

ONWARD & UPWARD:

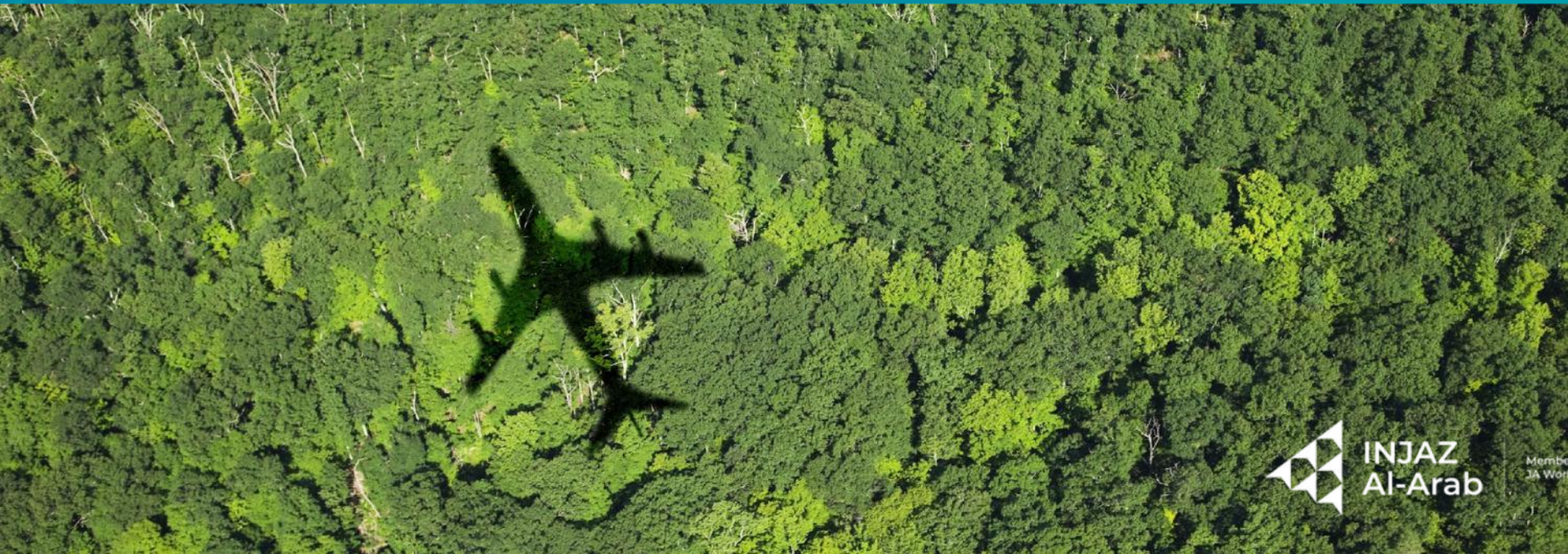
**Navigating the Future of
Sustainability in Aviation**



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Module 1: Introduction to Sustainable Aviation



 **Look out for:**



General Knowledge & Insightful Facts



Key Things to Note



Self- paced Learning Activity



Required Tasks



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Module 1: Objectives & Learning Outcomes



Objectives

1.1: Introducing the global aviation industry and key statistics

1.2: Understanding the environmental impact of aviation

1.3: Exploring sustainability and global development concepts in aviation



Learning Outcomes

1.a: Understand the value of the aviation sector in global economic and social prosperity

1.b: Recognise the role of sustainable growth in the context of aviation

1.c: Embrace global citizenship



Write down and set your learning intentions for this module. Ask yourself what do you want to learn and why?



Skills: Seeking relevant information, Asking the right questions



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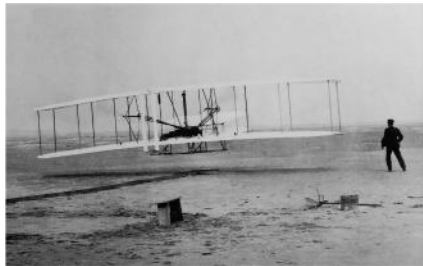
Objective 1.1: Overview of the Aviation Industry & its Environmental Impact



Global Aviation Industry: *an introduction*



1903- Early Days
Wright Brothers' First Flight



2020-
Now
Boeing 777X



2035-
Future
Airbus ZEROe



”
“ A space shrinking technology that has increased the interconnectedness of our world



Global Aviation Industry: *Key Stakeholders*



In which part of this global chain network do you find yourself interested in and why? Take a note of that thought.

