

IATA

INTERNATIONAL AIR TRANSPORT ASSOCIATION

TOPIC:

**Exploring Strategies to
Develop Greener Airports and
More Sustainable Aviation
Infrastructure**

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I. Committee Description:

A. Definition:

The International Air Transport Association is a body that standardizes global aviation safety, security, and commercial flight operations worldwide. It serves as a financial clearinghouse for over 370 member airlines, managing international ticketing and cargo settlement systems. Additionally, the association assigns the three-



letter airport codes and airline designators used globally for booking and logistics. Through policy advocacy, it actively collaborates with governments to streamline aviation regulations and improve industry efficiency.

B. Duties/Roles:

- **Safety Certification:** Manages the IOSA audit, a mandatory safety evaluation system that all airlines must pass to ensure global operational security.
- **Standard Setting:** Creates uniform rules for baggage handling, ticketing, and the safe transport of hazardous cargo and live animals across borders.
- **Aviation Coding:** Assigns the essential three-letter airport codes (like LAX) and two-letter airline codes (like AA) used for booking and flight tracking.
- **Financial Clearing:** Operates global billing systems that securely route billions of dollars in ticket sales between travel agents and airlines.
- **Policy Advocacy:** Lobbies global governments and regulators for fair aviation taxes, open borders, and modernized airspace management.

- Environmental Goals: Leads industry-wide initiatives to increase Sustainable Aviation Fuel (SAF) use and reach net-zero carbon emissions.

C. Prominent Accomplishments:

The International Air Transport Association (IATA) has implemented several measures that have benefited the aviation sector. One notable example is the IATA Operational Safety Audit (IOSA), which established consistent safety standards for airlines worldwide. IATA also assisted airlines in making the shift from paper to electronic tickets, which was completed globally in 2008. This made travel more convenient, decreased paper waste, and saved the business billions of dollars.

The IATA has also changed how airports and airlines manage payments and passenger services. Its Billing and Settlement Plan (BSP) offers a safe method of processing payments between airlines and travel firms. IATA's Fast Travel project has promoted technology such as mobile boarding passes, self-service check-in, and automated baggage drop-off, allowing airports to operate more quickly and efficiently.

Sustainability is a major aspect of IATA's activities. In 2021, IATA member airlines pledged to achieve net zero carbon emissions by 2050 using solutions such as Sustainable Aviation Fuel, cleaner aircraft, and enhanced technology. IATA has also established worldwide baggage monitoring guidelines, which assist airlines in tracking luggage at critical stages of a passenger's trip and reducing lost or delayed bags. These measures demonstrate how IATA continues to improve safety, efficiency, sustainability, and passenger experience.

II. Introduction to Topic:

In the past, airports were built almost entirely for speed and growth, with very little thought of its impact on the environment. For decades, planes burned fuels freely on the runway, and ground vehicles ran on heavy diesel. However, as climate change became a major global problem, the international community realized that airports can no longer operate this way. To help the aviation industry reach its goal of zero net carbon emissions by 2050, airports had to change the way they work from the ground up.



Today, airports are focusing on quick and direct ways to cut down on daily pollution. First, they are changing their ground equipment like baggage carts, passengers buses, and pushback trucks from gas to electricity. Second, airports are adding clean energy sources such as solar panels or terminal roofs to power their buildings. Finally, they are changing how planes move on the ground; by letting planes plug into the airport electricity while parked at the gate and using electric towing vehicles to pull them to the runway so that airplanes don't have to waste jet fuel while waiting to take off.

Airports need to get ready for the next wave of environmentally conscious tourism. This entails constructing Sustainable Aviation Fuels (SAF) pipelines and storage facilities in addition to modernizing electrical power systems to accommodate future electric and hydrogen-powered aircraft. However, it costs a lot of money and effort to make these significant adjustments. These costly improvements are sometimes out of reach for underdeveloped nations and smaller airports.

Delegates to this group are required to develop equitable and workable strategies so that all airports worldwide may become contemporary and environmentally friendly.

A. Significance:

Originally, airports focused almost entirely on moving passengers quickly, giving little thought to their impact on the environment. Planes burned fuel on the tarmac, ground vehicles ran on heavy diesel, and terminal buildings used massive amounts of electricity. However, as global temperatures rose, the world realized that airlines could not solve aviation's pollution problem alone. Because airports are the physical centers where every flight begins and ends, making airport ground operations green became an urgent global necessity.

