OVERVIEW OF BEST PRACTICES IN DECARBONISING FREIGHT TRANSPORT

Stakeholder Consultation Workshop

27 April 2022

Maya ter Laag, Transport Modeller/Policy Analyst, ITF

SIPA
Sustainable Infrastructure Programme in Asia

On behalf of:

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

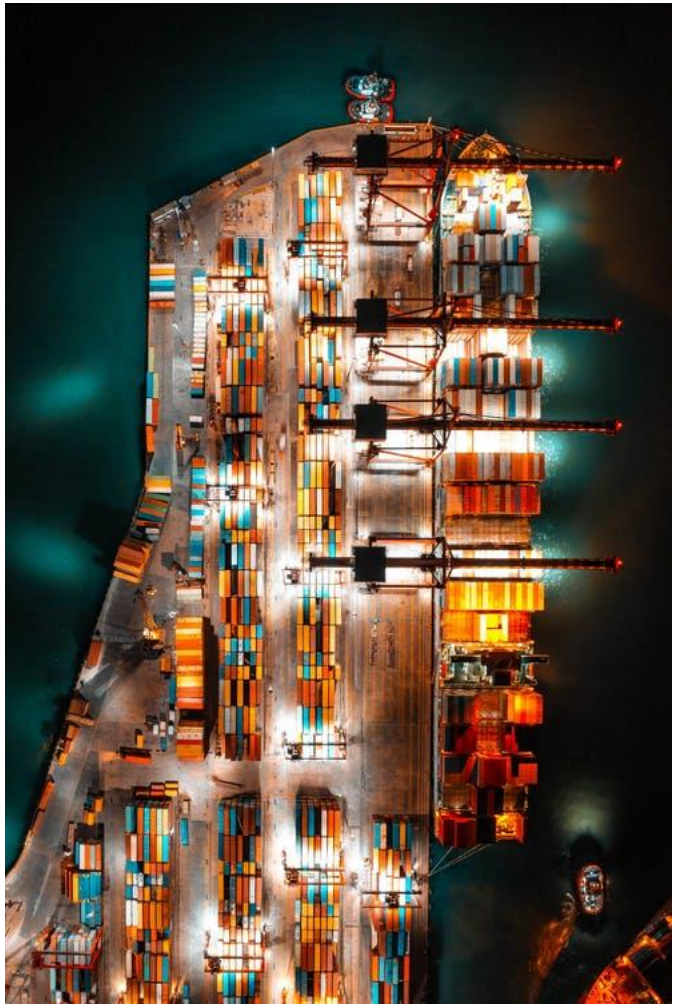
of the Federal Republic of Germany

IKI INTERNATIONAL CLIMATE INITIATIVE

International Transport Forum

CO_2 impacts of freight transport

- Freight transport keeps the global economy moving
- In 2019, freight was responsible for 42% of all transport emissions
- The Covid-19 pandemic showed that while passenger transport may fall, freight transport will remain essential
- Without policy interventions, freight emissions will rise with 22% from 2015 to 2050
- Ambitious action is needed!



Action is needed – but how?

ITF Transport Outlook 2021:

- Design stimulus packages that align to support economic recovery, freight decarbonisation and supply chain resilience
- Align price incentives with freight decarbonisation ambitions for carrier buy-in
- Scale-up ready-to-adopt freight decarbonisation measures quickly to cut costs and emissions
- Strengthen international co-operation to combat freight emissions
- Accelerate standardisation procedures to speed up the adoption of new clean technologies
- Tailor decarbonisation pathways to regional realities to address gaps in standard solutions
- Broaden access to privately owned data to improve policy design

Areas of national decarbonising actions

- Ensure sustainable outcomes with **appropriate regulation and standards**
- Incentivise cleaner alternatives with **financial instruments**
- Explore the benefits of **innovation**
- Create a **shift to cleaner modes**
- Transition to **alternative fuels and electrification**
- **Private sector** initiatives

Ensure sustainable outcomes with appropriate regulation and standards

- Ensure **sustainable strategic planning**
  - Green public procurement in shipping
  - Life-cycle evaluation of low-carbon shipping fuels
  - Sustainable finance regulations
  - Financial instruments to support decarbonisation
- Low- and zero-emission vehicle mandates
- Internal combustion engine and diesel bans

- **Impact** (Dublin)
  - Diesel vehicle ban: 370 k tonnes CO_2 reduction potential

ITF (2021), Transport Climate Action Directory

Ensure sustainable outcomes with appropriate regulation and standards

- Strive for **sustainability in the maritime sector**
  - Regulate short-lived pollutants in maritime transport
  - National action plans for maritime transport
  - Vessel scrappage and retrofit schemes

- **Impact**
  - Black carbon reduction up to 80% reduction, 26% for methane
  - Bulbous bow: 3-7% fuel savings on large cargo carriers
  - Coatings: 1-4% engine fuel savings
  - Propeller upgrades and other propulsion improving devices: 1-25% CO_2 reduction

ITF (2021), Transport Climate Action Directory,
ITF (2018) Decarbonising Maritime Transport - Pathways to zero-carbon shipping by 2035

Ensure sustainable outcomes with appropriate regulation and standards

- Provide **standards and certification**
  - Vehicle efficiency
  - Vehicle weight
  - Fuel, based on carbon intensity
- Use **environmental labelling** (voluntary or mandatory)
  - Vessels
  - Vehicles and fuels
  - Impact depends strongly on national implementation and synergies with fiscal measures

- **Impact** of environmental labelling (EVDI):
  - 20% of tonnage shifted away from poorly rated (F or G) ships
  - 5-9% emissions savings

ITF (2021), Transport Climate Action Directory

Financially incentivise cleaner alternatives

- There are a range of **financial options to incentivise the use of cleaner alternatives**:
  - Carbon tax for road vehicles
  - Road charging and tolls
  - Abolish fossil fuel tax exemptions for maritime transport
  - Environmentally differentiated port pricing, e.g. using ESI
  - Aviation fuel tax

- **Impact of carbon tax for road vehicles** (Sweden):
  - 6.2% CO_2 reduction with a carbon tax increasing from USD 30 per tonne of CO_2 in 1991 to USD 132 in 2015
- **Impact of aviation fuel tax**:
  - Carbon tax of USD 200 per tonne of CO_2 could reduce aviation emissions by 8%

