21th Meeting of the COMCEC TCWG

Measuring the Environmental Impacts of Transport Infrastructures in OIC Member Countries Project

Lessons Learnt from the Selected Case Studies and the Policy Options

12.10.2023

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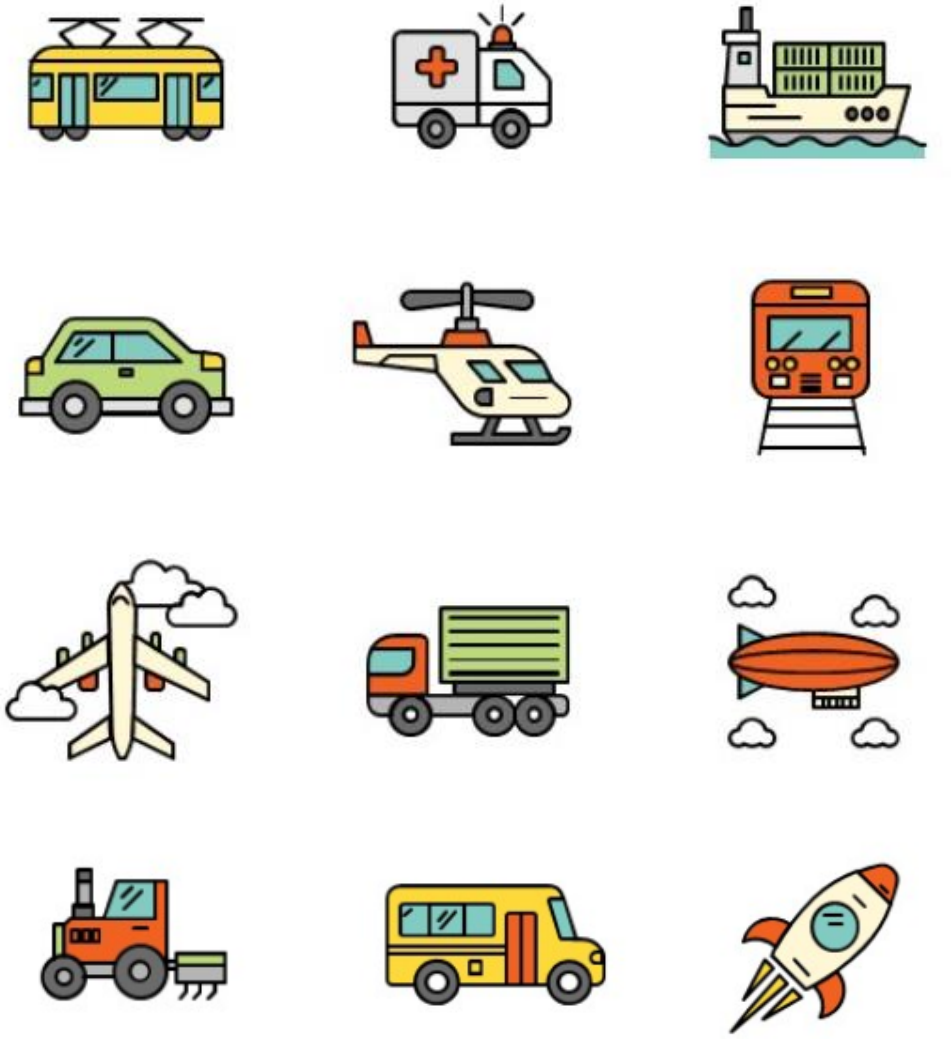

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Lessons Learnt from the Selected Case Studies and the Policy Options

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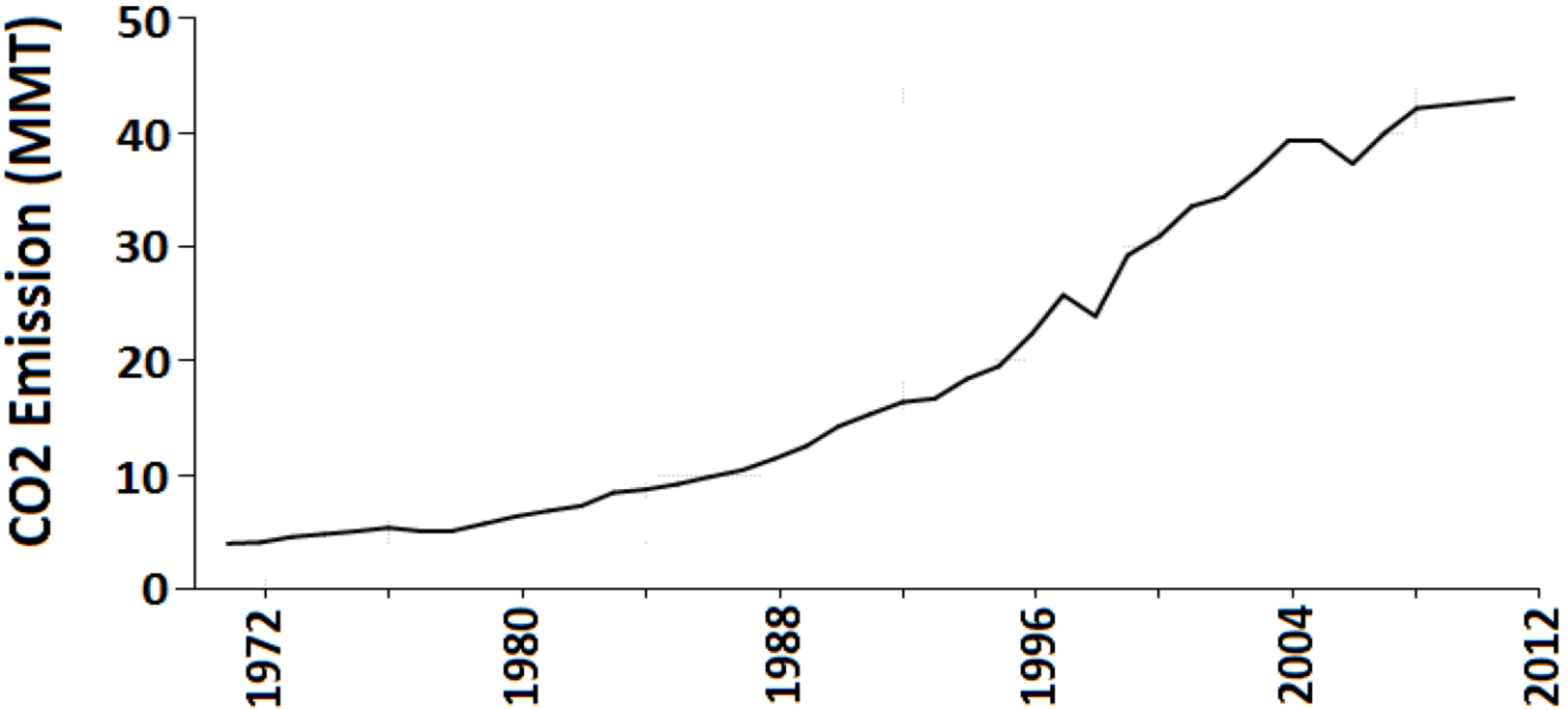
Lessons Learnt and Policy Recommendations

01 Malaysia Case Study

Port Klang - Malaysia

A Quick Look at the Transport-Environment Linkage in Malaysia

The Changes in CO_2 Emissions (million metric tons) over the 1972-2012 Period



Source: Shaid, S., Minhans, A., & Puan, O. C. (2014)

