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THE AFRICA-INDIAN OCEAN (AFI) USER PREFERRED ROUTES TRIALS LABORATORY AND THE FIFTH AFRICA- INDIAN OCEAN FREE ROUTE AIRSPACE PROJECT MANAGEMENT TEAM MEETING (AFI FRA PMT/5)

Presented by AFRAA on behalf of the African Aviation Industry Group – AAIG
AAIG Members: AFRAA, IATA, AASA, CANSO Africa, ACI Africa, Boeing.
AAIG Observers: AFCAC, ICAO, AfDB

NAIROBI, KENYA, 21 - 25 OCTOBER 2024







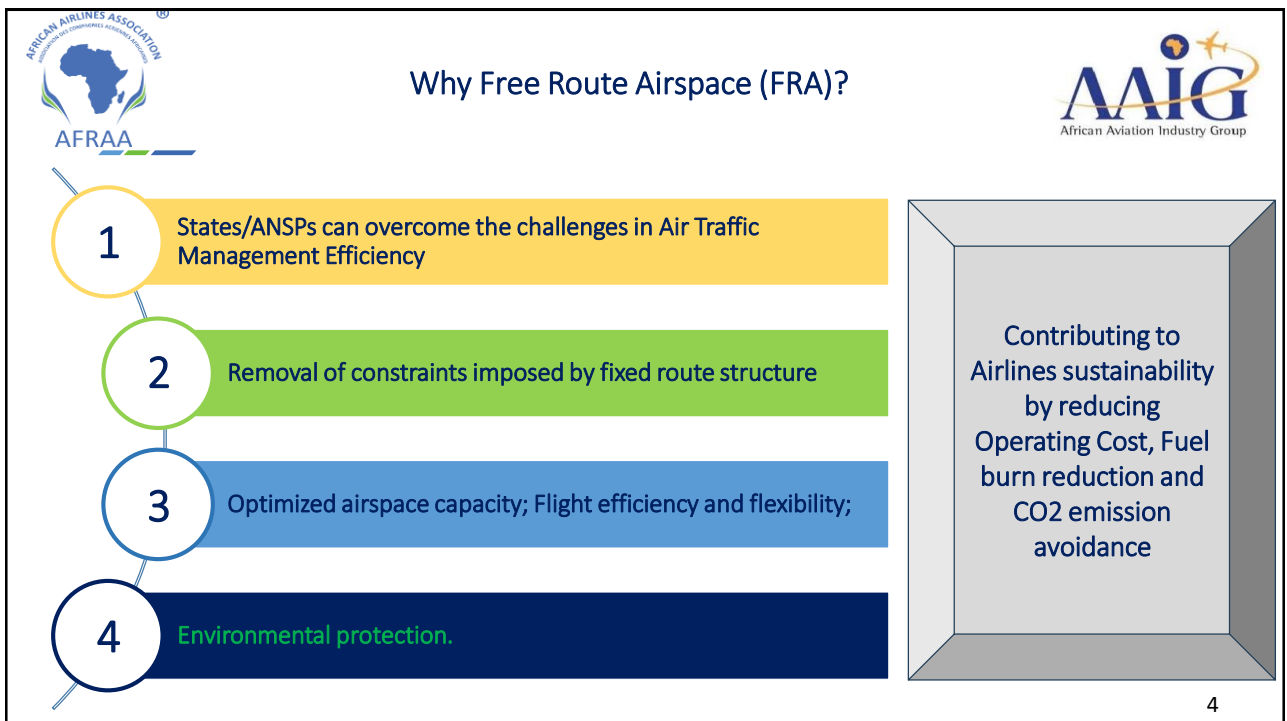
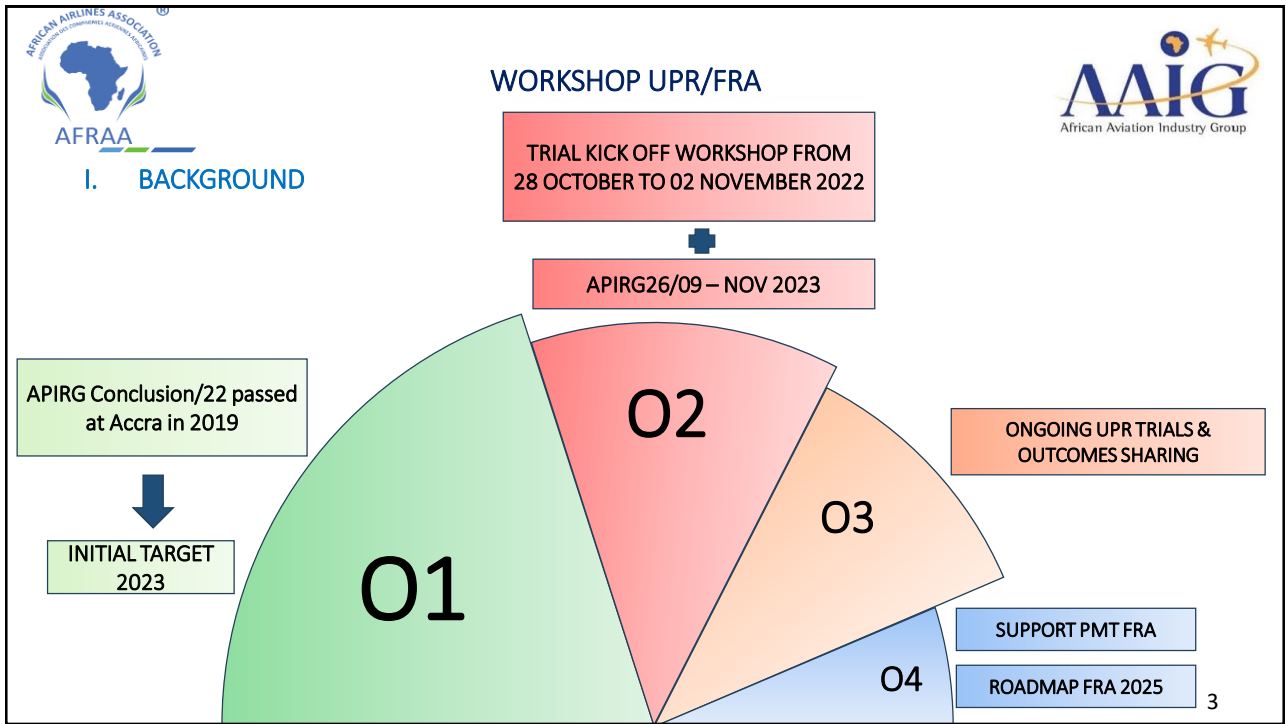
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User Preferred Route [UPR] Trials Background and Objectives