Currently, this topic is critical because decisions made about airport infrastructure now will shape the future of air travel for decades. Transforming airports into sustainable hubs by electrifying ground vehicles, powering terminals with solar energy, and supplying clean fuels is essential for reaching the goal of net-zero emissions by 2050. Without international cooperation, poorer regions risk being left behind while wealthier airports modernize. Discussing this topic allows delegates to create fair, practical solutions that help every country build greener airports without hurting their economies.

B. Main Events:

- In 2009, Airports Council International created the Airport Carbon Accreditation system to give airports a clear, step-by-step framework to measure and reduce their carbon footprint. Before this program existed, airports had no standard global method to track their energy use or pollution levels. Today, hundreds of airports worldwide use this system to

earn certifications as they switch to solar energy, reduce waste, and work toward becoming completely carbon neutral.

- Around 2014, major international hubs like Amsterdam Airport Schiphol began replacing their traditional diesel equipment with 100% electric ground vehicles. By converting baggage tractors, passenger shuttle buses, and pushback trucks to battery power, airports proved for the first time that busy airside operations could run smoothly without emitting heavy diesel exhaust. This milestone created a successful model that airports around the world now copy today.
- At the 77th Annual General Meeting in 2021, member airlines of the International Air Transport Association (IATA) officially pledged to achieve net-zero carbon emissions by 2050. This resolution was a turning point because it recognized that airlines could not reach this goal on their own. It put direct pressure on airports to modernize their ground power systems, build sustainable fuel storage, and update their facilities so clean energy could be supplied to every arriving flight.
- In October 2022, governments from 193 countries met at the International Civil Aviation Organization (ICAO) Assembly and agreed on a shared global goal to eliminate aviation carbon emissions by 2050. This historic agreement gave governments a clear reason to back their local airports with funding and new laws. It made airport sustainability an official policy priority for nations worldwide, ensuring that both developed and developing regions must work together to build clean aviation infrastructure.

C. Linking to SDG:

SDG 9: Revolves around building stronger more resilient infrastructure, promoting inclusive and sustainable industrialization, and encouraging innovation. Aviation is one of the most innovative industries in the world. The manufacturing sector regularly develops new technologies and creates significant urban infrastructure through airports and air traffic management.



SDG 12: Discusses ensuring sustainable consumption and production patterns and using resources in smarter and more sustainable ways. Achieving **SDG 12** will require many changes, such as adequate management of shared natural resources and how we dispose of harmful waste and pollutants, raising awareness and encouraging businesses, industries, and consumers to recycle and reduce, decouple economic growth from environmental degradation, increasing resource efficiency, and promoting sustainability.

SDG 13: Climate change affects every country. From rising sea levels to increasingly extreme weather events. The 13th SDG aims to take urgent action to tackle climate change and its impacts. Aviation industry is a major source of carbon emissions, which directly contributes to global



warming and climate change. However, aviation has precise and wide-ranging climate action plans to reduce CO2 emissions and use cleaner energy which aligns with goals of **SDG 13**.

D. Linking to the Theme:

In ancient philosophy, Yin and Yang represent two contrasting forces that oppose one another yet cannot exist without each other. They demonstrate how two opposite sides can come together to create perfect harmony. This concept of balance directly applies to the world of aviation today. Air travel drives global economic growth and connects people across the world, but it also creates pollution that harms our environment. Rather than stopping flights altogether, the goal of modern aviation is to find balance between continuous development and environmental protection.

By building greener airports and adopting cleaner technologies, we can protect the planet while still enjoying the massive benefits of global flight. Transforming ground operations such as switching to electric vehicles, using solar energy in terminals, and cutting down fuel waste on the tarmac allows us to bring these two opposing forces together. In the end, treating growth and sustainability like Yin and Yang ensures that as the aviation industry continues to expand, it does so in complete harmony with nature.

E. Linking to Pillars of Good Governance:

Effectiveness and Efficiency: The concept of efficiency in the context of good governance also covers the sustainable use of natural resources and the protection of the environment. In the

aviation sector, effectiveness and efficiency are most important to maintain safe, reliability, and organized operations and procedures. Airports and airlines should operate smoothly while saving time, energy, and money in order to achieve both effectiveness and efficiency while reducing environmental impact.