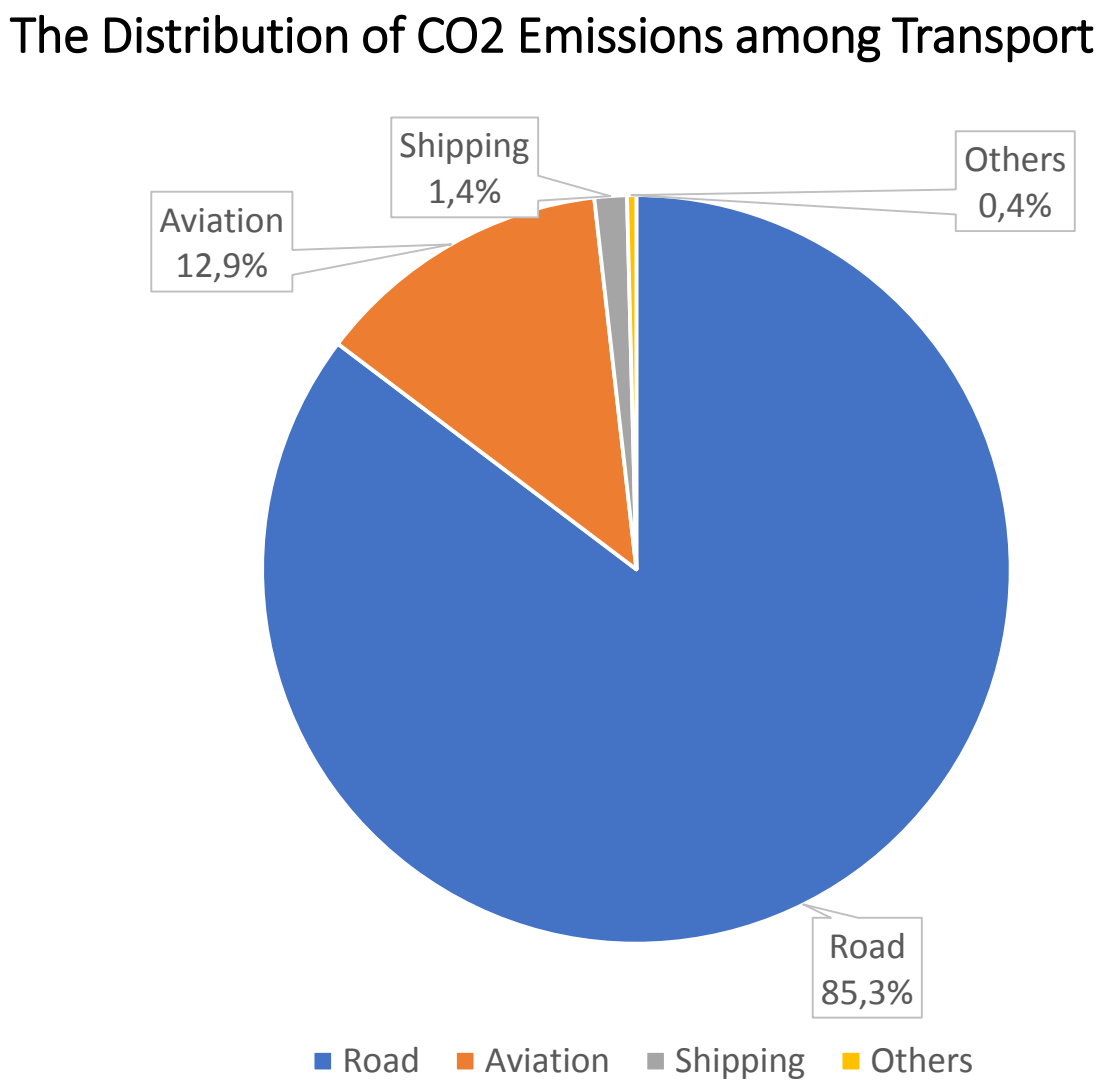
A Quick Look at the Transport-Environment Linkage in Malaysia

Energy Consumption by Sector (% of the total)

	2000	2005	2010	2015	2018
Agriculture	0,4%	0,3%	2,6%	1,73%	1,58%
Non-Energy	7,6%	5,7%	8,9%	11,44%	20,51%
Residential&Commercial	13,0%	13,4%	16,8%	14,59%	12,02%
Transport	40,6%	40,2%	40,6%	45,24%	36,43%
Industrial	38,4%	40,5%	31,2%	27,00%	29,46%

Source: Biennial Update Report to the UNFCCC, (2015)

A Quick Look at the Transport-Environment Linkage in Malaysia



Source: Ministry of Transport Malaysia (2016)

A Quick Look at the Transport-Environment Linkage in Malaysia

Governmental Agencies and Their Roles in Malaysia

Government/Agencies	Their Roles
Ministry of Natural Resources, Environment and Climate Change	- overall responsibility regarding environmental issues
Ministry of Transport	- overall responsibility regarding transport sector
Civil Aviation Authority Malaysia	- regulating aerodrome operations and facilities - overseeing the civil aviation
Road Transport Department	- coordinating number plates - vehicle registration
Public Works Department	- construction of road infrastructure and maintenance
Railway Assets Corporation	- railway infrastructure development - railway network development and management - maintenance of railway assets
Commercial Vehicle Licensing Board	- licensing of commercial road vehicles
Land Public Transport Agency	- regulating passenger public transport on land - regulating freight transport on land

The EIAs in Malaysia

Main EIA Framework

1. Impacts on Ecology
2. Impacts on Water Quality
3. Social Impacts
4. Noise and Vibrations Impacts
5. Impacts on Air Quality
6. Waste Generation Impacts

The EIAs in Malaysia

Main Elements of EIA

Ecology	Air Quality	Noise and Vibrations	Water Quality	Social	Waste Generation
❑ Habitat loss and fragmentation ❑ Human-wildlife conflicts ❑ Poaching	❑ CO_2 emissions ❑ Dust (PM10) generation from earthwork activities ❑ Dust and gaseous emissions from construction equipment & vehicles (PM10, PM2.5, CO, NO_2 and SO_2)	❑ Noise and vibrations, during construction and/or operation	❑ Erosion and sedimentation of rivers from construction activities ❑ Water pollution from chemical, oil, and grease spillages ❑ Discharge of treated sewage for stations, depot, and heavy maintenance base	❑ Traffic towards residents and workers ❑ Influx of foreign workers ❑ Boost in Logistic, Manufacturing and Tourism Industries which provides business and job opportunities for the locals and surrounding community ❑ Spur urban developments	❑ Transport and handling of excavated material from earthworks activities ❑ Generation of biomass from site clearing activities ❑ Generation of construction waste from site clearing and construction activities ❑ Generation of domestic and scheduled waste at stations, depot and heavy maintenance basis

The Current Efforts to Deal with the Environmental Effects of Transport Infrastructure and Services in Malaysia

Strategical Linkage Between Transport and Environment in the Twelfth Malaysia Plan 2021-2025

Policy Area	Strategy	Targets related to the transport-environment linkage
Priority Area A: Ensuring Integrated, Affordable, Reliable and Seamless People Mobility	Strategy A1: Improving Overall Accessibility of Public Transport	Annual Growth of Public Transport Ridership in GKL/KV: 5% (2021-2025) Increase in Air Transport Passengers (2025)
	Strategy A2: Encouraging Behavioural Shift from Private to Public Transport	
Priority Area B: Driving Transport and Logistics Industry Towards Competitiveness	Strategy B1: Enhancing Efficiency of Services	Increase in Cargo Volume via Rail, in Northern, Central and Southern Regions: 10% Ranking in the World Container Port's Report (within top 10) Ranking in the World Bank Logistic Performance Index (top 30)
	Strategy B2: Leveraging Digitalisation in Services	
Priority Area C: Strengthening Institutional and Regulatory Framework	Strategy C1: Improving Governance	Standardised Warehouse Regulation Formulation of Green Transport Index
	Strategy C2: Promoting Green initiatives	

The Current Efforts to Deal with the Environmental Effects of Transport Infrastructure and Services in Malaysia

The Targets of Green Technology Master Plan Malaysia (2017-2030) for Transport Sector

	2020	2025
Public Transport	• 40% (Greater KL) • 20% (Other cities)	• 40% (All cities)
Private Transport	• 85% Energy Efficient Vehicle (EEV)	• 10% reduction in electricity consumption

