



ACI ASIA-PACIFIC  
GREEN AIRPORTS  
RECOGNITION



# GREEN AIRPORTS RECOGNITION 2023

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ELIMINATION OF  
SINGLE-USE PLASTIC

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ACI Asia-Pacific advances the collective interests of the region's airports with governments and international organisations, and leads, facilitates and promotes professional excellence in airport management and operations.

## **GREEN AIRPORTS RECOGNITION 2023: SINGLE-USE PLASTIC ELIMINATION**

Copies of this publication are available from:

Communications Department  
Airports Council International Asia-Pacific  
Unit 13, 2/F, HKIA Commercial Building  
1 Sky Plaza Road  
Hong Kong International Airport  
Hong Kong SAR

Email: [communications@aci-asiapac.aero](mailto:communications@aci-asiapac.aero)

Website: [www.aci-asiapac.aero](http://www.aci-asiapac.aero)

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## INTRODUCTION AND ACKNOWLEDGEMENTS

The Green Airports Recognition (GAR) was established by ACI Asia-Pacific with the support of the ACI Asia-Pacific Regional Environment Committee. The Recognition's objective is to promote environmental best practices to minimise aviation's impacts on the environment and to recognise ACI Asia-Pacific's airport members who have outstanding accomplishments in their environmental projects.

Single-use plastic (SUP) products may offer convenience, but with the damage they cause through production, distribution and litter, they are a major threat to the environment and human health. The open burning of plastic waste, consumption of plastic-contaminated seafood and the creation of harmful microplastics are some of the reasons why single-use plastic products should be phased out. Plastics are the largest, most harmful and most persistent type of marine litter, accounting for at least 85 per cent of all marine waste.

In March 2022, 175 States endorsed a historic [resolution](#) at the UN Environment Assembly in Nairobi to end plastic pollution, and forge an international legally binding agreement, by the end of 2024.

During the past decades, our industry has grown exponentially and is expected to continue to do so in the years to come. As air transport continues to grow, a substantial volume of waste is expected to be generated at airports. One such issue we've identified is the increasing worldwide concern about the impact of single-use plastic pollution, especially within the aviation industry.

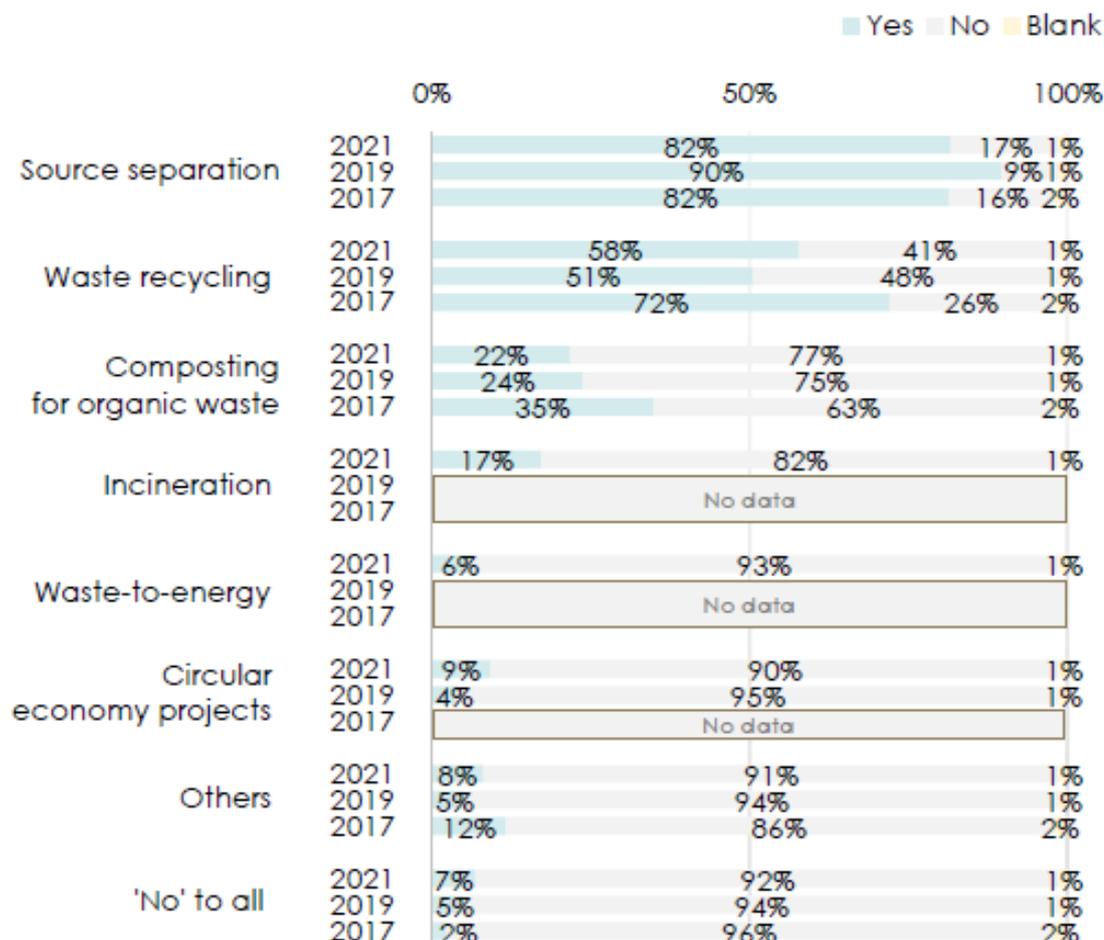
To mitigate the environmental impact of waste and to comply with regulatory requirements, airports are increasingly implementing sustainable waste management policies.

The Green Airports Recognition 2023 is an opportunity for airports from Asia-Pacific and the Middle East to share their successful journey towards eliminating single-use plastic.

According to the ACI Asia-Pacific Environmental Survey 2021, waste management is considered one of the top three priorities, with more than 60% of responding airports considering them as a high priority.

## Waste Reduction Measures

### Does your airport implement waste reduction measures?



Most airports implement at least one waste reduction measure with source separation (including plastic waste continues to be the most commonly adopted measure followed by waste recycling. Circular economy, a relatively new concept to reduce material use, redesigns materials to be less resource-intensive, and recaptures “waste” as a resource, is being adopted increasingly by some airports. ACI Asia-Pacific encourages airports to follow these best practices.

While none of the 17 SDGs has plastic pollution as a main theme, the relationship between the SDGs and the need to curb plastic pollution is clear. The Plastic Soup Foundation<sup>1</sup> has highlighted the relationship between several SDGs:

<sup>1</sup> [The Plastic Soup Foundation](#), a UN Environment Programme-accredited non-governmental organization based in the Netherlands and founded in 2011.

- SDG 3: Good health and well-being.
- SDG 6: Clean water and sanitation.
- SDG 11: Sustainable cities and communities.
- SDG 12: Responsible consumption and production.
- SDG 13: Climate action.
- SDG 14: Life below water (protection of the seas and oceans).
- SDG 15: Life on land (restore ecosystems and preserve diversity).



Twenty-four eligible GAR 2023 submissions were received from member airports, representing 18% of the total passenger traffic in Asia-Pacific and the Middle East regions. This year's submissions showcase many innovative best practices ranging from Alternative material replacement, Single-use plastic banning policy & guidance, Plastic waste reuse, recycling & circularity, Procurement environmental obligations and Marine plastic waste recovery.

Included in this publication is Chhatrapati Shivaji Maharaj International Airport's initiative to have 100% SUP replaced with biodegradable materials, reduced waste by 28 and 67 tonnes in fiscal year 2019 & 20, achieved emission reduction from manufacturing process and cost saving of US\$8000 /annum in Operating costs.

Mangaluru International Airport shared their "SUP free airport" campaign featuring videos on digital display boards and Flight Information Display System (FIDS) at various locations at the airport to create awareness among passengers, stakeholders, and staff. Provision of guidelines was provided to all vendors to dispatch spare parts, products, and consumables without single-use plastic substitutes.

Chubu Centrair International Airport and Kempegowda International Airport demonstrated circular concepts by "Bottle to Bottle" Sustainable Resource Circulation' to avoid incineration of 80 tonnes of plastic bottles and building 70 kms of road made from waste plastic collected from local community,

consuming 50 tonnes of waste plastic replacing 6% bitumen within the airport campus respectively.

We would like to thank all judges for their expertise and valuable time. The submissions were reviewed by a panel of judges comprising:

- Mr. Christopher Paling, Senior Lecturer in Environmental Management, Manchester Metropolitan University
- Mr. Christopher Surgenor, Editor/Publisher, GreenAir Online
- Ms. Jennifer Desharnais, Director, Sustainability and Environmental Protection, ACI World
- Dr. Panagiotis Karamanos, Aviation Environmental Consultant
- Mr. Stefano Baronci, Director General, ACI Asia-Pacific

The following airports were recognised by the panel of judges following a collective assessment using seven pertinent criteria.

**Over 35 million passengers per annum:**

- Platinum – Chhatrapati Shivaji Maharaj International Airport
- Gold – Hong Kong International Airport
- Silver – Indira Gandhi International Airport

**Between 15-35 million passengers per annum:**

- Platinum – Kempegowda International Airport
- Gold – Rajiv Gandhi International Airport
- Silver – Jeju International Airport

**Between 8-15 million passengers per annum:**

- Platinum – Central Japan International Airport
- Gold – Adelaide Airport
- Silver – Bahrain International Airport

**Less than 8 million passengers per annum:**

- Platinum – Mangaluru International Airport
- Gold – Christchurch International Airport
- Silver – Kaohsiung International Airport

## ACKNOWLEDGEMENT OF ALL PARTICIPATING AIRPORTS

The outstanding work of the above 12 recognised airports along with other submissions is summarised in this publication to ensure best practices are shared. However, it should be emphasised that all airports (24 airports in total) in this publication deserve to be recognised for their commitment to **Single-Use Plastic Elimination** efforts and willingness to share their best practices with the airport community, fully reflecting the objective of this recognition.



مطار البحرين الدولي  
Bahrain International Airport



北京首都国际机场股份有限公司  
Beijing Capital International Airport Co., Ltd.