ITF (2021), Transport Climate Action Directory

Explore the benefits of innovation

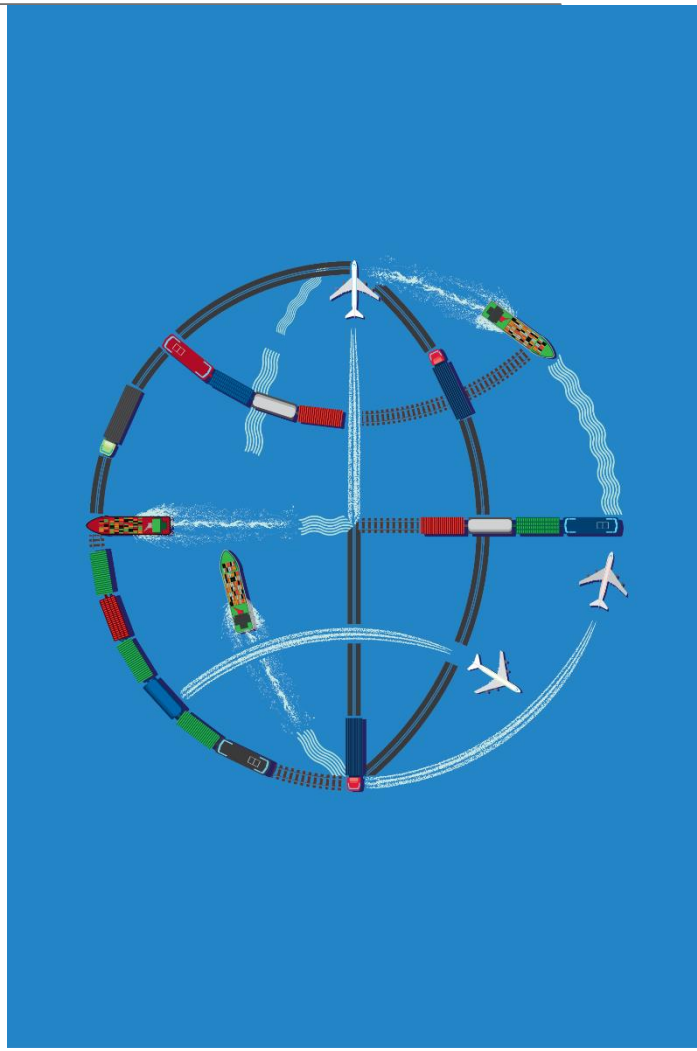
- Smooth driving: from eco-driving to automated vehicles
- Intelligent Transport Systems
- Capacity increases in rail by automation and digitalisation
- Asset sharing and digital platforms

- **Impact**:
  - ITF study to be published (June, 2022): digital transformation could lead to 22% lower CO_2 emissions in 2050
  - Pooling of freight resources in the United Kingdom showed reductions up to 40%

ITF (2021), Transport Climate Action Directory

Create a shift to cleaner modes

- Create a shift towards cleaner modes
  - Promotion of **inland waterways**
  - Enhanced and expanded rail for freight
  - Improve multimodal freight **interfaces**
  - Make **road more sustainable** with high capacity vehicles
- **Impact**
  - Netherlands: shift of 2.8% from road to inland waterways: 43% CO_2 reduction for distances of 100-300 km, up to 80% for distances of 300-500 km
  - Trains are 8 times more energy-efficient than trucks, resulting in 10 times lower emissions per tonne-kilometre
  - Operational improvements: emission reduction can be as high as 50%
  - Barcelona: TEUs moved by rail increased by factor 6 after adopting a rail-oriented strategy to develop its hinterland



ITF (2021), Transport Climate Action Directory

Transition to alternative fuels and electrification

- Electrification of the transport system
  - Infrastructure
  - Support on-shore power and electric charging facilities in ports
  - Setting standards and targets for promoting charging infrastructure

- Support and accelerate low-carbon fuel infrastructure
  - Support bunkering infrastructure for alternative fuels
  - Procurement of alternatively-powered rolling stock (hydrogen or battery)
  - Fuel blending mandate

- **Impact** (United Kingdom):
  - Hydrogen powered train and hydrogen hybrid train led to CO_2 decreases of 59% and 77%, compared to diesel propulsion
  - Europe: potential CO_2 mitigation of hydrogen powered trains around 40%

ITF (2021), Transport Climate Action Directory

Private sector initiatives

- Voluntary programmes to reduce emissions in logistics
  - To increase logistic efficiency, reduce emissions
  - Main players are private companies
  - Sharing best practices, uniform tracking and accounting of fuel consumption and emissions, increasing efficiency
  - Foster adoption of specific measures
  - Benefits: increased efficiency and public recognition
- Impact on CO_2 emissions depends on the agreed measures
- Costs:
  - Low, administrative costs
  - Non-monetary rewards

ITF (2021), Transport Climate Action Directory

Transport Climate Action Directory

Catalogue of CO_2 mitigation measures

Transport Climate Action Directory

https://www.itf-oecd.org/tcad

"The International Transport Forum's TRANSPORT CLIMATE ACTION DIRECTORY is a key tool for moving from ambition to climate action - our most urgent challenge in climate policy today.

