

# **Sustainable Airport Planning: Applications for African Airports**

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## **Abstract**

Sustainability is a topical issue in the global air transport sector. There is consensus among global air transport stakeholders that the current air transport systems will not be sustainable in the future. As such, there is a call for action to develop more sustainable air transport infrastructure including airports, airlines, air traffic control, air navigation systems and other supporting infrastructure. Among the challenges aviation and aerospace managers face today is defining sustainability. One of the most widely used definitions of sustainability was developed by the United Nations World Commission on Environment and Development (WCED) also known as the Brundtland Commission who defined Sustainability as the ability to meet our current needs without comprising the ability of future generations to meet their own needs. Notably, there is no one universally accepted definition of sustainability specifically for the air transport or airport sectors.

Globally, various government agencies and transport organizations have dedicated resources to the development of sustainable airport infrastructure. For instance, in 2010, the Federal Aviation Administration (FAA), the United States civil aviation industry regulator launched the sustainable master plan Airport Improvement Program (AIP) grant to fund airports of all sizes across the United States to support development of airport sustainability planning documents. The first of its kind, the FAA sustainable master plan AIP grant has funded 44 airports in the United States as of 2022. Of these, six airports are classified as small hub airports in the United States National Plan of Integrated Airport Systems (NPIAS). Small hub airports are primary commercial airports that handle more than 10,000 enplanements annually, similar in operation to most commercial airports located in major African Cities like Nairobi, Lagos, Johannesburg, Addis Ababa, etc.

Using the multiple case study methodology, the author will analyze the sustainability management plans prepared by the six US small hub airports and find areas of application in African airports. The author hypothesizes that there are approaches to sustainable airport planning that are transferrable for applications in African airports based on similarities in the number of operations between airports in the two geographic regions and the ease of adoption of selected sustainability projects.

The expected results will show the lessons learned from development and incorporating sustainability principles in airport planning from the perspective of US airports and provide recommendation for sustainable airport planning in African airports.

## **Keywords**

Sustainability, Airports Planning, Air Transport Sector and Sustainable Development.

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## **Biography**

**Dr. Caroline K. Marete** is a Visiting Assistant Professor at Purdue University, School of Aviation and Transportation Technology, Main Campus, West Lafayette, IN. Dr. Marete graduated with a Ph.D. in Technology with a focus on Aviation Technology from Purdue University. She holds a Master of Science in Aviation and Aerospace Management from Purdue University, and a Bachelor of Science in Aerospace Science and Operations (First Class Honors) from Moi University, Eldoret Kenya. Dr. Marete has extensive global aviation and aerospace industry experience in project management, airline fleet development, customer experience and supply chain management. She previously worked with leading aviation and aerospace organizations including Boeing Company, Kenya Airways, International Civil Aviation Organization (ICAO), and Eno Center for Transportation. Dr. Marete is actively involved in leadership and volunteer roles in different organizations. She currently serves as the VP, Administration for Young Professionals in Transportation (YPT) Indianapolis Chapter. She is a member of various professional associations among them YPT, University Aviation Association (UAA) and Women in Aviation International (WAI). Dr. Marete teaches courses in Aviation Operations, Managerial Economics, Business Statistics and Aviation Projects Management. Her research interests are in the areas of sustainable aviation specifically, sustainable airports planning and development. Dr. Marete wants to use her research to improvement decision making in airport planning. She is also interested in researching participation of women in aviation and aerospace careers.