Chhatrapati Shivaji Maharaj  
INTERNATIONAL AIRPORT  
MUMBAI



مطار حمد الدولي  
Hamad International Airport  
قطر QATAR



香港  
國際機場  
HONG KONG  
INTERNATIONAL  
AIRPORT



DELHI INDIRA GANDHI  
INTERNATIONAL AIRPORT



JEJU  
INTERNATIONAL AIRPORT

BANDAR UDARA  
INTERNASIONAL  
Jenderal  
Ahmad Yani  
INTERNATIONAL  
AIRPORT  
SEMARANG



高雄國際航空站  
Kaohsiung International Airport



Kempegowda  
INTERNATIONAL  
AIRPORT  
BENGALURU



مطارات عُمان  
Oman Airports



QUEEN ALIA  
INTERNATIONAL  
AIRPORT

مطار الملكة علياء الدولي



GAR  
HYD  
AIRPORT



Ahmedabad

Sardar Vallabhbhai Patel  
International Airport



مطار الشارقة  
Sharjah Airport



桃園國際機場股份有限公司  
Taoyuan International Airport Corporation Ltd.



Thiruvananthapuram

Thiruvananthapuram International Airport

## ALTERNATIVE MATERIAL REPLACEMENT



### **Bahrain International Airport**

### **Combating single-use plastics at Bahrain International Airport (BIA)**

Bahrain Airport Company has a vision of Zero Waste to landfill, and as part of the initiatives to achieve this aspirational goal, BAC initiated the Plastic Waste Management Project to its stakeholders titled 'Combating Plastics at Bahrain International Airport (BIA)' in 2020. The aim of this project was to achieve the 2050 vision of Zero Waste-to-Landfill through a two-phase process in collaboration with its key stakeholders to monitor and divert plastic waste from landfill. Top management have been involved since the start of the project and provided support to ensure action is taken promptly.

The first step to the introduction of the concept to key stakeholders, which was done via the environment committee established to have an open platform for environmental issues and projects at BIA. The committee consists of members from key stakeholders' companies and BAC top management. The committee has successfully introduced environmental impact reduction measures that have greatly improved BIA's environmental performance.

The first phase of the plastic management project 'Data Collection' required coordination and data collection from stakeholders and the facilitator subsequently reviewed and analysed the data, and presented the results to the stakeholders individually to establish, or improve on, waste management processes that follow the waste hierarchy.

The second phase of the project includes monitoring the newly introduced improvements and analysing the performance within each stakeholders' company and providing improvements in coordination with BAC.

The project has resulted in the prevention of 3,400 kg annually and recycling of 137,600 kg annually in addition to establishing a centralised dashboard of plastic waste sources, generated quantities, associated locations, etc to monitor plastic waste streams at BIA. The proposed improvements include applying re-usable items instead of single-use plastics and has also encouraged recycling within the stakeholders' operations.

## Project Graphics



Launching of Plastic waste management project by BIA Environment committee in January 2020



Example of BIA stakeholders' collected plastic waste post to Phase Two of the Plastic Waste Management project introduced at Bahrain International Airport in 2020



Example of BIA stakeholders' recycling bins installed at Phase Two of the Plastic Waste Management project introduced at Bahrain International Airport in 2020



Example of BIA stakeholders' recycling bins installed at Phase Two of the Plastic Waste Management project introduced at Bahrain International Airport in 2020

## ALTERNATIVE MATERIAL REPLACEMENT



### **Chhatrapati Shivaji Maharaj International Airport Single-Use Plastic Free Airport - Mumbai**

Mumbai Airport prioritises environment consciousness and is committed to incorporating sustainability in all aspects of our business by investing in innovations to drive environmental stewardship. The 5Ps - People, Planet, Prosperity, Peace, and Partnerships are at the core of our strategy to become the “Green Airport”.

Our efforts are to curate and adapt to achieve Operational Net Zero Emission, Zero Waste to Landfill, Water Positive, Climate Change Resilience, sustainable supply chain practices and green procurement. MIAL's relentless efforts have been accredited by multiple prestigious recognitions and accolades across the globe.

Project "Single-Use Plastic (SUP) Free Airport" was conceptualised in 2018 and implemented on 2<sup>nd</sup> Oct 2019. The monitoring and enforcement of this initiative has become second nature to the airport since then.

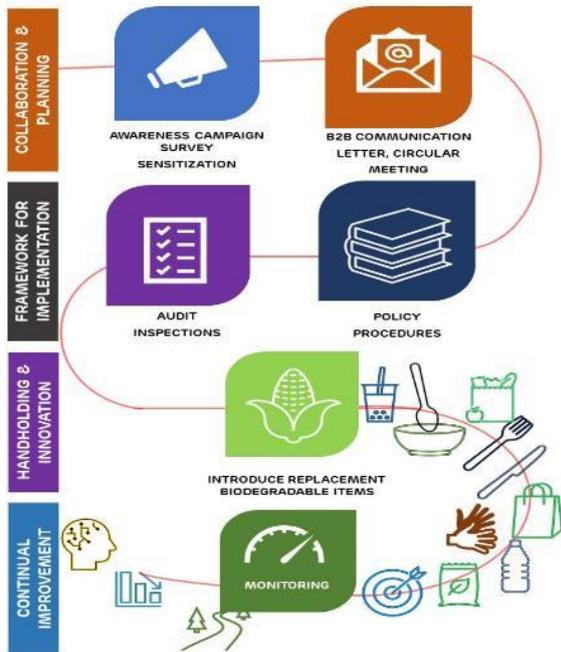
The project has been curated by adopting a systematic approach and collaboration with all our stakeholders. Awareness creation and handholding played a pivotal role in elimination. Introduced and encouraged the use of various alternatives made up of biodegradable materials to address the void of eliminating the use of plastic in day-to-day operations and for the ease of passengers and employees.

This initiative involved a complete mindset change around SUP as its key pillar. We further stretched on reducing and eliminating plastic from operations, increasing recycling & circularity, identifying alternatives, and other practical solutions to eliminate plastic.

This initiative achieved the following key results

- SUP replacement with biodegradable alternatives
- Reduction of 28 MT in FY19 and 67 MT in FY20. This led to indirect (manufacturing process) emission of ~77 & 180 tCO<sub>2</sub>e & more than 1 lacs PET bottles were collected in through RVM's respective years
- Annual savings of \$8000 USD in operating cost apart from other intangible costs
- Generated social value by creating awareness amongst stakeholders, employees, and passengers
- Reinforced CSMIA Brand as a “Sustainability Brand Ambassador”

# Project Graphics



Mumbai International Airport Ltd  
ENVIRONMENT DEPARTMENT  
WORK INSTRUCTION  
EGB  
IMPLEMENTATION OF BAN ON SINGLE USE PLASTIC AT COMEA  
MIAL/ENV/WI/03/00

ACTIVITY	NAME	SGSN
Prepared by:	Umesh Tambre - Manager Environment & Sustainability	
	Minaraj Kohari - AGM Quality & Customer Care	
	Shalendra Joshi - GM Environment & Sustainability	
	Tushar Kaul - GM Finance	
Recommended by:	Narain Sharma Vice President (Commercial)	
	Murali Varadarajan SVP (Operations)	
	Prakash Kulkarni Management Representative-DHS (Operations)	
Approved by:	Prakash Mahapatra SVP (Operations)	

**Did you know**  
eco-friendly

Here's how...  
1. Plastic is inserted into the ground and gets a replacement.  
2. Plastic is broken into small pieces.  
3. These small pieces are transported in the waste trucks.  
4. Our Processing Unit converts these Rubble into fuel or other products.  
5. This Rubble is used to make e-shirts and other apparel.

**REWARDS, PENALTY & CHECK**

BIODEGRADABLE

Central Institute of Plastic Engineering & Technology  
SYSTEM REPORT  
adani

## Project Strategy & Execution

## Communication – policy, procedures



**THE TIMES OF INDIA**  
Mumbai airport will be plastic-free from Oct. 2

**Mumbai airport to go plastic-free from Oct. 2**  
MUMBAI The Mumbai airport will go 100% plastic-free from October 2, Mumbai International Airport Limited (MIAL) said in a statement on Monday. MIAL said that the ban on single-use plastic will be provided by the central government. The airport has also communicated the logistical changes to all airline operators, thereby helping them modify their plastic use.



**GO GREEN DONORS REWARDED WITH DISCOUNT VOUCHER**  
50,000 plastic bottles donated at Mumbai airport

**BOTTLES COLLECTED**  
The Mumbai airport is the country's second busiest major international airport. Having more than 60 million passengers on a yearly basis, the airport is expected to be one of the world's largest airports by 2025. In the last 10 months, the airport has collected 50,000 plastic bottles. These bottles were collected from September 2018 and February 2019. The bottles were collected from terminal 2 of Mumbai Airport. As per data shared by MIAL, the airport has installed 200 water dispensing machines in the terminal 2. These machines are also installed at various locations in the airport. As per data shared by MIAL, the airport has installed 200 water dispensing machines in the terminal 2. These machines are also installed at various locations in the airport. As per data shared by MIAL, the airport has installed 200 water dispensing machines in the terminal 2. These machines are also installed at various locations in the airport.

## Passenger & Stakeholder Engagement

## Media Coverage

## ALTERNATIVE MATERIAL REPLACEMENT



### Hawke's Bay Airport

#### Hawkes Bay Airports journey towards single-use plastic free

As part of Hawkes Bay Airports (HBAL) terminal redevelopment project we reviewed the use of single-use plastic inside the terminal and set a goal to be the first single-use plastic free airport in New Zealand.

