



EGYPT: ECONOMIC DEVELOPMENT AND POLICIES CONFERENCE

November 7-9, 2024

TRANSPORT LOGISTICS MAKING THE MOST OF LOCATION

DR. ADLA RAGAB

PROF. OF ECONOMICS - FACULTY OF ECONOMICS AND POLITICAL SCIENCE, CAIRO UNIVERSITY, CAIRO, EGYPT

DR. RASHA FOUAD YONES

**PROF. OF ECONOMICS – VICE DEAN OF COLLEGE OF INTERNATIONAL TRANSPORT AND LOGISTICS- ARAB ACADEMY FOR SCIENCE,
TECHNOLOGY AND MARITIME TRANSPORT**

To cite this presentation

Ragab, A., & Yones, R. F. (2024, November). Transport logistics: Making the most of location [PowerPoint slides].



Arab Academy
for Science, Technology
& Maritime Transport



TRANSPORT LOGISTICS

MAKING THE MOST OF LOCATION

HANDBOOK OF THE EGYPTIAN ECONOMY

PART IX: SECTORAL AND INDUSTRIAL SECTORS. TRANSPORT LOGISTICS

DR. ADLA RAGAB

PROF. OF ECONOMICS - FACULTY OF ECONOMICS AND POLITICAL SCIENCE, CAIRO UNIVERSITY, CAIRO, EGYPT

DR. RASHA FOUAD YONES

PROF. OF ECONOMICS – VICE DEAN OF COLLEGE OF INTERNATIONAL TRANSPORT AND LOGISTICS- ARAB ACADEMY FOR SCIENCE, TECHNOLOGY AND MARITIME TRANSPORT

7 NOVEMBER 2024

Chapter outline

I. Transport Evolution

- A- Road Transport
- B- Railway Transport
- C- Inland Water way
- D- Maritime Transport
- E- Air Transport
- F- National Logistics Projects

II. Transport and Economic Growth

- A- Road Transport Empirical Analysis (2000-2022)
- B- Railway Transport Empirical Analysis (1997-2022)
- C- Maritime Transport Empirical Analysis (1981-2022)
- D- Air Transport Empirical Analysis (1981-2021)

III. Conclusion and Recommendations

INTRODUCTION

130% Increase of global pop. 1970-2023

8 trillion Passengers By 2030

70% Increase of freight. By 2030

237% Increase in Egypt's Urban pop. 1970-2023

230% Increase in Egypt's population 1970-2024

20/30 VISION OF EGYPT

- Promoting the Egyptian leadership
- Improving the life Quality and living standard of the Egyptian Citizens
- Justice, Social Integration and Participation
- Knowledge, Innovation and scientific research
- Governance of the State's institutions and society
- Competitive and Diversified economy
- Integrated and Sustainable Ecosystem
- Egypt's Peace and Security

SUSTAINABLE DEVELOPMENT GOALS INFOGRAPHIC

01 No Poverty

02 Zero Hunger

03 Good Health & Well Being

04 Quality Education

05 Gender Equality

06 Clean Water & Sanitation

07 Clean Energy

08 Economic Growth

09 Industry, Innovation, Infrastructure

10 Reduced Inequalities

11 Sustainable Cities

12 Responsible Consumption

13 Climate Action

14 Life Below Water

15 Life on Land

16 Peace, Justice, & strong Institutions

17 Partnership for the Goal

Source: Data based on World bank – WDI Database

INTRODUCTION

130% Increase of global pop. 1970-2023

8 trillion Passengers By 2030

70% Increase of freight. By 2030

237% Increase in Egypt's Urban pop. 1970-2023

230% Increase in Egypt's population 1970-2024

20/30 VISION OF EGYPT

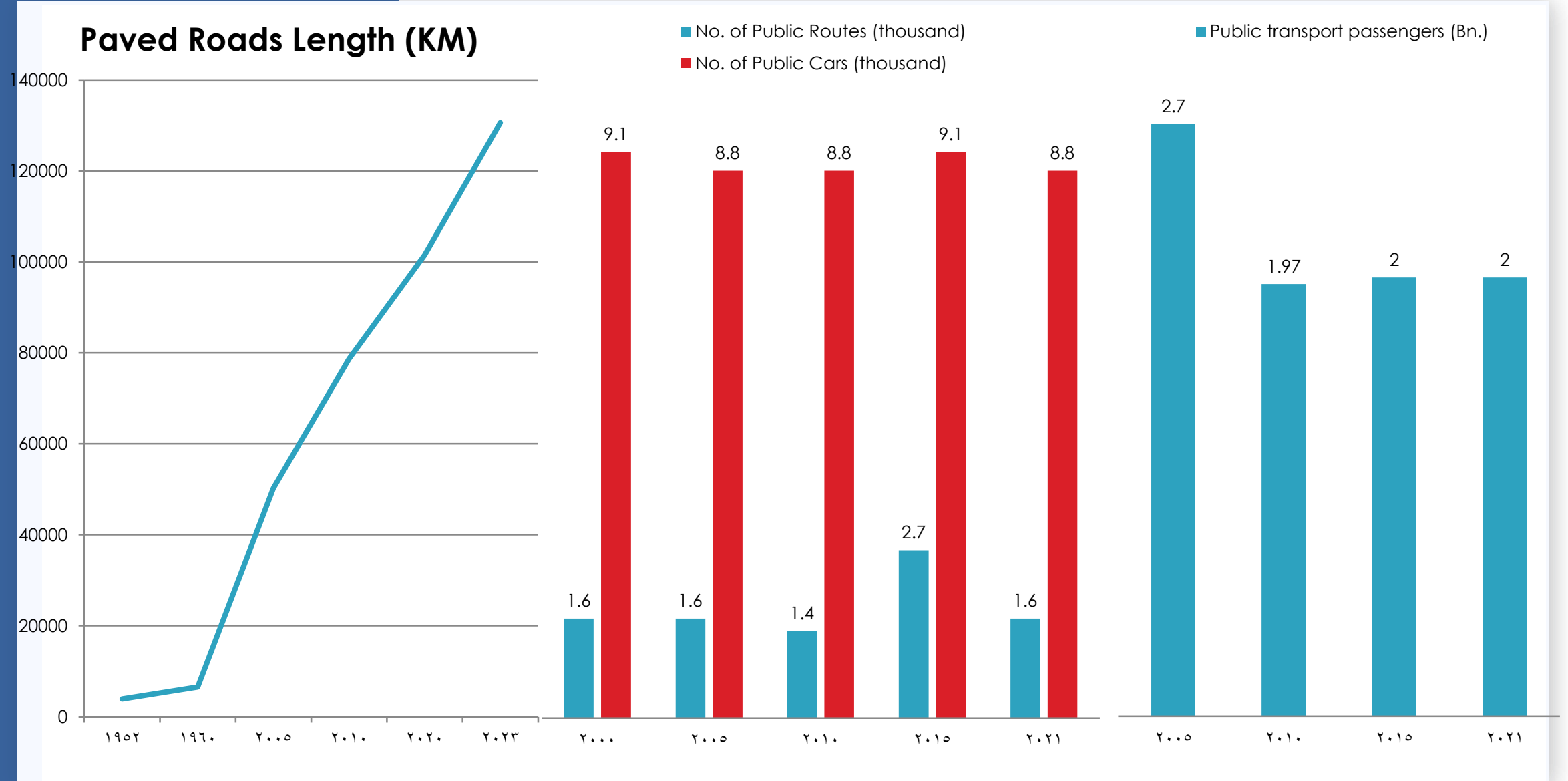
- Promoting the Egyptian leadership
- Improving the life Quality and living standard of the Egyptian Citizens
- Justice, Social Integration and Participation
- Knowledge, Innovation and scientific research
- Governance of the State's institutions and society
- Competitive and Diversified economy
- Integrated and Sustainable Ecosystem
- Egypt's Peace and Security
- Sustainable Development Goals

SUSTAINABLE DEVELOPMENT GOALS INFOGRAPHIC

- 01 No Poverty
- 02 Zero Hunger
- 03 Good Health & Well Being
- 04 Quality Education
- 05 Gender Equality
- 06 Clean Water & Sanitation
- 07 Clean Energy
- 08 Economic Growth
- 09 Industry, Innovation, Infrastructure
- 10 Reduced Inequalities
- 11 Sustainable Cities
- 12 Responsible Consumption
- 13 Climate Action
- 14 Life Below Water
- 15 Life on Land
- 16 Peace, Justice, & strong Institutions
- 17 Partnership for the Goal

Source: Data based on World bank – WDI Database

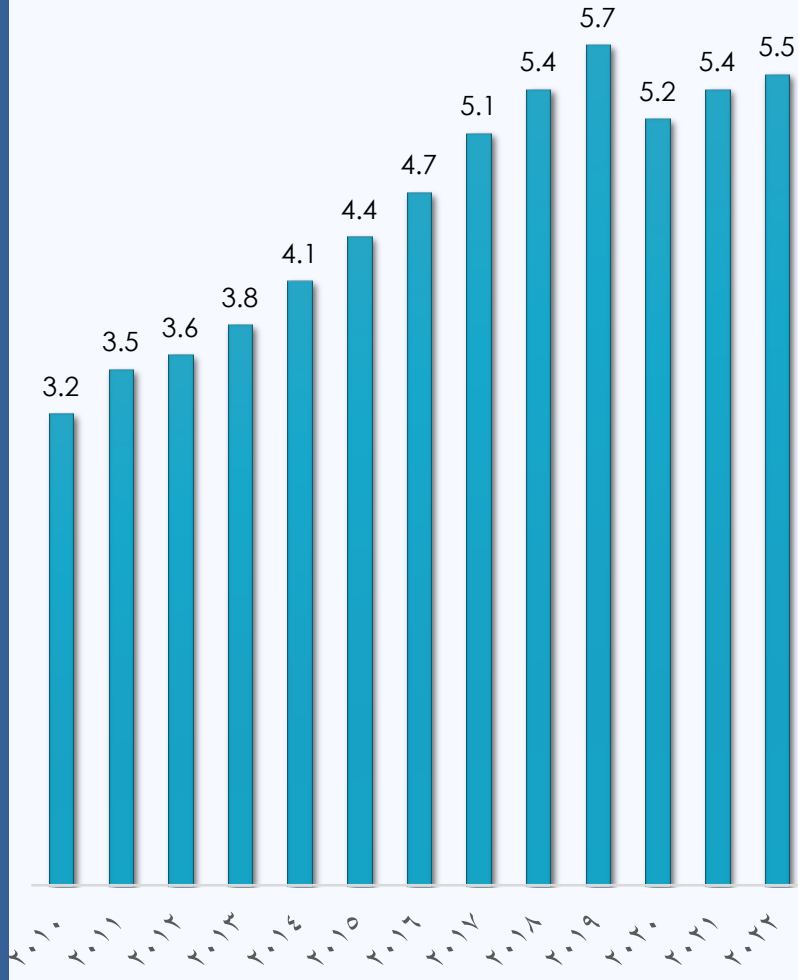
A. ROAD TRANSPORT



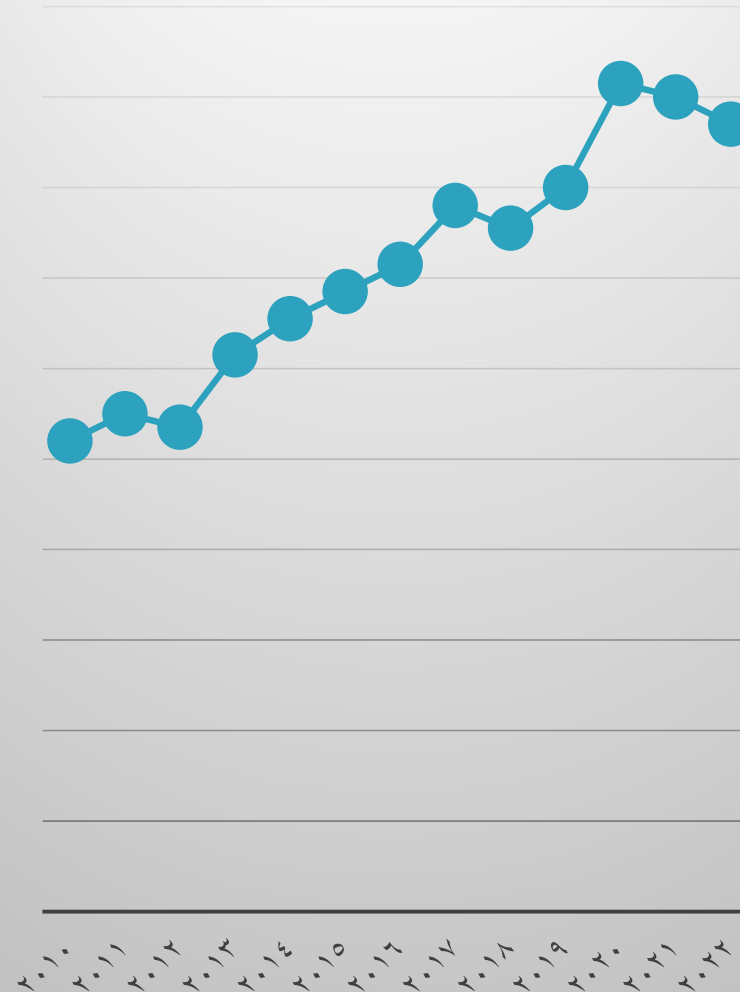
Source: Data retrieved from CAPMAS

A. ROAD TRANSPORT (CONT.)

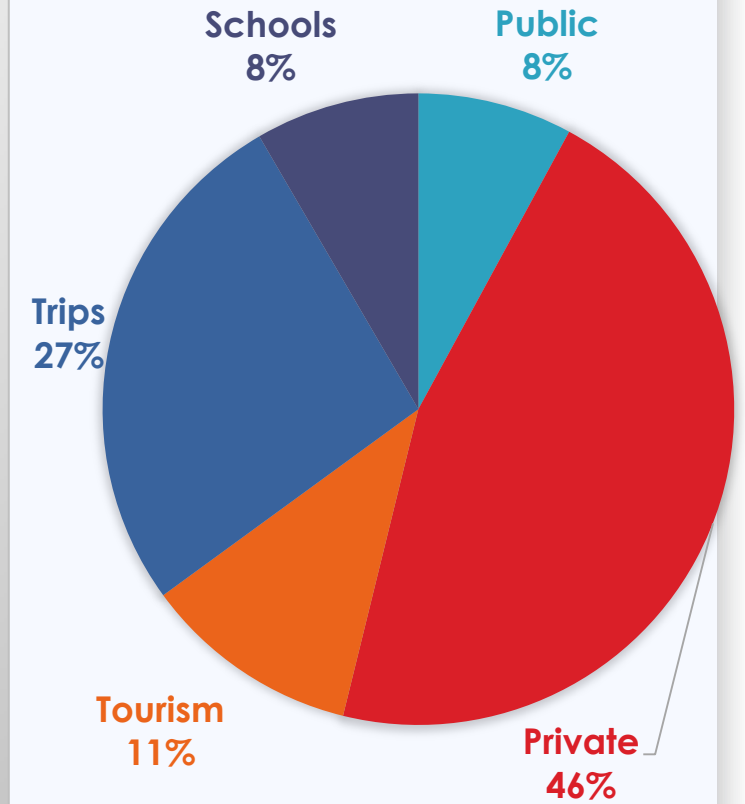
Number of cars
(million)



