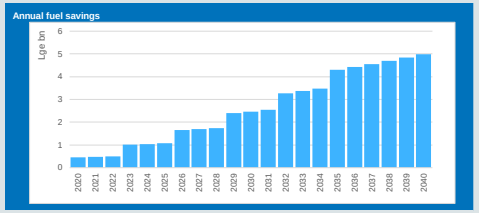


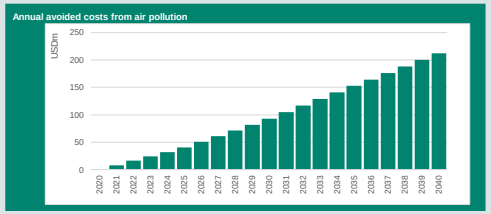


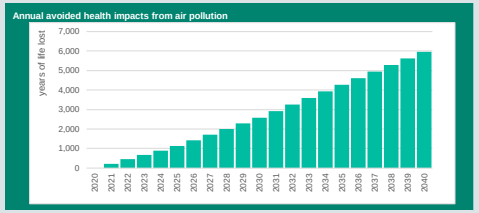


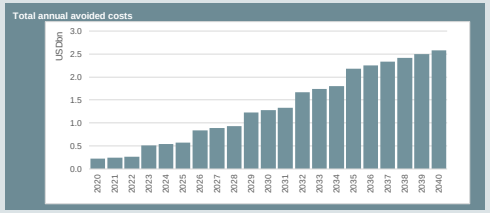
Left empty on purpose

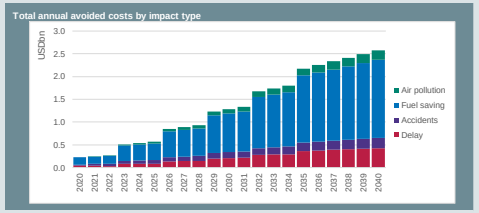












- The dashboard includes **visualisations** of annual total cost savings and cost savings per impact type.

- Road accidents are a direct input and therefore only the associated costs are displayed in the dashboard.

- The dashboard includes aggregated results at the bottom of the set of graphic visualisations.

Impact assessment

Results sheets

GENERAL > >

INPUTS > >

CALC > >

RESULTS > >

ADMIN > >

DASHBOARD_Results

Results_Scenario1

Results_Scenari2

Results_Scenario3

- In the “Results” section you can find the impact assessment for each scenario by impact type.