Many incremental changes were identified that combined have seen us make real progress on our journey towards eliminating single-use plastics. Some of the initiatives include:

- Sustainability criteria was included in the tender process for selecting the new café and retail tenants
- Conscious decisions to limit the products for sale to only those in glass and aluminium. No beverages are available in plastic. This also simplifies our recycling sorting.
- All beverages are also sourced locally to minimise packaging and transport
- The vending machines were removed. Previously these were filled with individual items in mostly non-recyclable packaging.
- Single-use plastic items such as straws, stirrers and cutlery were eliminated. Paper straws and FSC wooden cutlery from BioPak are available
- Installation of a chilled water refill station and glasses for public use
- The café has attractive dine in seating options to encourage customers to eat in
- Crockery plates, cups and saucers are used as standard by the café unless a customer requests takeaway
- If takeaway is requested, compostable cardboard containers are used
- The [Again Again](#) cup lending scheme is available for takeaway coffee
- Paper bags are used instead of plastic bags
- Beeswax wraps are used as food covers in café kitchen instead of plastic wrap
- We provide three bin waste and recycling stations and signage throughout the terminal
- Collaboration with [Critical Design](#) to repurpose an old bench seat by refitting new slats made from 100% post-consumer plastic waste

We are not quite single-use plastic free yet. But we have shown that small steps with willing partners can add up to a big change.

## Project Graphics



Beverages in glass and cans



Compostable cardboard tray and wood cutlery



Again Again cup lending scheme



Repurposed bench seat with slats made from 100% post-consumer waste (milk bottles)

## ALTERNATIVE MATERIAL REPLACEMENT



### **Indira Gandhi International Airport Single-Use Plastic Free Delhi Airport**

“Single-use plastic (SUP)” elimination is one of the key sustainability focus areas of Delhi Airport. DIAL adopted this initiative in 2019, in line with Government of India’s commitment to become SUP free country and DIAL’s Environment policy commitment of “protection of ecosystem”.

Single-use plastics, often also referred to as disposable plastics, are commonly used for plastic packaging and include items intended to be used only once before they are thrown away or recycled. These include, among other items, grocery bags, food packaging, straws, containers, cups and cutlery etc. Under this initiative DIAL focused on-

- Replacing the use of SUP through eco-friendly sustainable alternatives
- Minimise the generation plastic wastes by reuse and recycling
- Enhanced segregation of waste at sources
- Conduct knowledge sharing & Focused on awareness
- Engage with stakeholder groups
- Effective communications with internal and external stakeholders
- Enforce and monitor effectiveness of the programme through audits and inspections

Delhi Airport was the first Airport globally to commit to elimination of single-use plastics from its operation and it inspired a host of other Indian Airports, which also committed to single-use plastic elimination following the footstep of DIAL. Most recently in 2022, Government of India has now made it a regulation by banning 19 types SUP throughout India.

Benefits & Innovation from the project-

- DIAL has replaced more than 45 different types of SUP based products used at Delhi Airport.
- Through this initiative DIAL could reduce single-use plastic generation by almost 1.57 TPD.
- The current generation of plastic waste is 0.5 TPD, which is sent for recycling by Delhi Airport.

Innovation- at Cargo Terminal, the consumption of shrink wrap (SUP) was ~13200 kg/ year at truck dock area. This was reduced to zero by replacing it by safety nets with having 3 years’ life time.

## Project Graphics

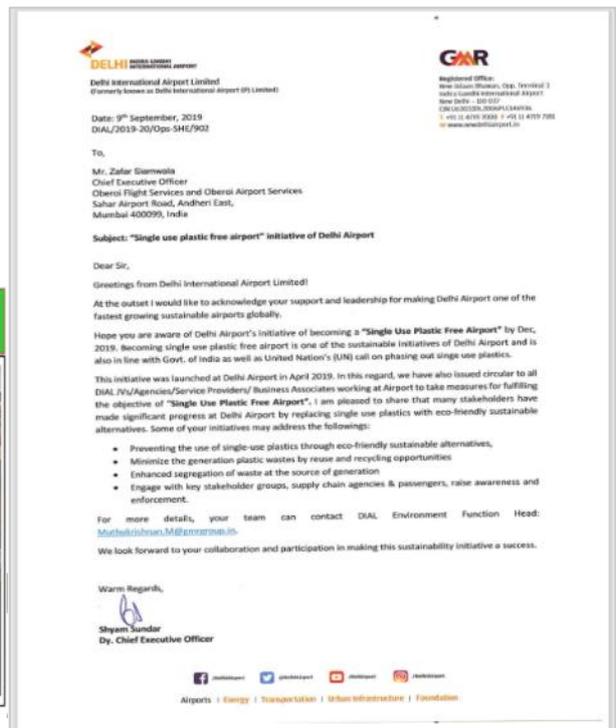


SUP protocol developed by CII in collaboration with DIAL for Industries/Corporates & Certificate issued

Media Communications & Awareness Creative



Innovative measure: Covering of Cargo by Safety Net



Certificate & Copy of Communication by DIAL's senior management to stakeholders

## ALTERNATIVE MATERIAL REPLACEMENT



### Jeju International Airport

#### The introduction of reusable cups to airports

Jeju Island is one of Korea's representative tourist destinations, visited by 30% of the Korean population every year. With the constant increase of the number of travelers, the rise in consumption of disposable products inevitably followed. To solve this problem, in 2021, collaboration between public and private sector prompted the operation of coffee shops without single-use cups in Jeju Island. The customers at Starbucks must use reusable cups and return them at Jeju Airport after their trip.

This project is centered around Jeju Airport, where travelers must visit for Jeju Island trips, along with various stakeholders taking part of it. Starbucks uses reusable cups only, SK Telecom manufactures reusable cups return machines, Happy Connect washes reusable cups customers returned, and CJ Logistics collects and delivers reusable cups using electronic vehicles.

A deposit (\$1) is charged for each cup, which is refunded when customers return it to the machine located in coffee shops and Jeju Airport. As a consequence, more than 370,000 reusable cups were returned to Jeju Airport from July 2021 to October 2022. It is the largest amount of returned reusable cups in Jeju Island, and the figure has the equivalent reduction effect of 25.9 million cups, if calculated for disposable cups on an annual basis. Also, the cups discarded after 50 to 70 reuses can be 100% recycled.

Starting from Starbucks, Korea Airports Corporation aims to expand this project to all cafes in Jeju Airport. As a result, it became the first of Korea's 15 airports to operate Zero-Plastic Cafes in December 2022, reducing about 140,000 single-use cups annually and 4 tonnes of carbon emissions.

The experience of using reusable cups in Jeju Airport has raised awareness of carbon reduction among consumers, and Korea Airports Corporation plans to expand the introduction of reusable cups to airports nationwide.

## Project Graphics



Signing ceremony of business agreement for the pilot project of "Clean Jeju Island without single-use cups"



Reusable cup eco-zone (return machines) in Jeju Airport



Signing ceremony of business agreement for "Clean airport without single-use cups"



Introduction of Reusable cups to cafes located in Jeju Airport

## ALTERNATIVE MATERIAL REPLACEMENT



### **Mangaluru International Airport**

#### **SUP Free Airport - Mangaluru**

Mangaluru International Airport Limited (MIAL) signed a concession agreement with AAI to operate, maintain, manage & develop Mangaluru International Airport. MIAL commenced its operations from October 31, 2020.

MIAL being an environmentally responsible organisation, post COVID has initiated several initiatives to establish the environment management system and sustainability.

MIA has initiated the project "SUP Free Airport" to eliminate the single-use of plastic (SUP) from its operations.

As part of this project, we have identified various sources of single-use plastic in use at MIA. We identified sources of usage from business partners (retail/F&B outlets), employees, stakeholders, and passengers.

#### **The following actions has been Implemented:**

- The airport has issued guidelines to all restaurants to provide wooden cutlery items like spoons, forks, and paper plates.
- In all F&B outlets, single-use plastic cups, straws have been eliminated and replaced with glass or paper cups, as well as paper straws.
- Duty-free bags at international departures and arrivals have been converted from single-use plastic to cloth bags.
- The changeover from single-use plastic bags to paper bags is being implemented at all retail outlets.
- At the office, the use of single-use plastic portable drinking water bottles (Packed drinking water) has been eliminated, and all drinking water bottles have been converted to glass bottles.
- "SUP free airport" campaign has been initiated. Video has been displayed at digital display boards and FIDS at various locations at airport to create the awareness among passengers, stakeholders, and staff.
- Guidelines have been provided to all vendors to dispatch spare parts, products, and consumables without single-use plastic wrappers.

By implementing the above project, we have reduced the plastic waste from an average of 1238kg per month in FY 22 to an average of 444 kg per month FY 23, resulting in reduction of 23.8-tonne of CO2.

## Project Graphics



Wooden cutlery & paper plates straws at restaurants, F&B outlets

All airport retail outlets providing bags made from cloth & paper



Glass water bottles provided to all employees in place of plastic bottles



Ongoing digital campaign at digital display boards and FIDS at various locations at the airport

## ALTERNATIVE MATERIAL REPLACEMENT



### **Muscat International Airport**

#### **Eliminating the use of plastic water bottles in the offices**

Muscat International Airport had been working for the past few years to change from the use of plastic water bottles to reusable bottles and cold-water dispensers to eliminate the use of single-use plastic within the airport premises by all staff. This project went through different phases to ensure smooth transition without any impact to the staff welfare and provision of basic needs.

The start of the project was by providing cold water dispensers in the offices and workplaces so staff can access drinkable water other than providing the plastic bottles. The aim in the beginning was to get the staff used to multi use cups and change the culture of single-use items consumption. In addition, it was decided to reduce the amount of plastic water bottles supplied to the different airport departments through the procurement process. Gradually, the supply of single-use plastic water bottles was stopped and only supply allowed currently is for meeting rooms for guests with controlled weekly quantity.

The airport environment team gave away reusable bottles to the staff who work in duty and on sites so they can fill them with water when they are going for work away from the offices ensuring an alternative was provided to the staff for their welfare.

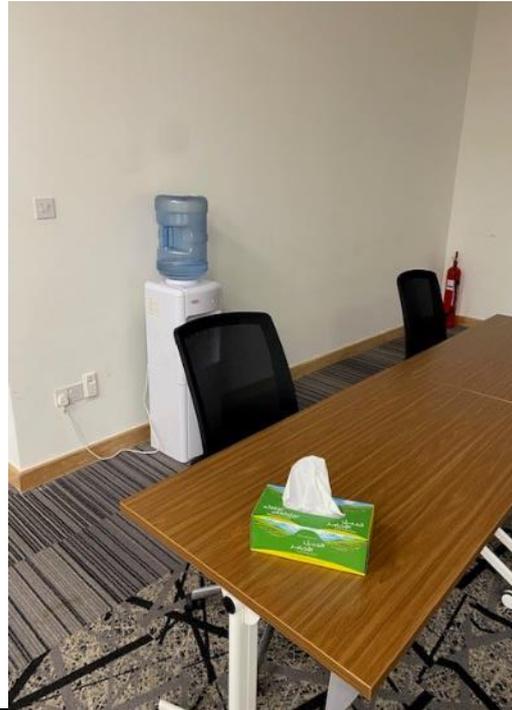
This project has reduced the plastic waste generated from the offices which complements the commitment of Oman Airports Environmental Policy to minimise waste generation.