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WORKSHOP UPR/FRA

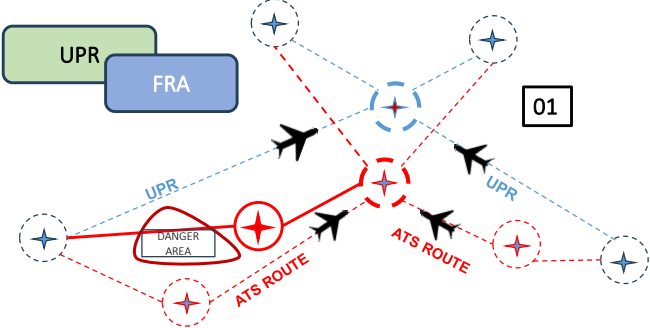


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Implementing User-Preferred Routes (UPRs) through trial flights is an essential practical phase that precedes the Free Routing Airspace (FRA)

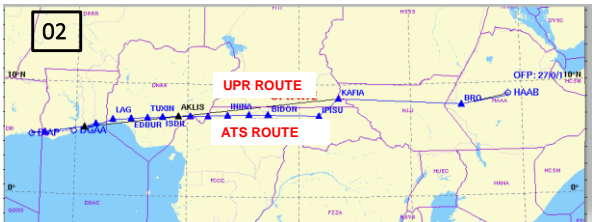
OBJECTIVES

- ❖ Airspace management flexibility
- ❖ Fuel burnt & carbon footprint reduction
- ❖ Operating cost reduction
- ❖ Safety Enhancement