Ground Support Operations

Airlines



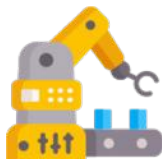
Tourism Community



Passengers



Manufacturers



Global Air Transport System



Business Community



Airports & Airspace Operators



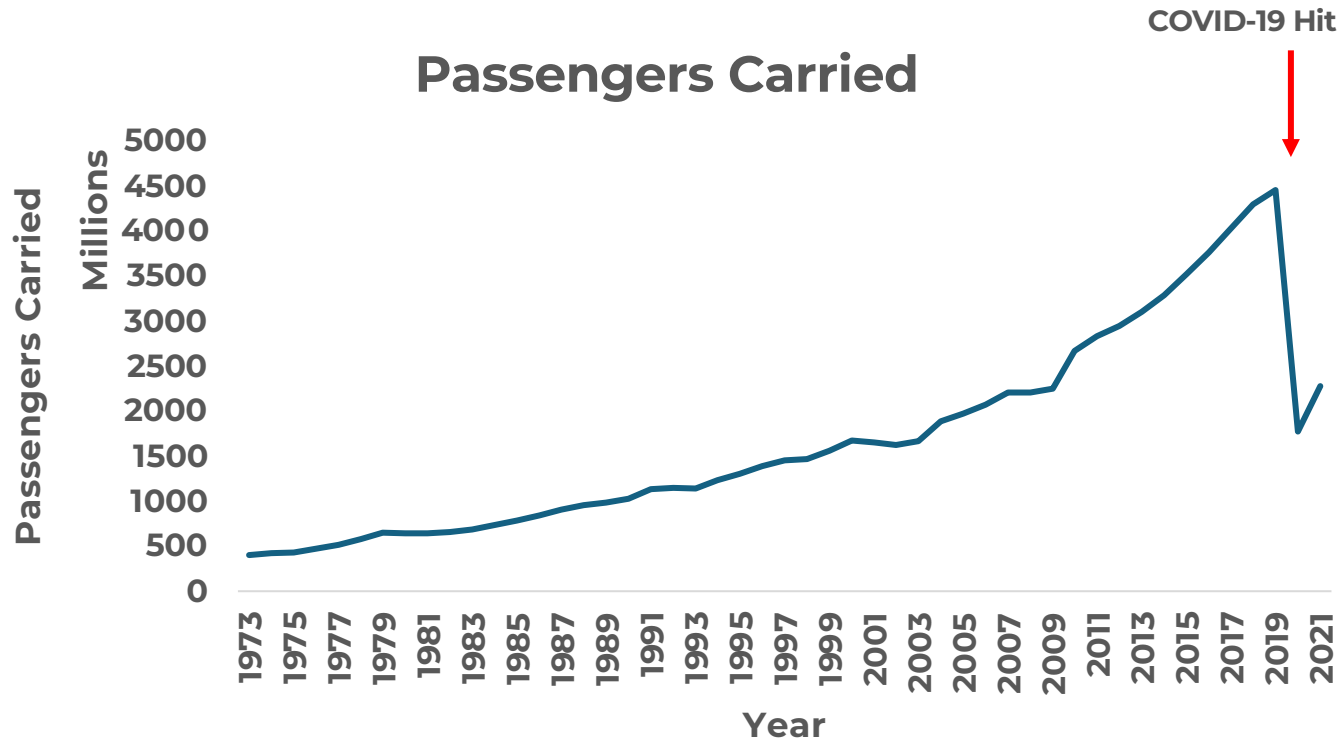
Regulatory Bodies



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Global Aviation Industry: *in numbers*