Number of Registered Buses
(thousand)

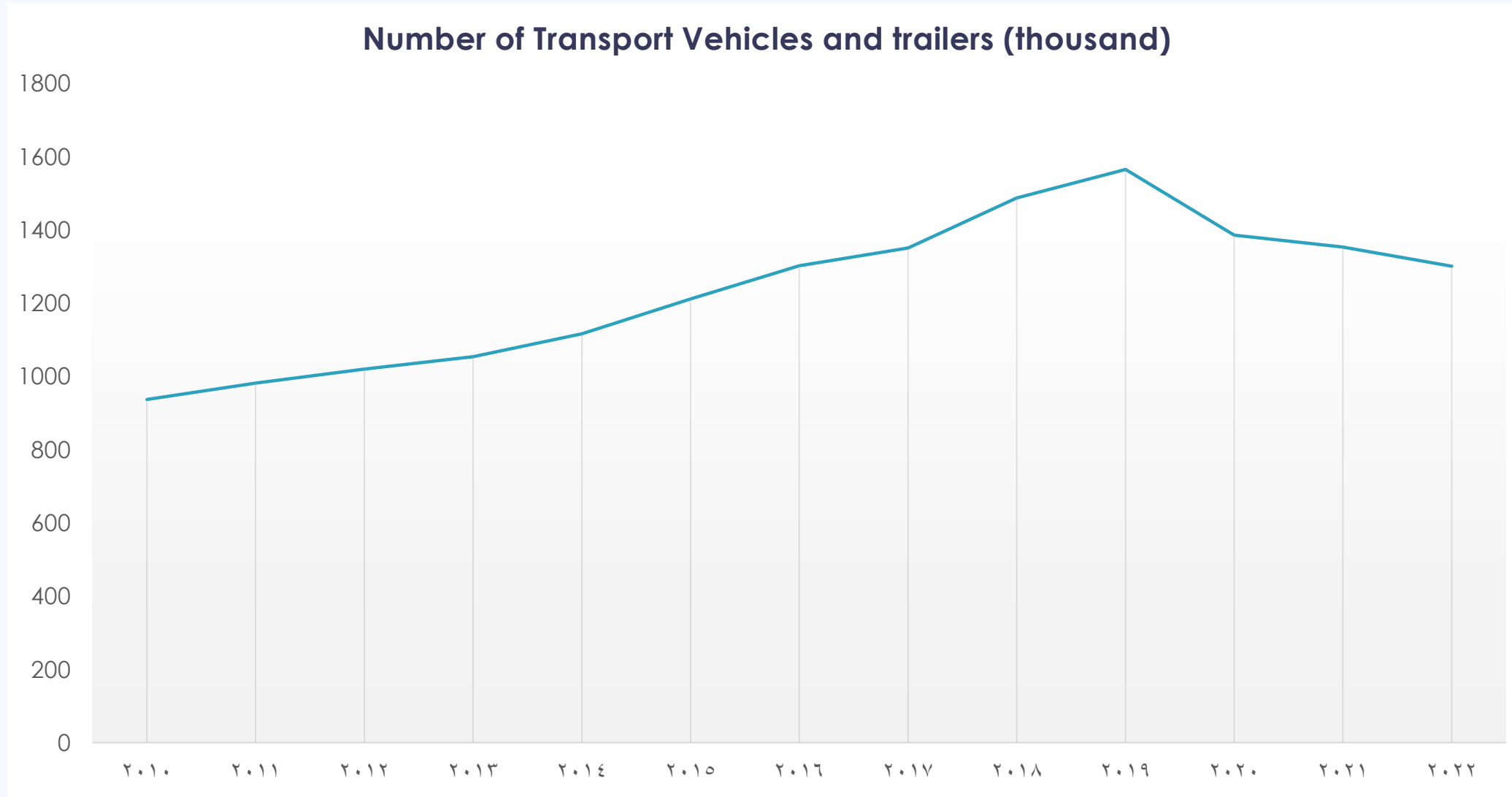


REGISTERED BUSSES 2022



Source: Data retrieved from CAPMAS

A. ROAD TRANSPORT (*CONT.*)



Source: Data retrieved from CAPMAS

A. ROAD TRANSPORT (CONT.)

ONGOING ROAD TRANSPORT PROJECTS

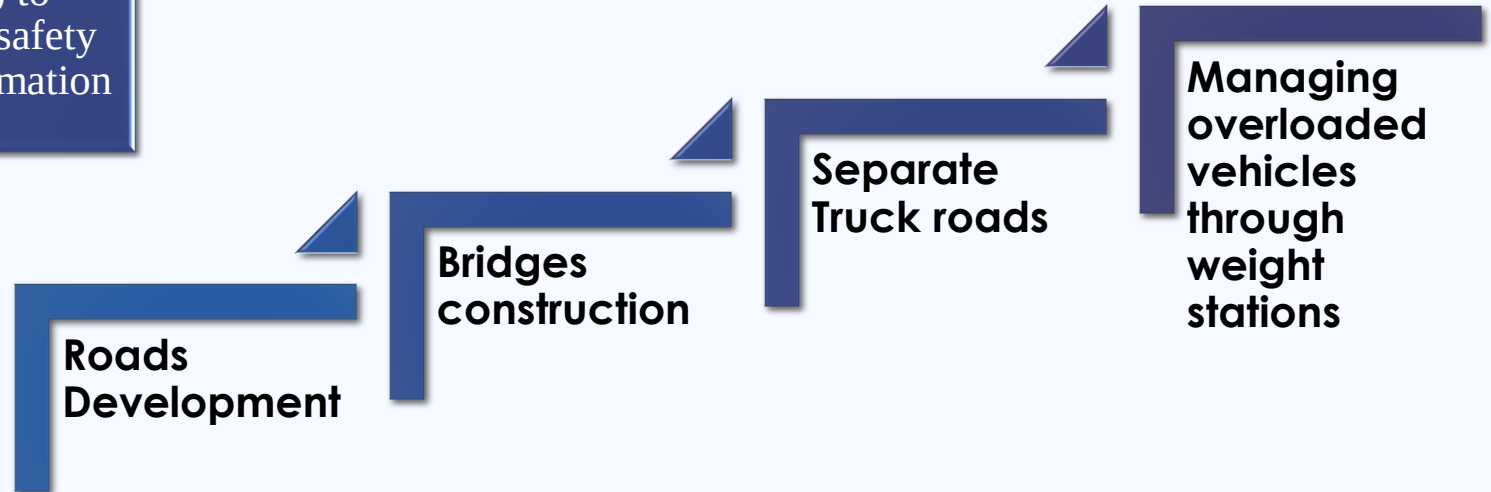
1. National Road
project

2. Intelligent Transport
System (ITS) to
increase traffic safety
and collect information

3. Bus Rapid Transit
(BRT) of 300 Km

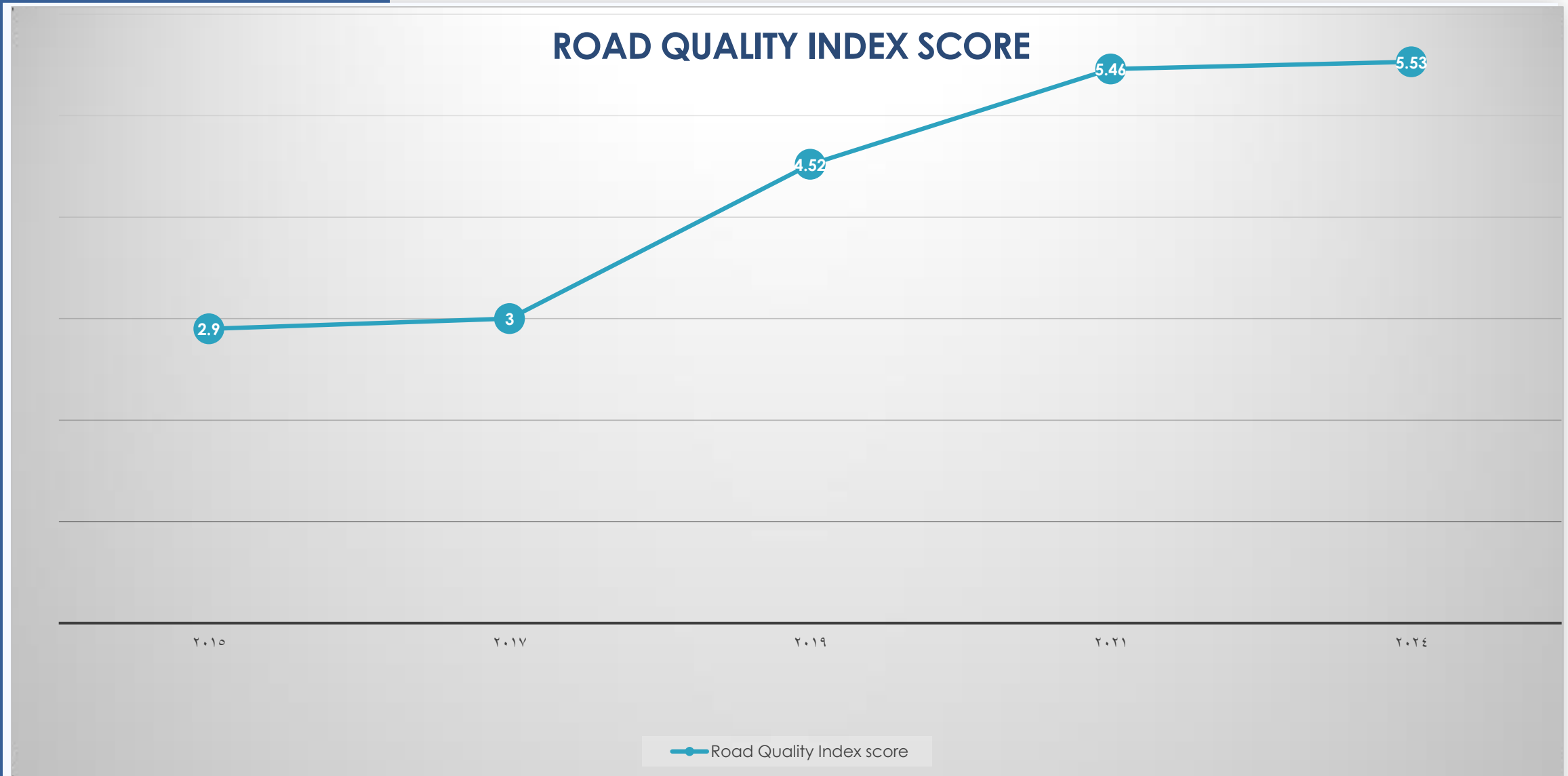
4. Regional Highways
Cairo - Cape Town Road
Cairo –Dakar road