The Current Efforts to Deal with the Environmental Effects of Transport Infrastructure and Services in Malaysia

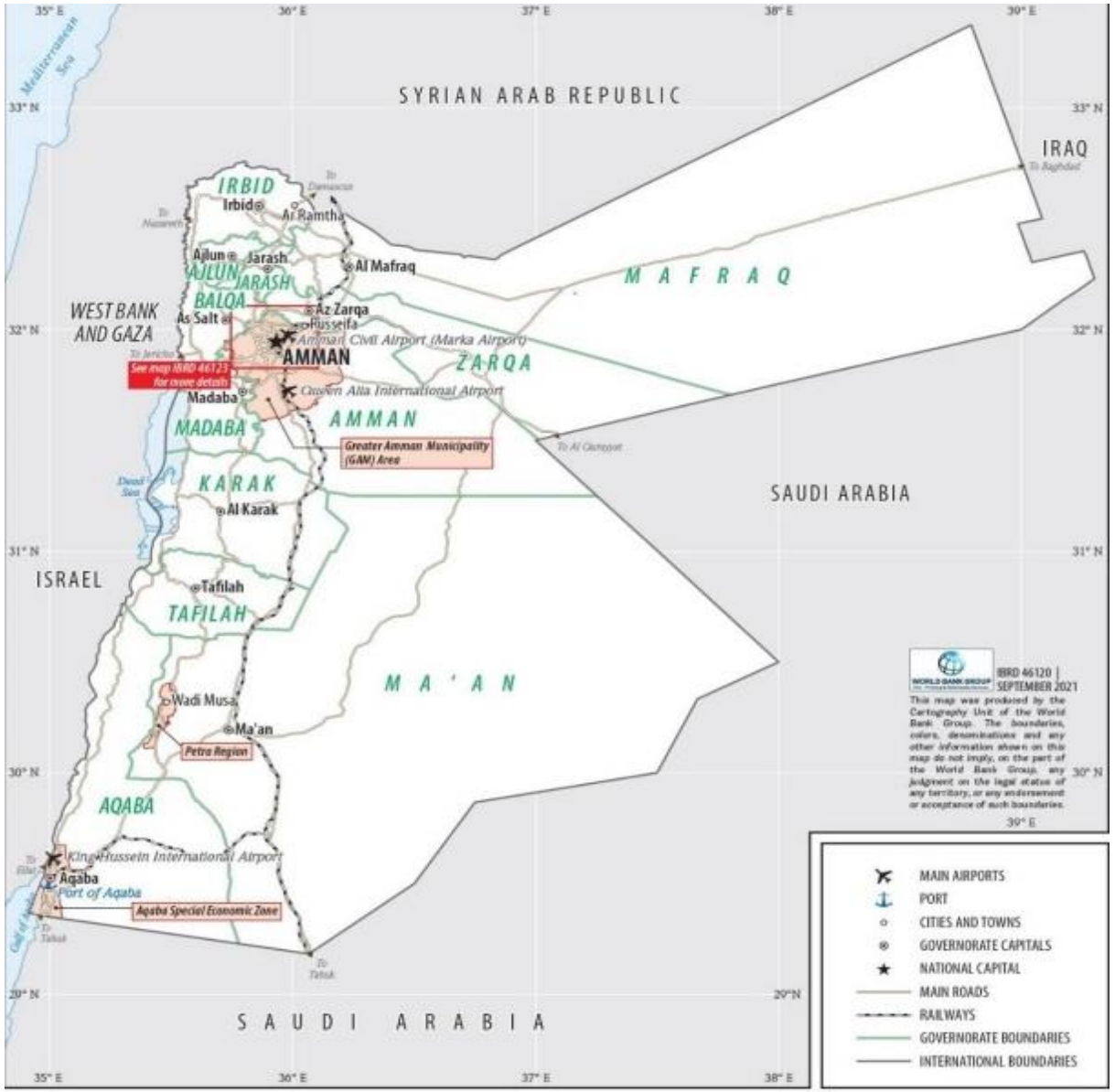
Actions Regarding Connectivity & Accessibility for the City in the Kuala Lumpur City Plan 2020

Building a More Sustainable, Integrated and Environmentally Friendly Transport Infrastructure	• An integrated Transit Network • Extending Urban Rail Network with Regional Rail Network • Integrated Transportation Terminal and Park & Ride Facilities • Establishing Functional Road Hierarchy • Giving Priority to Buses • Developing Taxi Transformation Plan
Moving Towards Travel Demand Management Strategies	• Dispersing Peak-Period Traffic • Reducing SOV and Providing Incentives to Road Users • Managing Car Parking • Restraining Traffic within City Centre • Managing Heavy Vehicles • Integrated Traffic Information System (ITIS)
Integrating Developments with Pedestrian Connectivity in Kuala Lumpur	• Providing a Safe and Comfortable Walking Environment for all Groups of Pedestrian Network Users • Improving Pedestrian Connectivity and Accessibility at Key Locations • Developing Cycling Routes and Facilities

02 Jordan Case Study

Queen Alia International Airport - Jordan

Jordan Transport Sector Overview



- Heavily dependent on road transport, mainly on private cars and trucks
- Limited use of railways for freight transport
- North-South motorway corridor
- Only sea port in Aqaba
- Limited use of non-motorized modes

Jordan Transport Sector

Institutional Structure

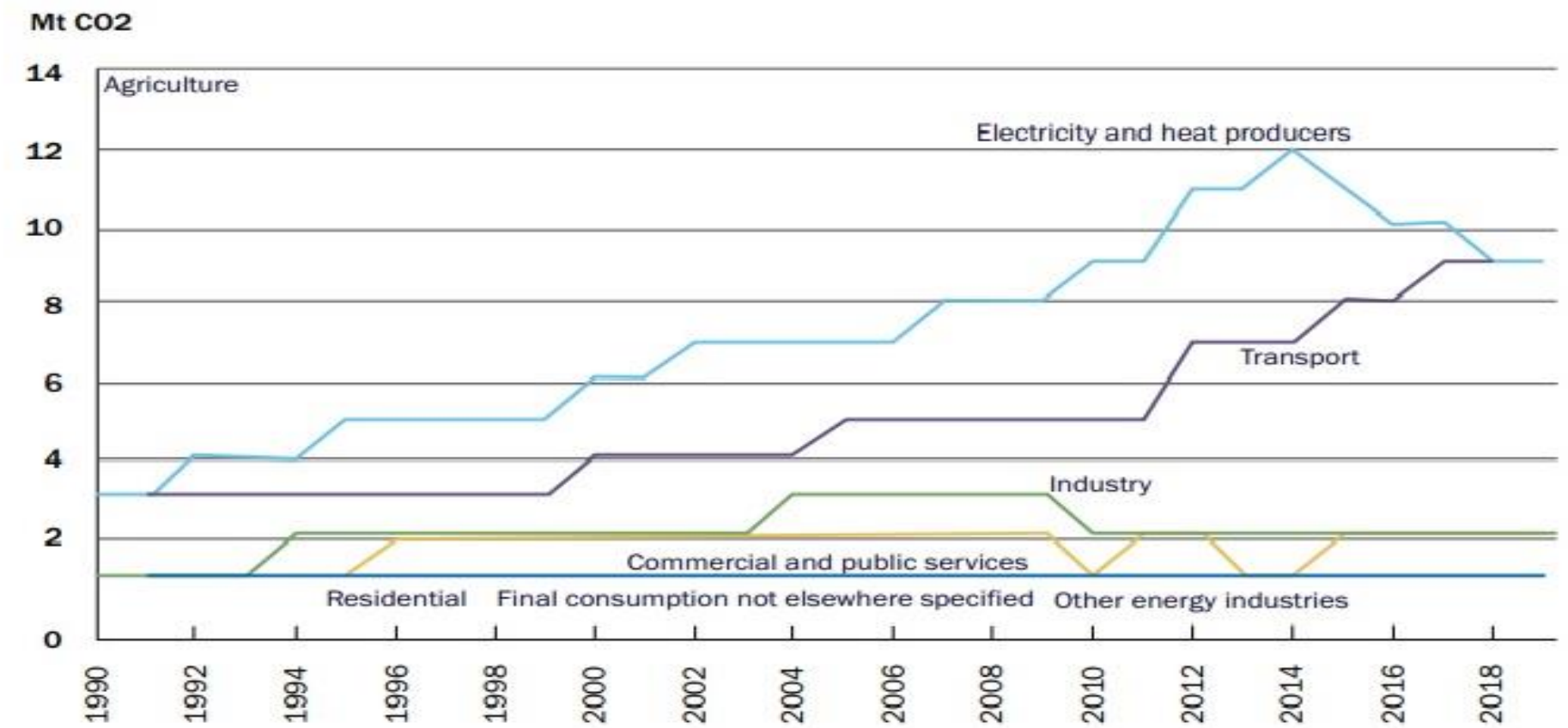
- Planning, policy formulation and infrastructure development roles are shared by the **Ministry of Transport** (MoT) and the **Ministry of Public Works and Housing** (MoPWH).
- **MoT** is responsible for formulating general transport sector policy