Sustainability: The concept of sustainability is thinking long term and protecting the environment for future generations. In relation to aviation, sustainability is reducing pollution, decreasing carbon emissions, and using cleaner energy sources. IATA and its members have set an ambitious goal to achieve net zero CO₂ emissions by 2050 and are also working to understand and mitigate non-CO₂ emissions, reduce noise, manage waste responsibly, and combat illegal wildlife trade. To make this happen, IATA offers tools and programs to help the airline industry improve its impact, as well as sharing best practices.

III. Subtopics

A-Reducing Carbon Emissions Across the Aviation Sector:

Air travel connects millions of people around the world every day. It allows families to visit one another, businesses to grow, and countries to trade and cooperate. However, airplanes also produce large amounts of carbon dioxide (CO₂) and other greenhouse gases. These gases trap heat in the Earth's atmosphere contributing to climate change. Today, aviation is responsible for around 2%-3% of global carbon dioxide emissions, and this number could increase as more people travel by air in the future.

There are various sources of carbon emissions; fuels come as the main source since airplanes burn enormous amounts of fuel while in flight. Additionally, airports generate emissions from

electricity they use, ground-based vehicles, airport structures, and passenger and employee transportation to and from the airport. As a result, both airports and airlines must take action to reduce carbon emissions.

In recent years, many airports have begun to implement environmentally friendly practices. Some airports have installed solar panels to generate clean electricity, while others have converted fuel-powered airport vehicles to electric ones. Many airports also have implemented energy-efficient lighting and improved recycling



systems to reduce waste. Airlines have also begun to use more fuel-efficient aircraft and are testing Sustainable Aviation Fuel (SAF), which has the potential to emit fewer carbon emissions than traditional jet fuel.

Several airports have become examples of environmental leadership. Oslo Airport in Norway was one of the first airports to make sustainable aviation fuel available to airlines on a regular basis. Amsterdam Schiphol Airport has introduced hundreds of electric vehicles and has worked to improve energy efficiency throughout its facilities. Meanwhile, Cochin International Airport in India became the world's first airport powered entirely by solar energy, generating enough electricity to operate the airports while reducing thousands of tons of carbon emissions each year. These examples show that airports of different sizes can successfully adopt cleaner technologies.

Despite these achievements, important challenges remain. Sustainable aviation fuel is still two to five times more expensive than conventional jet fuel, making it difficult for many airlines to use regularly. Electric aircraft are currently limited to short flights because battery technology is still developing. In addition, many developing countries face financial and technological barriers that make it difficult to invest in greener airport infrastructure. At the same time, the aviation industry expects passenger numbers to continue growing, meaning emissions could rise unless stronger action is taken.



B-Integrating Smart Technologies and AI to Improve Aviation Sustainability:

Technology is becoming an important part of making aviation more environmentally friendly. Smart technologies, such as sensors, automation, data analysis, and Artificial Intelligence (AI), help airports and airlines make better decisions, reduce waste, and use energy more efficiently. Instead of replacing people, these technologies are designed to support airport staff and airline workers by improving safety, reducing delays, and lowering carbon emissions. As the aviation industry continues to grow, using smart technology will become increasingly important for creating a more sustainable future.

Artificial Intelligence can help reduce fuel consumption in several ways. AI systems can study weather conditions, air traffic, and flight routes to suggest the most efficient path for an aircraft. Even small improvements in flight planning can save large amounts of fuel. According to the International Civil Aviation Organization (ICAO), reducing flight delays and improving air traffic

management could lower fuel consumption by millions of tons each year. In addition, studies show that AI-assisted route optimization can reduce fuel use by 2%-5% per flight, which may seem small but can prevent millions of tons of carbon dioxide (CO₂) from entering the atmosphere when applied across thousands of daily flights.



Airports are also using smart technologies to reduce their environmental impacts. AI-powered systems can automatically control lighting, heating, and air conditioning based on how many people are inside the terminal. This reduces unnecessary electricity use and lowers greenhouse gas emissions. Smart waste management systems can identify when bins

are full and create more efficient collection routes, while intelligent water management systems detect leaks and reduce water waste. Some airports have reported energy savings of up to 20%-30% after introducing smart building management systems.