Source: World Bank

Global Aviation Industry: *2019 Industry Snapshot*



**4.5
billion**

Passengers carried by
airlines, 2019

**46.8
million**

Scheduled commercial
flights worldwide, 2019

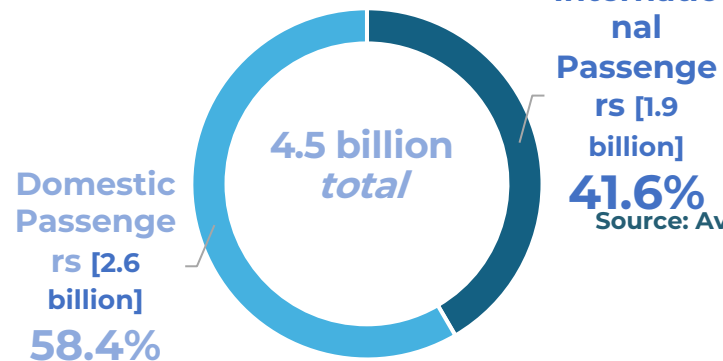
**8.68
trillion**

Revenue Passenger
Kilometres (RPK), 2019

48,044

Routes served globally
in 2019

Going places
Global passenger traffic by type, 2019



International
Passengers [1.9
billion]
41.6%

Source: Aviation: Benefits Beyond Borders



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Global Aviation Industry: 2019 Industry Snapshot (cont.)



**87.7
million**

Jobs supported by
aviation worldwide

**\$3.5
trillion**

Aviation's global
economic impact

4.1%

Global GDP supported
by aviation

Impact

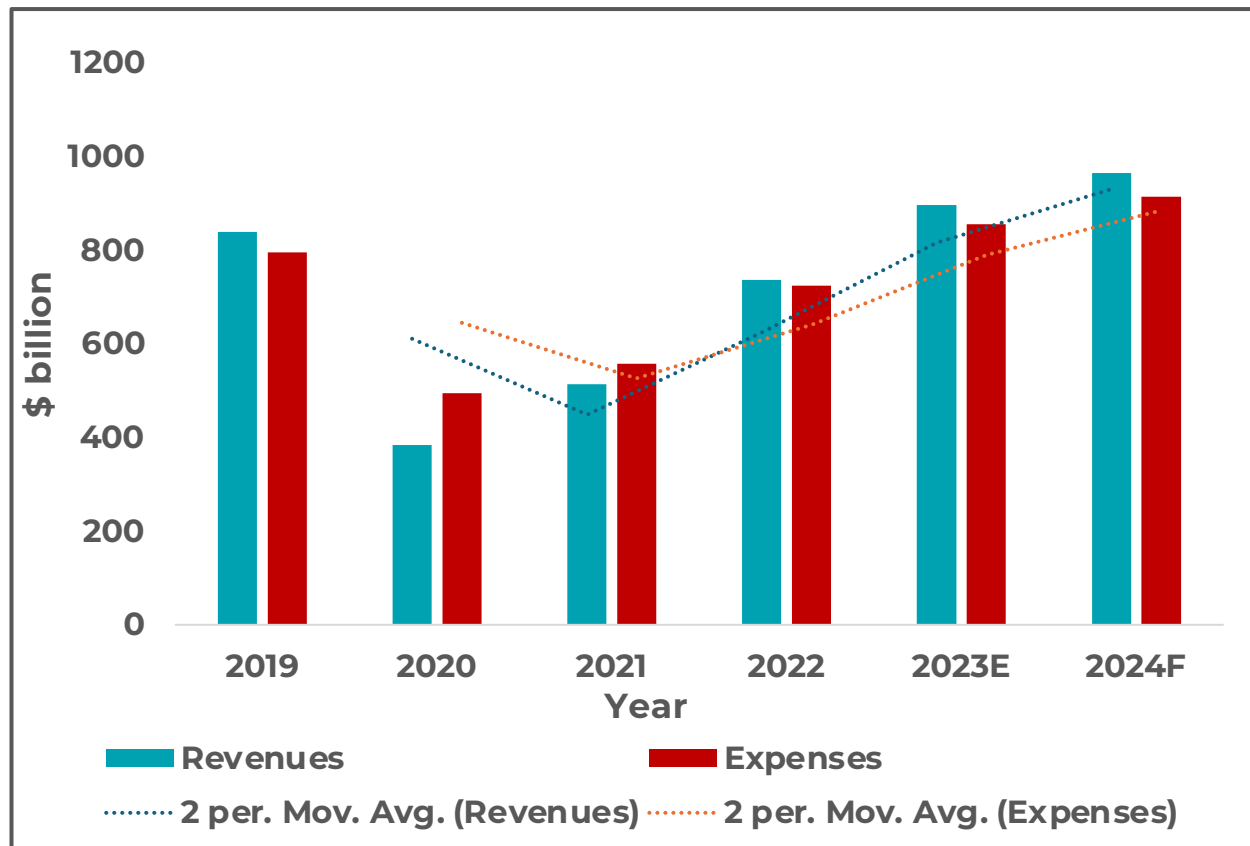
Aviation's global employment and GDP impact