Results sheet

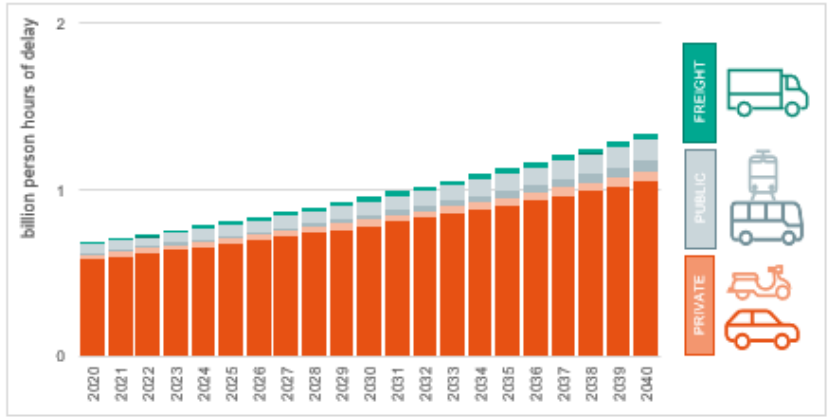
S1 Scenario 1 Baseline

Go to: Congestion | Road accidents | Fuel saving | Air pollution

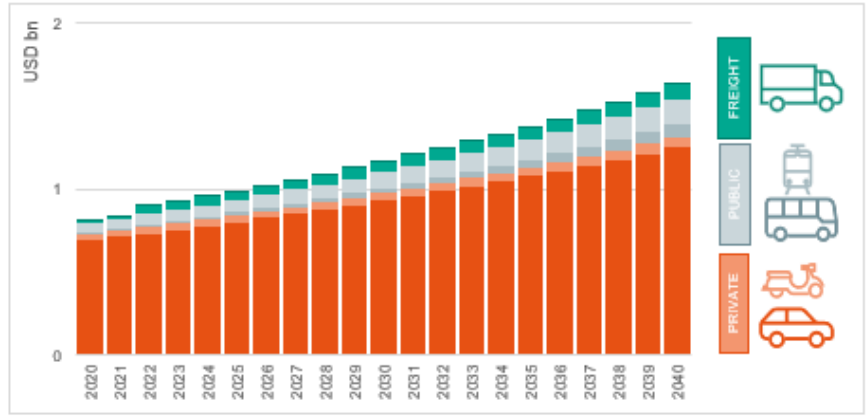
Impact type: Congestion

Return to top of page

Time lost to congestion for all modelled urban areas



Economic losses from time lost to congestion for all modelled urban areas



Delay results tables

Time lost to congestion

Annual delay by vehicle type			Unit	2020	2021	2022	2023	2024	2025	2026	2027	2028
Delay	LDV	Delay LDV	h	584,404,315	601,936,445	619,994,538	638,594,374	657,752,205	677,484,772	697,809,315	718,743,594	740,305,902

Background data

Admin sheet

- The admin sheet includes lists and default data for impact assessment calculations. Default data is organised by impact assessment type.

GENERAL > >

INPUTS > >

CALC > >

RESULTS > >

ADMIN > >

Lists

ImpactMatrix_List

List of impact strength
None / limited
High impact
Medium impact
Low impact
Unknown

Impacts_list

List of impact types
Congestion
Accidents
Fuel cost
Physical health
Air pollution

Coefficients, conversion factors and other inputs

Congestion

Congestion coefficients	
Coefficient: GDP/capita	0.37
Coefficient: km driven per vehicle	1.68
Coefficient: road length per vehicle	-0.13
Coefficient: vehicle per urban dweller	-0.97
Coefficient: GDP/capita^2	-0.01
Coefficient: km driven per vehicle^2	-0.49
Coefficient: road length per vehicle^2	-0.09
Coefficient: vehicle per urban dweller^2	-0.08
Constant	-8.28

Source: Author's calculations

Road accidents

Costs of fatalities	Unit	2020
Value of mortality risk	USD	170,000

Type of collision and related internal and external cost ratios			Unit		Parry, Hei
Share of single-vehicle collision			%	43%	
Share of multivehicle collision			%	57%	
Internal risk	Single-vehicle collision		%	100%	
External risk	Walking		%	100%	
External risk	Cycling		%	100%	
External risk	Single-vehicle collision		%	0%	
Internal risk	Multivehicle collisio	LDV	%	75%	
Internal risk		2W	%	75%	
Internal risk		Bus	%	75%	
External risk	Multivehicle collisio	LDV	%	25%	
External risk		2W	%	25%	
External risk		Bus	%	25%	

Share of "other costs" based on external costs			Parry, Heine, Lis, Li, Getting energy prices ri
Nonfatal injuries	%	38%	
Medical costs	%	20%	
Property damage cost	%	42%	

Ratio of external cost		
Nonfatal injuries	%	15%
Medical costs	%	85%
Property damage cost	%	50%

Fuel saving

Fuel conversion rates from litre of x fuel to litre of gasoline					
Electricity	1.00	kWh	0.11	Lge	https://ww
Diesel	1.00	L	0.87	Lge	https://ww
Gasoline	1.00	L	1.00	Lge	
Biofuel	1.00	L	1.05	Lge	https://afc
CNG-LPG	1.00	L	0.24	Lge	

QUESTIONS / COMMENTS / FEEDBACK

NEW CLIMATE INSTITUTE

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