Supplementary Material

Article

Prioritizing Criteria for Establishing a Green Shipping Corridor Between the Ports of Sines and Luanda Using Fuzzy AHP

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Table S1. Integrated Fuzzy Comparison Matrix for Main Criteria.

	C1			C2			C3			C4			C5			C6			C7		
C1	1	1	1	1,0726	1,2201	1,3459	0,5210	0,5805	0,6730	1,2190	1,3289	1,4262	1,8114	2,1678	2,4794	1,2190	1,4118	1,6209	0,9517	1,0243	1,1041
C2	0,7430	0,8196	0,9323	1	1	1	0,9715	1,0624	1,1699	1,1601	1,2429	1,3185	1,2917	1,5449	1,8114	1,3738	1,5271	1,6685	1,2809	1,4283	1,5746
C3	1,4860	1,7226	1,9195	0,8548	0,9413	1,0294	1	1	1	1,0294	1,0882	1,1601	0,9517	1,1349	1,3459	0,9437	1,0372	1,1461	0,9517	1,1218	1,3185
C4	0,7012	0,7525	0,8203	0,7584	0,8046	0,8620	0,8620	0,9189	0,9715	1	1	1	1,0508	1,2654	1,4860	0,9715	1,1218	1,2917	0,9057	1,0624	1,2548
C5	0,4033	0,4613	0,5520	0,5520	0,6473	0,7742	0,7430	0,8811	1,0508	0,6730	0,7902	0,9517	1	1	1	0,7012	0,8241	0,9797	1,0508	1,2654	1,4860
C6	0,6169	0,7083	0,8203	0,5993	0,6548	0,7279	0,8725	0,9642	1,0596	0,7742	0,8914	1,0294	1,0208	1,2134	1,4262	1	1	1	0,9245	1,0429	1,1601
C7	0,9057	0,9763	1,0508	0,6351	0,7002	0,7807	0,7584	0,8914	1,0508	0,7969	0,9413	1,1041	0,6730	0,7902	0,9517	0,8620	0,9589	1,0816	1	1	1

Table S2. Analysis of Fuzzy Preference Rankings for Main Criteria.

Criteria	Fuzzy Sum of Each Row			Fuzzy Composite Expansion			Preference Degree	Normalization of Preference
C1	8,6983	10,0738	11,4603	0,1371	0,1806	0,2346	1,000	1,000
C2	8,5467	9,7510	11,0589	0,1347	0,1748	0,2263	1,000	1,000
C3	7,2982	8,3190	9,4580	0,1151	0,1492	0,1936	1,000	1,000
C4	6,1626	6,8951	7,7109	0,0972	0,1236	0,1578	1,000	0,873
C5	5,6063	6,4652	7,4269	0,0884	0,1159	0,1520	0,877	0,760
C6	6,4540	7,3489	8,4153	0,1018	0,1318	0,1722	1,000	1,000
C7	6,0921	6,9213	7,8974	0,0960	0,1241	0,1616	1,000	1,000

Table S3. Integrated Fuzzy Comparison Matrix for Environmental Compatibility Sub-criteria.

	C1.1			C1.2			C1.3			C1.4		
C1.1	1	1	1	0,7218	0,8241	0,9517	1,0000	1,1218	1,2548	0,5474	0,6279	0,7430
C1.2	1,0508	1,2134	1,3854	1	1	1	1,4142	1,7131	2,0339	0,9057	1,0000	1,1041
C1.3	0,7969	0,8914	1,0000	0,4917	0,5837	0,7071	1	1	1	0,7368	0,8595	1,0000
C1.4	1,3459	1,5926	1,8268	0,9057	1,0000	1,1041	1,0000	1,1635	1,3573	1	1	1

Table S4. Analysis of Fuzzy Preference Rankings for Environmental Compatibility Sub-criteria.

Sub-criteria	Fuzzy Sum of Each Row			Fuzzy Composite Expansion			Preference Degree	Normalization of Preference
C1.1	3,2692	3,5739	3,9495	0,1770	0,2154	0,2648	0,256	0,1121
C1.2	4,3707	4,9265	5,5235	0,2367	0,2969	0,3703	1,000	0,4374
C1.3	3,0253	3,3346	3,7071	0,1638	0,2010	0,2485	0,110	0,0481
C1.4	4,2516	4,7561	5,2881	0,2302	0,2867	0,3545	0,920	0,4023

Table S5. Integrated Fuzzy Comparison Matrix for Economic Viability Sub-criteria.

	C2.1			C2.2			C2.3			C2.4		
C2.1	1	1	1	0,6222	0,7128	0,8135	0,7584	0,8241	0,9057	1,2190	1,4196	1,6073
C2.2	1,2293	1,4029	1,6073	1	1	1	0,8981	1,0429	1,1942	1,1270	1,3444	1,5746
C2.3	1,1041	1,2134	1,3185	0,8374	0,9589	1,1134	1	1	1	1,0000	1,1491	1,3185
C2.4	0,6222	0,7044	0,8203	0,6351	0,7438	0,8873	0,7584	0,8702	1,0000	1	1	1

Table S6. Analysis of Fuzzy Preference Rankings for Economic Viability Sub-criteria.

