



Credit: The Energy Mix

AIRSHIP TECHNOLOGY FOR AIR CONNECTIVITY AND HUMANITARIAN AID IN THE CARIBBEAN AND THE PACIFIC

Transport and trade connectivity in the age of pandemics

UN solutions for contactless, seamless and collaborative transport and trade

Project Document
January 2022



ACKNOWLEDGEMENTS

This technical note has been prepared as part of the activities of the UNDA project “Transport and trade connectivity in the age of pandemics: Contactless, seamless and collaborative UN solutions”. It was jointly prepared by the ESCAP Transport Division, in cooperation with the ECLAC International Trade and Integration Division, Infrastructure Services Unit.

The study was drafted by Ms. Alejandra Gomez Paz under the general supervision of Mr. Ricardo J. Sanchez, Senior Economic Affairs Officer, Infrastructure Services Unit, ECLAC, and Ms. Azhar Jaimurzina Ducrest, Chief of Transport Connectivity and Logistics Section, ESCAP. Recognition is also accorded to Mr. Martín Sánchez Salvá for his contribution and to Mr. Rustam Issakhojaye for technical revision and formatting.

The authors would like to acknowledge valuable contributions and express sincere and utmost gratitude to those who supported this field of research for the expertise across all areas of study and kind guidance and recommendations that complemented this work.

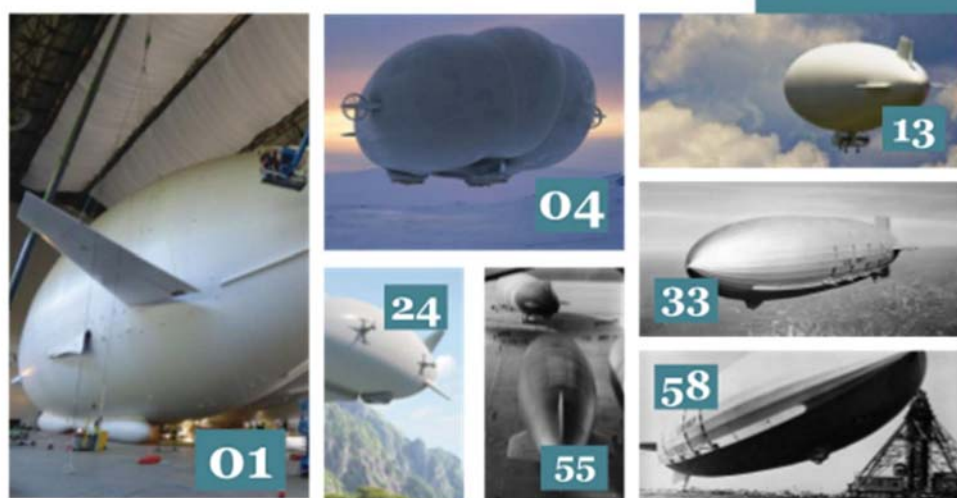
Special thanks go to José Odini from ICAO; Omar Bello from ECLAC; Octave Jolimoy and Armelle Tarrieu from Flying Whales; Mark Dorey, Frederic Goig, Laurence Kalinsky and Mike Kendrick from Straightline Aviation; Frank Neumann and Kunal Chowdhury of IMIEU; Oleg Aleksandrov from World Food Programme; representatives of the International Air Transport Association (IATA) for matters related to air connectivity indexes, and other experts working in the field of transportation, logistics, industry, connectivity, and extreme events.

Disclaimer:

The views expressed in this document are those of the authors and do not necessarily reflect the views of the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), Economic and Social Commission for Asia and the Pacific (ESCAP), or of the consulted sources. The designations employed and the presentation of the materials in this publication also do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city, or area or of its authorities or concerning the delimitation of its frontiers or boundaries. This publication follows the United Nations practice in references to countries. Where there are space constraints, some country names have been abbreviated. Mention of a commercial company or product in this publication does not imply endorsement by ECLAC or ESCAP.