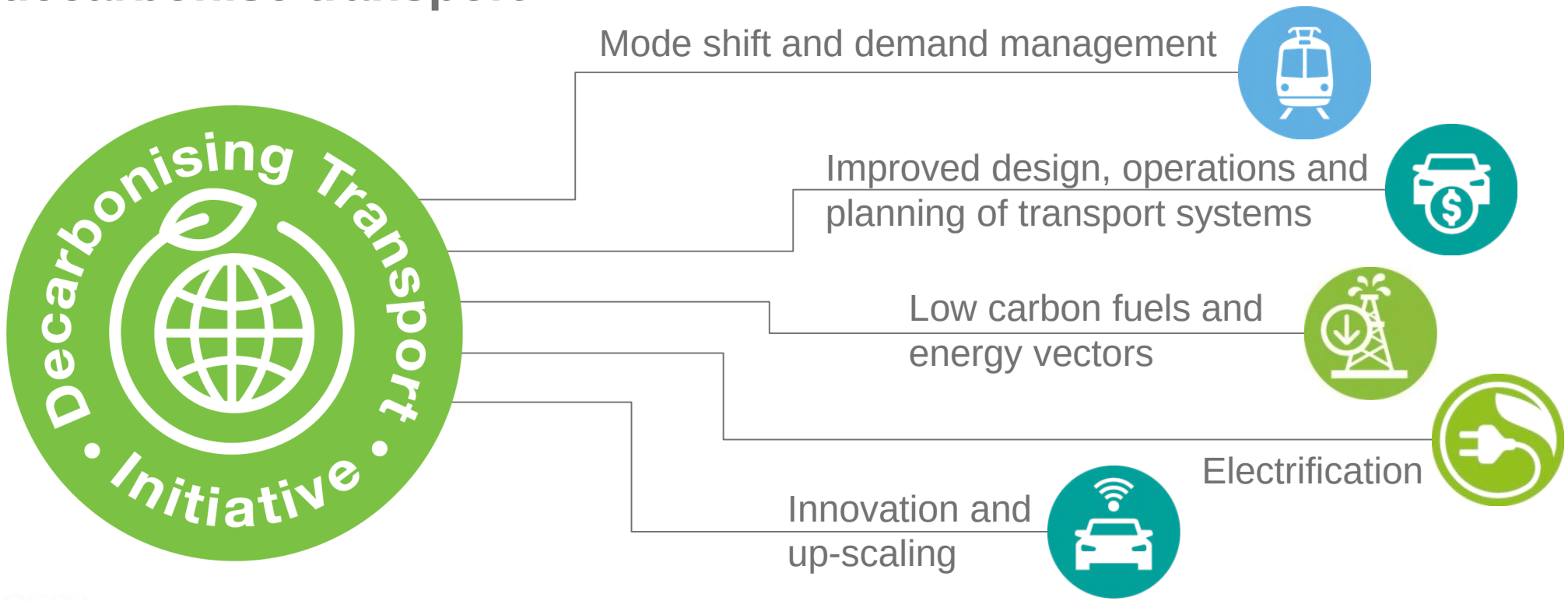
Governments now have a new resource to help them choose mitigation and adaptation measures that work in their specific context and that support their objectives."

Patricia Espinosa
Executive Secretary
UNFCCC

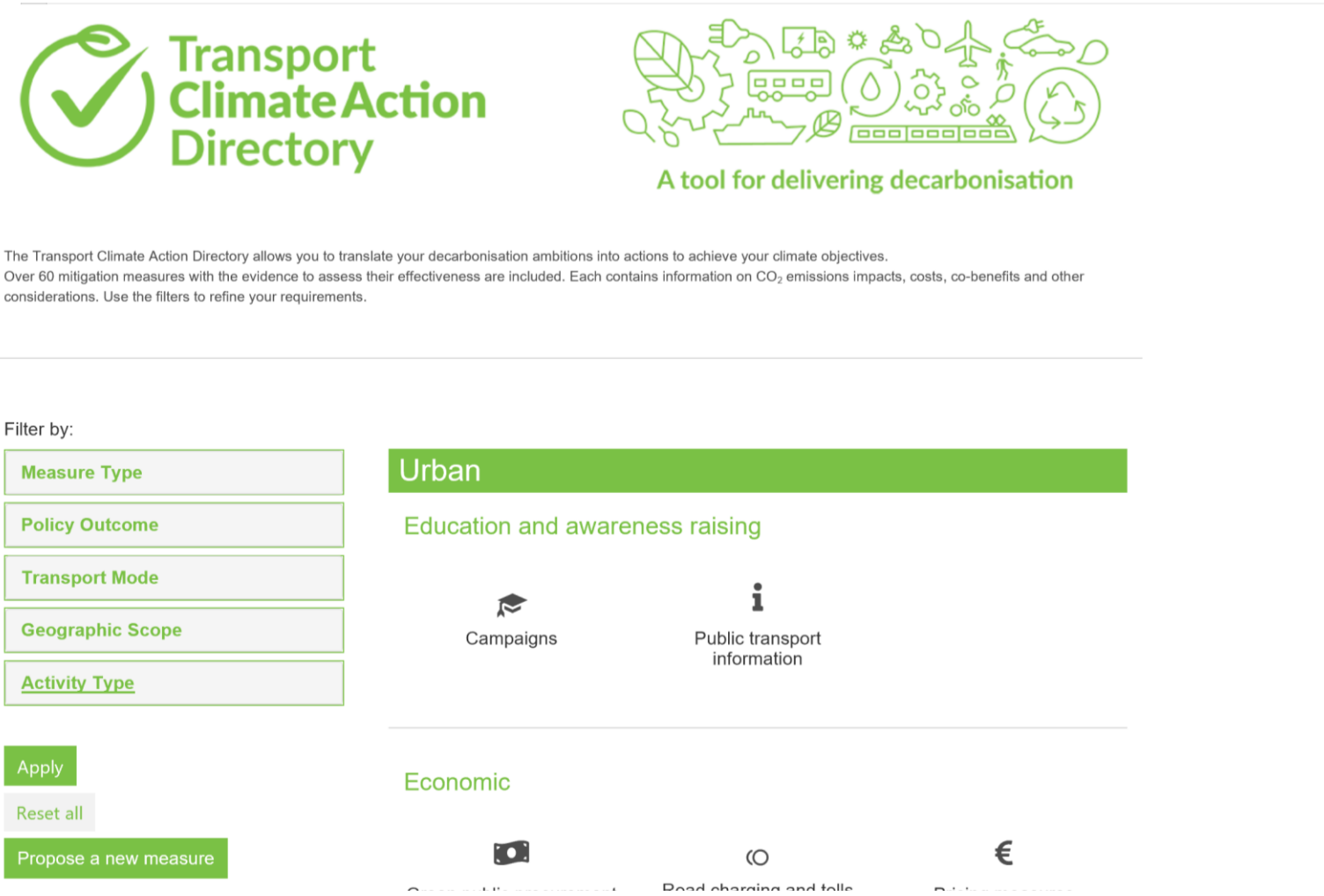
- Provide **targeted analytical assistance** for countries and partners to identify climate actions that work
- Gather and shares **evidence for best practices** that will accelerate the transition to carbon-neutral mobility
- **Shape the climate change debate** by building a global policy dialogue and by bringing the transport perspective to the table