Source: Aviation: Benefits Beyond
Borders

Jobs 87.7 million GDP \$3.5 trillion

44.8 million	\$1 trillion	Tourism Catalytic
13.5 million	\$692.8 billion	Induced
18.1 million	\$816.4 billion	Indirect
1.3 million	\$961.3 billion	Direct

Global Aviation Industry: *Industry Statistics*



Source: International Air Transport Association (IATA)



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Aviation Industry: MENA Focus

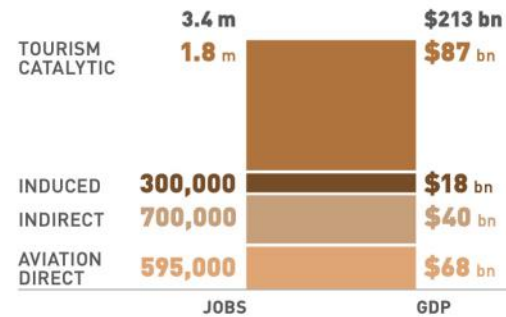


Source: Aviation: Benefits Beyond Borders

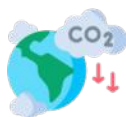
Direct jobs generated by air transport in the Middle East.



Total jobs and GDP generated by air transport in the Middle East, 2018.



Global Aviation Industry: *Environmental Impact*