National Road projects



Source: Information retrieved from JICA report 2022

A. ROAD TRANSPORT (CONT.)



Source: Collected from “World Economic forum (WEF)” reports

B . RAILWAY TRANSPORT

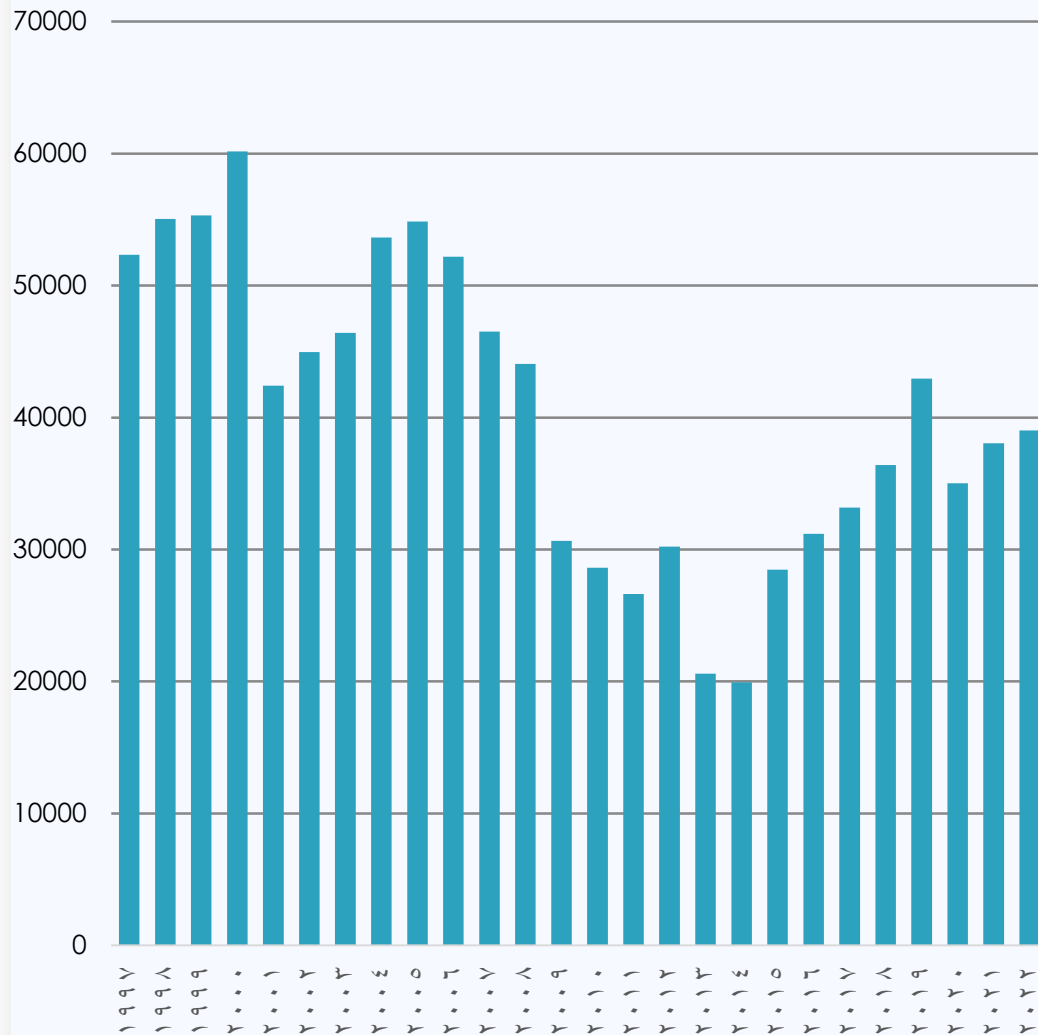
Historical Timeline



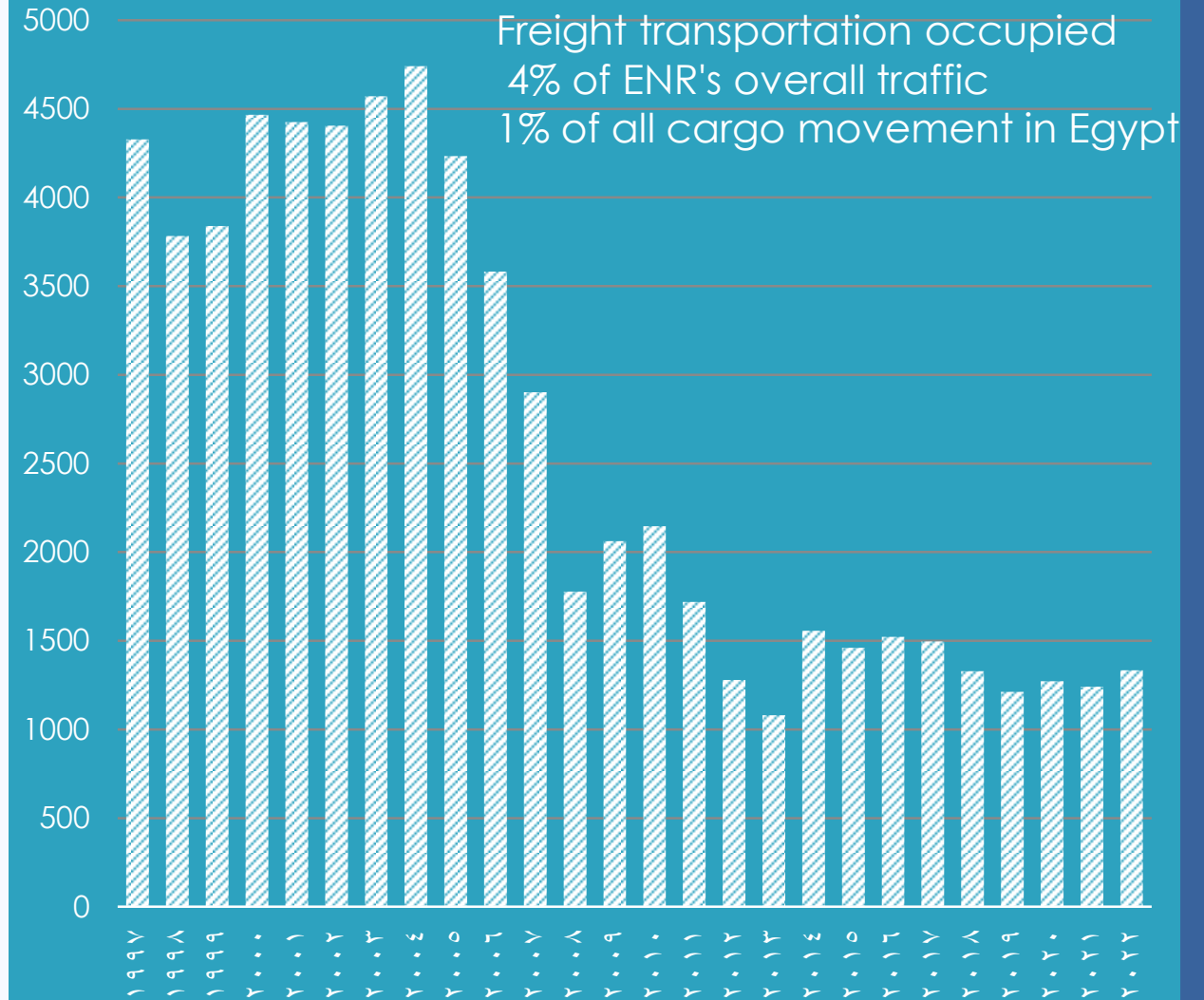
Source: information retrieved from www.enr.gov.eg

B. RAILWAY TRANSPORT (CONT.)

PASSENGERS NUMBER IN RAILWAY



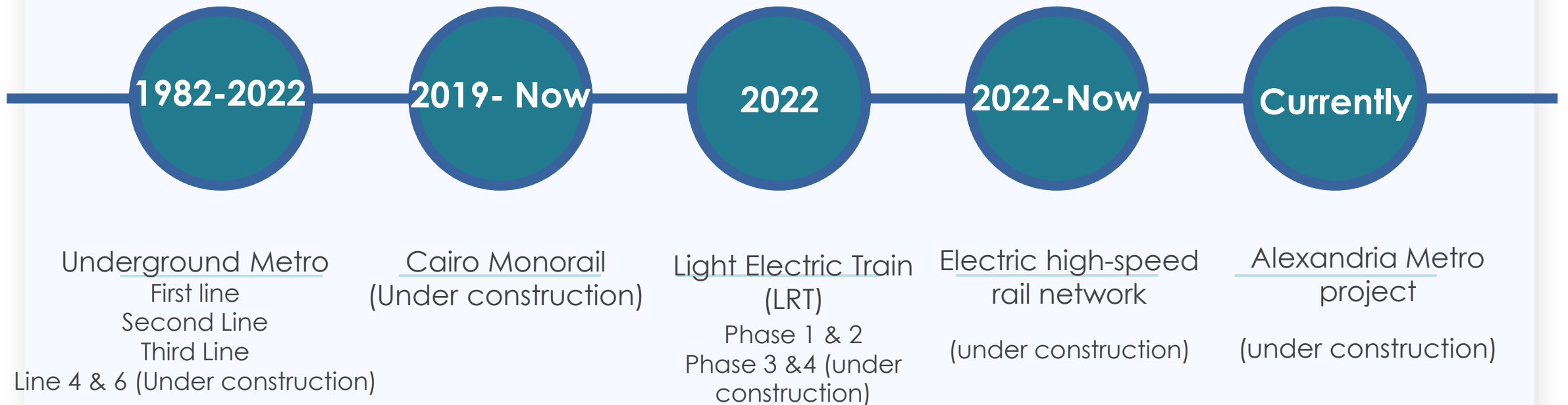
Cargo Transported by Railway



B . RAILWAY TRANSPORT (CONT.)

Public Transport

National Authority for Tunnels (NAT)



Source: information retrieved from www.nat.gov.eg

PROJECTS OF EGYPTIAN NATIONAL RAILWAY

Upgrading railway networks

Maintenance of train engines

Adding cargo cars and containers

Manufacture domestic Rolling Stock in East Port Said port

New cargo lines

Railway line for dry ports in 6th October and 10th Ramadan

Cross border railway line

Railway Improvement and Safety for Egypt (RISE) Project

C . INLAND WATERWAY TRANSPORT

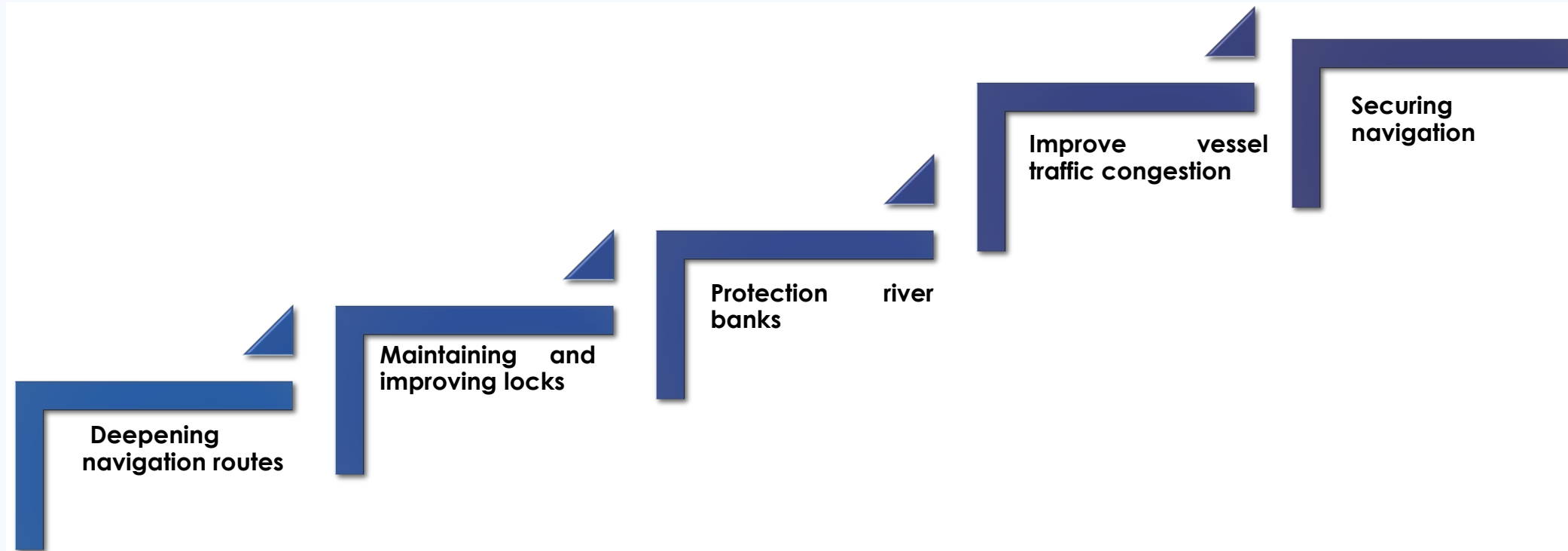
Nile network has a suitable waterway for transport of a total 1850 Km

Aswan-Cairo	Cairo-Alexandria	Damietta-Cairo	Ismailia-Cairo	Rashid-Cairo
• 1300 Km • 3 Locks • 31 Bridges	• 285 Km • 7 Locks • 34 Bridges	• 241 Km • 3 Locks • 23 Bridges	• 128 Km • 8 Locks • 34 Bridges	• 241 Km • 3 Locks • 36 Bridges

Source: information retrieved from JICA report 2022

C . INLAND WATERWAY TRANSPORT (cont.)