Transport Climate Action Directory

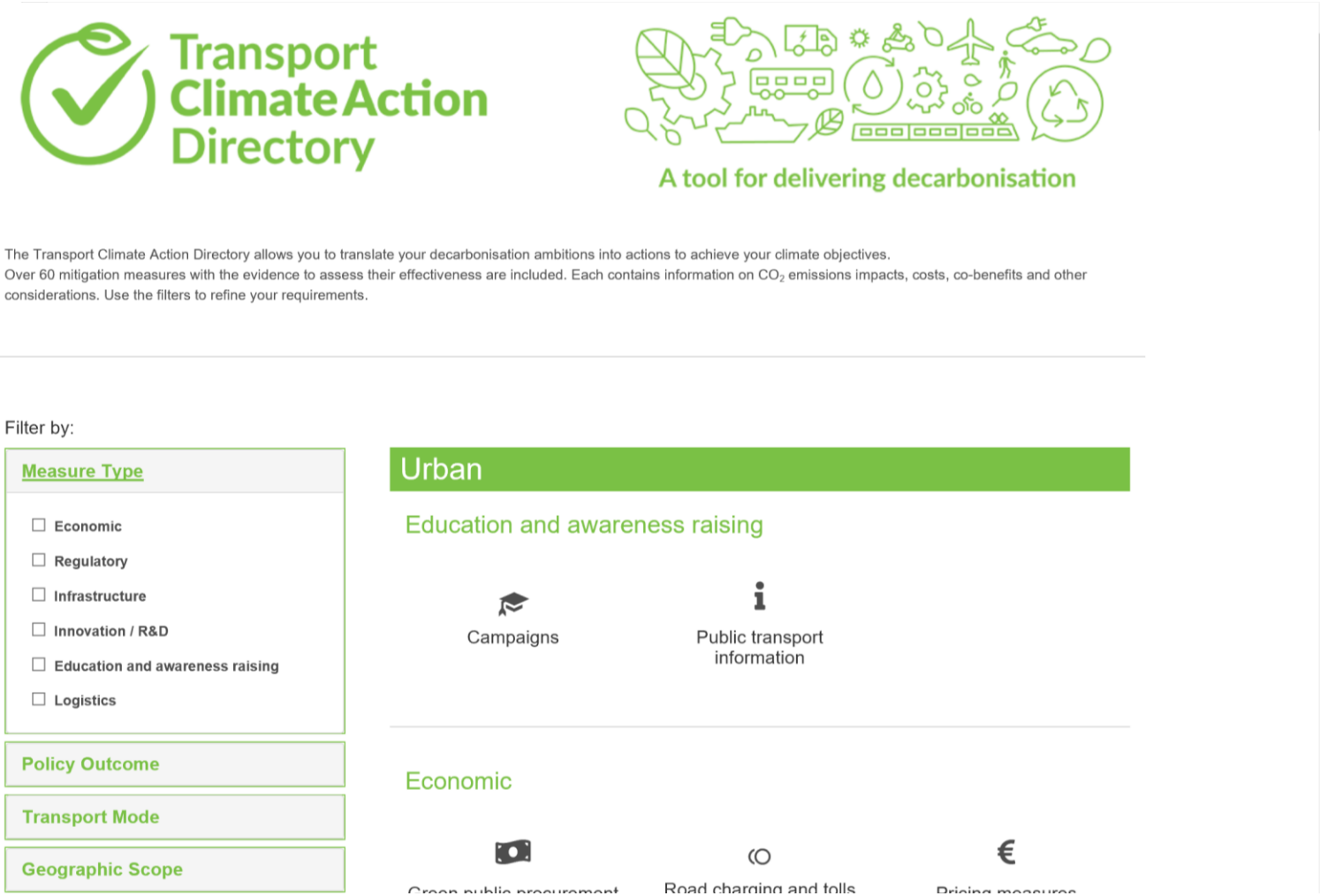
Multiple objectives must be achieved, across different sectors, to decarbonise transport



