BRIEF

The Zero Cabin Waste Challenge for Airlines

Brief for COP31

The airline industry's sustainability efforts are often viewed through the lens of decarbonization, with significant focus on sustainable aviation fuels, operational efficiencies, and future technologies. Reducing waste and advancing circularity also represents important opportunities to improve resource efficiency, reduce environmental impacts, and contribute to broader climate goals.

Every year, airlines generate millions of tonnes of cabin waste, including food waste, packaging, paper, plastics, glass, and metals. Many of these materials have substantial recovery potential, creating opportunities to improve circularity across passenger operations. While airlines continue to invest in waste prevention, resource efficiency, replacement options, and material recovery initiatives, operational realities and complex regulatory requirements continue to constrain progress, particularly for International Catering Waste (ICW).

The opportunity for circularity in cabin waste

As passenger numbers continue to grow, cabin waste volume is also expected to increase. Cabin waste includes food waste, packaging, paper, plastics, glass, and metals, many of which have a significant value and recovery potential. Improving management of these materials is an important opportunity to advance circularity, reduce resource consumption, and support broader climate objectives.

IATA's analysis estimates that passenger aviation generates approximately 4.5 million tonnes of cabin waste annually. A significant share of this waste is classified as ICW, comprising food waste, catering materials and other cabin waste generated on international flights.

Among all cabin waste streams, ICW represents the single largest opportunity to improve recovery rates and advance circularity. ICW is estimated at approximately 2.8 million tonnes annually, representing around 63% of all cabin waste generated.

The majority of ICW should not be viewed as waste, but as a recoverable resource. Analysis indicates that approximately 88% of the material stream consists of technically recoverable materials. Organic waste alone represents around 65% of the total composition, of which 34% is untouched food and drinks, accounting for around USD 6 billion in resources incinerated or landfilled each year.

One of the main barriers to diverting waste from landfill or incineration is the regulatory treatment of ICW. Regulatory approaches differ significantly between countries and regions. In many jurisdictions, ICW is classified as biosecurity-risk material and must be disposed of through prescribed treatment routes, regardless of its composition. While these measures play an important role in protecting animal and plant health, they can also limit opportunities to recover valuable materials and divert substantial volumes of potentially recyclable or recoverable waste.

The climate implications are significant. Current ICW management practices are estimated to generate approximately 1.3 million tonnes of CO_2e annually. Increasing recycling and recovery rates could substantially

reduce these emissions. Achieving a 25% recovery rate could reduce emissions to approximately 0.75 million tonnes of CO2e, while 50% recovery could reduce emissions to approximately 0.22 million tonnes of CO2e. At 75% recovery, the system could deliver a net emissions benefit of approximately -0.32 million tonnes of CO2e.

Cabin waste, particularly ICW, represents a significant circular economy opportunity and offers substantial emissions-reduction potential. While airlines and their partners continue to invest in waste reduction, resource efficiency and material recovery initiatives, realizing the full environmental benefits will require regulatory frameworks that enable higher levels of recovery while maintaining appropriate biosecurity protections.

Industry Action and Progress

Airlines are actively working to reduce waste generation and improve resource efficiency across their operations. Through waste composition audits, enhanced reporting, and data-driven decision-making, airlines better understand waste streams and identify opportunities to improve performance.

Increasingly, airlines are focusing on waste prevention at source. Digitalisation, advanced forecasting tools, and artificial intelligence are helping optimize catering uplift, better align onboard provisioning with passenger demand, and reduce quantities of untouched food and unnecessary materials loaded onto aircraft.

Across the value chain, airlines are also working with airports, caterers and waste management providers to improve segregation, increase recovery rates and identify scalable circular economy solutions. These collaborations are helping build the evidence base, operational practices and partnerships needed to support long-term improvements in cabin waste management.

Conclusion

Cabin waste represents both a challenge and an opportunity for airlines. A significant proportion of airline cabin waste, particularly ICW, has strong recovery potential and could contribute to circular economy objectives while delivering meaningful emissions reductions.

Airlines are already taking action to prevent waste, improve resource efficiency and strengthen material recovery across their operations. To unlock the full environmental and economic benefits of circularity, the industry will require closer collaboration across the value chain and with policymakers. More harmonized, science-based, and risk-based regulatory approaches will enable higher recovery rates while maintaining appropriate biosecurity protections, helping airlines contribute further to the objectives of the COP31 Zero Waste agenda.