Greenhouse gas emissions contributing to climate change



Aircraft noise pollution



Energy use and resource depletion

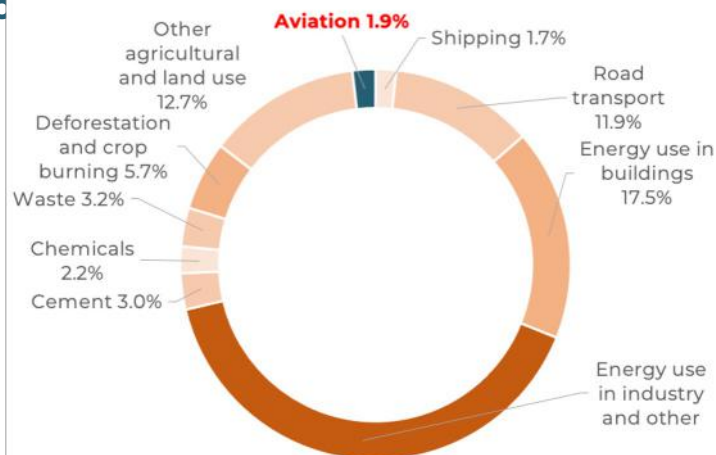


Waste



Local air quality affected by air pollution

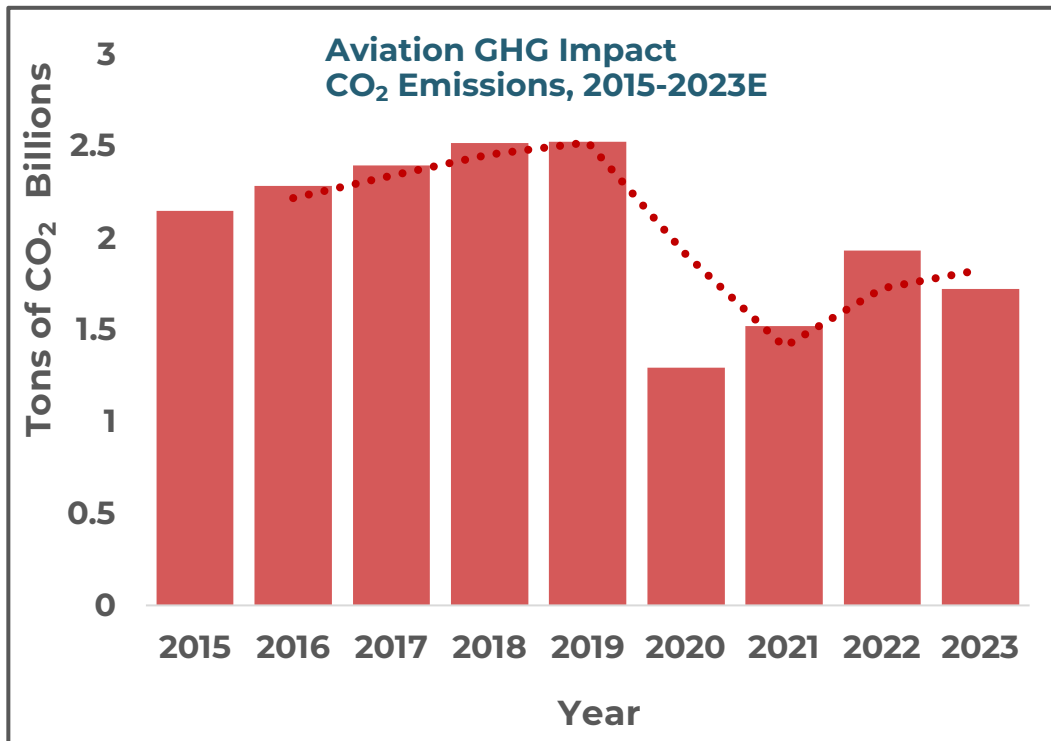
Aviation GHG Impact
CO₂ Emissions share by source, 2016



Aviation produces 1.9% of global CO₂ emissions with 915 Mt (mega tonnes) produced in 2019

Source: Aviation: Benefits Beyond Borders

Global Aviation Industry: *Aviation & Climate Change*



Source: OECD



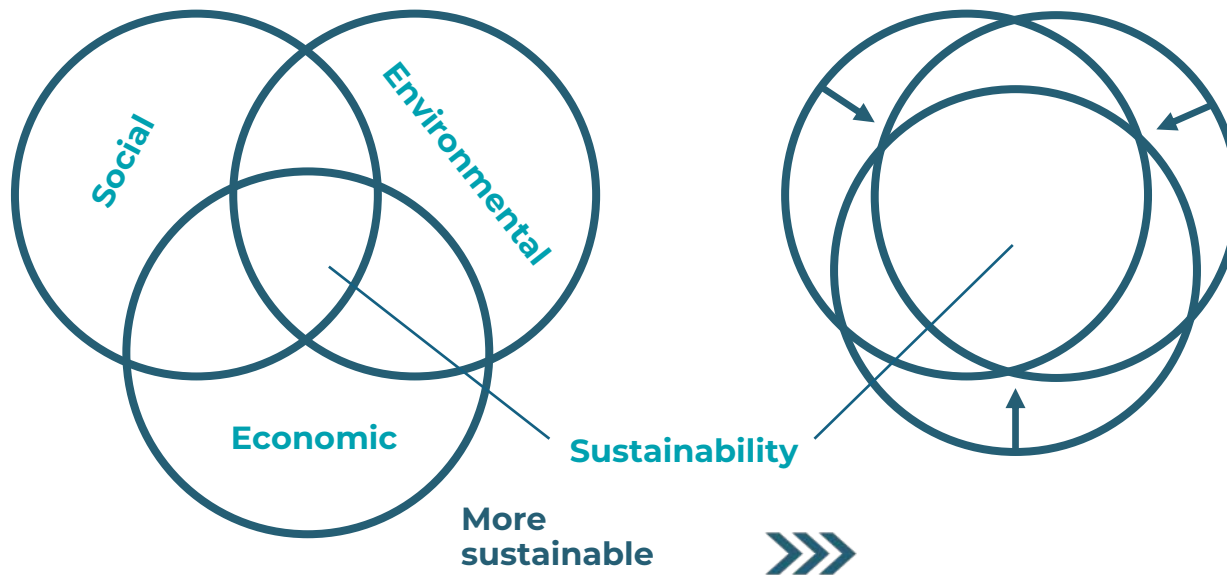
Try it yourself: Use this calculator to explore the potential carbon emissions of a flight you have or will embark on soon.
<https://www.icao.int/environmental-protection/Carbonoffset/Pages/default.aspx>