MoT	• Rail transport projects • Maritime transport projects • Civil Aviation projects
MoPWH	• Road transport projects

- **Ministry of Environment** ⟹ EIA Approval
- **Ministry of Interior** ⟹ Road Safety
- **LTRC, Civil Aviation Regulatory Commission, Jordan Maritime Authority**

Environmental Policies and Regulations in Jordan

CO_2 Emissions by Sectors (1990-2019)



Environmental Policies and Regulations in Jordan

Objective

GHG reduction of 31% by 2030 (Nationally Determined Contributions)

Sustainable transport initiatives in Jordan are planned and executed in three main pillars:

- ❑ Promoting and expanding **public transport** and improving efficiency of public transport systems
- ❑ Establishing a **national railway network** for freight and passenger transport
- ❑ **Decarbonization of transport** by encouraging replacing fossil fuel vehicles with electric or hybrid vehicles and renewing vehicle fleets

Environmental Policies and Regulations in Jordan

Environmental Strategies and Policy Documents at National Level

- ❑*The National Climate Change Policy (2022-2050)*
- ❑*National Green Growth Plan*

Environment-Related Transport Sector Strategies

- ❑*Green Growth Action Plan 2021-2025, Transport Sector*
- ❑*Long-Term National Transport Strategy*

Environmental Policies and Regulations in Jordan

Transport Sector Strategies and Plans at Local Level

- ❑*Greater Amman Master Plan 2025*
- ❑*Amman Transport and Mobility Master Plan*
- ❑*Zarqa Downtown Area Energy Efficient Urban Transport Plan*
- ❑*Amman Resilient Strategy*
- ❑*Amman Climate Plan, a Vision for 2050*
- ❑*Green City Action Plan 2021*

Other sectoral strategies and action plans

- ❑*Second National Energy Efficiency Action Plan*
- ❑*Master Strategy for Energy 2030*
- ❑*National Strategy and Action Plan for Sustainable Consumption and Production*
- ❑*Green Growth National Action Plan 2021-2025, Energy Sector*

Environmental Policies and Regulations in Jordan

Main Sustainable Transport Projects and Initiatives

- ❑Establishing a national railway network
- ❑Amman and Amman-Zarqa BRT
- ❑Salt-Amman BRT
- ❑Passenger Transport Support Fund draft regulation
- ❑Encouraging the use of electric vehicles and smart applications for taxis
- ❑Modernization of the freight transport fleet
- ❑Modernization of local buses
- ❑ITS and e-mobility strategies

Environmental Impact Assessment

Regulations

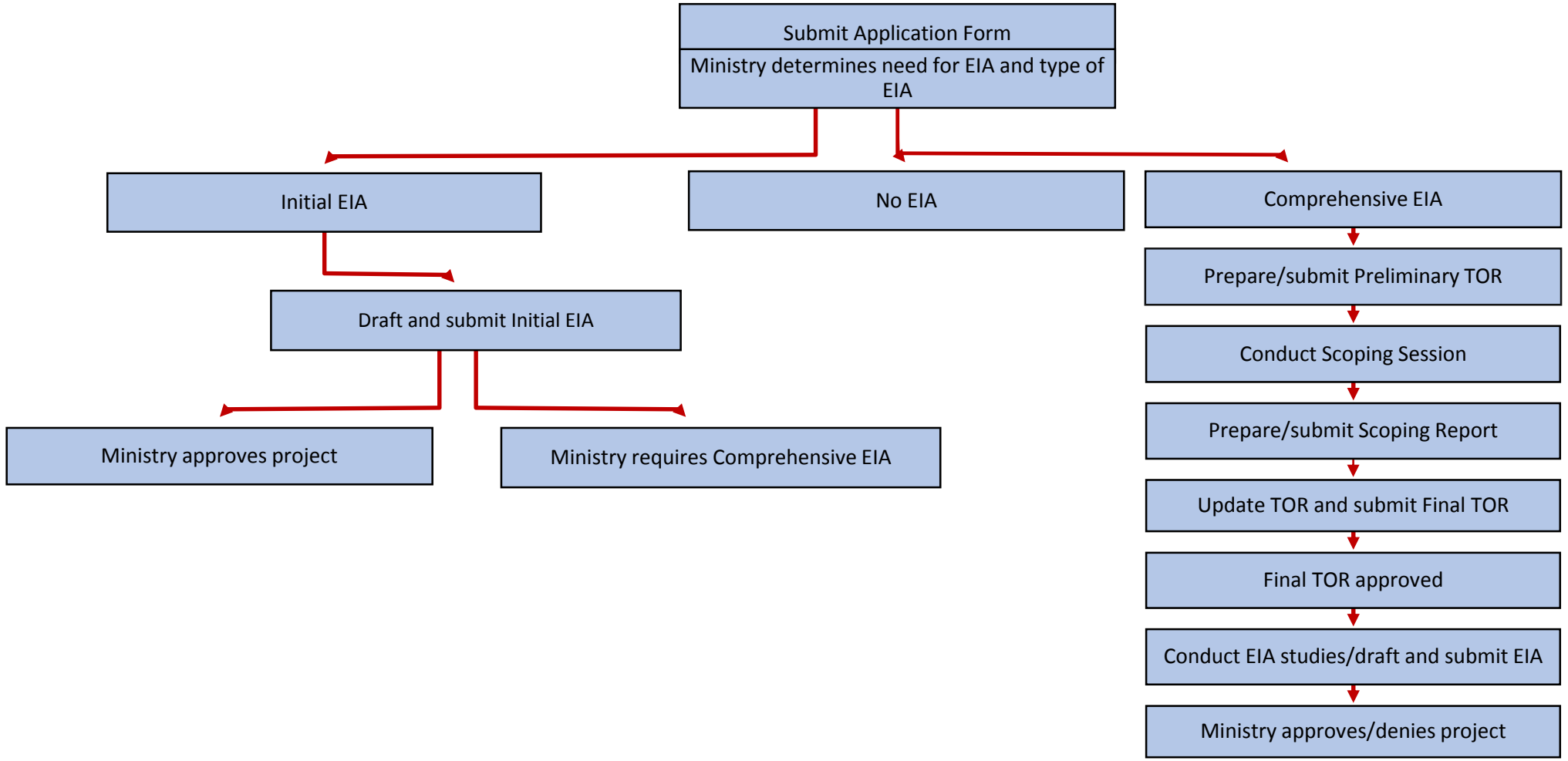
- *Environment Protection Law*
- *EIA Regulation No.37*
- *Secondary legislation*
- *Guidelines prepared by the Ministry of Environment*

EIA Approval

- All infrastructure projects, **including transport projects**, as well as other public investment projects that has negative impacts for the environment need to be approved by MoEnv.
- EIA is completed and approved in the preliminary design stage of the project cycle.