ATS ROUTE.
HAAB BRO3A BRO DCT KAFIA UA410 IPISU UQ200 BIDON UQ200 LAG UL433 KETAT DCT ONESI DCT TAVAL TAVAL2D DIAP

UPR ROUTE.
HAAB DCT BRO DCT KAFIA DCT AKLIS DCT EREKA DCT ONESI DCT AD DCT DIAP




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Participation Airlines [Volunteer Airlines]

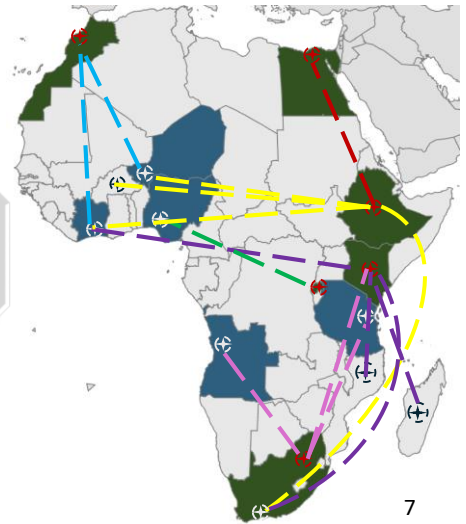


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II. PARTICIPATION AIRLINES

- 1 Ethiopian Airlines
 - 2 Kenya Airways
 - 3 EgyptAir
 - 4 RwandAir
 - 5 Royal Air Maroc
 - 6 Airlink
 - 7 Non-African carriers to participate
- Participation Airlines: 06
representing 61% of
Flights
WE CAN DO MORE
- Air Arabia



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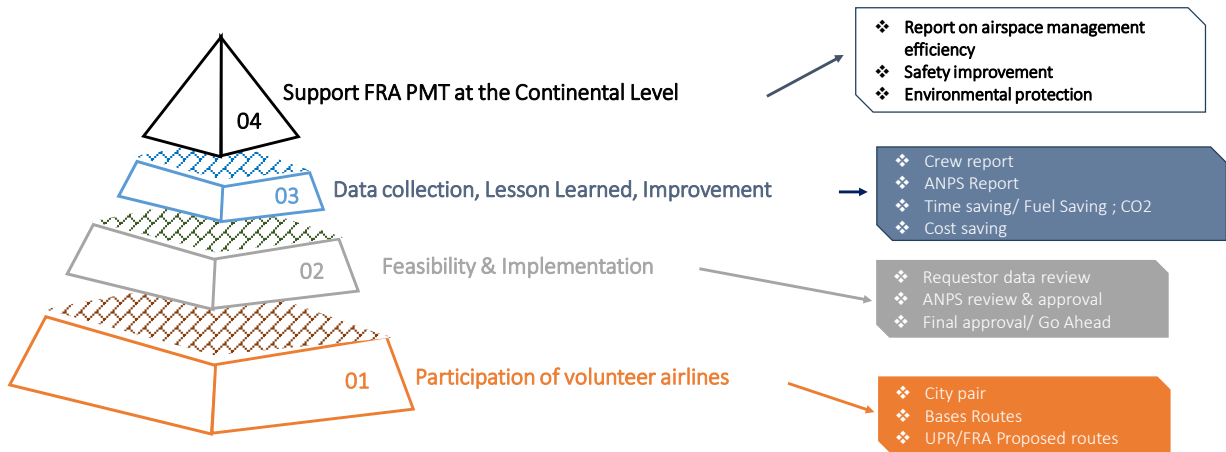