Stakeholders are also working towards reducing their procurement of single-use plastic water bottles by providing cool water dispensers at offices and staff rest areas which is a huge contributor to reduce the plastic waste.

## Project Graphics



Reusable water bottles for staff



Cool water dispenser Training Room



Cool water dispenser MCT  
Operation Office



Staff Personal reusable bottle

## ALTERNATIVE MATERIAL REPLACEMENT



### **Perth Airport Containers for Change**

In 2021, to reduce recyclable waste ending in landfill, Perth Airport (PAPL) launched a new Containers for Change waste stream collection within its office spaces and terminals to capture and recycle eligible bottles and cans. The collection is part of the larger Western Australia Containers for Change deposit scheme which aims to increase the recycling rates and reducing the littering of drink containers in the state. For each container returned through the scheme, 10 cents are refunded. The proceeds are donated to registered charities, community groups and not-for-profits.

Perth Airport determined the opportunity to collect its own 10 cent containers by conducting both a feasibility study and a waste audit, which both clearly showed the large contribution drinking containers have in landfill generation on the estate.

Perth Airport first started by collecting containers within office spaces, which then led to a large-scale trial within its Terminal 4. Of the 10c proceeds that Perth Airport collects for each container, all proceeds currently go to Lifeline WA which is a leading suicide and mental health prevention provider in Western Australia. Perth Airport also partnered with Scouts Western Australia, a Not for Profit who collects the containers from the airport. The initiative appeals to the values of sustainability by ensuring both the environment and the community can benefit from a single initiative.

The trial was deemed as successful, and Perth Airport is now committed to rolling out container collections within its remaining terminals and office spaces.

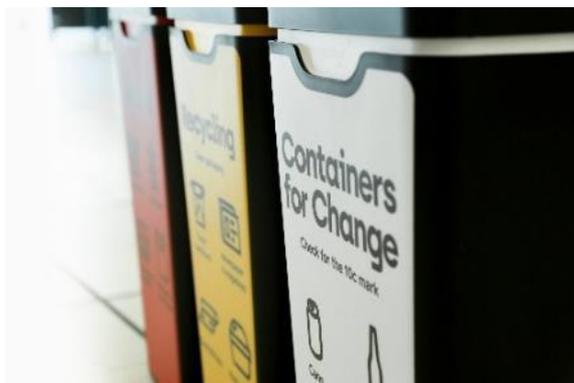
Furthermore, all food and beverage retailers will join the container collection programme by collecting bottles and cans from their dining/ kitchen areas.

## Project Graphics



New three bin station using existing infrastructure

Containers collected separately in the service yard for collection from PAPL's waste hauler and community partner Scouts WA



New three bin station using new 'Method' Bins

PAPL's new three bin station in passenger spaces

## ALTERNATIVE MATERIAL REPLACEMENT



### Queen Alia International Airport

#### Minimise plastic waste

Prior to the COVID-19 pandemic, AIG worked on an Integrated Waste Management (IWM) programme. The aim of this programme was to collect separately plastic/cartoon/metal and send it to the license waste recyclable sorting stations. This programme stopped temporarily due to the COVID 19.

In 2022, AIG took some actions to minimise the use of single-use plastic items inside airport terminal building and minimise the percentage of waste plastic transferred to landfill. The actions that have been implemented can be summarised as below:

- 1- **Mapping process:** Working closely with commercial & operation departments to identify the sources of cartoon/plastic waste, focus on the high consumers & generators concessionaires inside terminal.
- 2- **Data Collection:** Distribute survey with simple and direct questions to the concessionaires assessing the interest of implementing such a project while requesting some data related to quantities and consumptions of plastic.
- 3- **Awareness cycle:** Conduct awareness session and several meetings (One to One) with the selected concessioners to explain the project objective and methodology.
- 4- **Legislation revision:** Review the legislation exist in the country that is organise the using of single-use plastic items
- 5- **Implementation:** Sign agreement with Municipality to collect separately the cartoon/plastic waste
- 6- **Local Market Capacity:** Followed with relevant authorities such as Ministry of Environment and Amman Chamber of Industry, to collect information on the local suppliers that work with biodegradable products to replace the plastic bags and supply alternative recycled consumables materials other than single-use plastic.

The Six steps mentioned above lead to Three challenges:

- 1- No legal framework organises the single-use plastic items, the existing legal instruction organise the use of plastic bags.
- 2- No local manufacture that produces products made of recyclable materials as alternative materials from using single-use items.
- 3- Insufficient data or not available from the concessionaires.

## Project Graphics



Airport Duty Free shops bags



Terminal waste containers

**MOM Form**  
GAIA-CEO-QSM-FO-017-03

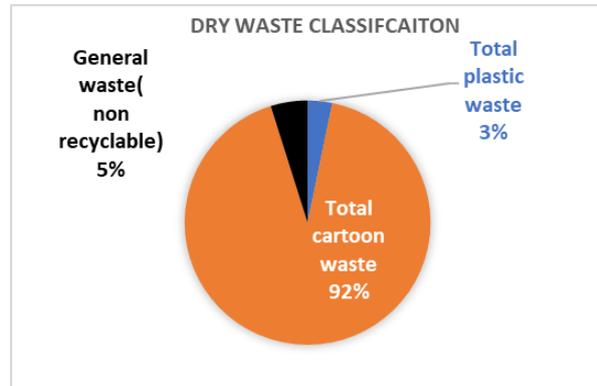
Working Group-Single Use Plastic Items

Date: 20<sup>th</sup> of April, 2022      In charge of the MOM : Rula Dawood

Representatives of: <ul style="list-style-type: none"> <li>• AIG-Commercial Division</li> <li>• DIATA</li> <li>• DUFFY</li> <li>• Newsell</li> <li>• Sukhna-Hygent</li> <li>• Airport Boys</li> </ul>	Excused:	Absent: <ul style="list-style-type: none"> <li>Representative from MAC</li> <li>Representative from Starbucks</li> <li>Representative from AIG (Jeh/Jul)</li> <li>Representative from Al-Bayan</li> <li>Representative from Blue Ig</li> <li>Representative from Carolina</li> <li>Representative from Pasha</li> <li>Representative from Wilmith</li> </ul>
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Agenda	Items	Follow up
1- Overview of AIG-Environment Policy 2- Introduction on Single Use Plastic (definition/Impact/Action) 3- Data Gathering-Survey		
<b>1- AIG-ENV Policy:</b> BHS Manager, present the AIG Env policy statement and explained AIG actions toward environment protection. Policy available on this link: <a href="https://www.aig.aero/English/MS-Policy/Documents/AIG%20ENVIRONMENT%20POLICY-signed.pdf">https://www.aig.aero/English/MS-Policy/Documents/AIG%20ENVIRONMENT%20POLICY-signed.pdf</a>		
<b>2- Introduction on Single Use Plastic (definition/Impact/Action)</b> AIG is looking to collaborate with the concessionaires at terminal, to identify the top priority of single use plastic items and conduct research to find alternative with more environment friendly items. As first step, AIG organized meeting with the relevant concessioner to present introduction of the topic, and later will conduct survey to collect the necessary data.		
<b>3- Data Gathering-Survey:</b> To be able to define the priority that need to work one depend on the consumption level, will need to collect information from concessionaires regarding the single use item type and consumption level. Please use this link: <a href="https://forms.office.com/r/4EBL77ncP">https://forms.office.com/r/4EBL77ncP</a>		
Note: It was discussed during the meeting, on the necessary to have representative that represent the concessionaires in the Airport Environment Committee Meeting, and agreed to have representative from AIG-Commercial dep.		

Stakeholders involvement evidence



Data analysis

## SINGLE USE PLASTIC BANNING POLICY & GUIDANCE



### **Adelaide Airport**

#### **Single-use plastics free precinct**

In collaboration with Green Industries South Australia (Plastics Free SA), Adelaide Airport is supporting an ongoing programme to eliminate single-use plastics from food and beverage tenants to support attainment of our waste targets of 30% reduction of waste and 60% recycling rate by 2030. The project applies to the Adelaide Airport landside terminal, plaza, port cochure and carpark area with collaboration occurring with Green Industries South Australia (South Australian Government), Plastics Free SA (South Australian Government delivery partner), food and beverage tenants and Cleanaway waste and recycling contractors.

Total project funding of \$225, 000 was expended for installation of three waste stream bins with organics waste compartment in the terminal, installation of a 12 m<sup>3</sup> pendulum organic waste compactor and a plastics free education package. Education included the development of an induction programme, and a stakeholder engagement programme that involves working directly with food retailers to assist them to switch from single-use plastics to better alternatives, such as reusable or compostable items.

We lead sustainability by transitioning to a new regulatory environment well before the plastics products are prohibited for use and create new opportunities for diverting organics to a new recoverable stream in the South Australian Circular Economy.

The following benefits are realised through the project:

- Improved operational efficiency in organics material handling on cost reduction from the operation of a dedicated organics compactor
- Increased diversion of organic material from landfill
- Reduction of carbon dioxide-equivalent emissions from decomposition of organics in landfill
- Contribution to nature-positive outcomes by providing feedstock for premium plant products
- Meeting passenger expectations by offering green alternatives as part of their kerb-to-gate travel experience
- Promoting an innovation culture with our tenants to come up with novel compostable packing solutions

Importantly, the programme is ongoing to continually collaborate and educate tenants on transitioning to a plastics-free future.