Environmental Impact Assessment

EIA Approval Process



Environmental Impact Assessment

- EIA Report must include
  - ✓Analysis and documentation of physical, biological and socio-economic environment baseline
  - ✓Impact analysis for these components
  - ✓Risk assessment and mitigation measures
  - ✓Project alternatives

- Field surveys, laboratory analyses, modeling, estimations are among assessment tools. Life cycle assessment may be required.

Environmental Impact Assessment

Public Participation and Stakeholder Engagement

Preliminary TOR is discussed with stakeholders at scoping phase before proceeding to EIA to ensure public participation.

Potential stakeholders:

- ❑*Project owner(s)*
- ❑*Municipal or other government officials*
- ❑*Business owners*
- ❑*Neighborhood residents*
- ❑*Stakeholder groups, i.e. women's groups*
- ❑*Concerned individuals*
- ❑*Regulatory agencies*
- ❑*Institutional representatives (schools, religious) and*
- ❑*Non-governmental Organization (NGO) representatives*

03 OIC-Wide Survey

Haramain High Speed Railway - Saudi Arabia

Survey Description

Timing:
July 28th to September 7th

Target Population:

- Government agencies (ministry of transport and its affiliated bodies such as civil aviation authority, state highways administration)
- Participants/focal points of the OIC Working Group Meeting
- Public and private transport service providers (railways, airlines, shipping companies, road transport operators)
- Sector organizations and associations regarding transportation, logistics and environment
- Trade and industry unions
- NGOs
- Academicians working on transportation, logistics and environment

Survey Description

In order to observe the current practices in the OIC Member Countries regarding the evaluation of transport projects and the measurement of the economic and social impacts of transport infrastructure projects, a survey was conducted with a number of relevant persons in the Member Countries. In the end, **67 replies** from OIC member nations were received **(67/1228)**.

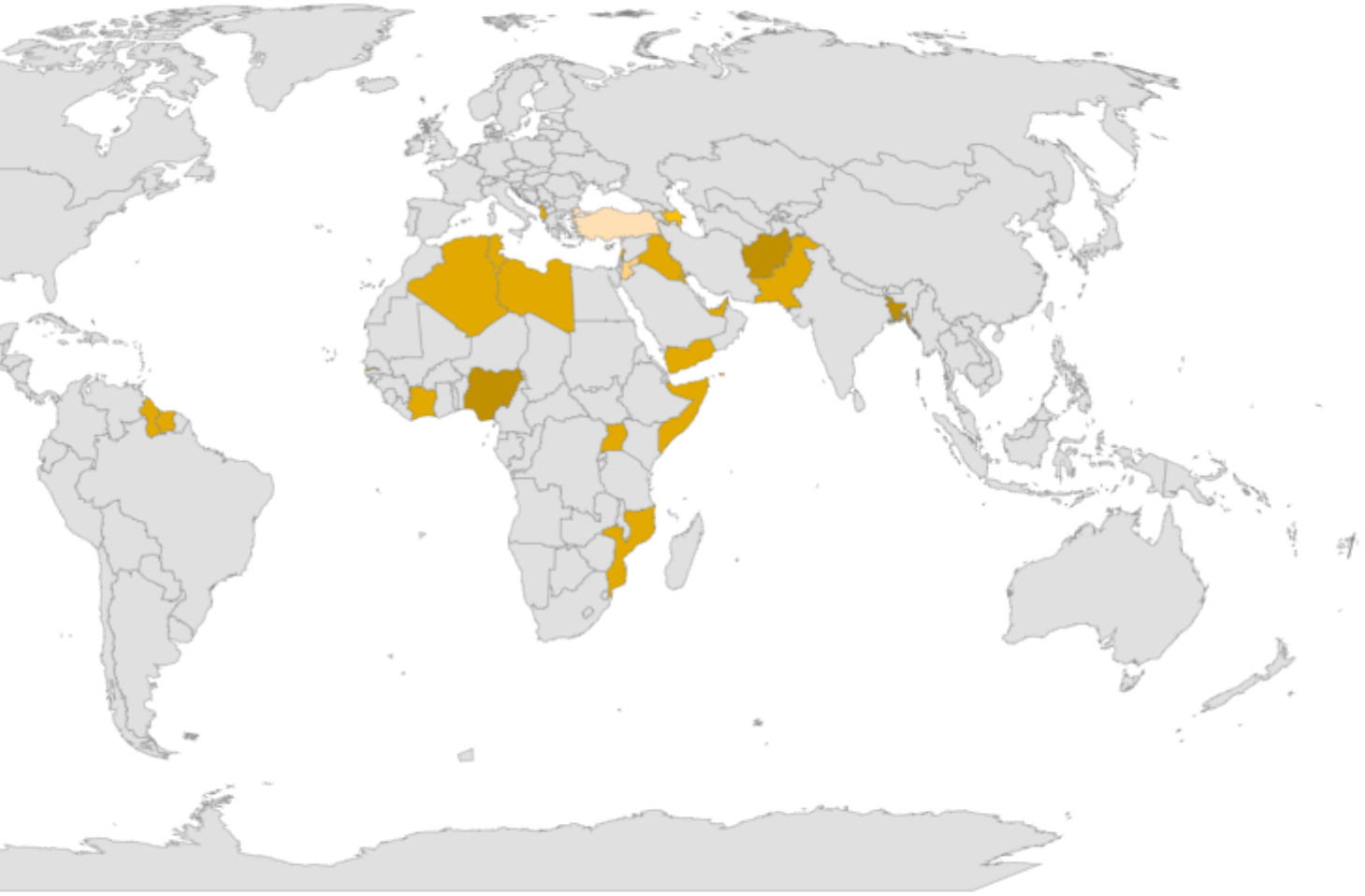
The OIC countries represented in the survey responses are as follows:

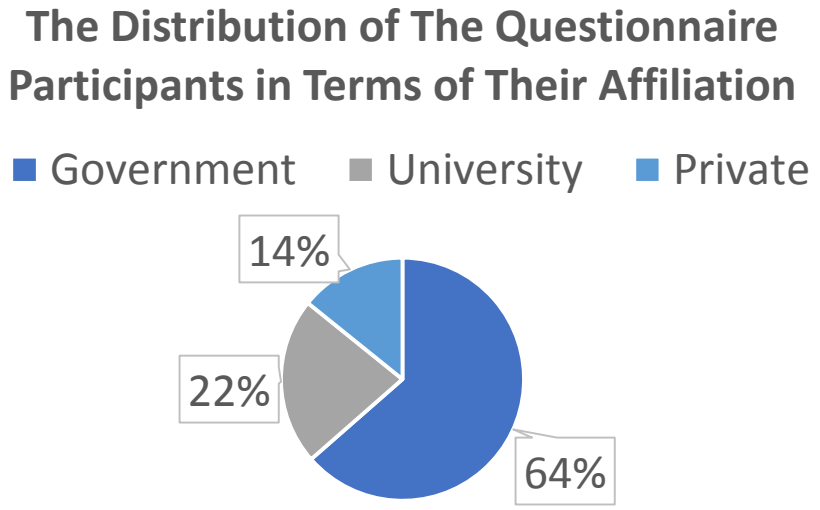
Arab Group	Total Participant # 27
Algeria	1
Bahrain	1
Iraq	1
Jordan	10
Jordan	3
Kuwait	1
Lebanon	1
Libya	1
Palestine	3
Somalia	2
Tunisia	1
United Arab Emirates	1
Yemen	1