UPR/FRA CYCLE & UPR/FRA Trials Coordination Procedures



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III. UPR/FRA CYCLE

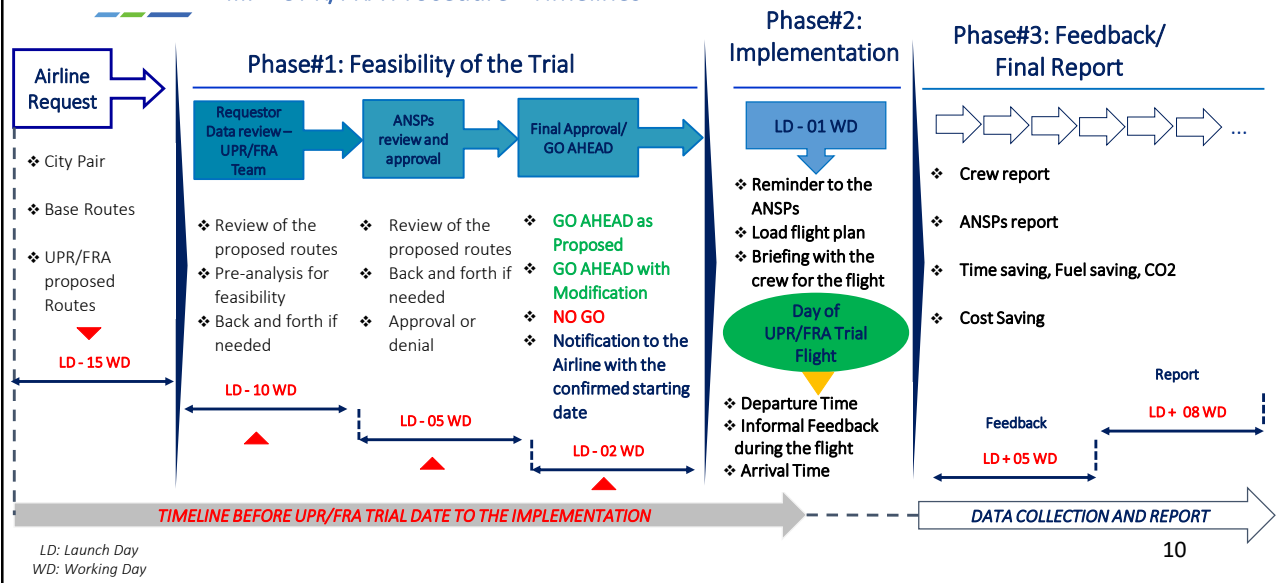


ULTIMATE GOAL – FREE ROUTE AIRSPACE FOR AFRICA


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III. UPR/FRA Procedure - Timelines



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Records of UPR/FRA trial flights conducted/UPR Trials Data Collection and Analysis





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IV. Records of UPR/FRA trial flights conducted

<p>One day – One way Trials</p> <div style="background-color: #d9ead3; padding: 5px; margin-bottom: 10px;"> <p>ETHIOPIAN [ETH935 & ETH847] 01 Flights [East – West] 01 Flight [East – South]</p> </div> <div style="background-color: #d9ead3; padding: 5px;"> <p>KENYA [KQA508, KQA520 & KQA784] 02 Flights [East – West] 01 Flight [East – South]</p> </div>	<p>Three days – One-way Trials</p> <div style="background-color: #4a86e8; color: white; padding: 5px; margin-bottom: 10px;"> <p>ETHIOPIAN [ETH935] 03 Flights [East – West]</p> </div> <div style="background-color: #ffff00; padding: 5px;"> <p>KENYA [KQA520] 02 Flights [East – West] Note: Initial planning Three days of two-way Trials, changed due to coordination issues</p> </div>	<p>Three Days – Two-way Trials</p> <div style="background-color: #4a86e8; color: white; padding: 5px; margin-bottom: 10px;"> <p>ETHIOPIAN [ETH935 & ETH934] ETHIOPIAN [ETH512 & ETH513] 02 Flights [East – West] 02 Flights [West – East]</p> </div> <div style="background-color: #4a86e8; color: white; padding: 5px;"> <p>KENYA [KQA520 & KQA521] 03 Flights [East – West] 03 Flights [West – East]</p> </div>
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IV. Records of UPR/FRA trial flights conducted [Condt]

07 Consecutive Days – East-West

ETHIOPIAN [ETH935]
07 Flights [East – West]
Daily Flight

KENYA [KQA520]
03 Flights [East – West]
25th – 27th – 30th

07 Consecutive Days – West-East

ETHIOPIAN [ETH934]
07 Flights [West – East]
Daily Flight

KENYA [KQA521]
03 Flights [West – East]
25th – 27th – 30th

Thirty Days – Two-way Trials

ETHIOPIAN [ETH935 & ETH934]
OR
ETHIOPIAN [ETH512 & ETH513]
Daily Flight

KENYA [KQA520 & KQA521]
03 Flights [East – West]
03 Flights [West – East]
Weekly Flight