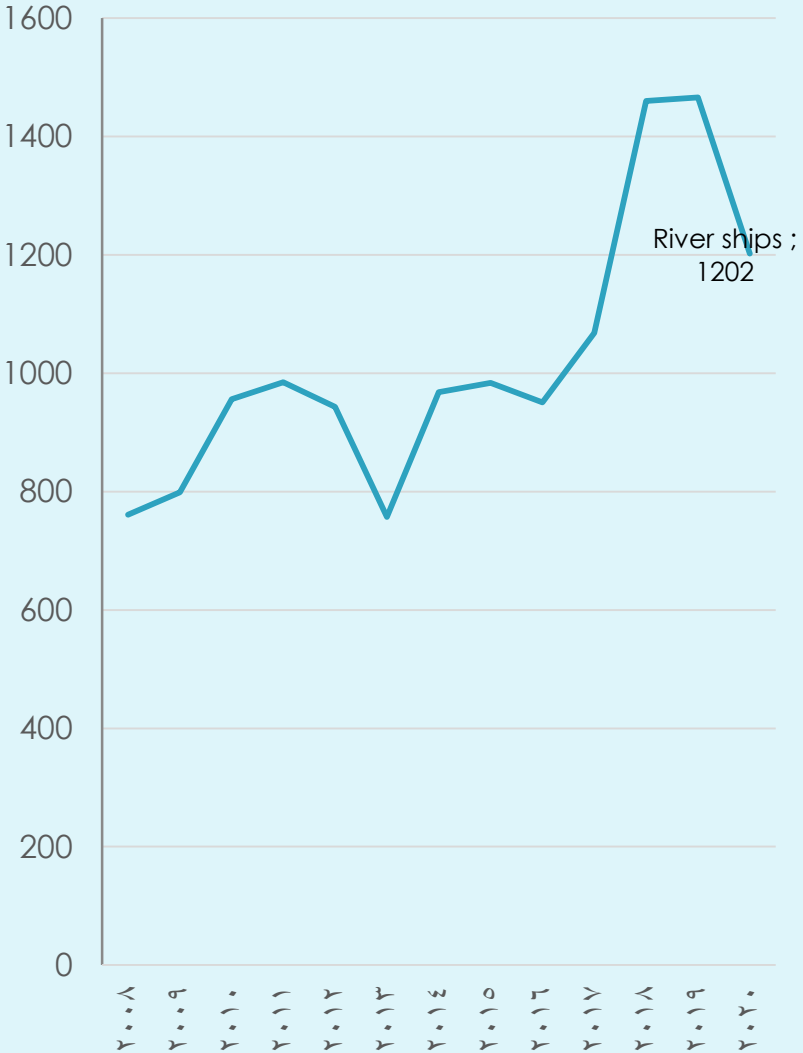
RIVER TRANSPORT AUTHORITY PROJECTS



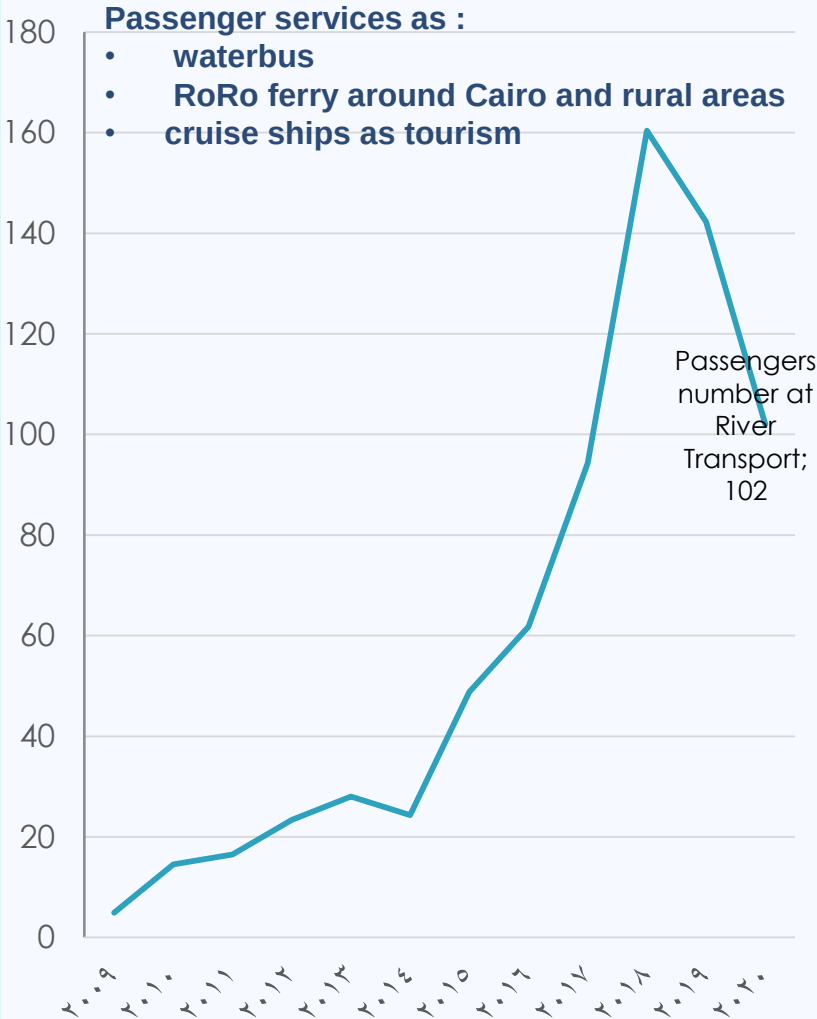
Source: information retrieved from JICA report 2022

C. INLAND WATERWAY TRANSPORT (cont.)

River Transport Fleet



Passengers number at River Transport



Cargo Transport by River



Source: Data retrieved from CAPMAS

C. INLAND WATERWAY TRANSPORT (cont.)

ONGOING RIVER TRANSPORT AUTHORITY PROJECTS

River Information System (RIS) for safe navigation, traffic control, environmental monitoring

Improving efficiency and quality of locks

Changing fixed bridge to movable for flexibility

Network infrastructure projects

Bridge construction above locks

Removing jams

Enhancement of quarries at ports

Protection of river banks

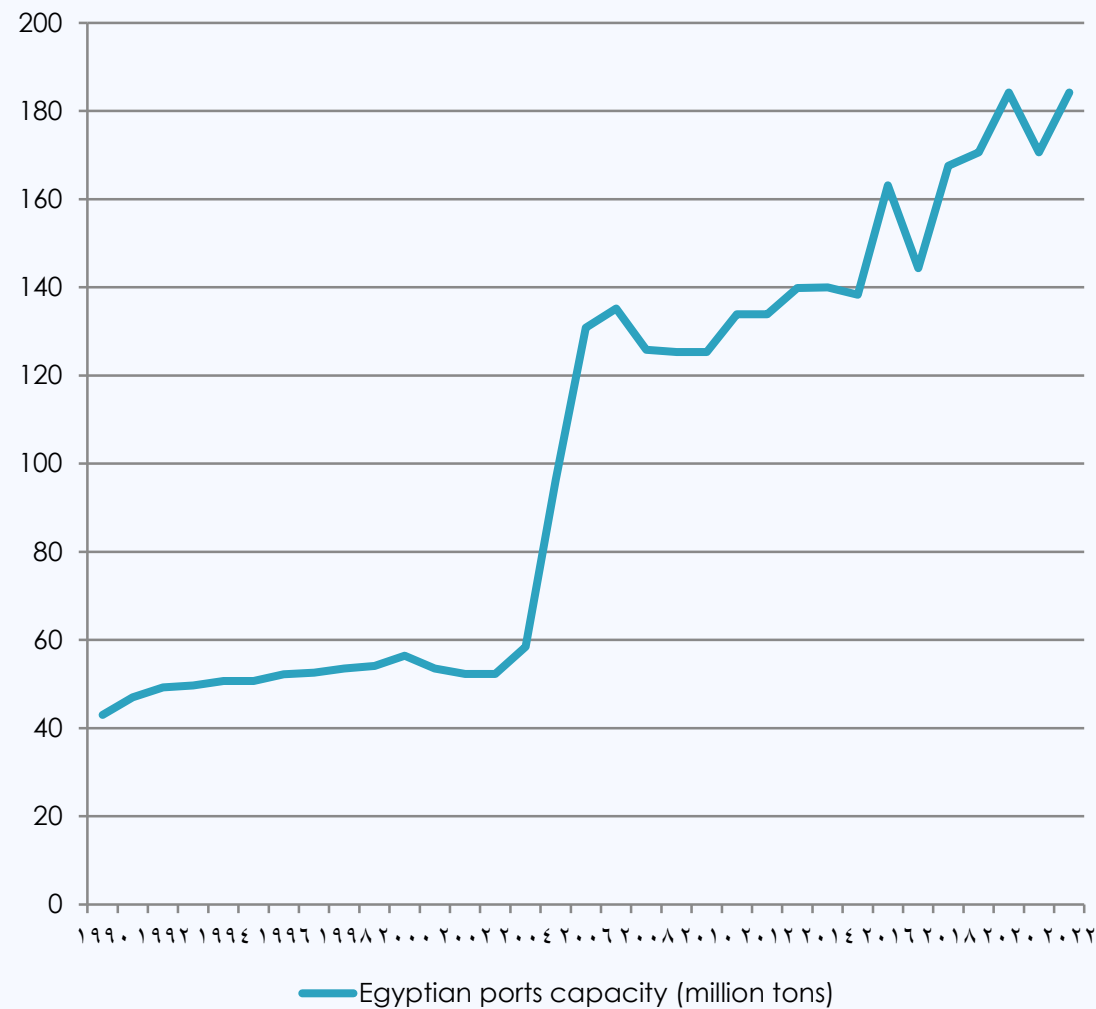
D. MARITIME TRANSPORT



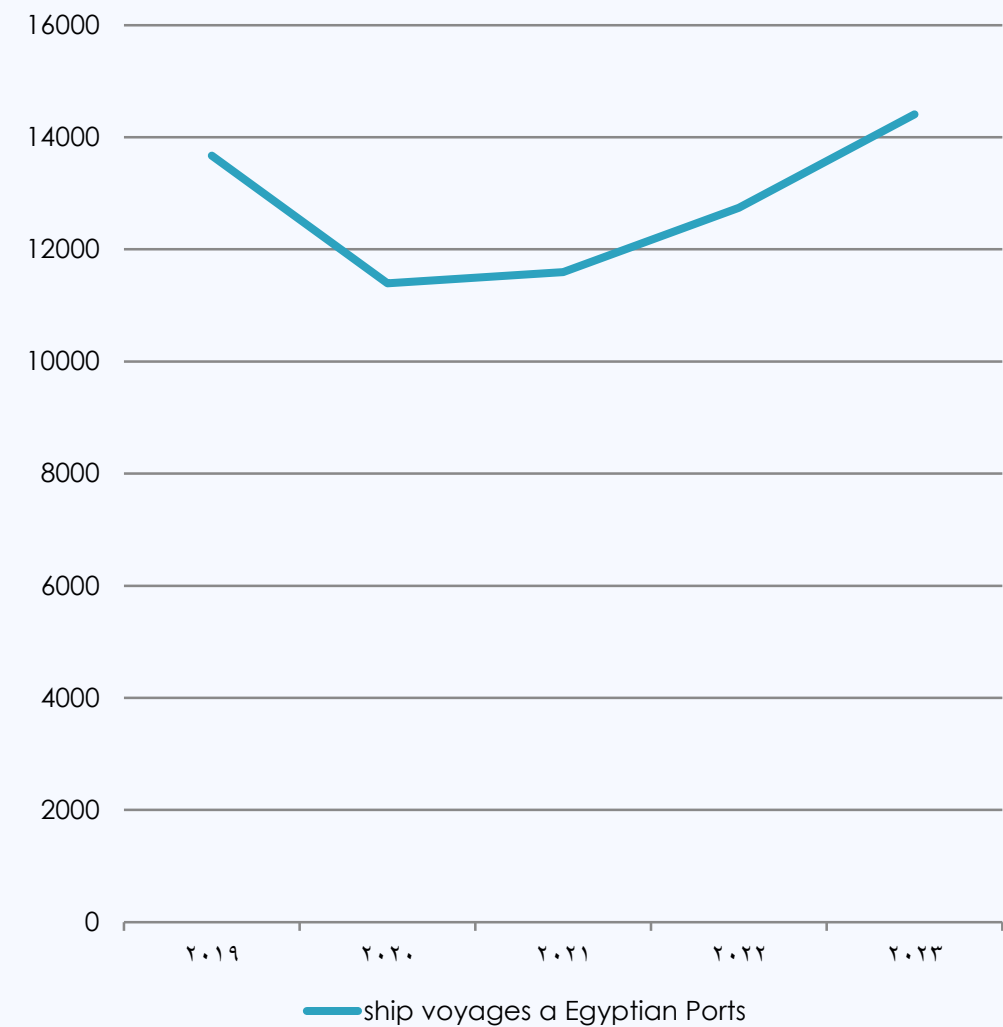
Source: Map and data retrieved from Ministry of Transport