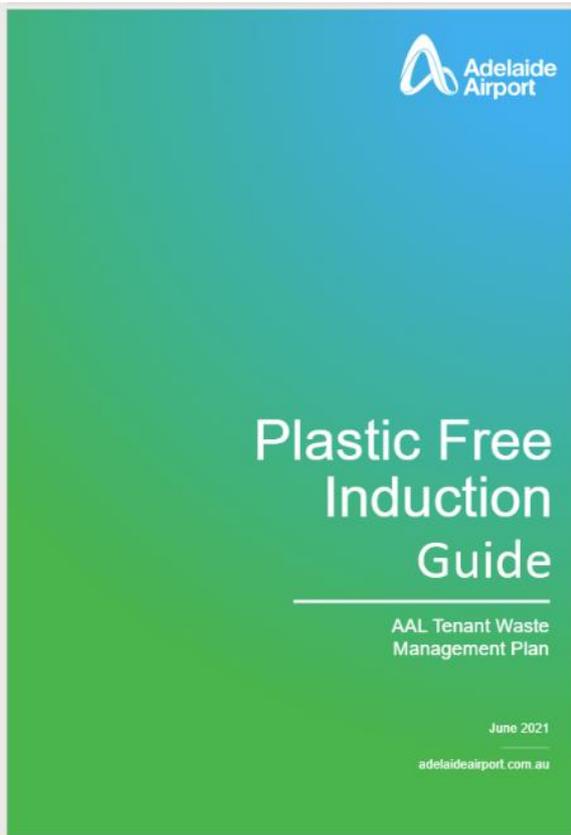
Project Graphic



New terminal collection bins with organics waste stream



Compostable food packaging



Plastic free induction guide

Guide to eliminating single-use plastics for food retailers cont.

Takeaway Containers & Lids

- Reusable Options**
- Allow customers to BYO container and consider offering a discount.
  - Provide or sell customers a reusable container and offer a discount on next purchase (upon return of container).
  - Offer a borrow/ return service.
- Disposable Options**
- Re-think how much packaging you need to use. Provide wooden/paper/cane or other 100% certified home compostable containers. There are products available that are leak-proof, freezer-proof and microwavable. Be wary of the label 'biodegradable', ensure they are also labelled as compostable. Try to source sustainably.

Foodware (cutlery, plates, bowls, cups etc.)

- Reusable Options**
- Use washable reusable items such as stainless steel cutlery and ceramic plates.
- Disposable Options**
- Preference wooden/ paper/ cane or other 100% certified home compostable items. There are suitable products available that are leak-proof, freezer-proof and microwavable. For cold cups, paper with compostable lining is preferred. For cutlery, bamboo/ wood is the best option. Be wary of products labelled only as biodegradable, ensure they are also labelled compostable. Try to source sustainable products.

Plastic Bags

- Reusable Options**
- Don't provide plastic bags, instead offer reusable cloth bags (these can be branded and solid). Try to source bags made from sustainable materials, or stock locally made Boomerang Bags (and support local recycling at the same time).
  - Encourage customers to bring their own bags.
  - Offer a borrow/ return cloth bag service for regulars who forget their bags.
- Disposable Options**
- Ask if customers really need a bag?
  - Provide recycled cardboard boxes for customers to use.
  - Provide paper bags (sustainably sourced).
- Note: Lightweight plastic bags are banned in South Australia

Plastic free induction guide - extract

## SINGLE USE PLASTIC BANNING POLICY & GUIDANCE



北京首都国际机场股份有限公司  
Beijing Capital International Airport Co.,Ltd.

### Beijing Capital International Airport

#### Plastic Pollution Control Action of Beijing Capital International Airport

In recent years, plastic pollution has become the world's second largest environmental focus problem after climate change, bringing enormous challenges to global sustainable development. The Chinese government attached great importance to the treatment of plastic pollution, and issued a series of policies and requirements to strengthen the treatment of plastic pollution. Adhering to the concept of green development and aiming to build a benchmark in green airport, Beijing Capital International Airport started the plastic pollution control action in 2020.

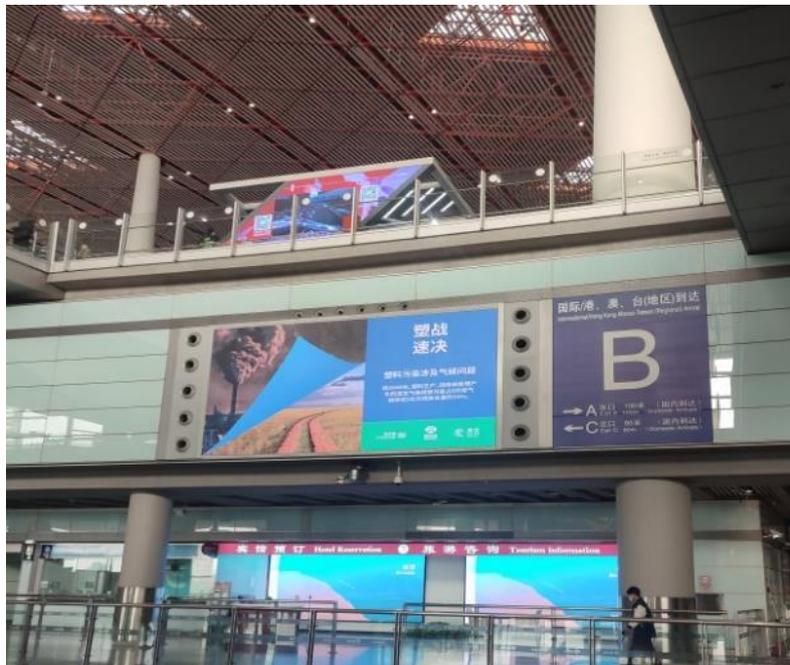
The plastic pollution control actions of Beijing Capital International Airport include a series of measures, such as defining the prohibition requirements for disposable non-degradable plastic bags, plastic straws, mixing rods, dinnerware, cup sets, packaging bags and other disposable non-degradable plastic, actively seeking new degradable and reusable alternatives, optimising management support measures, and making full use of the media resources in terminal and office buildings to publicity plastic pollution control, etc.

With the efforts of all stakeholders stationed in Beijing Capital International Airport, the use and management of plastic has gradually become standardised, realising the comprehensive prohibition of disposable non-degradable plastics, a significant decline in the consumption of plastic, and remarkable achievements have been made in the plastic pollution control action.

## Project Graphic



New degradable and reusable products



Publicity campaign on the theme of plastic pollution control

## SINGLE-USE PLASTIC BANNING POLICY & GUIDANCE



### **Kaohsiung International Airport**

#### **Plastic-Free Life at the Airport**

Since 2018, Kaohsiung International Airport (KHH) has responded to the policy of the Environmental Protection Administration. We initiated the project of "Plastic-Free Life at the Airport" at Kaohsiung International Airport. Many KHH's retailers including Family, 7-11 and Starbucks increase usage of reusable cups in their stores and provide the passengers and crews a better opportunity to make greener life choices by offering discounts for the reusable cups. With 100% of the business partners promised to reduce plastic in new methods, Kaohsiung International Airport is increasingly passionate about this issue and this makes it easier for us to do more, we want to see an end to single-use plastics, sooner rather than later.

Hence, our goal of this initiative is to reduce the amount of single-use plastic by 5% each year. It aims at the **Promotion of eco-friendly cups and the refill stations installed, Reduction of disposable tableware, ban on the sale of products containing microbeads confiscate, and Innovation of green products.** Moreover, we have also trialled different types of collection bins to understand how we can make recycling as easy as possible for passengers.

From 2018 to 2022, KHH has saving an average of 130,900 plastic cups, single-use tableware and 208,700 plastic straws per year. In 2022, KHH reported a total single-use plastic reduction of 72 tonnes (an averages 15 tonnes per year). "Plastic-Free Life at the Airport" initiative minimises external social costs and maximises social benefits to achieve a vision of sustainable living.

Project Graphic

Plastic-Free Life at the Airport

The Innovation of Green Products

- ✓ Encourage retail and business partners to develop green product designs.
- ✓ There were 89 eco-friendly products in 2018 and increased to 166 in 2022

The Reduction of Disposable Tableware

- ✓ Successfully cooperated with 100% of retail and business partners to launch the provision of eco-friendly tableware and eco-friendly paper straws
- ✓ An average of 208,700 plastic straws are reduced each year



Ban on the Sale of Products Containing Microbeads Confiscated

- ✓ Since 2018, Kaohsiung International Airport has stipulated that retailers are not allowed to sell products containing plastic particles. Stores that sell such products in violation of the regulations will be fined NT\$1,200 to NT\$5,000

Promotion of eco-friendly cups and Refill Stations Installed

- ✓ Provide the price discount of more than NT\$5
- ✓ From 2018 to 2022, an average of 130,960 disposable plastic cups were reduced each year

Poster Dissemination inside Kaohsiung International Airport

Poster Dissemination of Trash



Poster Dissemination of Recycling



“Plastic-Free Life at the Airport” Policy

Put up Posters to Propagate Environmental Protection Awareness

Stakeholders Negotiation - Dissemination

Theme of Dissemination

Regularly disseminate plastic reduction management to retail and business partners, and advocate effective recycling of resources through green production, green consumption, source reduction, resource recycling, reuse and recovery, etc.

Provide relevant awareness education and training for employees and retail and business partners with the plastic reduction management and effectiveness review meeting at least an hour per year

Dissemination Results

From 2018 to 2022, 100% retail and business partners had participated in education and training and accepted regular plastic waste inspections

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The Airport Plastic Reduction Check and Evaluation Form

Education and training related to plastic reduction in 2021



Deepen Plastic Reduction Action through Innovative Design

Degradable Plastic Material

The degradable plastic material "Cycle+" certified by British BSI is used as the fresh food packaging material. "Cycle+" is a new generation of biodegradable materials jointly developed by South Plastic Industry in Taiwan and Polymateria in the UK. It must pass through the industrial composting environment with strict temperature and humidity restrictions, and it can be naturally decomposed within 2 years in the open-air terrestrial environment and transformed into carbon dioxide, water and biomass without leaving plastic or harmful substances in the environment.



Green Design

Protecting the environment is an imperative to address the climate crisis, both now and in the future. To solve white pollution, innovation is indispensable. As far as plastics are concerned, safe reusability, recyclability or degradability are their innovative development directions. Plan various product development plans according to the strategies of "green environmental protection" and "customer demand".