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IV. Data Collection and Analysis

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UPR/FRA IMPLEMENTATION [Trials] Data

Airline POC	City Pair	Flight Numbe	Aircraft Type	Base Route	Requested UPR Route	FIR - ANSP
James K/Emery	HRYP/KGL-DNMM/LOS	RWD202	A330-300	HRYP EGRE1D EGREKUB527 MUBAK UL434 NLY UQ300 UDAXA DCT EDGOT EDGO1N DNMM	HRYP DCT OPERO DCT NEPLI UL434 AMPIL DCT KOKAM UR854 ILBAS UQ300 UDAXA DCT EDGOT EDGO1N DNMM	CONGO DRC CONGO BRAZZAVILLE NIGERIA
James K/Emery	HRYP/KGL-DNMM/LOS	RWD202	B737-800	HRYP EGRE1D EGREKUB527 MUBAK UL434 NLY UQ300 UDAXA DCT EDGOT EDGO1N DNMM	HRYP EGREK1D EGREK DCT NEBLO DCT NEPLI DCT KOKAM DCT ILBAS DCT UDAXA DCT EDGOT EDGO1N DNMM	ENTEBBE CONGO DRC CONGO BRAZZAVILLE NIGERIA
James K/Emery	DNMM/LOS-HRYP/KGL	RWD203	B737-800	DNMM BOTB1Q BOTBO UR984 NLY UL434 MUBAK UB527 EGREK EGRE1C HRYP	DNMM BOTB1Q BOTBO DCT UDAXA DCT ILBAS DCT KOKAM DCT NEPLI DCT NEBLO EGREK	ENTEBBE CONGO DRC CONGO BRAZZAVILLE NIGERIA

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IV. Data Collection and Analysis

TRIAL DATE	FLIGHT N.	FIR - ANSP	Route Segment by FIR	ANSP Feedback	Airline Feedback
9/6/2024	RWD202	FZZA	KGL/LOS		<ul style="list-style-type: none"> The Kinshasa ATM will still ask us to report abeam KGI Potential Drone threats reported by PIC of the flight on Route KNM DCT IBNIN DCT OVPAP Over all, it was good planning. Coordination with ATC needs to improve.
9/19/2024	RWD203	LAGOS/BRAZAVILLE	LOS/KGL		<p>On the return flight LOS/KGL</p> <ol style="list-style-type: none"> Lagos could not identify our direct route after BOBTO.... they wanted RALIN as exit point from their FIR. Our effort to explain the direct routing of our plan went invane... Same with Brazzaville, they had difficulties to identify our direct routing and we had to provide abeam points for the FIR crossing.

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Main Challenges



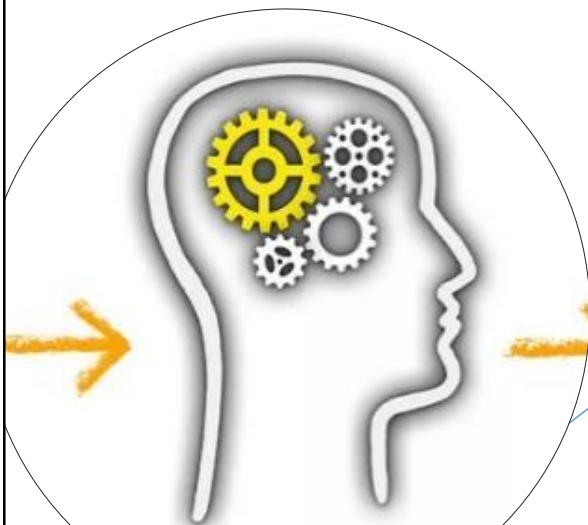
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V. Main

Challenges

- ❖ *Effective coordination between stakeholders before the trial flight implementation [Internal coordination within the airline and external coordination with ANSPs and between ANSPs - neighboring FIRs].*
- ❖ *Information sharing [Ex. Notam, Weather, Etc.]*
- ❖ *Determination of the crossing points between the trial trajectories with existing routes.*
- ❖ *Respect of FL Restriction/conditions during the trial flight conduct as approved by ANSPs.*
- ❖ *Contingency Management*
- ❖ *Report/Data sharing exercise not well practiced by the stakeholders after the trial UPR/FRA flight*