Sub-criteria	Fuzzy Sum of Each Row			Fuzzy Composite Expansion			Preference Degree	Normalization of Preference
C2.1	3,5996	3,9566	4,3265	0,1982	0,2415	0,2921	0,532	0,2185
C2.2	4,2545	4,7901	5,3761	0,2343	0,2923	0,3630	1,000	0,4106
C2.3	3,9415	4,3214	4,7505	0,2170	0,2637	0,3207	0,751	0,3086
C2.4	3,0157	3,3185	3,7076	0,1661	0,2025	0,2503	0,152	0,0623

Table S7. Integrated Fuzzy Comparison Matrix for Infrastructure Readiness Sub-criteria.

	C3.1			C3.2			C3.3		
C3.1	1	1	1	0,9715	1,0816	1,1942	1,0508	1,1218	1,1942
C3.2	0,8374	0,9245	1,0294	1	1	1	0,6222	0,7172	0,8374
C3.3	0,8374	0,8914	0,9517	1,1942	1,3943	1,6073	1	1	1

Table S8. Analysis of Fuzzy Preference Rankings for Infrastructure Readiness Sub-criteria.

Sub-criteria	Fuzzy Sum of Each Row			Fuzzy Composite Expansion			Preference Degree	Normalization of Preference
C3.1	3,0222	3,2035	3,3884	0,3079	0,3508	0,3980	0,414	3,0222
C3.2	2,4595	2,6417	2,8668	0,2506	0,2893	0,3367	0,129	2,4595
C3.3	3,0316	3,2857	3,5590	0,3089	0,3598	0,4181	0,456	3,0316

Table S9. Integrated Fuzzy Comparison Matrix for Regulatory & Policy Compliance Sub-criteria.

	C4.1			C4.2			C4.3		
C4.1	1	1	1	0,9797	1,1019	1,2548	0,7218	0,8046	0,9057
C4.2	0,7969	0,9075	1,0208	1	1	1	0,7969	0,8914	1,0000
C4.3	1,1041	1,2429	1,3854	1,0000	1,1218	1,2548	1	1	1

Table S10. Analysis of Fuzzy Preference Rankings for Regulatory & Policy Compliance Sub-criteria.

Sub-criteria	Fuzzy Sum of Each Row			Fuzzy Composite Expansion			Preference Degree	Normalization of Preference
C4.1	2,7014	2,9064	3,1606	0,2751	0,3204	0,3763	0,278	2,7014
C4.2	2,5938	2,7989	3,0208	0,2641	0,3086	0,3596	0,210	2,5938
C4.3	3,1041	3,3648	3,6403	0,3160	0,3710	0,4334	0,511	3,1041

Table S11. Integrated Fuzzy Comparison Matrix for Social Acceptance Sub-criteria.

	C5.1			C5.2		
C5.1	1	1	1	1,0294	1,1287	1,2548
C5.2	0,7969	0,8860	0,9715	1	1	1

Table S12. Analysis of Fuzzy Preference Rankings for Social Acceptance Sub-criteria.

Sub-criteria	Fuzzy Sum of Each Row			Fuzzy Composite Expansion			Preference Degree	Normalization of Preference
C5.1	2,0294	2,1287	2,2548	0,4802	0,5302	0,5893	1,000	0,614
C5.2	1,7969	1,8860	1,9715	0,4252	0,4698	0,5152	0,627	0,386

Table S13. Integrated Fuzzy Comparison Matrix for Operational Efficiency Sub-criteria.

	C6.1			C6.2		
C6.1	1	1	1	0,8613	0,9583	1,0595
C6.2	0,9439	1,0435	1,1610	1	1	1

Table S14. Analysis of Fuzzy Preference Rankings for Operational Efficiency Sub-criteria.

Sub-criteria	Fuzzy Sum of Each Row			Fuzzy Composite Expansion			Preference Degree	Normalization of Preference
C6.1	1,8613	1,9583	2,0595	0,4410	0,4894	0,5412	0,791	0,442
C6.2	1,9439	2,0435	2,1610	0,4606	0,5106	0,5679	1,000	0,558

Table S15. Integrated Fuzzy Comparison Matrix for Technological Advancements Sub-criteria.

	C7.1			C7.2		
C7.1	1	1	1	0,9715	1,0816	1,1942
C7.2	0,8374	0,9245	1,0294	1	1	1

Table S16. Analysis of Fuzzy Preference Rankings for Technological Advancements Sub-criteria.

Sub-criteria	Fuzzy Sum of Each Row			Fuzzy Composite Expansion			Preference Degree	Normalization of Preference
C7.1	1,9715	2,0816	2,1942	0,4668	0,5196	0,5761	1,000	0,614
C7.2	1,8374	1,9245	2,0294	0,4350	0,4804	0,5328	0,627	0,386