Educational Dissemination of “Plastic-Free Life at the Airport”

Encourage the innovative design of green products

## SINGLE-USE PLASTIC BANNING POLICY & GUIDANCE



### Rajiv Gandhi International Airport

#### Single-use Plastic free RGI Airport

While plastic has many valuable uses, the hazard that comes is detrimental to the Planet. Clinging to single-use plastics (SUP) is to be thwarted as it has environmental, social, and health consequences. SUP is a by-product of petroleum. 2kg petroleum produces 1kg SUP that emits 6kg of CO<sub>2</sub>e. According to UNDP, 438 million tonnes/year of plastic is produced emitting 2638 million tCO<sub>2</sub>e. At airports, SUP are used for aircraft trash collection, and carry bags, meal plates etc. in Passenger Terminal. It also becomes flight safety hazard to aircraft operations in the form of FOD.

In line with ICAO's Environmental Protection objective, **GMR Hyderabad International Airport Ltd (GHIAL) vide its Sustainability policy has committed to use eco-friendly products** at Rajiv Gandhi International Airport (RGIA).

With this objective, the airport aligned to the **UNEP-World Environment Day 2018** theme, "**Beat Plastic Pollution**" with a commitment of SUP elimination.

A holistic effort was made by working collaboratively with all Airport stakeholders through:

1. **Sensitisation of stakeholders** about SUP and its consequences.
2. **Conducted audits** and identified SUP users.
3. **Replaced plastic with jute products** by partnering with local communities through the CSR arm GMR Varalakshmi Foundation (GMRVF).
4. **Replacement of plastic cutlery and carry bags.**
5. Introducing **compostable plastics**, in accordance with ISO 17088
6. **GHIAL banned SUP** from February 2020.

These practices **eliminated SUP at RGIA.**

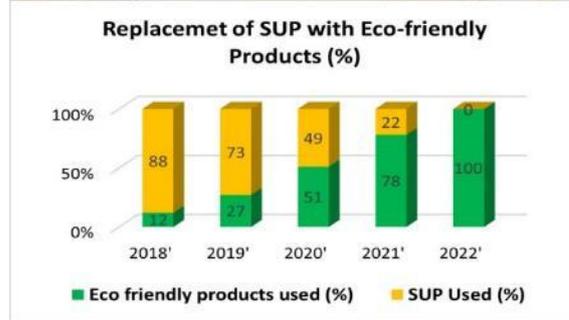
The tangible results for 2018-2022:

- 595,498 pieces of handbags, paper bags etc. were made from jute material.
- 32,14,920 plastic plates were replaced with starch-based plates.
- 27632 kg compostable bags used for aircraft waste collection.

These sustainable products prevented 276 tonnes of plastic directly, 551 kl petroleum and 1655 tCO<sub>2</sub>e indirectly.

SUP free RGIA is aligned to UNSDG 12: Responsible consumption and production, and UNSDG 14: Life below water - Conserve and Sustainably use oceans for sustainable development.

**Project Graphic**



Women empowerment through making of jute products and elimination of plastic products at RGIA

SUP replacement with Eco – friendly products. Serving food on starch-based plate at RGIA



Awareness to the children on SUP elimination with eco-friendly products during World Environment Day 2018



Airlines are using compostable plastic carry bags for collection of the waste

## SINGLE USE PLASTIC BANNING POLICY & GUIDANCE



### **Sardar Vallabhbhai Patel International Airport**

#### **Single-Use Plastic Free Airport - Ahmedabad**

Ahmedabad International Airport Ltd (AIAL), has taken over the operations & maintenance of Sardar Vallabhbhai Patel International (SVPI) Airport, Ahmedabad, India from November 2020.

Ahmedabad Airport is committed to promoting a culture seeking continual improvement in the Environmental performance of the organisation. The airport is committed and progressing towards achieving Carbon Neutrality status by Mar 2024. AIAL has achieved various awards and accolades for the quality & environmental protection measures taken by the airport.

AIAL emphasises on resources optimisation through improve efficiencies and reduce wastes. The environmental risks are considered & mitigated at every stage of operational activities.

The Ahmedabad Airport is operating based on Zero Waste disposal operations.

AIAL implementing sustainable waste management techniques for good environment practices which focuses on 5Rs (Reduce, Reprocess, Reuse, Recycle and Recover) principles that helps avoid disposal of the waste and thereby reduces further degradation of the environment.

As a first major step towards sustainability, after taken over the operations, the project of Single-Use Plastic Elimination is commenced in June 2021.

This project has been taken up after understanding the negative impacts of single-use plastic on the environment & health. By considering this, we decided to put complete ban on the use of single- use plastic at the Ahmedabad Airport.

Awareness drives are conducted to all stakeholders informing the harmful effects of Single-Use Plastic. Various signages are placed in the terminal and city side to inform the passengers & staff. Stakeholders are consulted, collaborated and imparted training in finding the sustainable alternatives to Single-Use Plastic.

Close monitoring with the concessioners and ensuring that the outlets in airport premises, airlines do not use the Single-Use Plastic.

Surprise inspections are carried out as routine practice to ensure the phasing out of Single-Use Plastic in the airport premises.

## Project Graphic



Plastic recycling through Reverse Vending Machine



Awareness Sessions & Collaborations with stakeholders



FIDS information for Stakeholder Involvement



Surprise inspections at Concessioners' counters

## SINGLE-USE PLASTIC BANNING POLICY & GUIDANCE



### **Taoyuan International Airport Waste Management and Reduction Plan**

The Taoyuan International Airport follows international environmental management standards, to identify and manage various types of waste such as plastics generated by terminals and aircraft and has obtained ISO 14001 third-party certification. For plastic waste, the “Waste Management and Reduction Plan” has been promoted since 2019 to effectively reduce plastic waste.

#### 1. Terminal

(1) A reduction goal for disposable plastic waste has been set, for plastic bags, disposable tableware, beverage cups, straws, and various other types of waste, set goals for restricting their use by not making them freely available, and then gradually tighten toward completely prohibiting their use.

(2) According to the characteristics of waste generation, a total of 585 sets of different types of waste recycling stations and containers are set up inside the terminal building, and plastic reduction slogans are displayed at the passenger activity hot-spots to increase the willingness to recycle resources.

(3) Encourage airport partners to promote “bring your own reusable cup discounts”, to urge passengers and business partners to reduce the use of plastic cups.

#### 2. Aircraft

Taiwan’s airlines have launched measures to limit the usage of disposable plastic waste. In addition to encouraging passengers to bring their own personal items such as earphones, and reusable cups, they have also expanded the use of products made of biodegradable materials such as paper and bamboo fiber, and declared that the use of disposable plastic products will be reduced by at least 90% by 2030.

After the promotion of the plan, compared with 2018, the amount of plastic waste generated in 2019 had been reduced by 71,674 kg when the number of tourists had reached a new high. The amount of plastic waste produced per passenger was reduced by 6.5%, and the cost of final waste disposal was reduced by NTD 1.23 million.

Project Graphic

	2019	2025	2030
 plastic bags	Partially restricted use All invoiced stores	Totally restricted use Increase the price of shopping bags at all stores	Prohibited to use
 disposable tableware	Partially restricted use All kinds of disposable tableware are not provided for internal use	Totally restricted use Increase the price of disposable tableware at all stores	Prohibited to use
 beverage cups	Partially restricted use Enhanced benefits for bringing your own drink	Totally restricted use All stores are raising fees for takeaway cups	Prohibited to use
 straws	Partially restricted use Caterers do not provide single-use plastic straws for in-house drinking	Totally restricted use Increase the price of straws at all stores	Prohibited to use



Set a reduction goal for single-use plastic

Plastic reduction slogans can be seen everywhere



Waste recycling devices are displayed all over the terminal

Education and training to promote waste recycling programmes

## SINGLE-USE PLASTIC BANNING POLICY & GUIDANCE



Thiruvananthapuram  
Thiruvananthapuram International Airport

### Thiruvananthapuram International Airport

#### Implementation of Single use Plastic Ban as per the legal norms

In view of the adverse impacts of single-use plastic on both terrestrial and aquatic ecosystems, Thiruvananthapuram International Airport has continually created awareness and training session for all the stakeholders and implemented the Plastic Waste Management Amendment Rules, 2022 in true spirit.

The Plastic Waste Management Rules (PWMR), 2022, provides the statutory framework for plastic waste management in an environmentally sound manner throughout the country prohibiting identified single-use plastic items, which have low utility and high littering potential.

TIAL is committed to act for mitigation of pollution caused by Single-Use Plastics. Pollution due to single-use plastic items has become an important environmental challenge confronting all of us all. The use of following single-use plastic, including polystyrene and expanded polystyrene, commodities have been banned in the airport premises which is strictly enforced and implemented.

- Ear buds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, polystyrene [Thermocol] for decoration.
- Plates, cups, toothpicks, glasses, cutlery such as forks, spoons, knives, straw, trays, wrapping or packing films around sweet boxes, invitation cards, and cigarette packets, plastic or PVC banners less than 100 microns, stirrers. etc.,

Thiruvananthapuram International Airport is periodically conducting assessment for elimination of single-use plastics and effective implementation of The Plastic Waste Management Rules (PWMR), 2022.

## Project Graphic



Currently used Biodegradable alternatives for all Food & Beverage outlets, canteens & catering services. Wooden Cutleries, Paper straw, plate, cup and cover

Wooden Plant Pot currently has been steadily replaced as a sustainable alternative



Awareness Session on Plastic Waste Management by for all stakeholders. Guest speaker - Managing Director Clean Kerala Initiative, Govt of Kerala, India

Beach Cleaning: Plastic Waste Awareness towards community and the ill effects of the plastic to Marine and Coastal Environment. Airport Fraternity and local community actively participating in the Plastic Awareness drive

## PLASTIC WASTE REUSE, RECYCLING & CIRCULARITY



### **Chubu Centrair International Airport**

#### **'Bottle to Bottle' sustainable use of PET bottle**

Chubu Centrair International Airport (CJIAC) has installed 'Bottle to Bottle', system, that is the effective recycling of PET bottles since July 20th 2022. This project is in collaboration with beverage maker Suntory, local governments, and other related businesses.