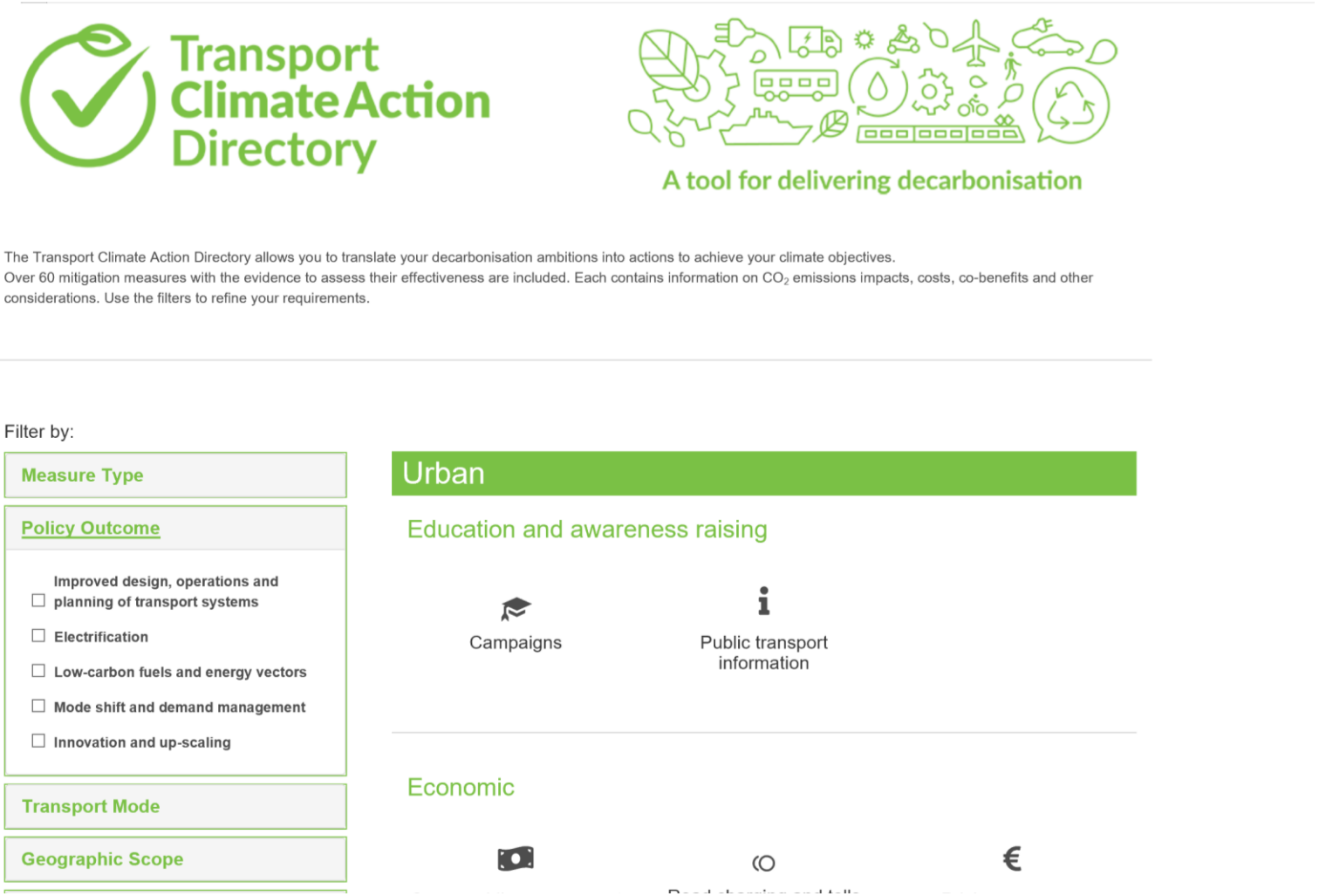
Transport Climate Action Directory



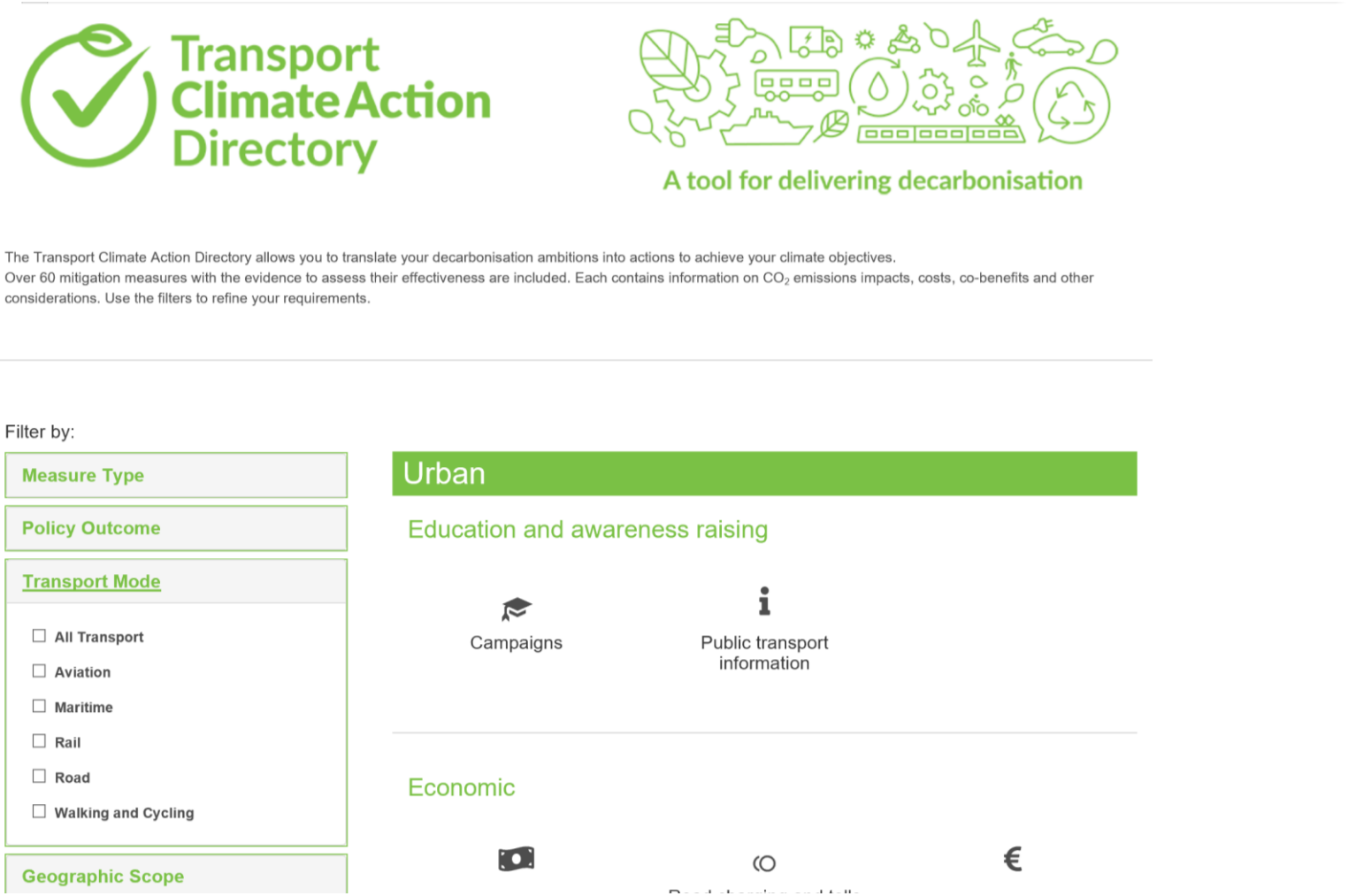
Transport Climate Action Directory



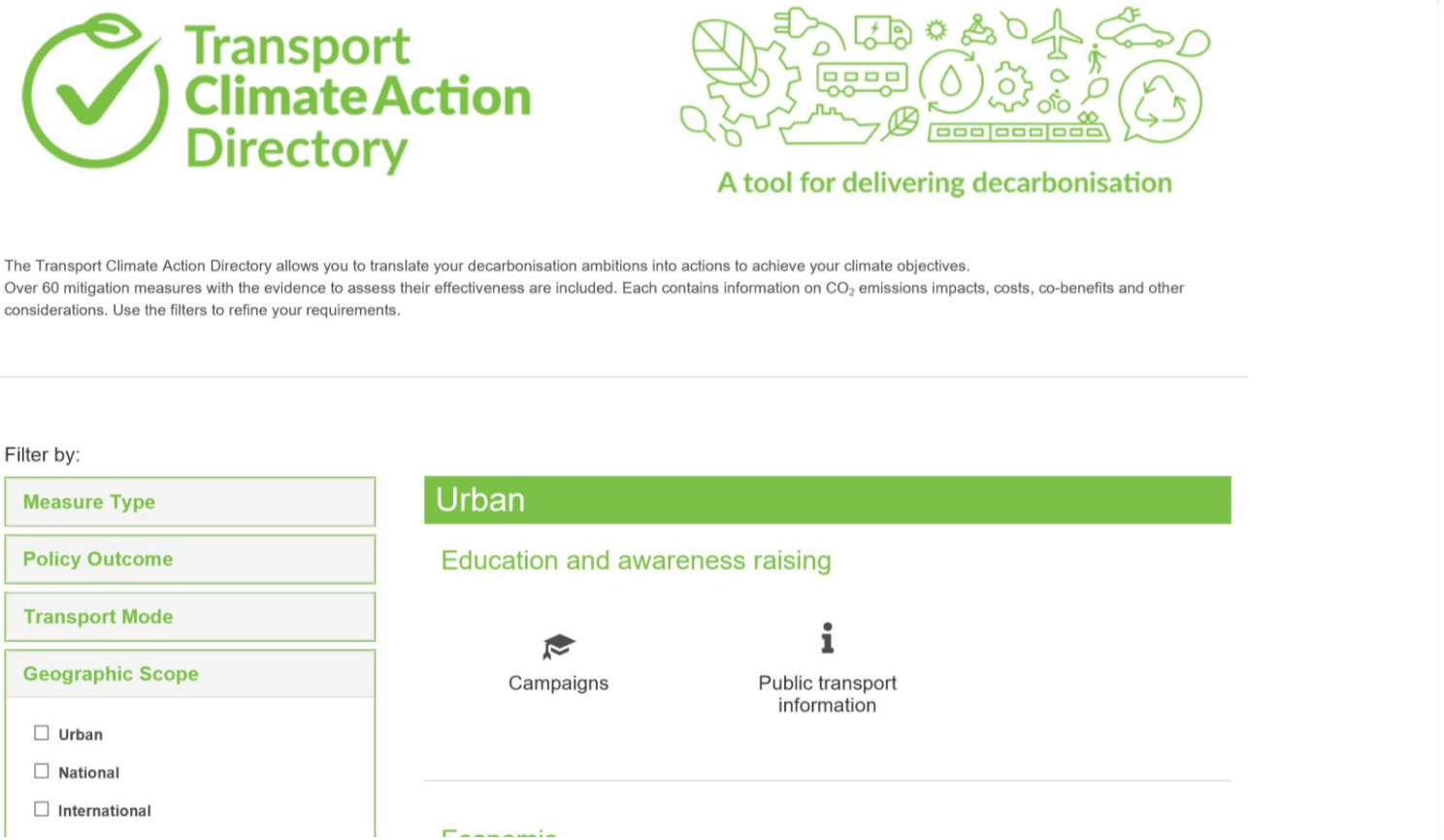