D. MARITIME TRANSPORT (CONT.)

Egyptian ports capacity



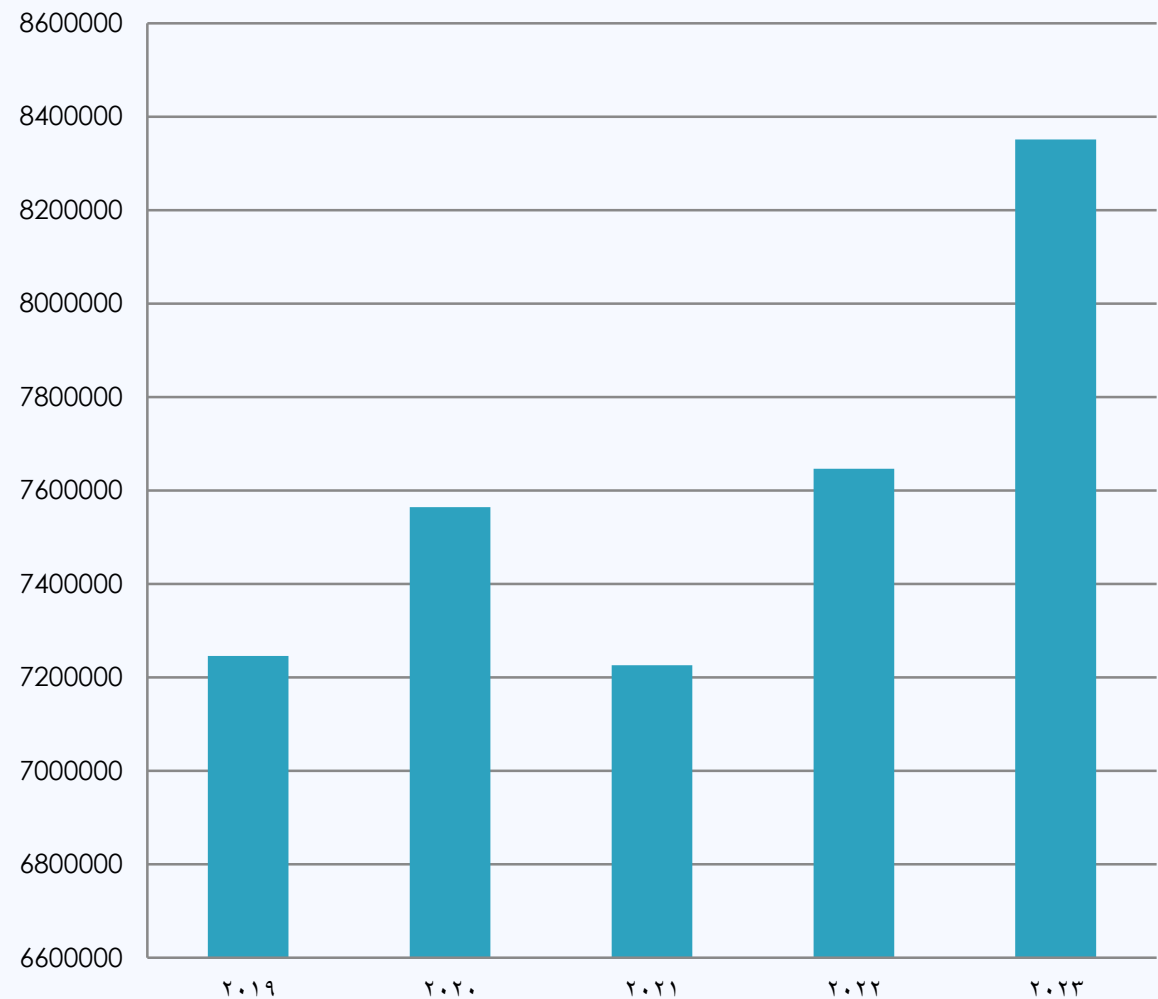
Ship voyages at Egyptian Ports



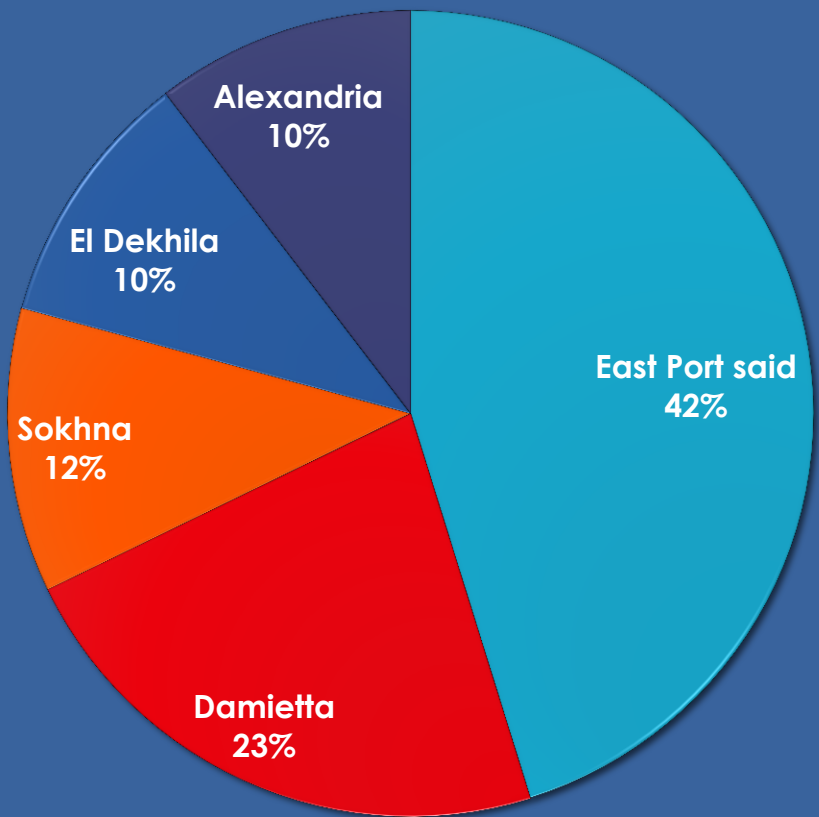
Source: Data retrieved from Maritime Transport Sector

D. MARITIME TRANSPORT (CONT.)

Container movement at Egyptian Ports



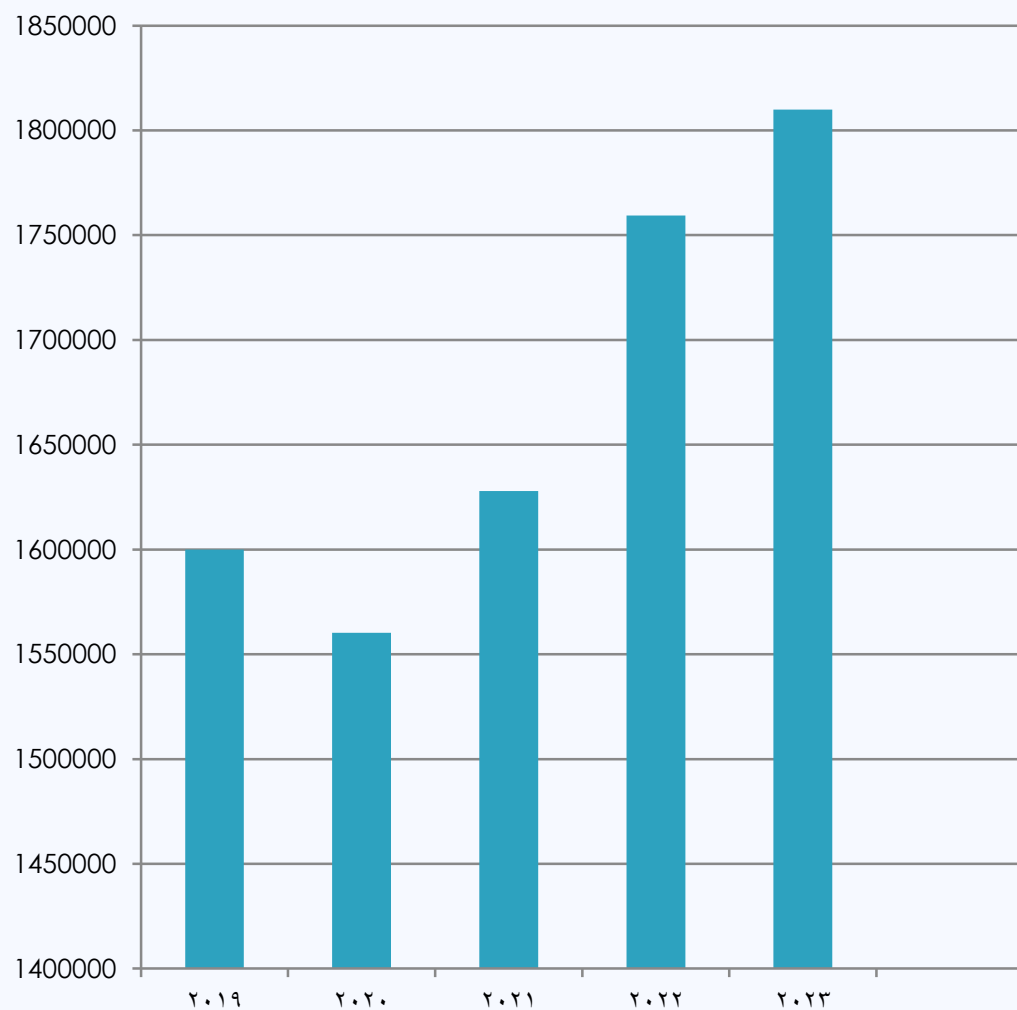
Container handling at top Egyptian ports (2023)



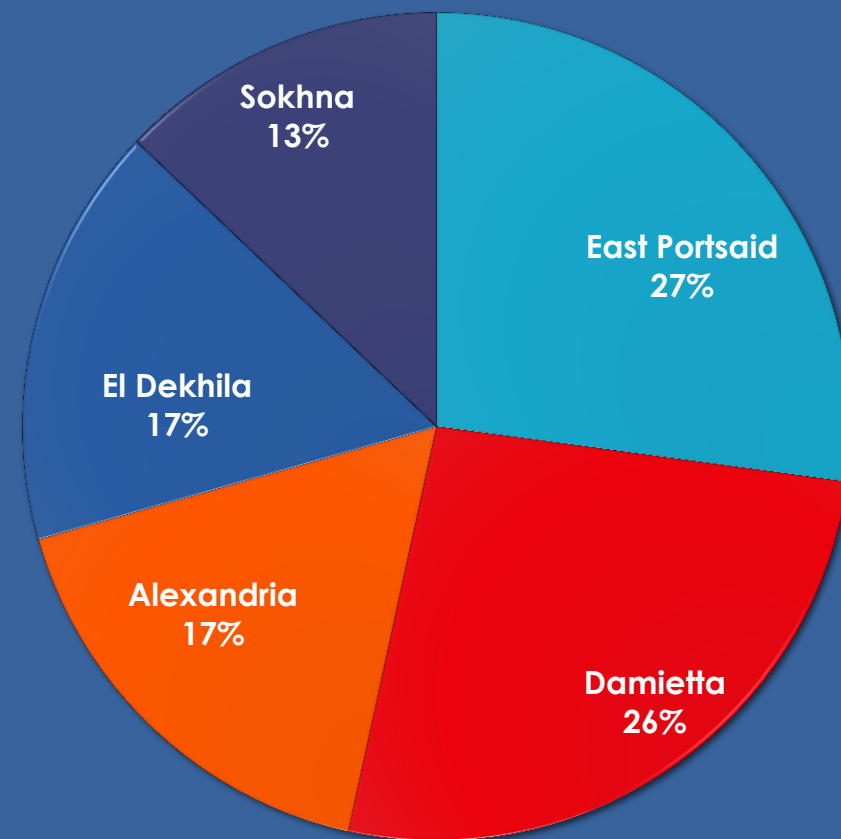
Source: Data retrieved from Maritime Transport Sector Database

D. MARITIME TRANSPORT (CONT.)

Cargo Movement at Egyptian Ports



Cargo Movement at Top five Egyptian Ports (2023)



Source: Data retrieved from Maritime Transport Sector Database

D. MARITIME TRANSPORT (CONT.)

EGYPTIAN MARITIME TRANSPORT STRATEGY OBJECTIVES

Increase ports capacity to 370 MN. ton by 2030.

Adding Logistics services at ports

Enhance Private investment at ports

Upgrading merchant fleet

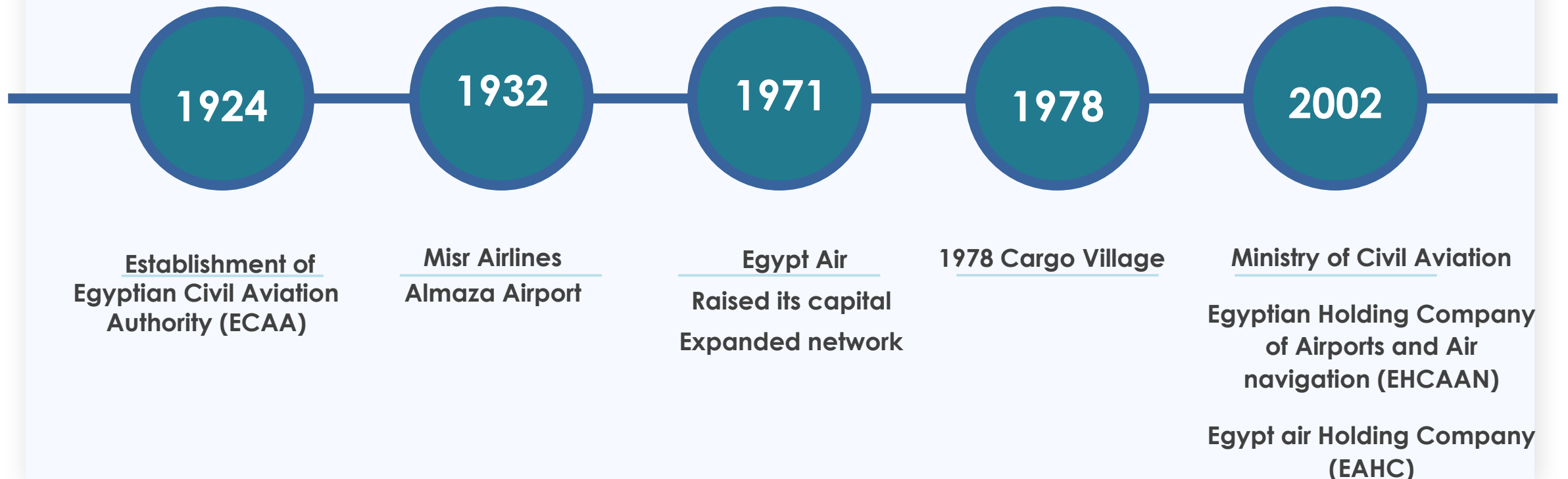
Development of Intermodal transports connect ports with different transport modes