Another important use of AI is predictive maintenance. Instead of waiting for equipment or aircraft parts to fail, AI analyzes data from sensors to predict when maintenance is needed. This helps airlines prevent delays, improve passenger safety, and reduce unnecessary replacement of parts. Studies suggest that predictive maintenance can reduce maintenance costs by 20%-30% while increasing aircraft availability and reducing operational disruptions.

Many airports have already introduced smart technologies successfully. Singapore Changi Airport uses AI and automation to improve passenger flow, reduce waiting times, and operate its facilities

more efficiently. Heathrow Airport in the United Kingdom uses smart energy management systems to monitor electricity use and reduce unnecessary energy consumption. Dallas/Fort Worth International Airport in the United States has implemented AI-supported technologies to improve airport operations and lower emissions. These examples demonstrate that innovation can improve both airport performance and environmental sustainability.

Despite these advantages, integrating smart technologies also presents several challenges. Installing AI systems and modern digital infrastructure requires significant financial investment, which may be difficult for smaller airports or developing countries. Some airports may not have enough trained workers to operate and maintain these systems. Furthermore, airports must protect



passenger information and ensure that AI systems are secure from cyberattacks. International cooperation is also needed so that different countries can develop common standards for using AI safely and responsibly in aviation.

IV. Main Actors:

A) Emirates

Emirates has invested heavily in newer aircraft to reduce fuel use, and it operates a relatively young fleet with an average age of about 9.1

years. Its new generation Airbus A350 and Boeing aircraft are being introduced to improve fuel efficiency, and “Green SOPs” help reduce fuel burn. Adding to that, Emirates continues to invest



billions in fleet renewal, showing that aircraft modernization is the key to long term sustainability. During 2023–2024, Emirates’ Green Operations reduced fuel burn by more than 48,000 tones and carbon emissions by over 151,000 tones.

B) Qatar Airways

Qatar Airways operates long haul flights, which consume more fuel but are essential for its global hub strategy. Qatar airline has been expanding its fleet with new aircraft to improve efficiency while trying to maintain aviation growth. However, reducing emissions is more challenging because long haul

routes are Qatar airlines main network. In December 2017, Qatar Airways became the first airline in the Middle East and the fifth airline worldwide to achieve IATA Environmental Assessment (IENVA).



C) Lufthansa

Lufthansa has ordered hundreds of new generation aircraft that can reduce fuel consumption by up to 30% compared to older planes. Fleet modernization is a key part of its strategy to reduce emissions while

trying to maintain efficiency. Lufthansa airline is also investing in SAF and carbon reduction programs to meet European climate targets. Between July and December 2011, Lufthansa Airline



operated 1,187 biofuel flights between Hamburg and Frankfurt the Airbus A321 used 1,557 tons of biofuel, calculations show that about 1,500 fewer tons of CO₂ emissions.

D) Singapore Airlines

Singapore Airlines already has over 70% of its fleet made up of new generation aircraft and is aiming for 90% by 2030. Singapore Airlines also targets 5% Sustainable Aviation Fuel (SAF) usage by 2030 and net-zero emissions by 2050. These new-generation



aircraft can be around 25% more fuel efficient than older models, significantly reducing emissions. During 2017, Singapore Airlines operated 12 “green package” flights between San Francisco and Singapore, which combined sustainable biofuel, a fuel-efficient Airbus A350-900, and optimized flight operations.

E) Air France

Air France has focused on reducing aviation emissions through fleet modernization, Sustainable Aviation Fuel (SAF), and more efficient flight operations. Its newer Airbus A220 and A350 aircraft produce around 20–25% less CO₂ than the aircraft they replace, while the



airline aims for 70% of its fleet to consist of new-generation aircraft by 2030. Air France also aims to use up to 10% SAF by 2030. In 2025, the airline used approximately 79,618 tonnes of SAF,

which it estimates avoided more than 269,000 tons of CO₂ emissions. In addition, Air France uses technologies such as optimized flight paths and eco-piloting techniques, which can reduce fuel consumption and emissions by around 2–3% per flight. The airline aims to reduce its CO₂ emissions per passenger-kilometer by 30% by 2030 compared with 2019 and reach net-zero emissions by 2050.