Lessons Learned/ Recommendations

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VI. Lesson Learned / Recommendations

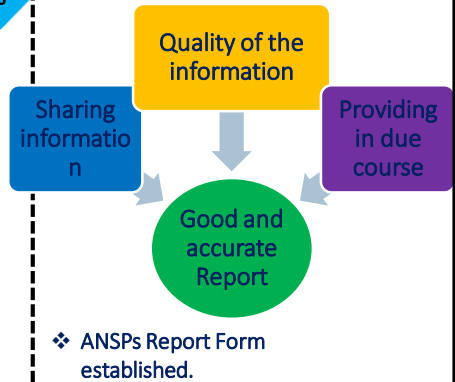
Coordination Flow

- ❖ UPR Coordination Team, ANSP Focal Point, ATC in front line
- ❖ UPR Coordination Team, AO Focal Point, OPS office, Pilot in the front line
- ❖ ATC and Pilot briefed: Smooth flight
- ❖ Extensive coordination among stakeholders is required before launching the trial flight, which involves establishing a core team that includes the Airline, ANPS, and other relevant parties.
- ❖ Before or on the day of the trial flight – display the trial flight information to the OCC and ACC offices

Critical Information Sharing/Restrictions

- ❖ Notam distribution
- ❖ Strict adherence to contingency routes
- ❖ Strict adherence to FL restriction and condition as approved by ANSPs
- ❖ To mention RMK/ UPR TRIAL in item 18 of FPL
- ❖ UPR Entry/Exist point identification - SLNC, Coordinates or a beam
- ❖ Sharing information [last-minute change, others] as soon as available to cancel or not the concerned trial flight

Report/Data sharing



Savings/



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VII. Savings

Real Time Saving [Min.]	Real Fuel Saving [KGS]	CO2 Reduction [KGS]	Cost Saving [\$]
0:06	KGS 563.00	KGS 1,779.08	\$ 850.00
0:00	KGS 178.00	KGS 562.48	\$ 203.00
0:06	KGS 619.00	KGS 1,956.04	\$ 825.00
0:06	KGS 68.00	KGS 214.88	\$ (955.00)
0:04	KGS 237.00	KGS 748.92	\$ 675.00
0:01	KGS 172.00	KGS 543.52	\$ 208.00
0:06	KGS 563.00	KGS 1,779.08	\$ 850.00
0:06	KGS 68.00	KGS 214.88	\$ (955.00)
0:06	KGS 619.00	KGS 1,956.04	\$ 825.00
0:04	KGS 237.00	KGS 748.92	\$ 675.00
0:06	KGS 68.00	KGS 214.88	\$ (955.00)
0:04	KGS 222.00	KGS 701.52	\$ 506.00
0:01	KGS 132.00	KGS 417.12	\$ 1,377.00
0:02	KGS 2.00	KGS 6.32	\$ 166.00
0:06	KGS 604.00	KGS 1,908.64	\$ 1,909.00
0:03	KGS 538.00	KGS 1,700.08	\$ 1,733.00
0:05	KGS 353.00	KGS 1,115.48	\$ 793.00
0:02	KGS 211.00	KGS 666.76	\$ 271.00
0:04	KGS 268.00	KGS 846.88	\$ 352.00
0:03	KGS 266.00	KGS 840.56	\$ 1,590.00
0:04	KGS 308.00	KGS 973.28	\$ 385.00
0:05	KGS (194.00)	KGS (613.04)	\$ 1,140.00
0:05	KGS 627.00	KGS 1,981.32	\$ 1,194.00
0:00	KGS (161.00)	KGS (508.76)	\$ 1,082.00



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VII. Savings – Ethiopian – 1/4

TO BE PRESENTED BY KENYA AIRWAYS



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VII. Savings – Kenya Airways – 2/4

TO BE PRESENTED BY EGYPTAIR



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VII. Savings – Kenya Airways – 3/4