Adding industrial zone inside Ports

Integration among ports with investment zones

E . AIR TRANSPORT

Historical Timeline

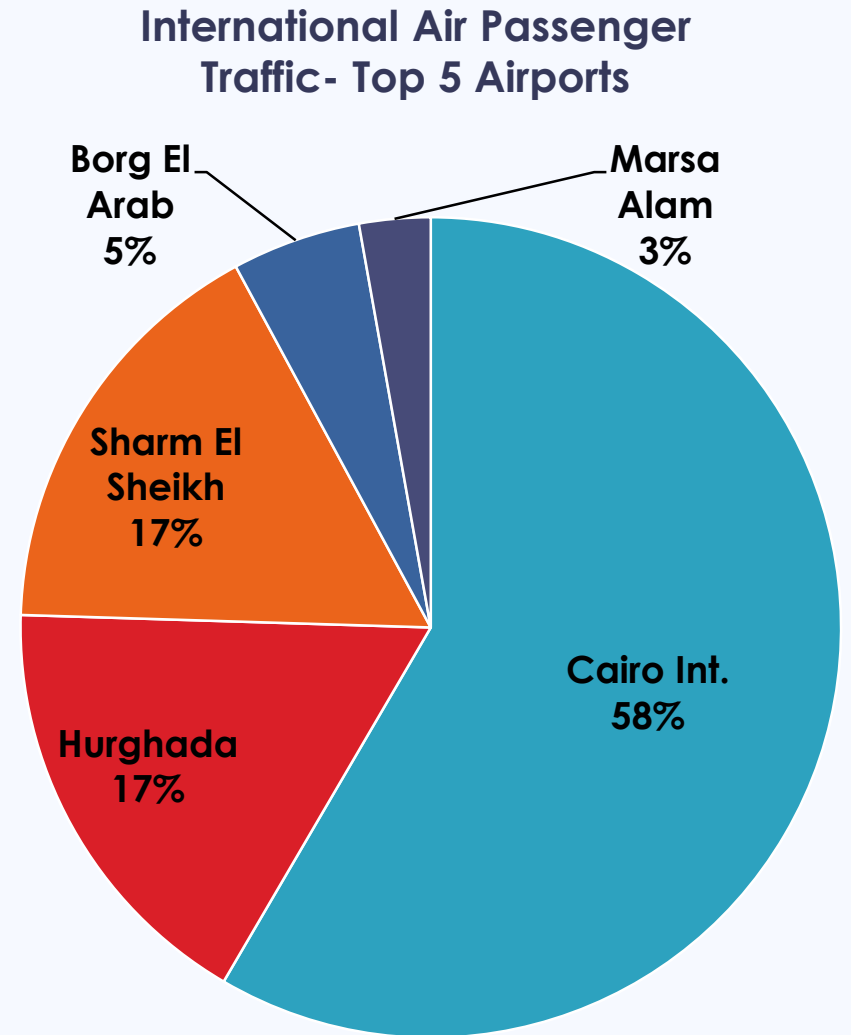


Source: information retrieved www.egyptair-me.com

E. AIR TRANSPORT(CONT.)

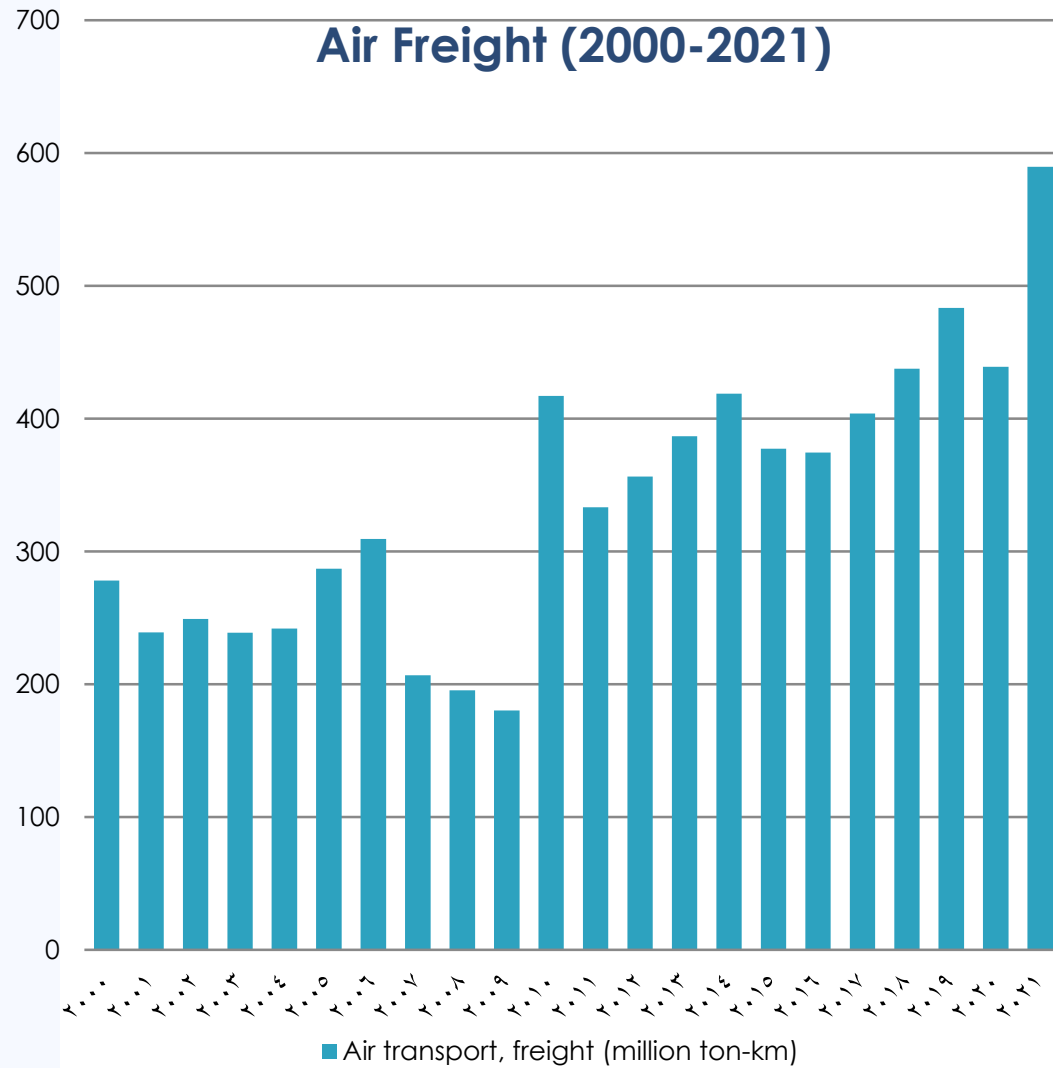
26 Civil Airports

Cairo Int. Airport	Sharm EL Sheikh Int. Airport	Hurghada Int. Airport	Marsa Allam Int. Airport	Borg EL Arab Int. Airport
International passengers Share				
88.4%	89.6%	93.2%	98.6%	97.3%

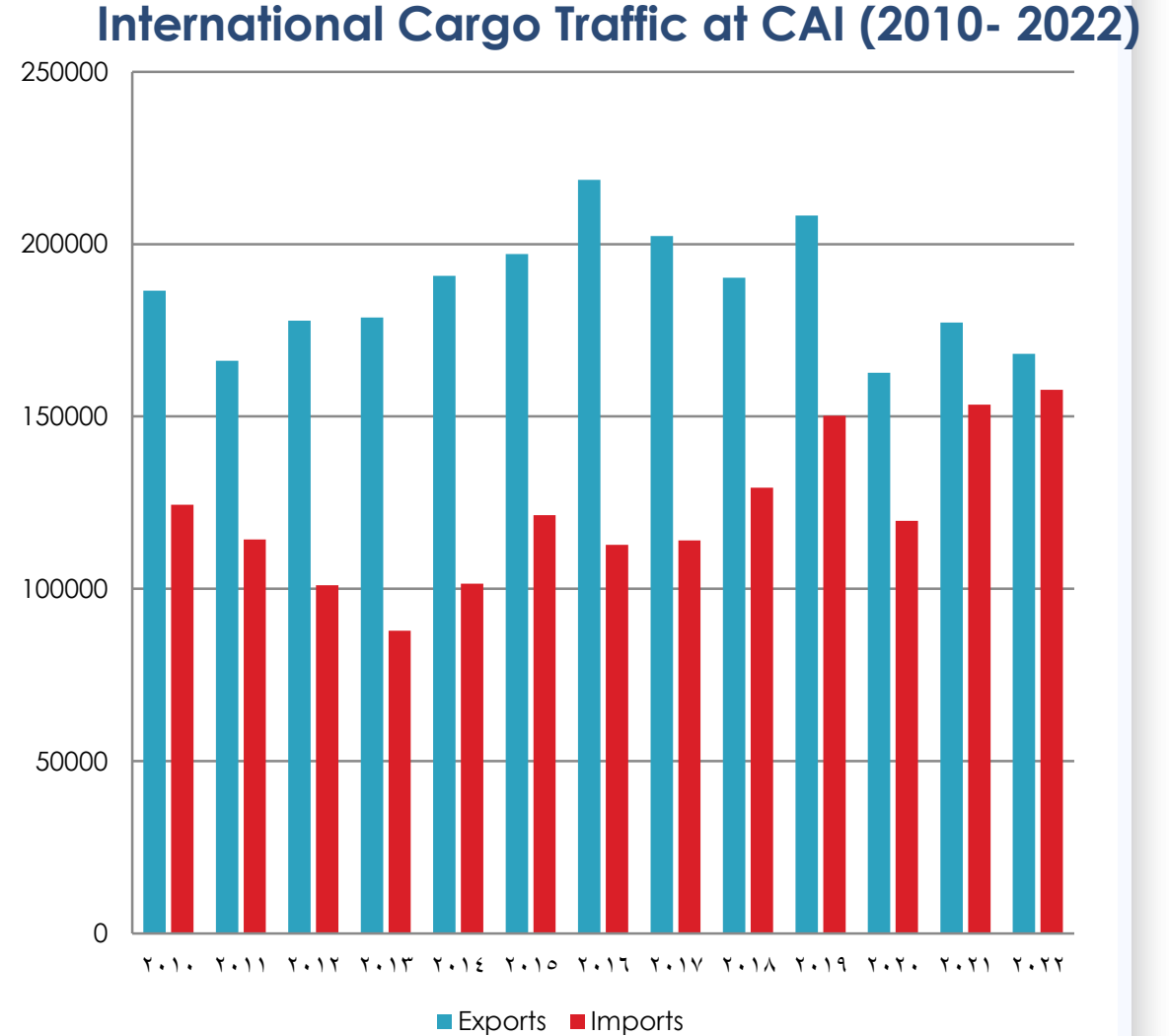


Source: Based on data collected from EHCAAN

E. AIR TRANSPORT(CONT.)



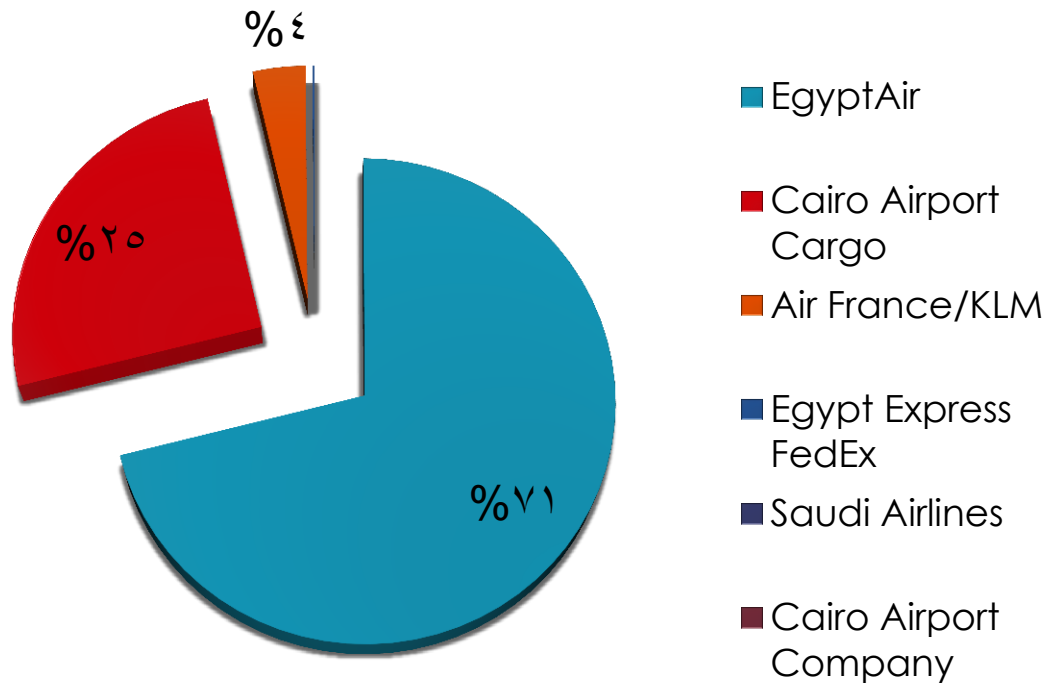
Source: Data retrieved from World Bank-WDI database



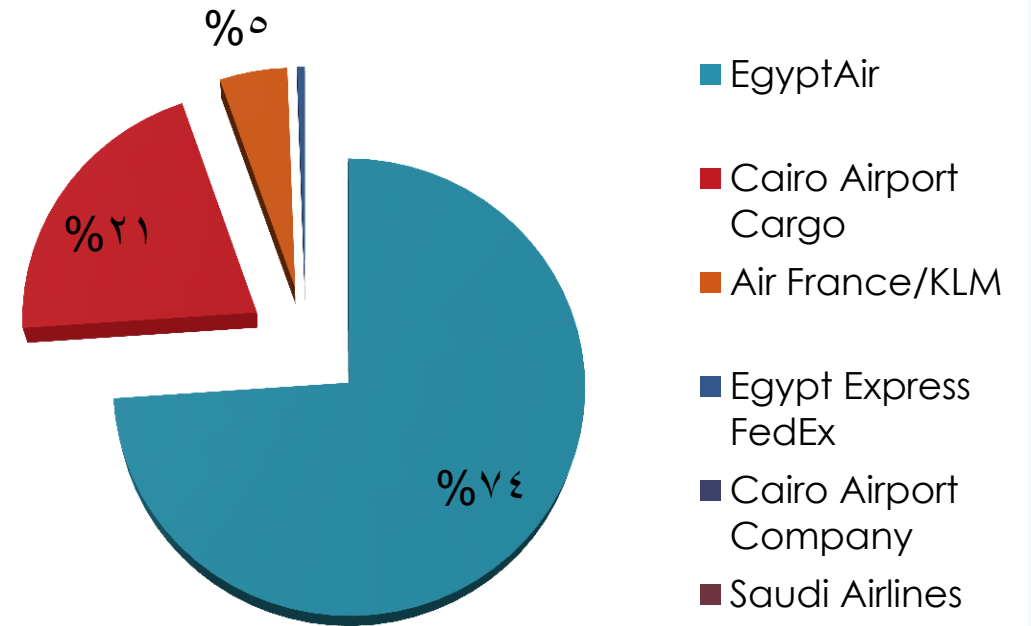
Source: Based on data collected from EHCAAN

E. AIR TRANSPORT(CONT.)

Exports Company share at CAI



Imports Company share at CAI



Source: Based on data collected from EHCAAN (2022)

E. AIR TRANSPORT (CONT.)

DEVELOPMENT PROJECTS

Airport master plan 2017 raising capacity of existing terminals airports and construction of new locations

Enhancing public-private investments BOT/BOOT Airports: as Marsa-Allam Airport, Alamein Airport

In 2019, open skies policy allowed private Egyptian airlines to operate direct flights to Egyptian airports

Operation of 24 new airlines in 2021 - 2022

Cargo village accommodate larger aircraft models

Expansion of Egypt Air cargo storage space (15,000 sq. m) at CAI

Developing Air navigation & traffic management systems

Modernization of security services at Cairo International Airport

Establishment of transit, logistics and manufacturing cluster at CAI.