Transport Climate Action Directory



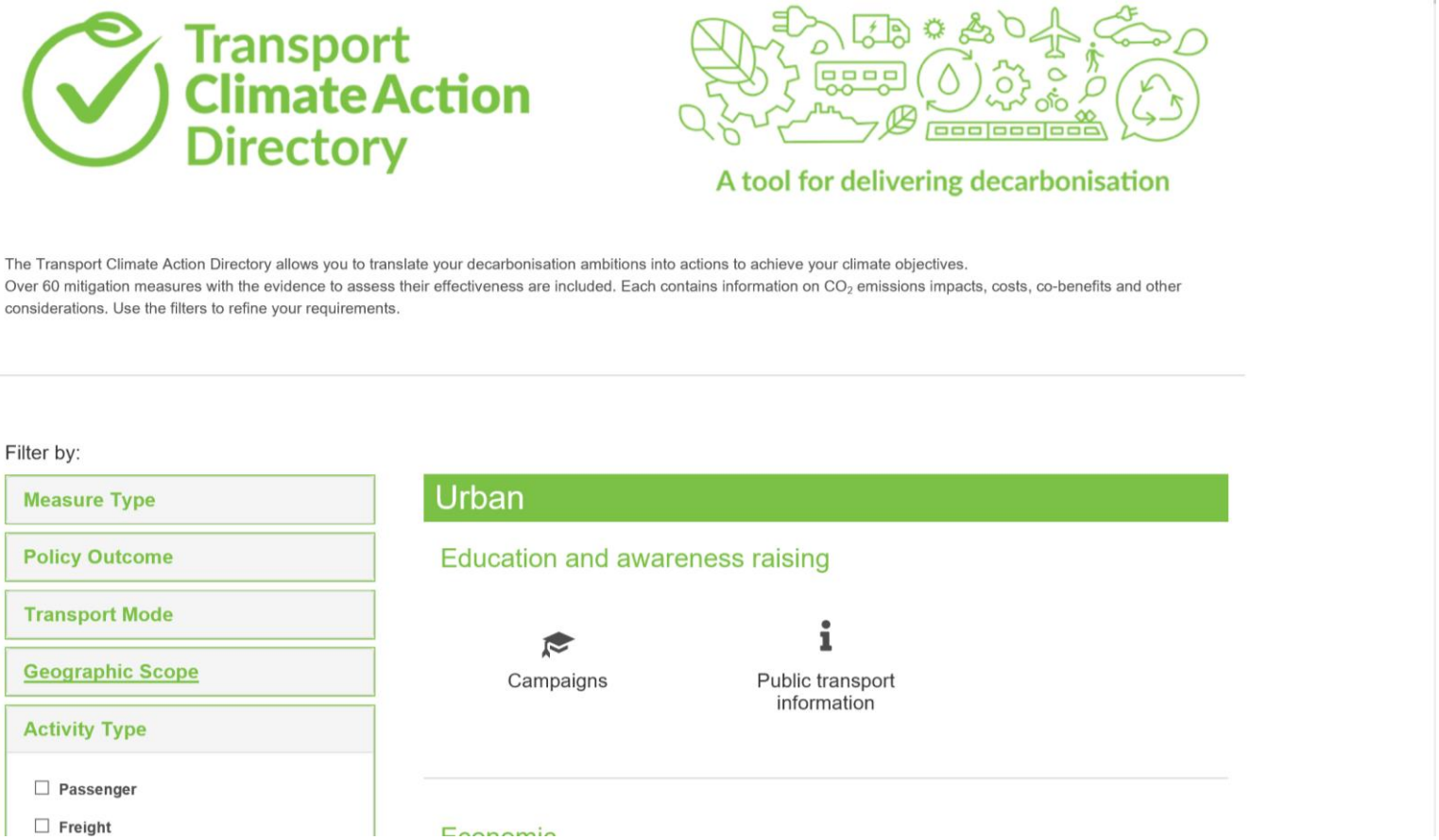
Transport Climate Action Directory



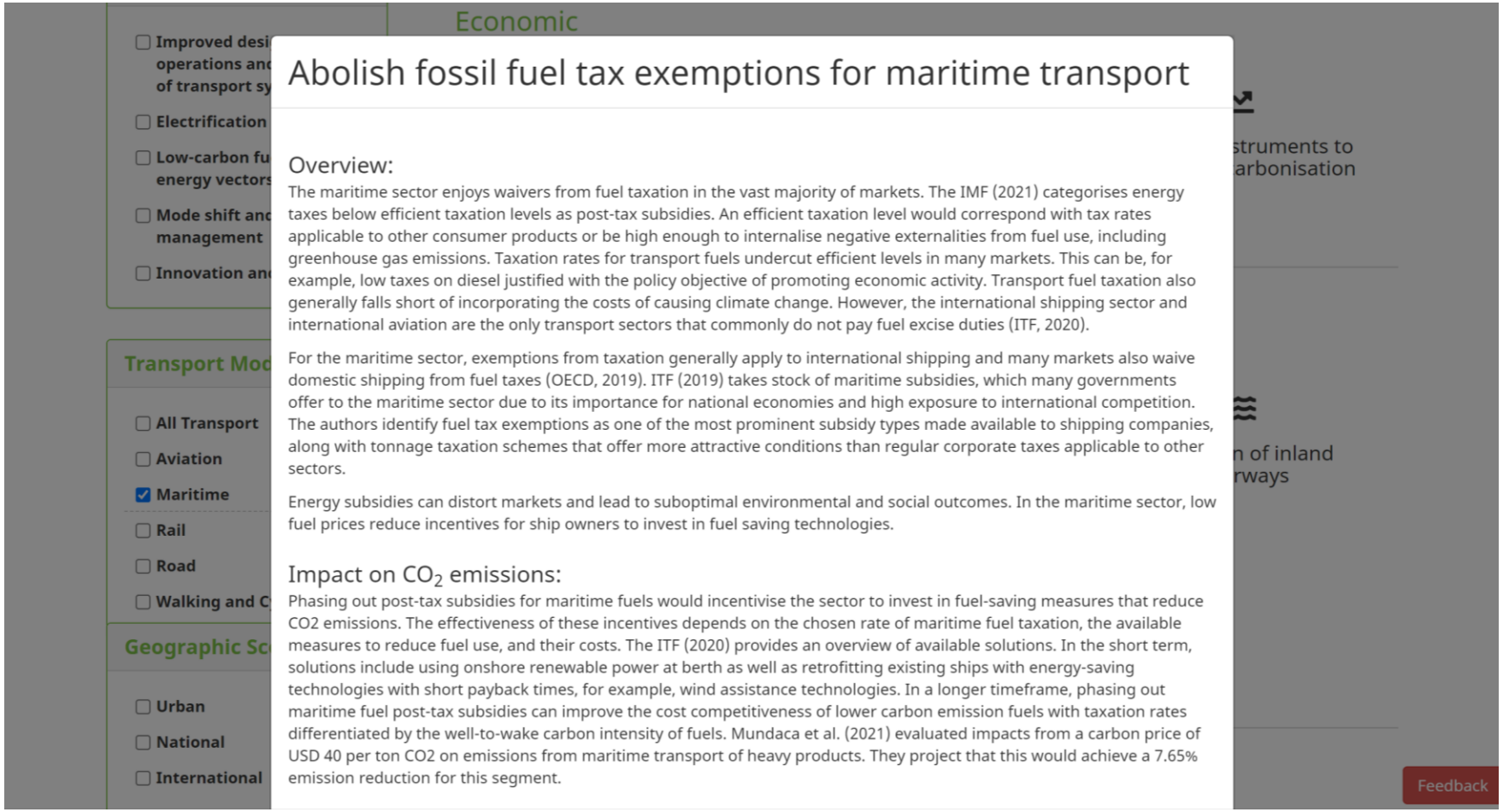
Transport Climate Action Directory