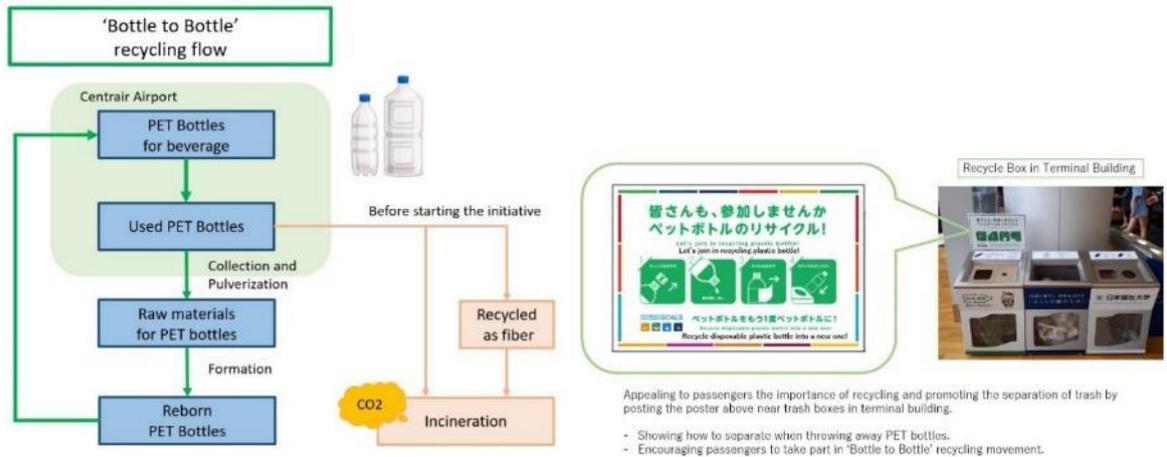
Before starting this initiative, around 80 tonnes of PET bottles were discarded and incinerated at our airport annually. However, through this new recycling, used PET bottles collected at our airport are converted into raw materials, and reborn as new PET bottles.

As a general case of recycling, used PET bottles are converted into textile raw materials, but ultimately, they are incinerated. On the other hand, "Bottle to Bottle" system is permanent recycling without incineration, therefore it can be said 'Sustainable Resource Circulation'.

As a result of this initiatives, in addition to reducing CO2 emissions from incineration, CJIAC contribute to the reduction of the fossil fuel consumption for making PET bottles. The total effect is equivalent to a CO2 reduction of 69 tonnes. CJIAC is the first in Japan to install and implement this system in the airport.

We believe that it is important and realistic not only to eliminate plastics, but also to use plastics effectively and long-term with reducing the environmental impact. Moreover, we appeal to passengers about the importance of recycling and promoting the separation of trash by posting this activity near trash boxes in our terminal building. With the cooperation of passengers, we are working together as one in the airport land to achieve a sustainable society.

Project Graphic



'Bottle to Bottle' recycling flow

Recycle Box in Terminal Building



Joint press conference with Suntory, Tokoname-City, and CJAC

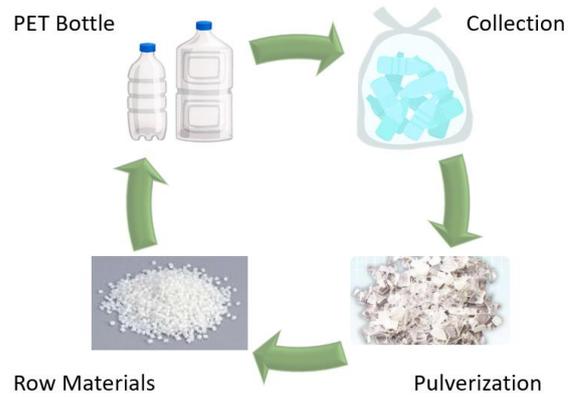


Image of recycling

## PLASTIC WASTE REUSE, RECYCLING & CIRCULARITY



### **Christchurch International Airport**

#### **Christchurch Airport's "Waste Strategy to Circular Solutions"**

Christchurch International Airport undertook a major waste redirection. Over the past two years, we have enlisted support from the whole company from the Board to those in critical operational roles, to undertake our "waste to circularity" overhaul.

This included reimagined management level policy, no longer focusing on waste, but on circularity. We consider diversion from landfill, but also the entire life cycle of products and whether we need that product in the first instance, what is the best use recognising its highest value, and keeping that resource in perpetual circulation.

To support this approach there have been critical innovations including reissuing our waste collection services contract- splitting it into a 'waste minimisation contract' and 'waste removals contract'. There is no longer a conflict between those taking our waste and not necessarily wanting to minimise the volumes of waste we produce.

We then undertook New Zealand's largest onsite waste audit - involving hand-sorting 1000kg of waste over three days, to gather data to understand our waste streams. We produced a 34% improvement in diversion from landfill, which led to introducing waste sortation permanently onsite.

Our bespoke waste sortation station had the co-benefit of introducing flexible employment opportunities. Our general waste is sorted before collection and our circular waste streams are separated out – including organics, liquids, glass, cardboard, paper, hard and soft plastics. Our circular approach identifies every resource that comes through our terminal into a waste stream, and we investigate what the highest value end use could be, both environmentally and cost effectively.

We replaced plastic milk bottles with a stainless-steel milk keg delivery service, our organic waste is turned into compost which is used across the city's gardens, and we are setting aside soft plastics to be turned into fence posts for our renewable energy precinct.

**Project Graphic**



Ready to Go - Values-based Partnership  
 Evie Cookson (CIAL Project Lead), Jack Stapleton (EnviroWaste) & Claire Waghorn (CIAL Sustainable Transition Lead)

Sortation Experience Day.  
 Kate Gislason (Sustainably), Jake Stapleton (EnviroWaste) and Evie Cookson (CIAL)

Waste Stream	Pre-sort	Post-sort	Improvement	Outcome
General Waste	55%	21%	34% reduction	
Recyclable Plastics	8%	7%	7% uncontaminated	
Soft Plastics	Unknown	5%	5% recovery	
Organics	15%	34%	19% redirection	
Cardboard	8%	9%	1% recovery	Recycle
Glass	14%	15%	1% recovery	Recycle
Liquids	Unknown	9%	9% removal of contaminants	

Plastics in General Waste



Final quality check - Dan Redmond (EnviroWaste) and Kat Ralph-Triebels (Sustainably)

## PLASTIC WASTE REUSE, RECYCLING & CIRCULARITY



### Hamad International Airport

#### Collaboration with Qatar's Ministry of Municipality for waste management improvement at Hamad International Airport

To meet Hamad International Airport's (HIA) commitment to environmental preservation and its objective of achieving zero landfill, the airport developed a project in collaboration with the Qatar's Ministry of Municipality to improve waste management process for the Hamad International Airport. The project was initiated in April 2021 and completed in Apr 2022.

The following initiatives are included under the implementation of the project.

- Improve source segregation through implementing Matar Waste Management Manual and revenue contracts (including HDPE/LDPE/PET)
- Implement back charge contracts for the waste management services provided to the stakeholders to optimise cost and drive waste reduction
- Measure weight of waste through HIA's weighing bridges for monthly management review and seek opportunities to reduce waste in collaboration with stakeholders
- Reduce waste to landfill through diverting mixed waste to MoM's Solid Domestic Waste Management Center (DSWMC) for further segregation, recycling, materials and energy recovery.
- Compost organic waste from HIA and produce fertilizer for HIA's landscaping.
- Promote waste management awareness through internal communications, press release and video.

The highlights of the achievements are as follows:

- Total 1,971 tonnes of plastic waste were recycled through HIA's recycling contract with revenue of USD 139,280.
- Total 927 tonnes of plastic waste and 68 tonnes of metal/aluminium waste were further recovered through MoM's Domestic Solid Waste Management Center (DSWMC) for recycling instead of landfill.
- 5,685 tonnes of mixed waste were diverted from landfill and incinerated through DSWMC with 2,842,748 KWH green energy generated
- 467 tonnes of fertilizer through composting of HIA's organic waste have been used for the landscaping at the HIA
- Additional 864 tonnes of Metal/Aluminium, 4,119tonnes of Paper/Cardboard, 860,811L of used oil, and 1,367tonnes of batteries were recycled through HIA's recycling contract with revenue of USD765,752.

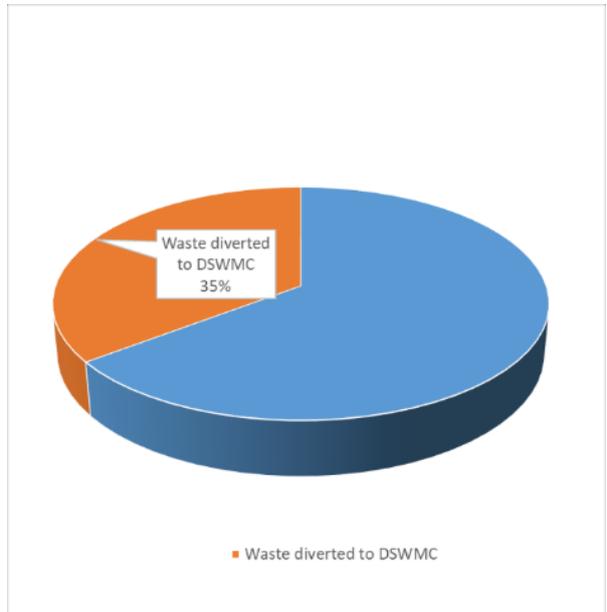
Revenue generated is reinvested in Environmental Management Projects.

### Project Graphic



Truck hooded cage for collection and transportation of plastic waste

HIA's Weighing Bridge for measuring weight of waste



Landscaping at HIA being applied with organic compost from Domestic Solid Waste Centre Under Qatar's Ministry of Municipality

Waste Diverted to Domestic Solid Waste Management Centre (Nov 2021- Oct 2022)

## PLASTIC WASTE REUSE, RECYCLING & CIRCULARITY



### **Kempegowda International Airport, Bengaluru Plastics Circularity at KIAB**

Our Sustainability Vision: Touch lives by nurturing a sustainable future through initiatives that drive economic, social and environmental transformation.