F. NATIONAL LOGISTICS PROJECTS

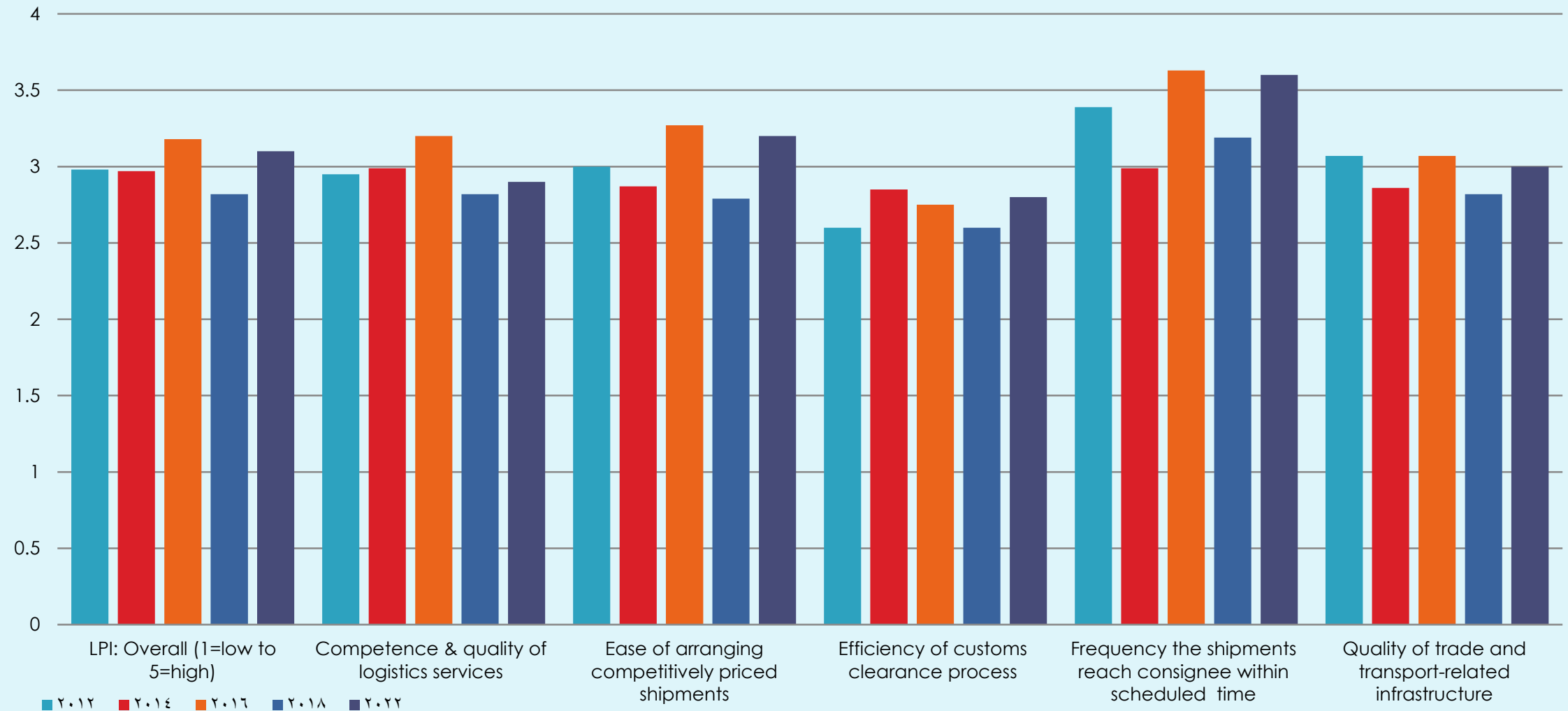
Logistics Projects

Intermodal Transport Corridor Alexandria port- EL Sokhna port linking 6 th oct. dry port	Regional logistics hub Suez Canal Economic Zone (SCZone)	10 th Ramadan dry port Linked to road network and railway	Borg EL Arab dry port connected to road network, railways, and seaports
--	--	--	--

Source: information retrieved from JICA report 2022

F. NATIONAL LOGISTICS PROJECTS (CONT.)

LOGISTICS PERFORMANCE INDEX



Source: Data retrieved from World Bank-WDI database

II. TRANSPORT AND ECONOMIC GROWTH

A- FIRST MODEL: ROAD TRANSPORT

Estimation Period from 2000- 2022

The model is investigating impact of road transport on economic growth using GDP as dependent variable.

The independent variables representing road transport are mortalities caused from road traffic accidents and road length.

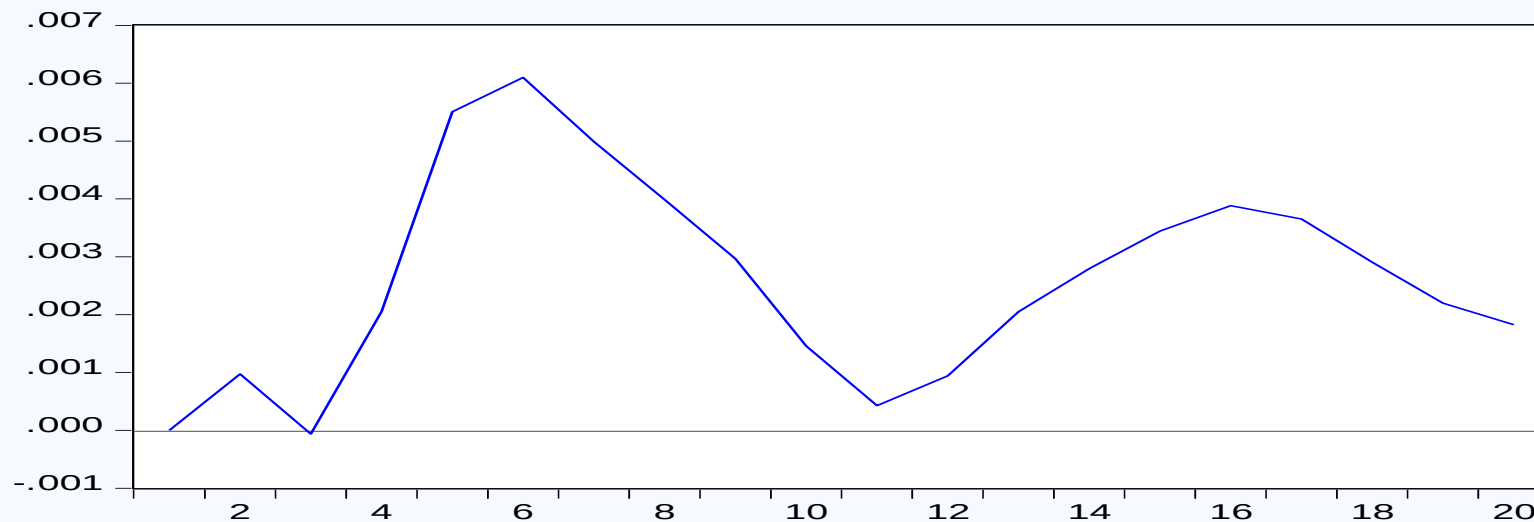
$$\begin{aligned} \Delta \text{LNGDP}_t = & -0.005 \text{ECT}_{t-1} & + 0.09 \Delta \text{LNGDP}_{t-1} & + 0.25 \Delta \text{LNGDP}_{t-2} \\ & (0.0066) & (0.7822) & (0.4834) \\ & + 0.11 \Delta \text{LMORTALITY}_{t-1} & + 0.03 \Delta \text{LMORTALITY}_{t-2} & + 0.03 \Delta \text{LNEROAD}_{t-1} \\ & (0.0202) & (0.3464) & (0.2631) \\ & + 0.04 \Delta \text{LNROAD}_{t-2} & - 0.03 \Delta \text{LUNEM}_{t-1} & - 0.13 \Delta \text{NUNEM}_{t-2} \\ & (0.0847) & (0.3836) & (0.0071) \end{aligned}$$

A- FIRST MODEL: ROAD TRANSPORT (CONT.)

ESTIMATION RESULTS OF THE FIRST MODEL: ROAD TRANSPORT

- ECT indicated that deviation from long run equilibrium should be converged back at speed of adjustment of almost 0.6% which is a slow rate.
- Short-run coefficients indicate road length is positively significant with GDP which shows good potential for road improvements
- Unemployment is negatively significant with GDP.
- Positive significance of traffic Mortalities on GDP.

Response of LNGDP to LNMORTALITY Innovation
using Cholesky (d.f. adjusted) Factors



II. TRANSPORT AND ECONOMIC GROWTH (CONT.)

B- SECOND MODEL : RAILWAY TRANSPORT

Estimation Period from 1997- 2022

- The model is examining railway transport impact on GDP as dependent variable.
- The independent variable representing railway transport is cargo transported by railway.

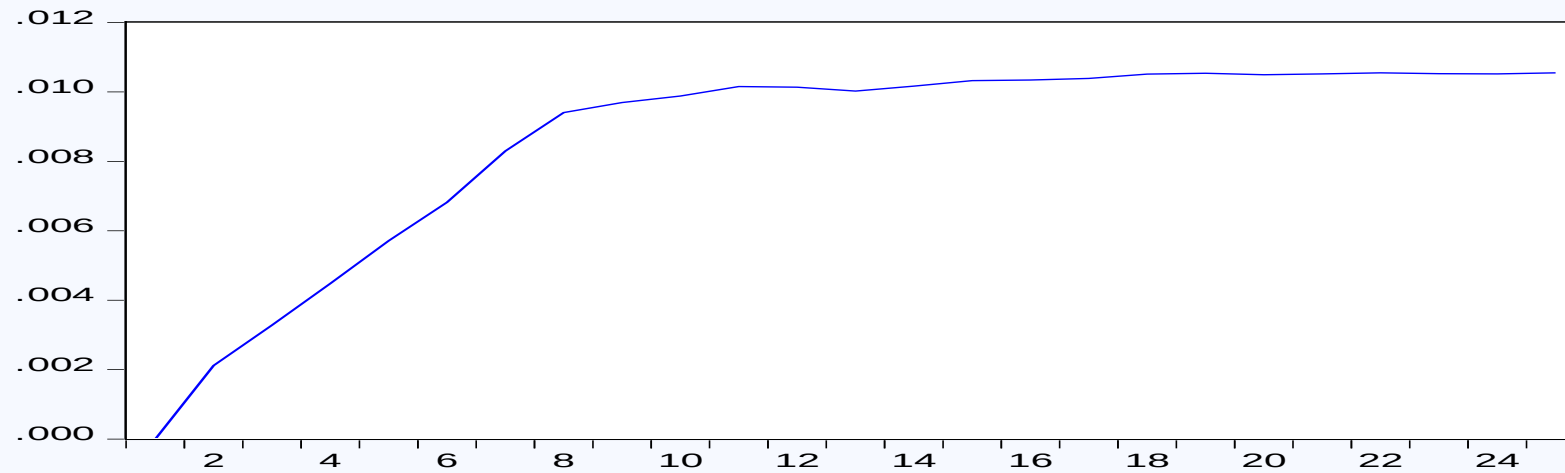
$$\begin{aligned}\Delta \text{LNGDP}_t = & -0.245 \text{ECT}_{t-1} + 0.417 \Delta \text{LNGDP}_{t-1} - 0.572 \Delta \text{LNGDP}_{t-2} \\ & \circ \quad (0.0045) \quad \quad \quad (0.0819) \quad \quad \quad (0.0339) \\ & - 0.021 \Delta \text{LNCARGORW}_{t-1} - 0.030 \Delta \text{LNCARGORW}_{t-2} - 0.114 \Delta \text{LNUNEM}_{t-1} \\ & \quad \quad (0.2594) \quad \quad \quad (0.0755) \quad \quad \quad (0.007) \\ & - 0.066 \Delta \text{LNUNEM}_{t-2} + 0.032 \Delta \text{LNHHCONS}_{t-1} + 0.332 \Delta \text{LNHHCONS}_{t-1} \\ & \quad \quad \circ \quad (0.053) \quad \quad \quad (0.8458) \quad \quad \quad (0.0758)\end{aligned}$$

B- SECOND MODEL : RAILWAY TRANSPORT (CONT.)

ESTIMATION RESULTS OF THE SECOND MODEL: RAILWAY TRANSPORT

- ECT indicated that deviation from long run equilibrium should be converged back at speed of adjustment of almost 24%.
- Short-run coefficients indicate unemployment is negatively significant on GDP and household consumption is positively significant which goes with literature.
- Negative significant of railway Cargo on GDP as railway projects are the high costly and need long time to start get back its positive outcomes as it need long construction time.

Response of LNGDP to LNCARGORW Innovation
using Cholesky (d.f. adjusted) Factors



II. TRANSPORT AND ECONOMIC GROWTH (CONT.)

C- THIRD MODEL : MARITIME TRANSPORT

ESTIMATION PERIOD FROM 1981- 2022

- The model is examining maritime transport impact on GDP as dependent variable.
- The independent variable representing maritime transport is port capacity.