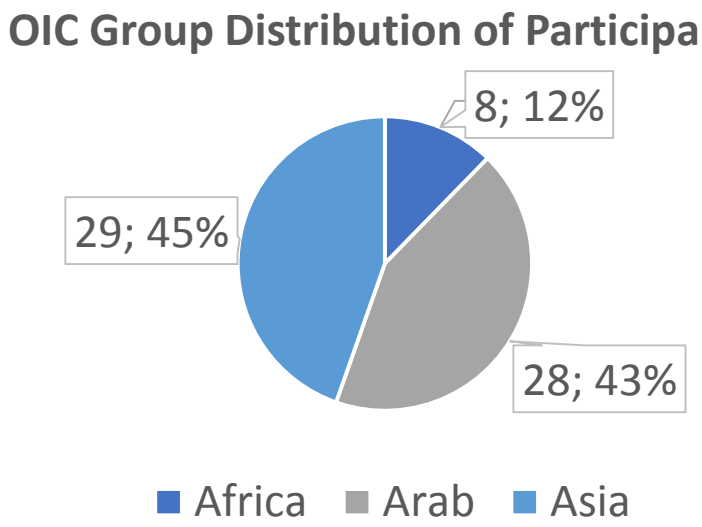
Asia Group	Total Participant # 30
Afghanistan	2
Albania	1
Azerbaijan	3
Bangladesh	3
Guyana	1
Maldives	1
Pakistan	1
Suriname	1
Türkiye	17

Africa Group	Total Participant # 8
Côte d'Ivoire	1
Gambia	2
Mozambique	1
Nigeria	2
Nigeria	1
Uganda	1

