



ICAO

ENVIRONMENT

# Climate Adaptation Synthesis

## Desertification

### *Factsheet*



2018

# Aviation and Desertification

Desertification is the process in which more land becomes desert. Climate change is contributing to desertification by leading to many dry regions becoming dryer and hotter, and having more dust or sand in the air. Desertification is also responsible for increased water scarcity and increased frequency of weather events, such as high-intensity tropical cyclones and sand storms. The rate of desertification is dependent on many factors including precipitation, evaporation, runoff, vegetation, and soil moisture.

## Potential Effects

- Desertification may lead to increased dust storms, which may affect aircraft engine design for fuel efficiency and engine performance and maintenance.
- Impacts from desertification and an increase in dust storms may also result in safety risks and increased maintenance costs due to degradation of ground and onboard equipment and increased maintenance requirements.
- Other potential effects for aviation:
  - Increased risk of soil erosion around apron and runway
  - Water shortages
  - Sand storms disrupting operations
  - Risk of encroachment of sand dunes
  - Effects of sand dunes on aircraft operations
  - Effects of sand damage on airframes and engines

## Adaptation and Resilience Measures

Adaptation measures include designing windbreaks to reduce dust and sand. These include planting non-invasive endemic trees and vegetation that require little water and that do not attract wildlife, which would be hazardous for aviation operations, and using recycled water for irrigation.

However, there is limited information available on this impact specific to the aviation sector. Therefore, more aviation-specific research is needed to understand the projected impacts of desertification, and its effects on aviation.

### **Sources and Additional Information:**

2018 ICAO CAEP WG2 Task O7.0 Climate Adaptation Synthesis Analysis