Management Vision for the Sustainable Future had propelled us to conceptualise the **Plastics Circularity project**. Collaborative and the below integrated approach facilitated the on time successful implementation.

- Eliminate Single-use plastics (SUP) in Airport
- Construct 70 kms single lane roads replacing 6% bitumen within the airport using plastic waste collected through community participation

BIAL adapted a collaborative approach with all operating Organisations in KIAB and created a baseline as per the government definition of single-use plastic. It was determined by the BIAL study that largest proportion of SUPs was found in food containers, cutlery , cups and carry bags. Plastic bin liner was another component of waste which was used in all bins by both BIAL and stakeholders. These bags were mostly contaminated with food particles resulting in zero value waste. This initiative resulted in (i) phasing out use of identified SUPs, (ii) reduction in quantity of plastic waste generation, (iii) introducing new certified and approved eco-friendly products into the airport system.

Several infrastructure projects are underway at BLR Airport, including various road expansion projects. Towards this, a sustainable approach of building roads using waste plastic was conceptualised, experimented with multiple rounds of trials and executed 70 kms of road made from waste plastic, replacing 6% bitumen within the BLR Airport campus. With this, the Airport had consumed over 50 tonnes of waste plastic (which has no economic value and <50-micron thickness) collected through the community participation to pave the roads

Our conceptualisation of this project is not only to eliminate single-use plastic use within the Airport campus but also as one of the solutions for the city plastic waste and to set benchmark in Plastics Circularity.

Project Graphic

Sl. No.	REPORT NO.	ISSUE	ISSUE TYPE	STATUS	RESOLUTION DATE	RESOLUTION STATUS	COMMENTS	STATUS
1	01/2023	Water	Waterlogging	Red	01/2023	Completed	Completed	Completed
2	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
3	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
4	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
5	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
6	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
7	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
8	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
9	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
10	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
11	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
12	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
13	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
14	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
15	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
16	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
17	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
18	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
19	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed
20	01/2023	Water	Waterlogging	Green	01/2023	Completed	Completed	Completed



SUP Baseline

Media Report of Plastic Waste (replacing 6% Bitumen) Roads



Stakeholder Awareness Session

Constructed Road

## PLASTIC WASTE REUSE, RECYCLING & CIRCULARITY



### **Sharjah Airport**

#### **Single-use plastic recovery and recycling project**

Sharjah Airport, as a part of its continuous efforts conserve resources and ensure minimum environmental impact due to its operation, started its recycling programme years back. As an extension to its ongoing recycling programme, Sharjah Airport initiated a project to collect and recycle the single-use plastic bottles in 2022.

The project mainly focused on collection of used water bottle from the terminal and offices. The project includes three parts. The first one is the ongoing campaign to create awareness among the staff and airport users about single-use plastic recycling and dispose the used plastic bottles to dedicated bins.

The second part is the collection process which is plastic bottles are collected through dedicated Bottle collection bins kept at different locations at the airport and empty plastic bottles are collected through those bins. The cleaning service provider regularly monitor and move the plastic bottles from the filled bins to the scrap yard. Also, there are three stream bins kept at different locations of airport for the segregated collection of waste. Waste collected in the bottles and cans bin of the three stream bins are taken separately to the waste yard and cleaning company staff will segregate and recover the plastic bottles from it.

The third is the recycling. Once there is enough quantity of plastic waste at the scrap yard, collected plastic waste will be handed over to the third-party recycling agency. This will ensure maximum recovery and recycle of single-use plastic at Sharjah Airport. On an average 500-600 KG of waste plastic bottles collected every week as a part of this project at Sharjah Airport and the monthly this will amount to 1.5 to 2 tonnes of plastic bottles.

**Project Graphic**



Segregated bins for plastic bottle

Singel use plastic recovery from general trash

**SAA Solv Plastic Bottle Recycling Weekly Report**

Date: 12/12/2022 to 18/12/2022 Time Frame: 24/7

Collection Data

Plastic Bottles/ Can			Plastic Scrap		
Date	Volume	Unit	Volume	Unit	
12/12/2022	67.5	Kg	22	Kg	
13/12/2022	62.5	Kg	11.5	Kg	
14/12/2022	62	Kg	9	Kg	
15/12/2022	59	Kg	7	Kg	
16/12/2022	66	Kg	15	Kg	
17/12/2022	62	Kg	5.5	Kg	
18/12/2022	91.5	Kg	4.5	Kg	
<b>Plastic Bottle/Can - 470.5</b>		<b>Kg</b>	<b>Plastic Scrap - 74.5</b>		<b>Kg</b>
<b>TOTAL: 545 KG</b>					



Sample of weekly collection report

Weighing single-use plastic

## PROCUREMENT ENVIRONMENTAL OBLIGATIONS



### Hong Kong International Airport

#### Accelerating the reduction of single-use plastics at Hong Kong International Airport

AAHK (Airport Authority Hong Kong) adopts a holistic and multi-pronged approach for accelerating reduction in the use of single-use plastics (SUPs) at the Hong Kong International Airport (HKIA). Our primary reduction effort allows passengers to avoid SUPs use through the provision of an extensive and convenient network of Water Zones (WZs) in the passenger areas. WZs provide free hot and cold drinking water to passengers with health and safety aspects prioritised. Apart from driving reduced SUPs use, AAHK also implements a number of supporting initiatives through a holistic approach to facilitate capturing used SUPs and other recyclables for re-cycling. Primary and supporting efforts include:

##### **A) Install WZs in convenient passenger terminal areas**

Increasingly, passengers are carrying personal re-usable bottles while travelling and WZs provide a free and safe option for re-fills. To reduce SUP water bottles generated by passengers, WZs have been installed / revamped at strategic locations with high traffic across arrivals and departure areas to provide free potable water refills for passengers. WZs are easily accessible and in close proximity to departure gates as well as being accessible for arriving passengers.

##### **B) Supporting waste reduction and separation at source at HKIA**

As part of AAHK's multi-pronged approach to drive waste separation at source, in 2021 a revamp of 20 refuse rooms was completed. Clear recycling-themed stickers were displayed to raise the airport community's awareness on upstream recycling.

AAHK has stipulated requirements for F&B tenants since 2018 on the use of reusable tableware for dine-in customers. Regular environmental audits are conducted to monitor compliance.

AAHK is also exploring the use of Artificial Intelligence (A.I.) sorting technology to efficiently recognise and separate dry recyclables, including SUPs from mixed waste streams collected at HKIA. An A.I. robotic sorter trial completed in 2021 provided useful information on the capabilities, efficiency and limitations of such technology.

## Project Graphic



Water Zones installed inside terminal and concourse at HKIA



Recycling bins provided at revamped waste collection rooms with clear signage displayed to facilitate separation of recyclables including plastics



Recycling bins at passenger terminal areas



Training conducted with tenants to share knowledge on waste separation

## PROCUREMENT ENVIRONMENTAL OBLIGATIONS



### **Jenderal Ahmad Yani International Airport**

#### **Sustainable waste management in Jenderal Ahmad Yani Airport**

Jenderal Ahmad Yani International Airport is currently aware of the importance of waste management at the airport. We started to think about how waste with a good management plan can provide benefits for the airport both internally and externally. Our Waste management carried out during 2020-2022 has succeeded in reducing almost 50% of waste discharged into local government landfill and could be a source of income used to pay excess working hours, pay for local tax costs for waste, and the cost of maintenance of our airport waste management sites. Where before 2021, at our airport all the garbage (100%) was thrown into the local government landfill.

Waste management carried out at our airport started at the end of 2020, including sorting waste into organic and inorganic waste. For organic waste we do composting and bio conversion with Maggot BSF, while for inorganic waste we sell our waste to government waste banks or local waste companies that can process waste into raw materials.

To reduce single-use plastic waste, our airport has a related policy to reduce plastic waste and has complied with Semarang Mayor Regulation Number 27 of 2019. It is also stated in our general legal contract with tenants in Article 13 regarding Tenant Obligations Points 21 and 22 to use environmentally friendly materials, packaging/containers that are easy to decompose, can be recycled and can be re-used.

We also provided our office activities with facilities such as drinking water dispensers, mug or glass, and reducing meeting snack to reduce waste especially single-use plastic. Besides that, in the waste management site, we reuse plastic packaging to be a material for our maggot breeding facilities.

With these efforts, we have succeeded in reducing waste by almost 50 % in 20 months from what we previously threw into landfill.



## MARINE PLASTIC WASTE RECOVERY



### **Kansai International Airport**

#### **Undersea and seabed garbage cleaning business in Osaka Bay**

Kansai Airports has established “Marine Safety and Beautification Association”, a non-profit organisation, with the aim of creating an airport that can coexist with the local community. Through this association, of which we are the secretariat, we are continuously working to realise the beautiful Osaka Bay with the cooperation of the Osaka Prefecture, the Osaka Fishery Association, and members of companies and organisations related to the marine area of Osaka Prefecture.

These activities include cleaning up and collecting garbage that accumulates and floats in the marine area of Osaka Prefecture and drifts ashore. We also work with fishermen to collect garbage that get caught while fishing operations in the sea area.

In recent years, marine plastic waste, which has become a major problem worldwide, has also been collected in large numbers through this activity, and we recognise this is an initiative that has made a significant contribution to society.

Also, the initiatives described above are one of the initiatives that embody our company's goal of making airports a leader in the local communities in terms of the environment, and we intend to continue and develop these initiatives in the future.

## Project Graphic



Location map

Collecting marine garbage  
(during fishing operation)



Drifted garbage clean-up activity  
(inside the harbour)



Drifted garbage clean-up activity  
(on the beach)



For information, contact:

Communications Department

ACI Asia-Pacific

Unit 13, 2/F, HKIA Commercial Building

1 Sky Plaza Road Hong Kong International Airport Hong Kong SAR

Email: [communications@aci-asiapac.aero](mailto:communications@aci-asiapac.aero)

Website: [www.aci-asiapac.aero](http://www.aci-asiapac.aero)

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ACI Asia-Pacific's mission is to advocate for policies and provide services that strengthen its members' ability to serve their passengers, employees and stakeholders. It also promotes environmental best practices to minimise aviation's impact on the environment and to recognise airport members who have outstanding accomplishments in their environmental projects.