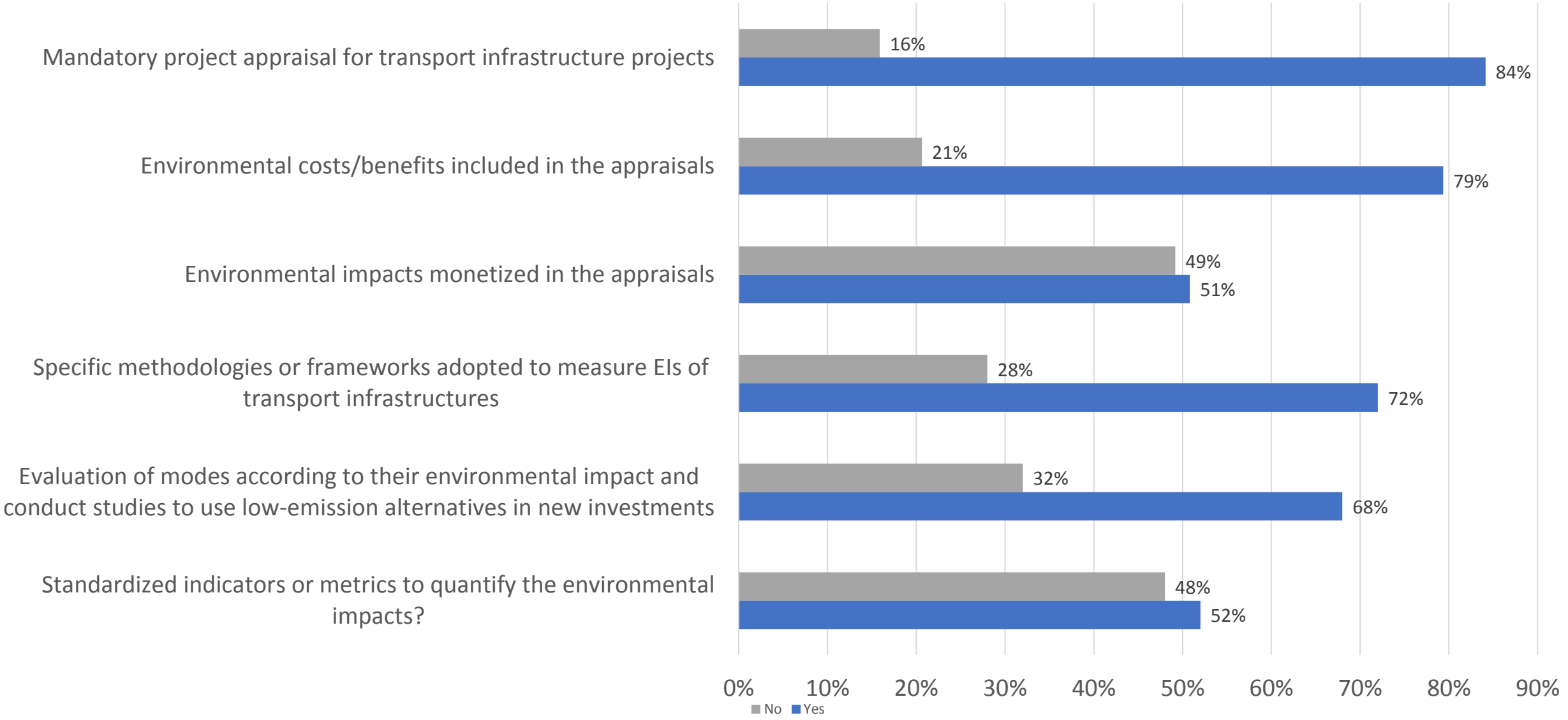
Survey Description



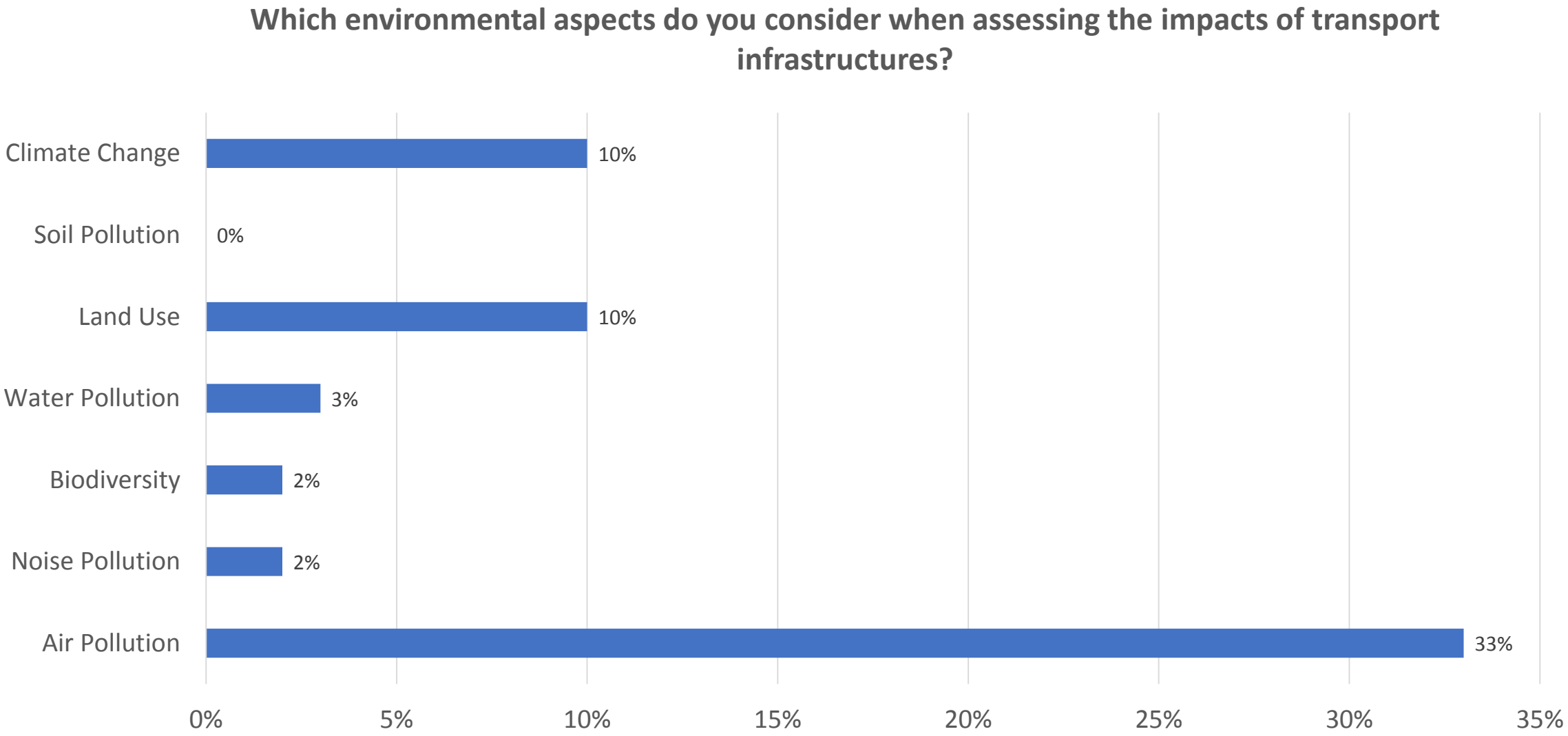




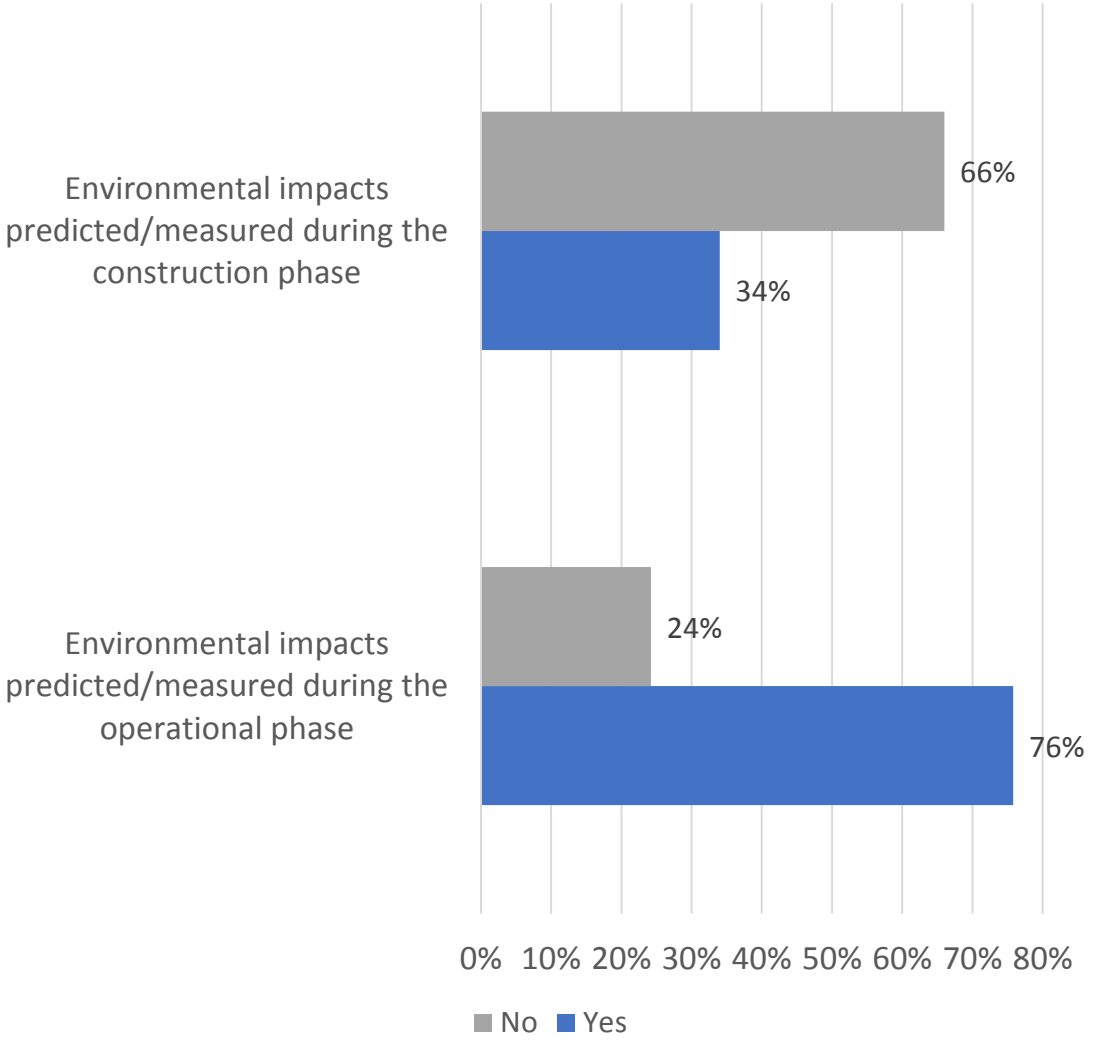
Survey Questions & Answers

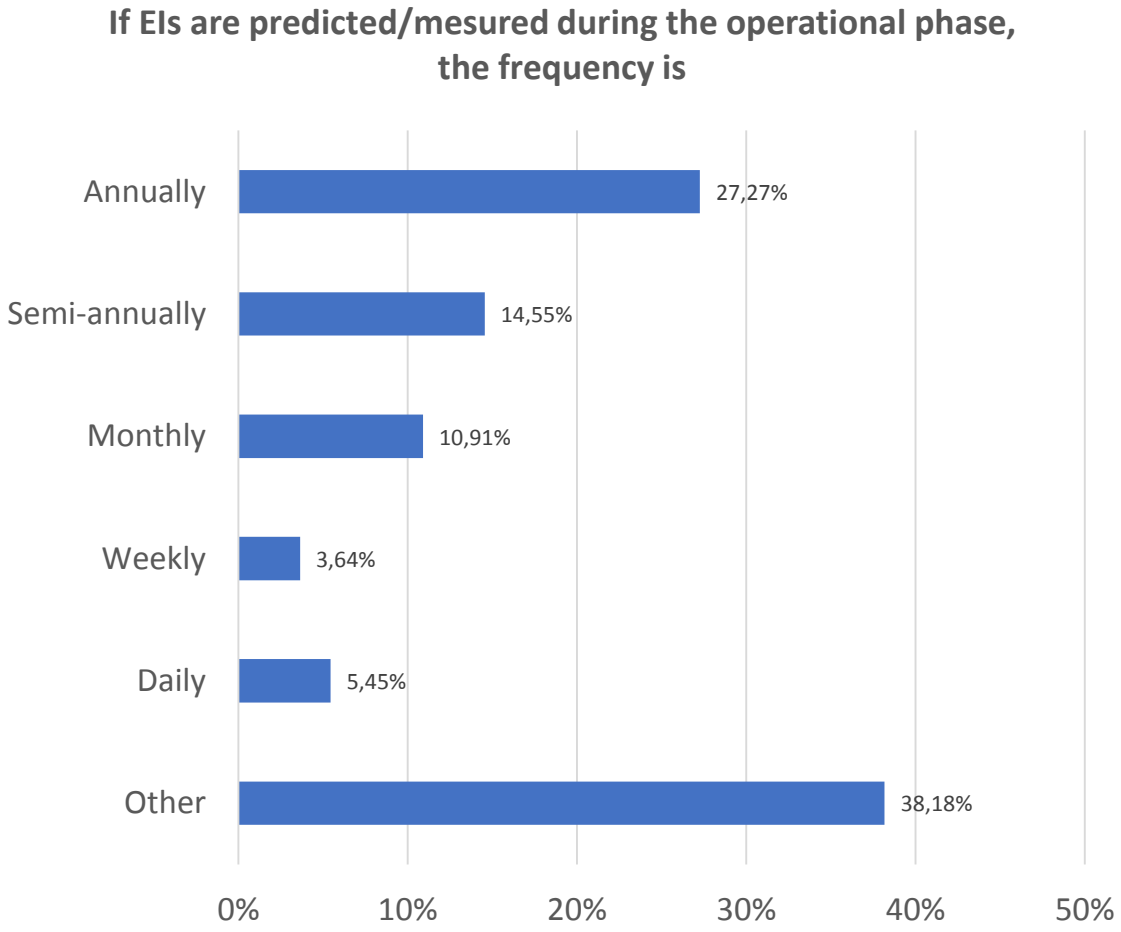


Survey Questions & Answers

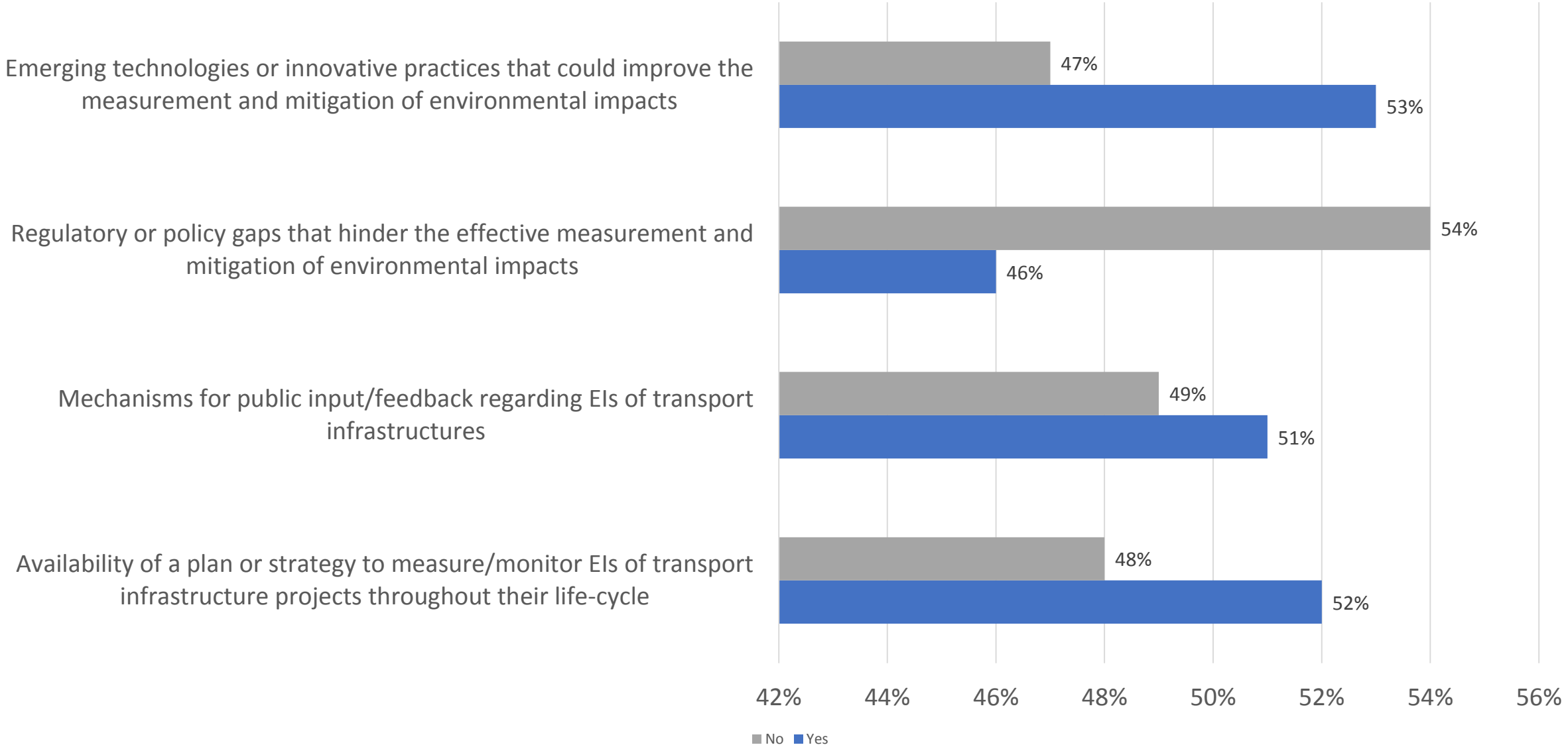


Survey Questions & Answers





Survey Questions & Answers



Survey Questions & Answers

- Respondents were asked whether project appraisals are required for transport infrastructure projects in their country. **53 out of 67 respondents indicated that the preparation of project appraisals is mandatory.**
- Another question asked whether environmental costs/benefits are included in the evaluation stages of transportation infrastructure projects. **50 out of 67 respondents answered that they are included.**
- When asked whether environmental impacts were monetized in project evaluations, **approximately half of the respondents stated that they monetized environmental impacts, while approximately half stated that they did not.**
- Respondents were asked about the use of methodologies to measure the environmental impacts of transportation infrastructure. **31 out of 67 respondents indicated that they do.** Based on the specific responses from the respondents who indicated that they were used, it was found that **the most commonly used methodology was EIA.**
- Another question asked survey participants what environmental considerations are taken into account when assessing the impacts of transportation infrastructures. **The most common response from participants was air pollution.**
- Another question asked whether the environmental impacts of transportation infrastructure projects are measured only during the construction phase. **41 respondents answered no** and it was concluded that they are not measured only during the construction phase.
- It was aimed to determine whether the environmental impacts of transportation infrastructure projects are measured during the operation phase. **47 of the respondents stated that they were measured during the environmental phase**.
- The responses to the question posed to the participants to assess how often environmental outcomes are measured are as follows: **Annually (15), Semi-Annually (8), Monthly (6)**

Survey Questions & Answers

- The existence of standardized indicators or metrics to measure environmental impacts was asked. **28 of the respondents indicated that there are, while 26 indicated that there are not.**
- The participants were asked whether the environmental impact reporting of transportation infrastructure projects is routinely carried out in their organizations. **37 of the respondents stated that it is not reported regularly, while 25 stated that it is reported regularly.**