CONTENTS

TABLE OF



EXECUTIVE SUMMARY	01
AIRSHIP: A NEW, COMPLEMENTARY SOLUTION TO ENHANCE CONNECTIVITY, INTEGRATION, AND HUMANITARIAN AIDS	04
<ul style="list-style-type: none"> Airships' main advantages and characteristics.....04 Airship types and technical characteristics.....06 The trend towards sustainability in logistics.....09 Extreme events.....12 	
AIR AND MARITIME CONNECTIVITY FOR SIDS IN ASIA-PACIFIC AND THE GREATER CARIBBEAN IN THE CONTEXT OF COVID-19	13
<ul style="list-style-type: none"> The COVID-19 Pandemic and transport connectivity of SIDs.....13 Connectivity benchmark.....15 The role of logistics, mobility, and connectivity in the assessment of humanitarian aid.....19 	
STATE OF THE ART IN AIRSHIPS TECHNOLOGY AND HUMANITARIAN AID OPERATIONS	24
<ul style="list-style-type: none"> Main challenges and operational parameters.....24 Cost efficiency and engineering parameters.....27 Ground infrastructure and sustainability parameters.....28 Emergency aid and inter-modality parameters.....32 	
OPERATIONAL PARAMETERS FOR AIRSHIPS	33
<ul style="list-style-type: none"> Case study 1: Relief operations after the Cyclone Winston in Fiji.....35 Case study 2: North-West Syria rescue operations with the Humanitarian Flying Warehouse system.....39 Case study 3: Emergency response in the Arctic and mining activities in Northern Quebec.....42 Case study 4: Komo Airfield case by Straightline Aviation.....48 Case study 5: FLYING WHALES construction material delivery for French Guiana.....50 Case study 6: FLYING WHALES emergency aid response for Indonesia.....53 	
OPPORTUNITIES FOR INTEGRATION IN INTER-REGIONAL AGREEMENTS AND INVESTMENT PROGRAMS	55
CONCLUDING REMARKS AND FURTHER RESEARCH TOPICS	58
REFERENCES	62
ANNEXES	66
<ul style="list-style-type: none"> Annex 1: Interviewees and discussions.....66 Annex 2: Recurrent Acronyms.....69 Annex 3: The Great Caribbean and the Pacific COVID-19 aggregate cases until 1st July 2021 and cases per 100.000 population.....72 Annex 4: Liner Shipping Connectivity Index by country.....73 Annex 5: Air connectivity score by country.....77 	

FIGURES INDEX

Figure title	Page
Figure 1: The airship and its competitive logistics services	3
Figure 2: Catastrophic events associated with different extreme events and hazards (1990-2020) in SIDS macro-regions	12
Figure 3: Global route network before (March 2019) and after the pandemic has started (March 2020)	14
Figure 4: Liner Shipping Connectivity Index by the country for Q 4 of 2019 and 2020	17
Figure 5: IATA Air Connectivity Score by the country for 2019 and 2020	18
Figure 6: Australia's response to Tropical Cyclone Harold	20
Figure 7: Cyclone Harold Vanuatu – Area affected	21
Figure 8: Cyclone Harold Vanuatu – Areas most affected and impacts estimations	22
Figure 9: Winston Cyclone in Fiji	37
Figure 10: Operation model of the HFW system	40
Figure 11: Conceptual model of the transshipment operation implementing the BART infrastructure system by BASI	44
Figure 12: Hybrid Airship case study in Komo	49
Figure 13: FLYING WHALES French Guiana distribution model	50
Figure 14: FLYING WHALES Spacecraft Launcher	51
Figure 15: FLYING WHALES LCA60T bases system	54
Figure 16: Maritime connectivity by country at the Great Caribbean and the Pacific - LSCI Fourth Quarter 2019 UNCTAD	74
Figure 17: Maritime connectivity by country at the Great Caribbean and the Pacific - LSCI Fourth Quarter 2020 UNCTAD	76
Figure 18: Air connectivity by country at the Great Caribbean and the Pacific - Air connectivity score 2019 IATA	78
Figure 19: Air connectivity by country at the Great Caribbean and the Pacific – Air connectivity score 2020 IATA	80

TABLES INDEX

Figure title	Page
Table 1: Main airship technical features and designs	8
Table 2: Summarized commercial case studies	34
Table 3: Summarized emergency response case studies	34
Table 4: Main logistic variables and advantages in humanitarian case studies	46
Table 5: Maritime connectivity by country at the Great Caribbean and the Pacific - LSCI Fourth Quarter 2019 UNCTAD	73
Table 6: Maritime connectivity by country at the Great Caribbean and the Pacific - LSCI Fourth Quarter 2020 UNCTAD	75
Table 7: Air connectivity by country at the Great Caribbean and the Pacific - Air connectivity score 2019 IATA	77
Table 8: Air connectivity by country at the Great Caribbean and the Pacific - Air connectivity score 2020 IATA	79



Credit: Hybrid Air Vehicles;
Source: <http://www.ltaflightmagazine.com/return-of-the-airship>

EXECUTIVE SUMMARY

The Airship transport alternative, in its diverse engineering variants, has the potential to be a game-changing technology with significant development in recent years. It offers the technical capabilities to make a broad contribution to the optimization of mobility and logistics networks in isolated communities and territories, especially but not only in Small Island Developing States (SIDS). This innovative mode should be incorporated into the transport matrix (both nationally and regionally), for the latter to move towards more efficient, sustainable, and resilient networks. Airships do not necessarily compete with other means of transport, instead, they complement traditional modes which improve co-modality/synchro-modality and perform social functions, achieving a clear improvement in connectivity, interior (hinterland) and external (foreland) accessibility. There is a diversity in Airship technology, operational mode, and in the functions, both in commercial and in non-commercial operations (such as humanitarian aid), as will be showcased in the following sections, along with the logistics and connectivity standards that it has the potential to raise. Besides transporting cargo and passengers for scheduled or rescue flights, Airships can provide communication and monitoring services to remote and vulnerable locations, as well as to provide health care through mobile sanitary units.

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_76