Objective 1.2: Sustainability Concepts in Aviation



Global Aviation Industry: *Sustainability Concepts*

The Sustainability Paradigm



Watch: https://youtu.be/1-Ct_53XKYY?si=VD_3p0g3STyNqbSR



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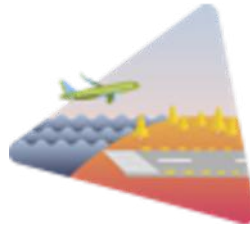
Aviation Context: *Sustainable Development Goals*



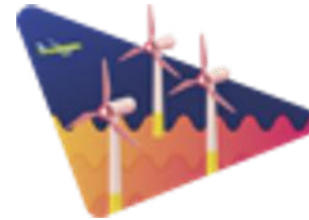
Sustainable Aviation: *Industry Priorities*



**Aviation supporting
UNSDGs**



**Building resilience
to climate change**



Improving air quality



Reducing Noise



Circular economy



Greener Technologies

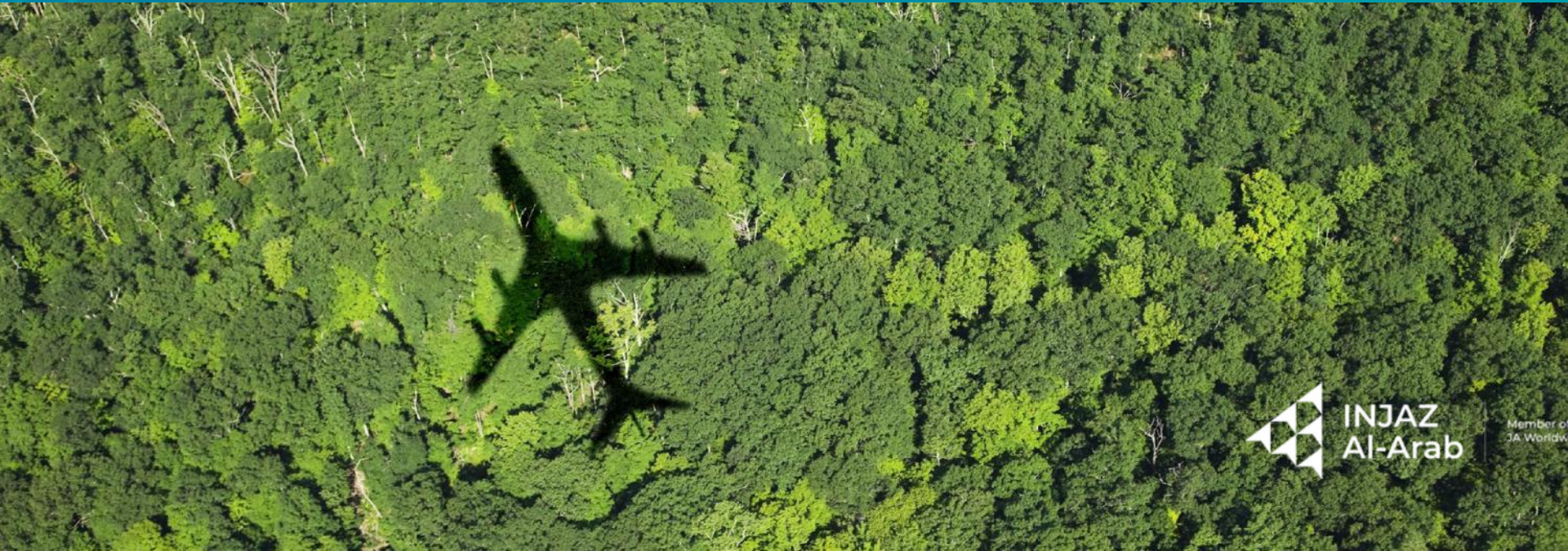
Source: Aviation: Benefits Beyond Borders