TO BE PRESENTED BY RWANDAIR



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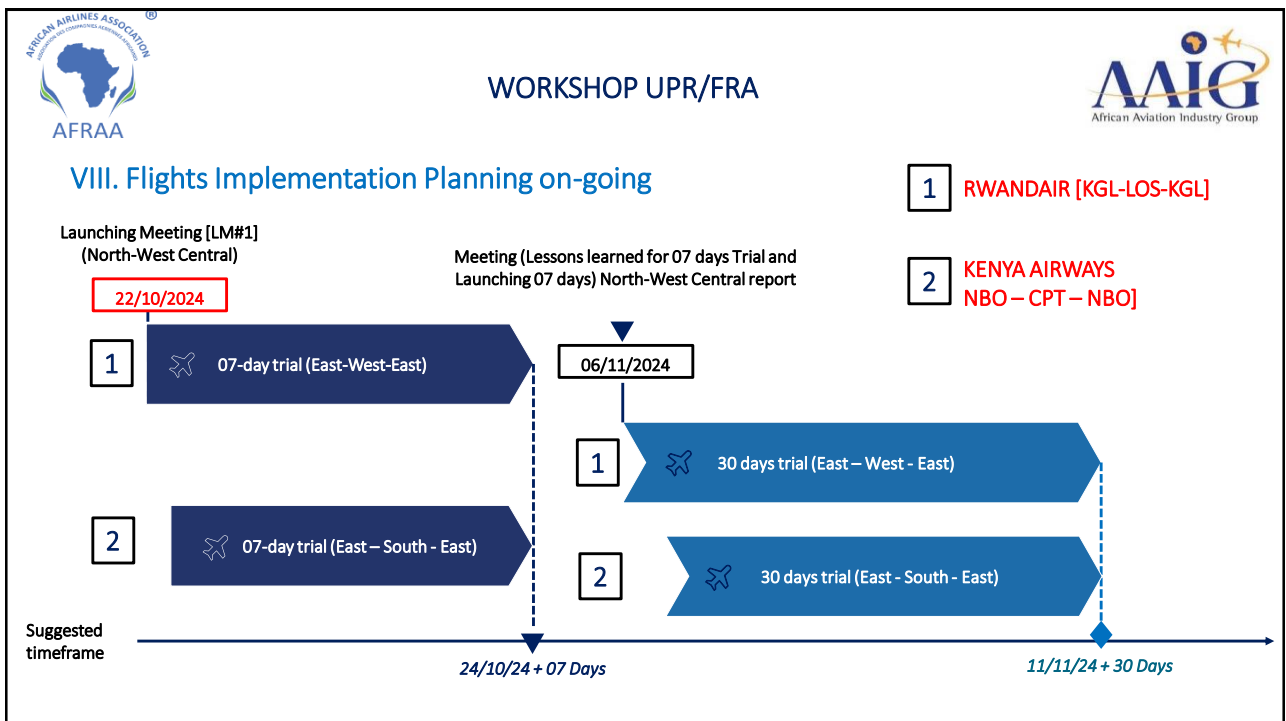
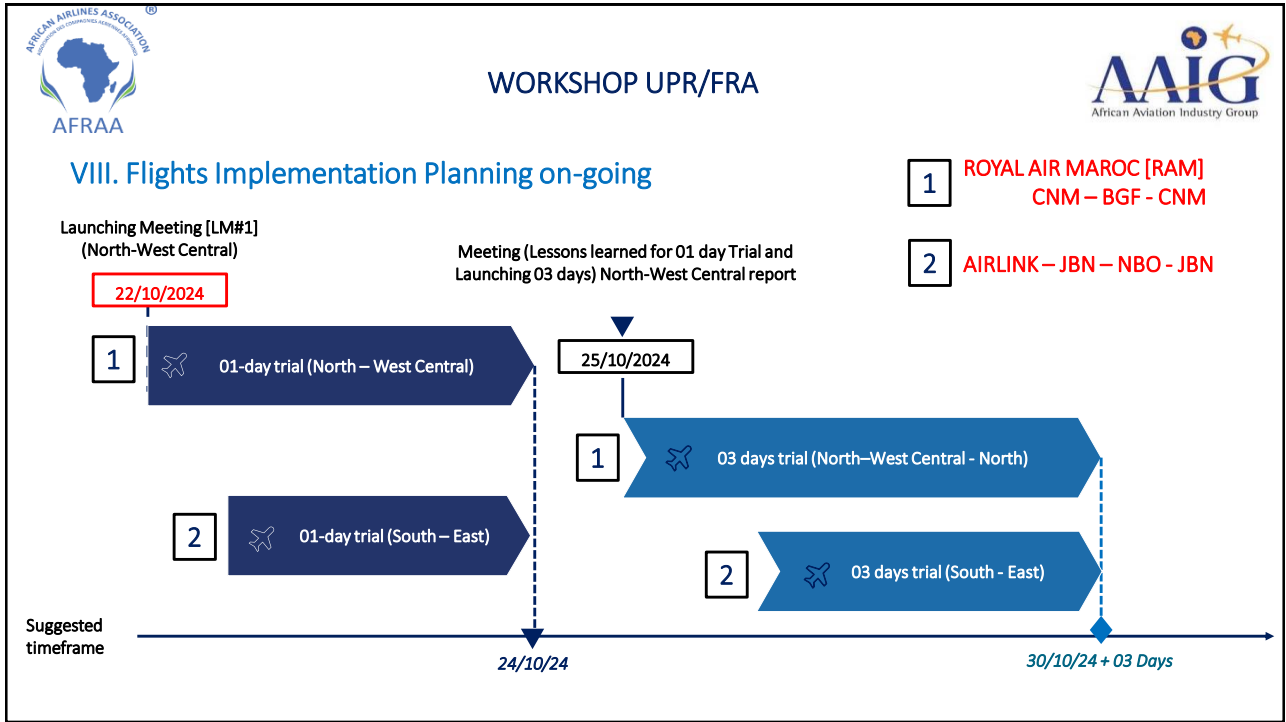
VII. Savings – Kenya Airways – 4/4