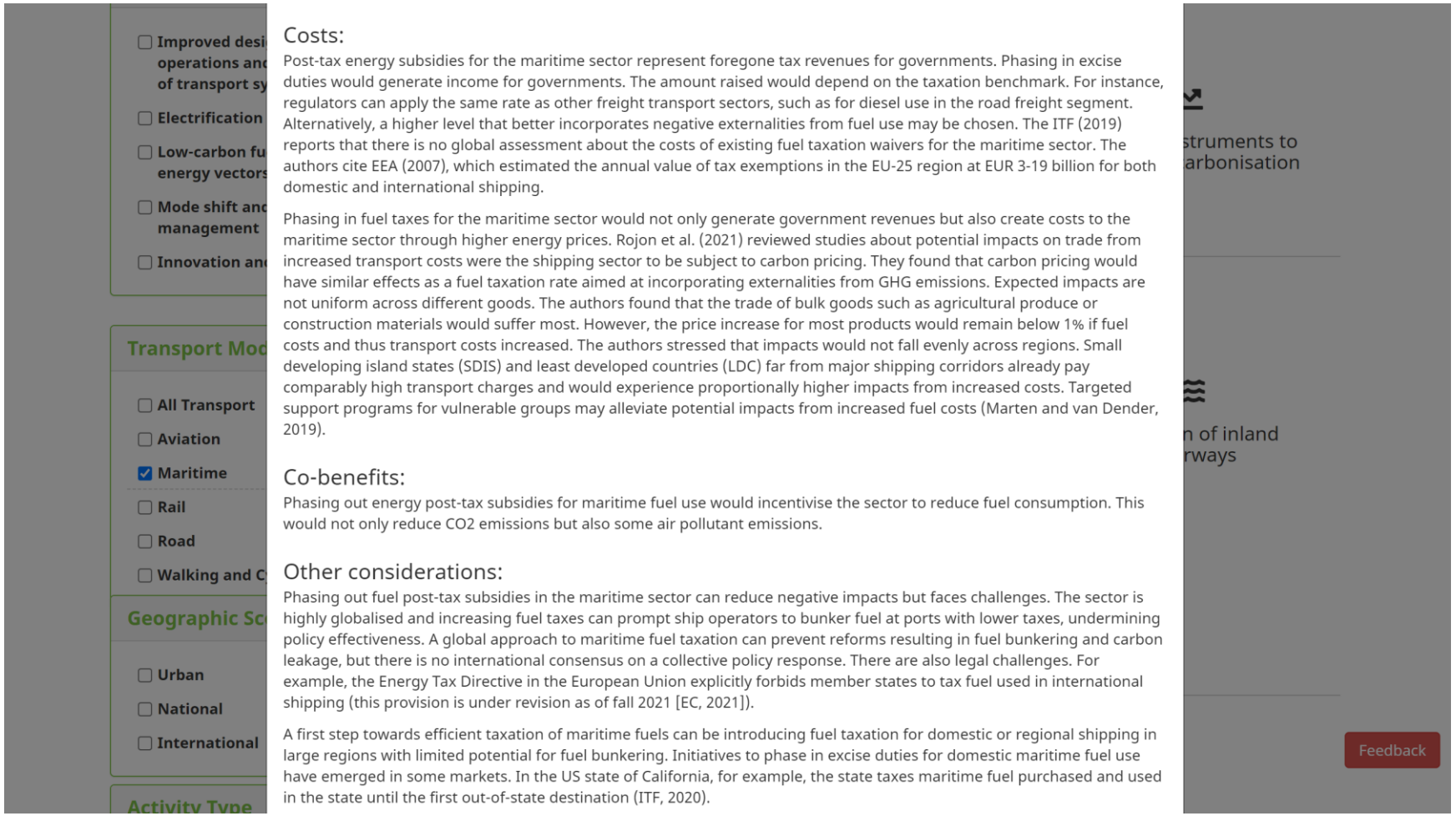
Transport Climate Action Directory



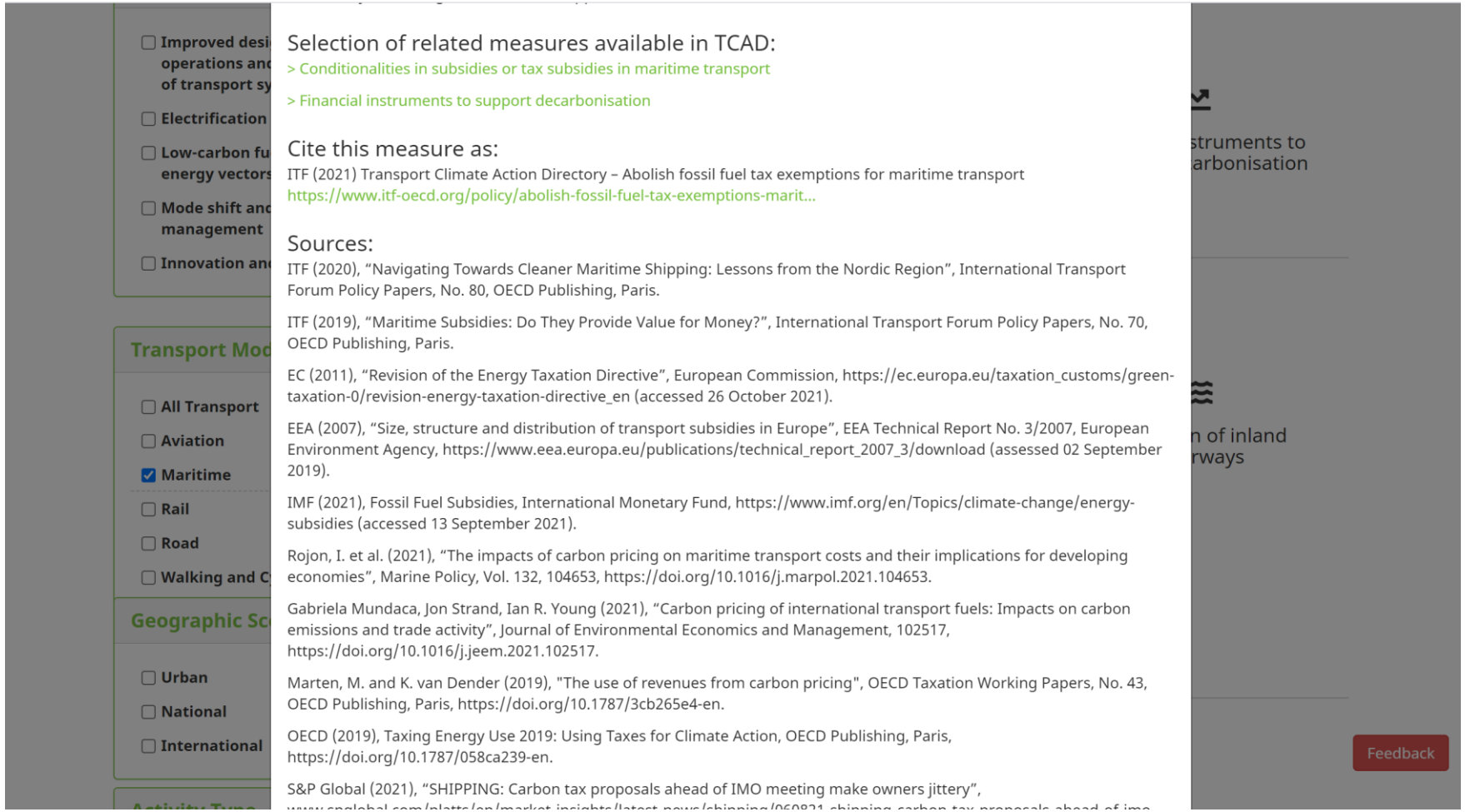
Transport Climate Action Directory



Transport Climate Action Directory



Transport Climate Action Directory



SIPA
Sustainable Infrastructure Programme in Asia

THANK YOU FOR YOUR ATTENTION

MAYA TER LAAG

MAYA.TERLAAG@ITF-OECD.ORG

2 RUE ANDRÉ PASCAL

F-75775 PARIS CEDEX 16

International Transport Forum