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Objective 1.3: Importance of Sustainable Aviation for the Future



Sustainable Aviation: *Development Imperative*



**Community & Global Growth and
Interconnectedness**



Energy Security



**Global Sustainability & Climate
Change**



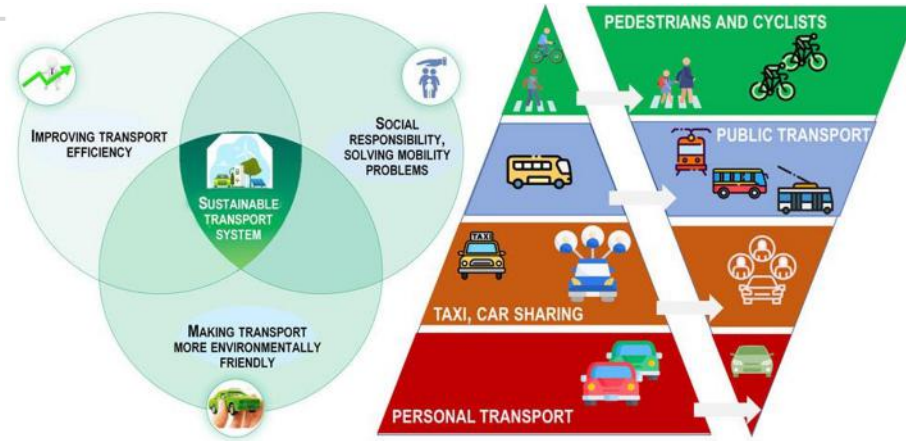
Financial Benefits & Drivers



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Sustainable Aviation: Wider Transportation Context



Source: Frontiers

Global CO₂ emissions from transport

This is based on global transport emissions in 2018, which totalled 8 billion tonnes CO₂. Transport accounts for 24% of CO₂ emissions from energy.



74.5% of transport emissions come from road vehicles



OurWorldinData.org – Research and data to make progress against the world's largest problems.
Data Source: Our World in Data based on International Energy Agency (IEA) and the International Council on Clean Transportation (ICCT). Licensed under CC-BY by the author Hansuis Ritchie.

Source: Our World in Data

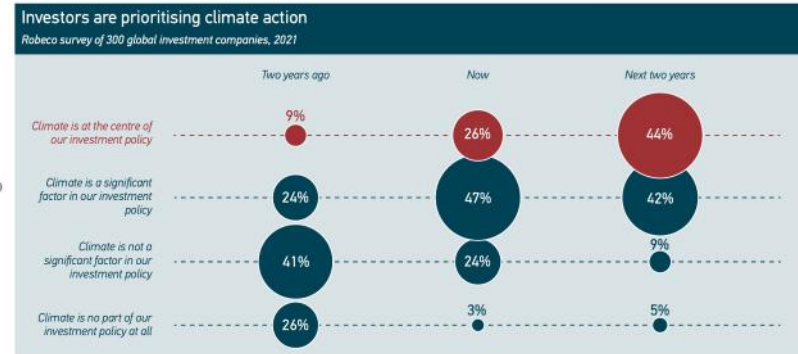
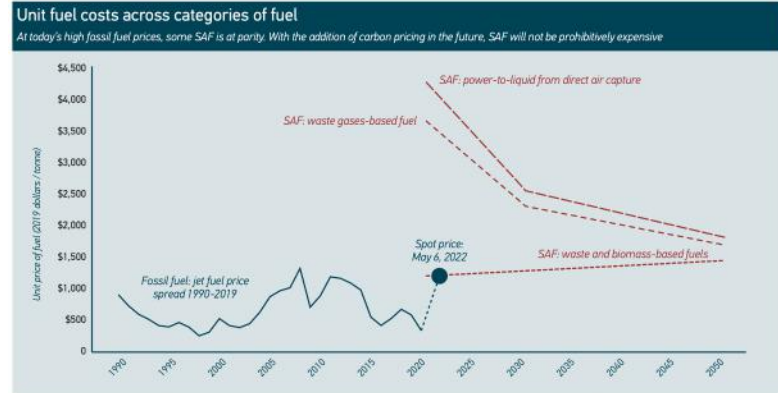
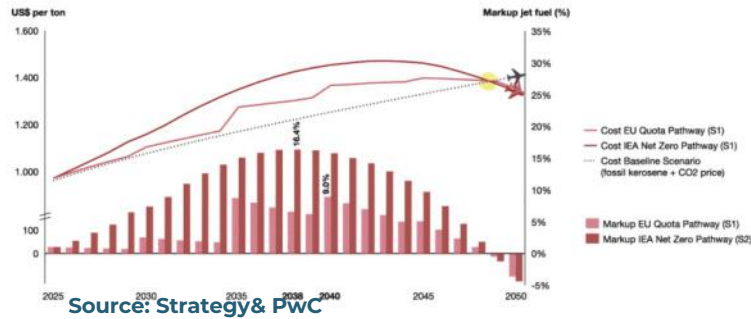


