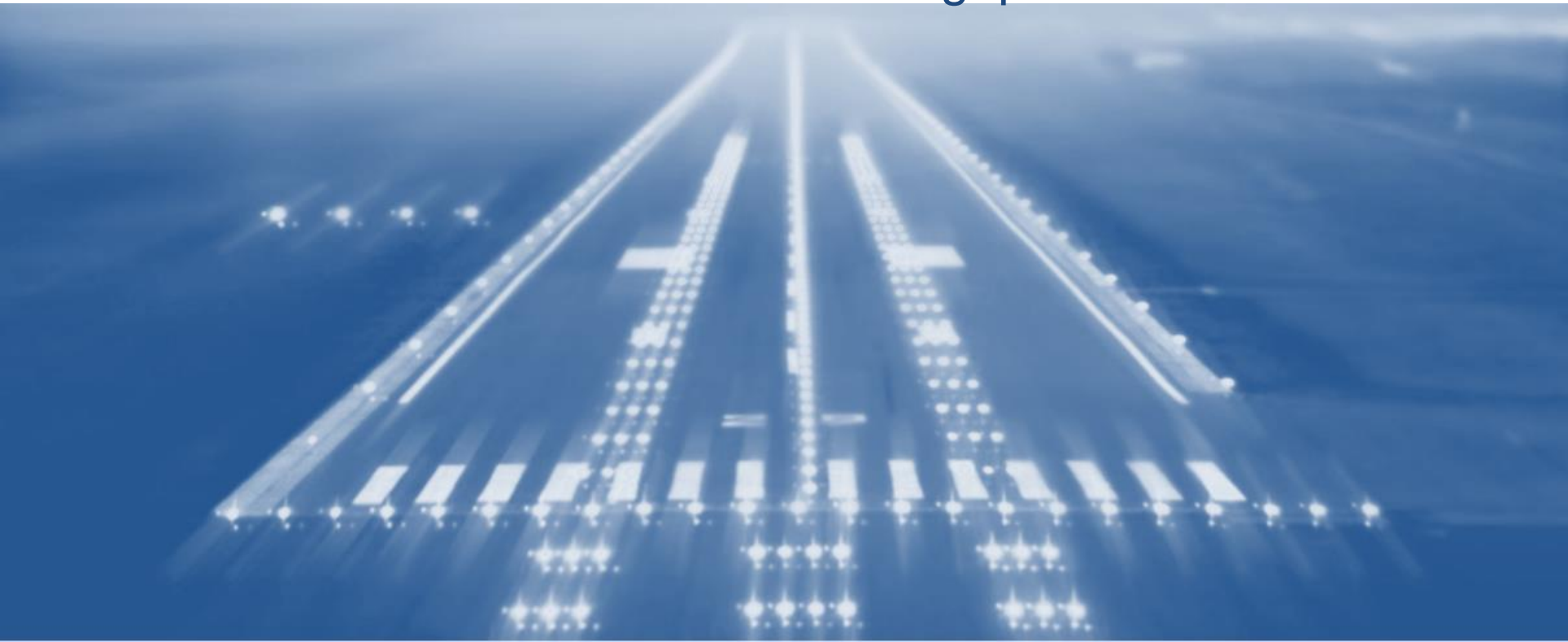




WORKING TOGETHER TO ENHANCE
AIRPORT OPERATIONAL SAFETY

Most common Infrastructural gaps identified



APEX in Safety Reviews 2011-2019

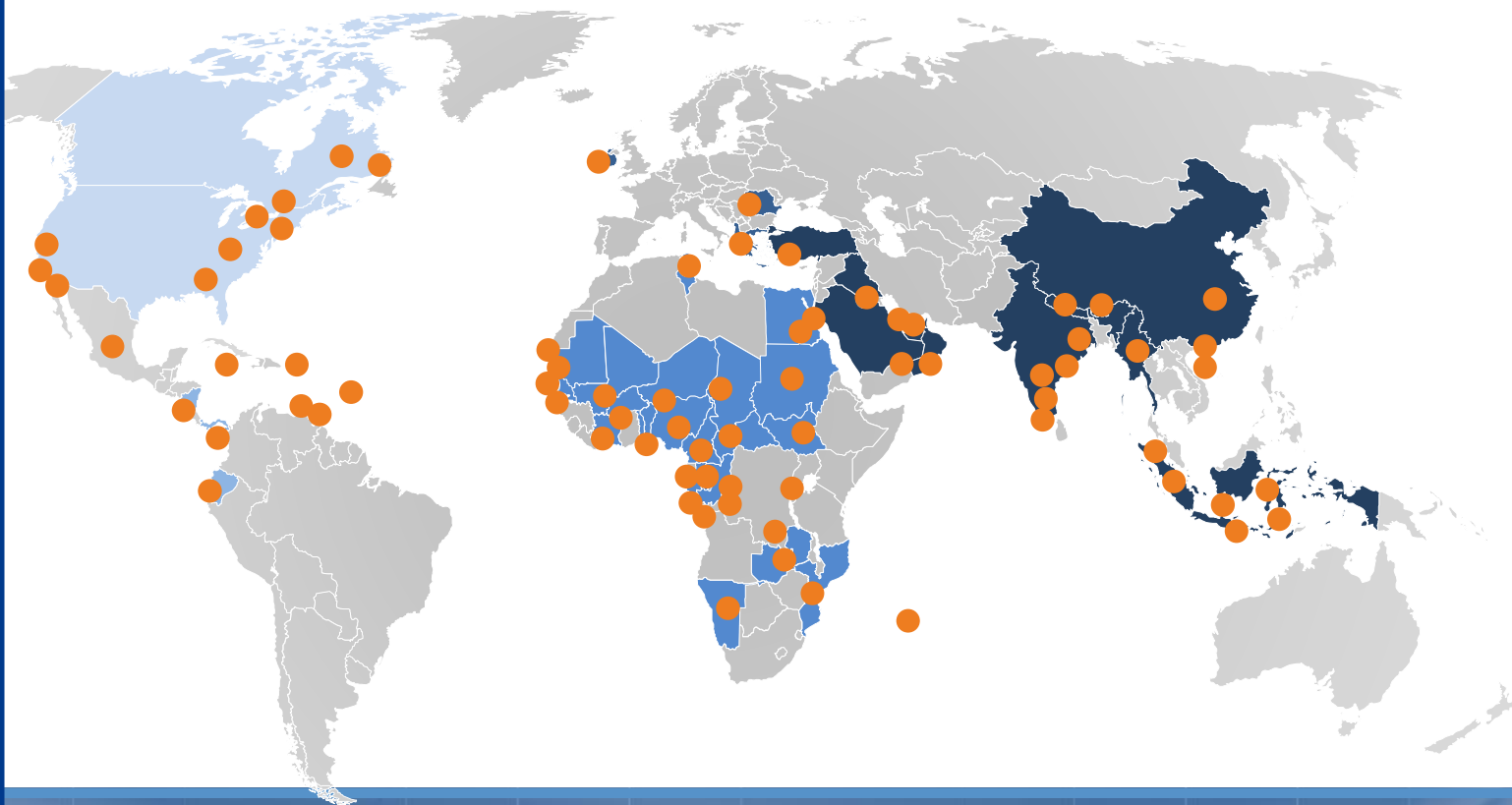
Africa: LFW, MPM, LUN, NKC, MRU, ABJ, OUA, POG, COO, NIM, KRT, CAI, LOS, EBB, DKR, ABV, BKO, NDJ, ACC, TUN, MRU, BZV, NSI, DLA, LBV, PNR, BGF, LUN, MVB, FIH, FBM, BJL, NDB, WDH, PHC, KAN, ENU, KAD, KGL

Asia Pacific: CGK, CCU, MAA, AMD, GAU, PEK, AUH, MED, HAK, AMM, RGN, BAH, DOH, DPS, BPN, MCT, SUB, UPG, SYX, BLR, MDL, KNO, PDG, KTM, PBH

Europe: CLJ, OTP, BBU, ATH, DUB, ORK, ESB

Latin America and Caribbean: SAP, ANU, UIO, AUA, CUR, BLB, PTY, UVF, CUR, MBI, GDL