TO BE PRESENTED BY ETHIOPIAN AIRLINES

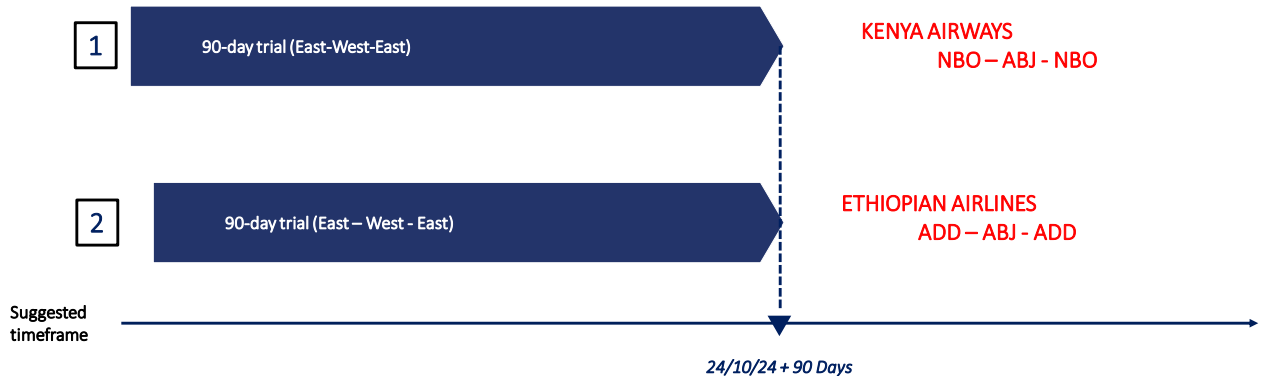


CASE STUDY





VIII. Flights Implementation Planning on-going



IX. Conclusion and Action Required

AFRAA, the member airlines, and relevant stakeholders must pursue User Preferred Routes (UPR) trials by extending the number of city pairs and participating airlines to transition to Free Route Airspace implementation in Africa's Airspace in 2025 and establish a clear and specific roadmap.

- ❖ **Encourage States to remove flight-level restrictions during the trials for effective FRA implementation in AFI.**
- ❖ **Conduct a set of UPR trial flights by Thursday, 24 October 2024, as shown in the previous slides**

Member airlines are urged to:

- ❖ **Increase participation in the UPR trials, facilitating data collection towards FRA implementation in the Region in Africa by 2025.**



THANK
YOU



Better Skies for Africa