- Respondents were asked whether there is a long-term plan/strategy to continuously measure and monitor the environmental consequences of transport infrastructure projects in their country. **33 of the respondents stated that there was and 30 stated that there was not.**
- Respondents were asked about the existence of a mechanism or process for receiving public feedback on environmental concerns related to transport infrastructure in their country. **30 respondents said that such a system exists, while 31 said that it does not.**
- In the next question, the respondents were asked whether they received financing from international financial institutions (IFIs) for transport infrastructure projects in their countries. **40 of the respondents indicated that they received financial support.**
- Respondents were asked whether there is a legislative or policy gap that prevents effective measurement and mitigation of environmental impacts. **30 respondents answered no and 26 respondents answered yes.**
- Respondents were asked about the existence of new technologies or innovative practices that could improve the measurement and mitigation of environmental impacts. **28 respondents answered yes, while 25 respondents answered no.**
- In the last question, respondents were asked whether efforts are being made to use low-emission alternatives in new investments. **45 respondents answered that they were and 21 respondents answered that they were not.**

04 Lessons Learnt and Policy Recommendations

Hamad International Airport- Qatar

Lessons Learnt and Policy Recommendations

Environmental costs and benefits should be incorporated into the costs-benefit analyses.

- CBAs mostly based on economic and financial analyses.
- Exclusion of environmental benefits/costs can lead to wrong project decisions.
- Environmental costs/benefits should be monetized and incorporated into the CBAs for improved decisions.

Governance and regulatory framework should be improved.

- Solid regulatory framework
- Clear assignment of responsibilities and authorities
- Standardized calculation methodologies/templates

Quantity and quality of the relevant statistics should be improved.

- Accurate forecasts and EIAs necessitate accurate statistics.
- Relevant and reliable statistics should be produced regularly.

Transparency, stakeholder involvement and public consultation should be ensured.

- The inclusion of the stakeholders to the decision-making processes
- Public consultation (NIMBY)
- Household and dedicated surveys
- Public participation meetings.
- Inform public about future scenarios, assumptions and forecast
- Public disclousre of all information and relevant studies (EIAs)

Ex-post Analysis should be the norm.

- Whether the transport projects have led to expected environmental impacts
- A feedback mechanism to improve the EIAs and forecasts
- Improves accountability and transparency

Thank You.

Do you have any questions?

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