North America: YTZ, SEA, SAN, SFO, SAT, YQM, EWR, LGA, JFK, YQB, YHM, CVG



APEX : What is It

- APEX was developed to assist airports of all sizes in improving safety through peer reviews conducted at the airport location
- Based on ICAO Standards and Recommended Practices (SARPS) and ACI best practices
- APEX combines the mandate for regulatory compliance with day-to-day needs to maximize operational efficiency and safety
- APEX reviews are tailored to the individual needs of airports
- APEX reports propose effective solutions which lead to improving the safety standing of the airports.



- **APEX-How Does It work**

- APEX Team conducts gap analysis and independent assessment
- Provides a verbal debriefing at the end of the visit
- • Final report with observations and recommendations asap after the visit
- • Host airport may draft an action plan
- • ACI support team will guide the host airport with the implementation of the most appropriate safety measures, when necessary



APEX REVIEW TEAM

- Team Leader of ACI headquarters
 - ACI Regional Office Safety Assessor
 - ICAO-designated Safety Officer
 - Safety experts from APEX Partners
 - Other experts ad hoc
- APEX Safety Partners donate assessor time, have no commercial interests and acts in the sole interest of the host airport



Background on APEX in Africa

- First mission was conducted as a Pilot in Lome , Togo in 2011.
- Since then 38 other reviews were conducted in Africa
- 40% of African Airports became certified since having an APEX review done
- APEX focused on all aspects of certification
- Peer review process
- Over 300 assessors from around the world are participating in the programme.

Pavement management

- Lack of pavement management systems
- No data on years of construction
- Lack of pavement strength data and studies
- Very deteriorated Apron surfaces and shoulders
- No friction testing
- High accumulation of rubber (some airports enhanced this since APEX visit)



- In many cases, pavement is in advanced state of deterioration
- Runway strip and graded areas are non-existent or out of compliance in many cases



- Lack of accurate declared distances
- African Airports are rarely equipped with compliant Runway Safety End Area (RESA)
- No documents to support the published data, but true bearing strength is often insufficient

DRRN - AD 2.13 DISTANCES DÉCLARÉES
DECLARED DISTANCES

Désignation de la piste RWY NR	TORA (M)	TODA (M)	ASDA (M)	LDA (M)	Observations Remarks
1	2	3	4	5	6
09R	3000	3000	3060	3000	PAISWY = 60 M
27L	3000	3000	3060	3000	PAISWY = 60 M Prolongement dégagé?
09L	1620	1620	1620	1620	Piste 09 / 27 en latérite inutilisable pendant 24 H après pluie. Bandes non définies pour la piste 09 / 27
27R	1620	1620	1620	1620	RWY 09 / 27 unusable during 24 H after rain. RWY 09 / 27 band not defined

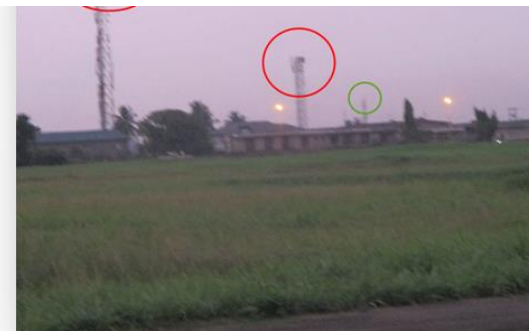
DRRN - AD 2.8 AIRES DE TRAFIC, VOIES DE CIRCULATION ET EMPLACEMENTS DE VÉRIFICATION
APRONS TAXIWAYS AND CHECK LOCATIONS

1 Surface et résistance de l'aire de trafic Apron surface and strength	CIV : 43.000 M ² - MIL : 26.000 M ² Revêtement : Bitume Résistance : CIV : B 747 - MIL : B 737	CIV : 43.000 M ² - MIL : 26.000 M ² Surface : Asphalt Strength : CIV : B 747 - MIL : B 737
2 Largeur, surface et résistance des voies de circulation TWY width, surface and strength	Largeur : CIV 25 M - MIL 23 M Revêtement : Bitume Résistance : CIV : B 747 - MIL : B 737	Width : CIV 25 M - MIL 23 M Surface : Asphalt Strength : CIV : B 747 - MIL : B 737