V. Suggested Solutions:

- Establish a Global Green Airport Certification Program.
- Expand Sustainable Aviation Fuel (SAF) storage and distribution infrastructure.
- Transition of airport operations to renewable energy sources.
- Electrify all airport ground support equipment and service vehicles.
- Implement AI and smart technologies to optimize energy and resource consumption.
- Adopt sustainable construction standards for new and existing airport infrastructure.
- Create an International Green Aviation Innovation Fund to support sustainable airport development.
- Strengthen airport waste management through recycling programs and circular economy initiatives.

VI. Question to Consider, Tips and Suggested Sites:

A- Questions to Consider:

- Does your delegation/airline believe that developing greener airports and more sustainable aviation infrastructure should be a priority? Justify your answer.
- What measures has your airline taken to reduce its carbon emissions?

- What actions has your airline taken to encourage airports and other airlines to adopt renewable energy and environmentally friendly technologies?
- How does your airline balance the increasing demand for air travel with the need to reduce carbon emissions and aviation impact on the environment?
- Has your airline supported international agreements, organizations, or UN initiatives that relate to sustainable and environmental aviation?
- What measures has your airline taken to encourage the use of Sustainable Aviation Fuel (SAF) or any other low carbon alternative?
- What challenges does your airline face in developing greener airports? How does it plan to overcome them?
- What measures should the UN and other international organizations consider to ensure that the transition toward greener aviation is achievable for all airlines around the world?

B- Tips:

- Research your country and understand its position on the topic.
- Know the main points of both subtopics and keep a few useful statistics in mind.
- Prepare your speeches, but don't memorize every word—speak naturally.
- Don't be afraid to raise your placard, speak, and share your ideas.
- Work with other delegates, negotiate, and build strong solutions together.
- Most importantly, have fun, meet new people, and enjoy the MUN experience!

C- Suggested Sites:

- Air Transport and Climate Change — <https://atag.org/>
- Artificial Intelligence — <https://www.eurocontrol.int/artificial-intelligence>

- Environment & Sustainability Data — <https://www.iata.org/en/services/data/environment-sustainability/>
- Aviation Is Environmentally Sustainable — <https://www.icao.int/strategic-goals/aviation-environmentally-sustainable>
- Innovation and Technology in Airport Sustainability — <https://www.icao.int/environmental-protection/Documents/Innovation%20and%20Technology%20in%20Airport%20Sustainability%20-%202023.pdf>

VII. Delegations Present:

North America	Air Canada
	American Airlines
	Delta Airlines
	United Airlines
South America	Avianca
	LATAM Airlines
Europe	Air France
	British Airways
	Iberia

	KLM
	Lufthansa
	Scandinavian Airlines (SAS)
	SWISS
	Turkish Airlines
Asia	ANA
	Cathay Pacific
	Emirates
	Etihad Airways
	Qatar Airways
	Saudia

	Singapore Airlines
Africa	Ethiopian Airlines
	Kenya Airways
	South African Airways

Oceania	Qantas
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IX. President's Note:

Dear Future Aviation Leaders,

Welcome to the International Air Transport Association, it's your president Ali. I am very excited to have you guys join us as we explore the challenges facing the aviation industry and work towards making air travel more sustainable. Throughout this committee, you will have the chance to discuss major issues such as carbon emissions and find solutions to these problems; in addition to finding ways of implementing new technologies to airports making them more efficient and environmentally friendly. I encourage you all to come prepared, share your ideas, challenge different perspectives, and work together to find realistic solutions. Most importantly, enjoy the experience, meet new people, and make the most of every moment in this committee. I can't wait to see the ideas and solutions you bring to IATA, and I hope you leave this committee with new knowledge, great memories, and an even greater passion for aviation.

President Ali Ashour

X. SGs' Note:

Dear Delegates,

As your Secretary-Generals, we hope this background guide gives you a strong foundation for the discussions ahead and helps you approach your committee with confidence. Beyond preparation, this conference is an opportunity to challenge yourself, step into new perspectives, and take part in conversations that demand thought and initiative.

This year's theme, "Yin and Yang: The Harmony in Opposites", reflects the idea that opposing sides can exist in balance, whether between conflict and cooperation or speaking and listening. It reminds us that meaningful progress often begins when we learn to understand perspectives different from our own.

As Leo Buscaglia said, "Change is the end result of all true learning," and we hope this experience leaves you with a stronger sense of the value your voice can carry. We cannot wait to meet you and see what you bring to this conference.

Warm regards,

The 15th HHHSMUN Secretaries General,

Mia, Hani and Omar

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