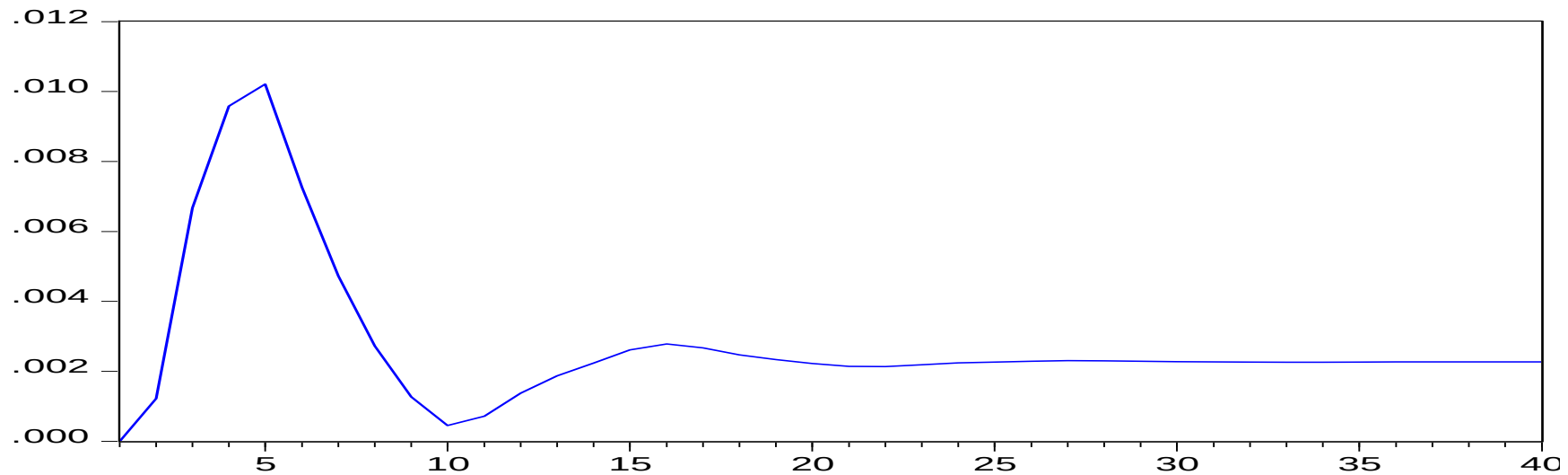
$$\begin{aligned}\Delta \text{LN} \text{GDP}_t = & -0.127 \text{ECT}_{t-1} + 0.228 \Delta \text{LN} \text{GDP}_{t-1} + 0.224 \Delta \text{LN} \text{GDP}_{t-2} - 0.075 \Delta \text{LN} \text{GDP}_{t-3} \\ & \circ \quad (0.0901) \qquad \qquad (0.1831) \qquad \qquad (0.1717) \qquad \qquad (0.6505) \\ & - 0.024 \Delta \text{LN} \text{PORT}_{t-1} + 0.047 \Delta \text{LN} \text{PORT}_{t-2} + 0.007 \Delta \text{LN} \text{PORT}_{t-3} \\ & \qquad \qquad (0.2107) \qquad \qquad (0.0299) \qquad \qquad (0.7555) \\ & - 0.216 \Delta \text{LN} \text{HHCONS}_{t-1} + 0.212 \Delta \text{LN} \text{HHCONS}_{t-2} - 0.177 \Delta \text{LN} \text{HHCONS}_{t-3} \\ & \circ \quad (0.3337) \qquad \qquad (0.1985) \qquad \qquad (0.4033) \\ & - 0.013 \Delta \text{LN} \text{EXCH}_{t-1} - 0.024 \Delta \text{LN} \text{EXCH}_{t-2} - 0.018 \Delta \text{LN} \text{EXCH}_{t-3} \\ & \circ \quad (0.5219) \qquad \qquad (0.2894) \qquad \qquad (0.3185) \\ & + 0.008 \Delta \text{LN} \text{TRADE}_{t-1} + 0.043 \Delta \text{LN} \text{TRADE}_{t-2} - 0.024 \Delta \text{LN} \text{TRADE}_{t-3} \\ & \circ \quad (0.7248) \qquad \qquad (0.0382) \qquad \qquad (0.2846)\end{aligned}$$

C- THIRD MODEL : MARITIME TRANSPORT (CONT.)

ESTIMATION RESULTS OF THE THIRD MODEL: MARITIME TRANSPORT

- ECT indicated that deviation from long run equilibrium should be converged back at speed of adjustment of almost 13%.
- Short-run coefficients indicate Positive significance of port capacity and international trade on GDP which goes with literature

Response of LNGDP to LNPORT Innovation
using Cholesky (d.f. adjusted) Factors



II. TRANSPORT AND ECONOMIC GROWTH (CONT.)

D- FOURTH MODEL : AIR TRANSPORT

ESTIMATION PERIOD FROM 1981- 2021

- The model is examining impact of air transport on GDP as dependent variable.
- The independent variable representing air transport is passengers carried by air transport.

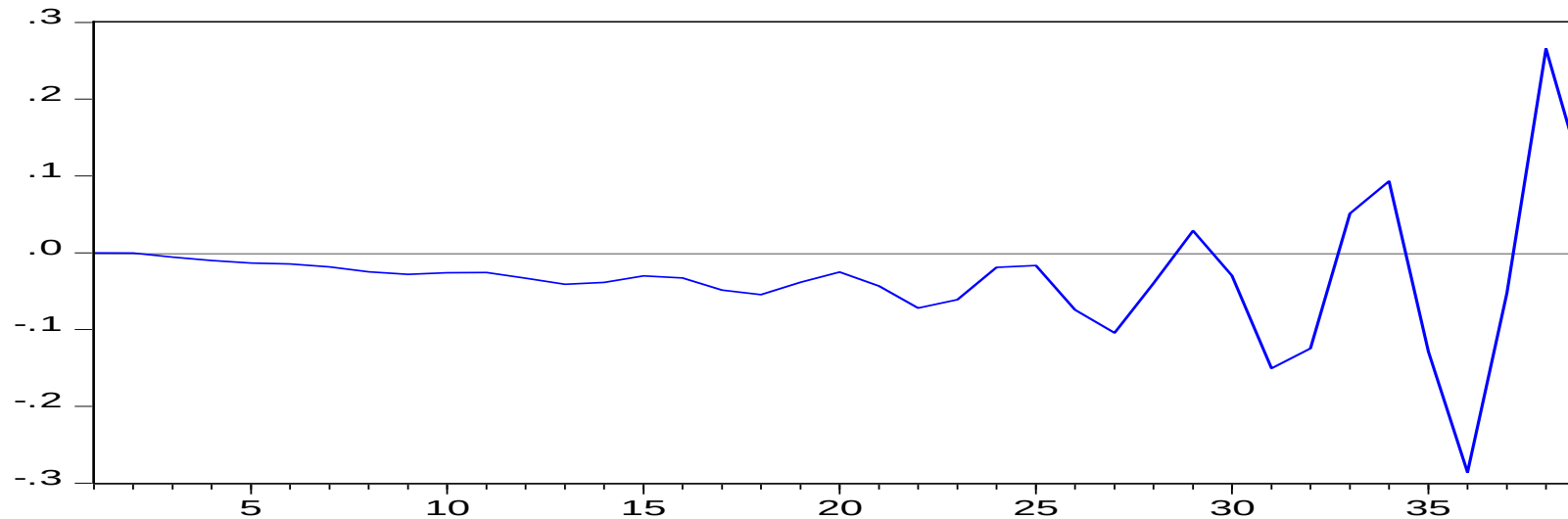
$$\begin{aligned}\Delta \text{LN} \text{GDP}_t = & \underset{\circ \quad (0.0045)}{-0.081 \text{ ECT}_{t-1}} + \underset{(0.0181)}{0.528 \Delta \text{LN} \text{GDP}_{t-1}} + \underset{(0.8286)}{0.050 \Delta \text{LN} \text{GDP}_{t-2}} - \underset{(0.3079)}{0.142 \Delta \text{LN} \text{GDP}_{t-3}} \\ & - \underset{(0.0107)}{0.056 \Delta \text{LN} \text{AIRP}_{t-1}} + \underset{(0.1956)}{0.023 \Delta \text{LN} \text{PORT}_{t-2}} + \underset{(0.0532)}{0.034 \Delta \text{LN} \text{PORT}_{t-3}} \\ & - \underset{\circ \quad (0.0002)}{0.093 \Delta \text{LN} \text{UNEM}_{t-1}} - \underset{(0.2248)}{0.023 \text{ LN} \text{UNEM}} - \underset{(0.0612)}{0.049 \Delta \text{LN} \text{UNEM}_{t-3}} \\ & + \underset{\circ \quad (0.0992)}{0.027 \Delta \text{LN} \text{EXCH}_{t-1}} + \underset{(0.0468)}{0.040 \Delta \text{LN} \text{EXCH}_{t-2}} + \underset{(0.2149)}{0.024 \Delta \text{LN} \text{EXCH}_{t-3}} \\ & + \underset{\circ \quad (0.9646)}{0.007 \Delta \text{LN} \text{HHCONS}_{t-1}} - \underset{(0.677)}{0.074 \Delta \text{LN} \text{HHCONS}_{t-2}} - \underset{(0.4777)}{0.160 \Delta \text{LN} \text{HHCONS}_{t-3}}\end{aligned}$$

D- FOURTH MODEL : AIR TRANSPORT (CONT.)

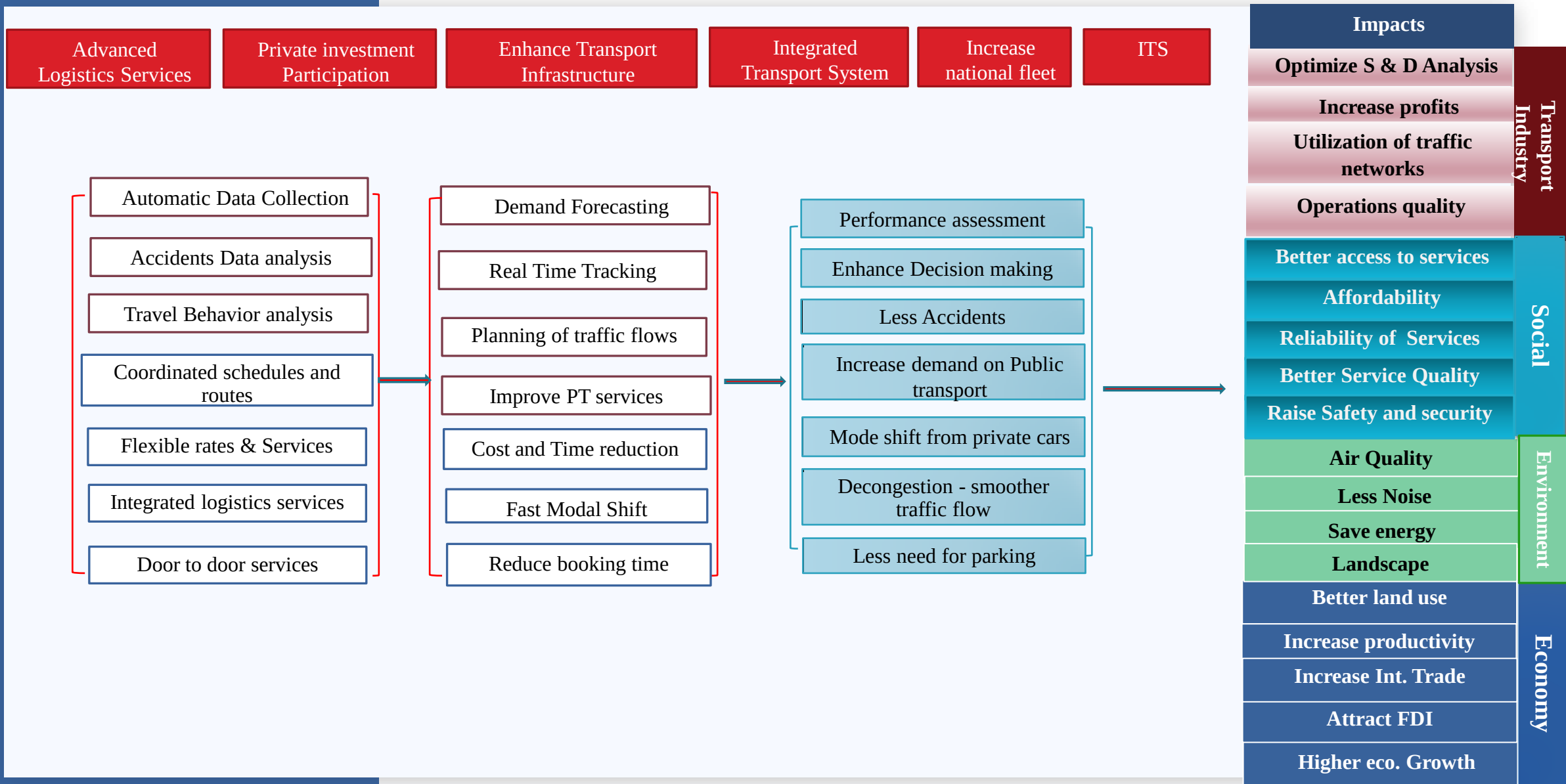
ESTIMATION RESULTS OF THE FOURTH MODEL: AIR TRANSPORT

- ECT indicated that deviation from long run equilibrium should be converged back at speed of adjustment of almost 8%.
- Short-run coefficients indicate unemployment is negatively significant, and exchange rate is positively significant.,
- Positive significance of air transport on GDP which goes with literature.

Response of LNGDP to LNAIRP Innovation
using Cholesky (d.f. adjusted) Factors



III. Conclusion and Recommendations



Thank You

Q & A