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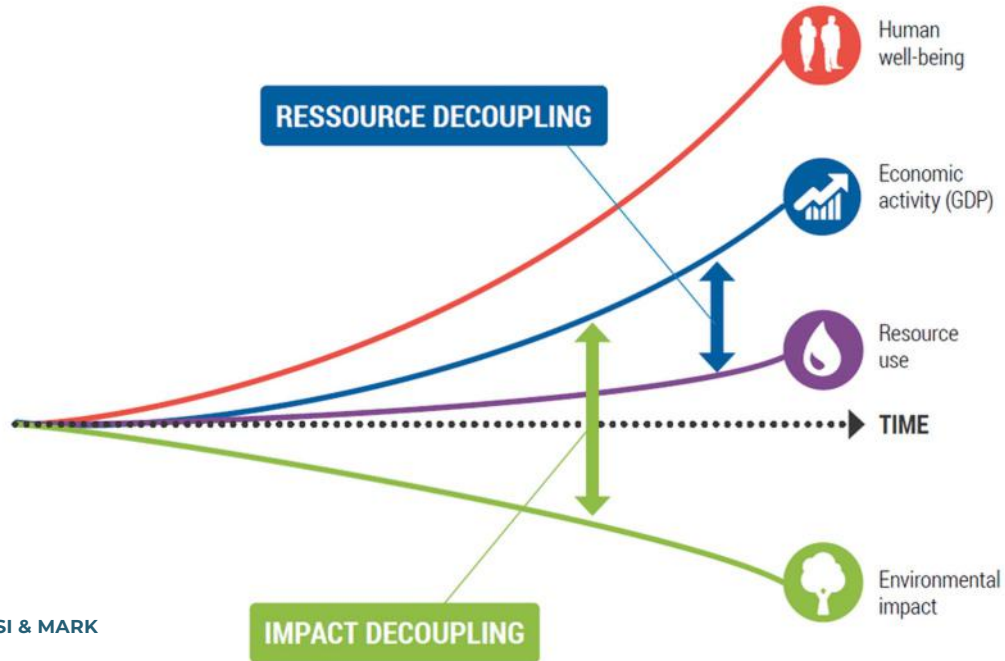
Sustainable Aviation: *Financial Viability & Drivers*

Blended jet fuel cost development of scenario 1 and 2 in comparison with baseline scenario [2025 – 2050]



Source: ICAO

Sustainable Aviation: *Decoupling*



Source: KOWALSI & MARK



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Test your knowledge:



Quiz: Sustainability in Aviation - Module 1

Question 1: Which of the following components is NOT a key part of the aviation industry?

- a) Airlines**
- b) Maritime Manufacturers**
- c) Airports**
- d) Regulatory Authorities**

Question 2: What is the triple-bottom-line approach in sustainability, especially as applied to aviation?

- a) Economic, Environmental, Efficiency**
- b) People, Plane, Profit**
- c) Efficiency, Innovation, Responsibility**
- d) Social, Technological, Economic**

Question 3: Select two environmental impacts associated with aviation mentioned in the course material.

- a) Land Use Disruption and Ground-Level Ozone**
- b) Noise Pollution and Resource Intensity**
- c) Methane Emissions and Ozone Layer Depletion**
- d) Greenhouse Gas Emissions and Contrail Formation**

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