3.2.3. Length, width and surface type of Taxiway

Taxiway Designation	Taxiway	Length	Strength ACN/PCN
A	Western Taxiway Parallel to 18R/36L	3,90	70/F/B/X/U
B.	Parallel to 18L/36R	2,74	70/F/B/X/U

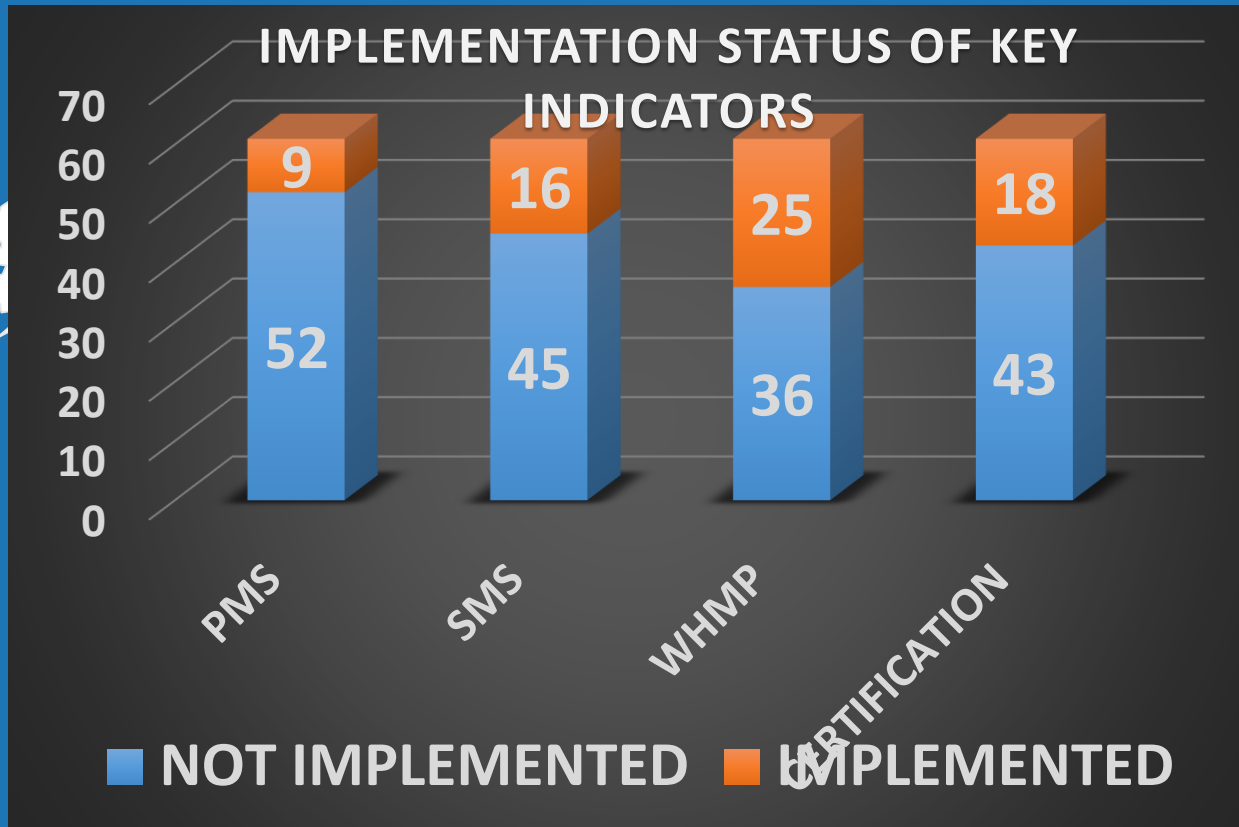
- Obstruction lighting is often missing or not maintained on and off the airport.
- Lighting system is often old and obsolete which causes for high maintenance repair or need for full rehabilitation

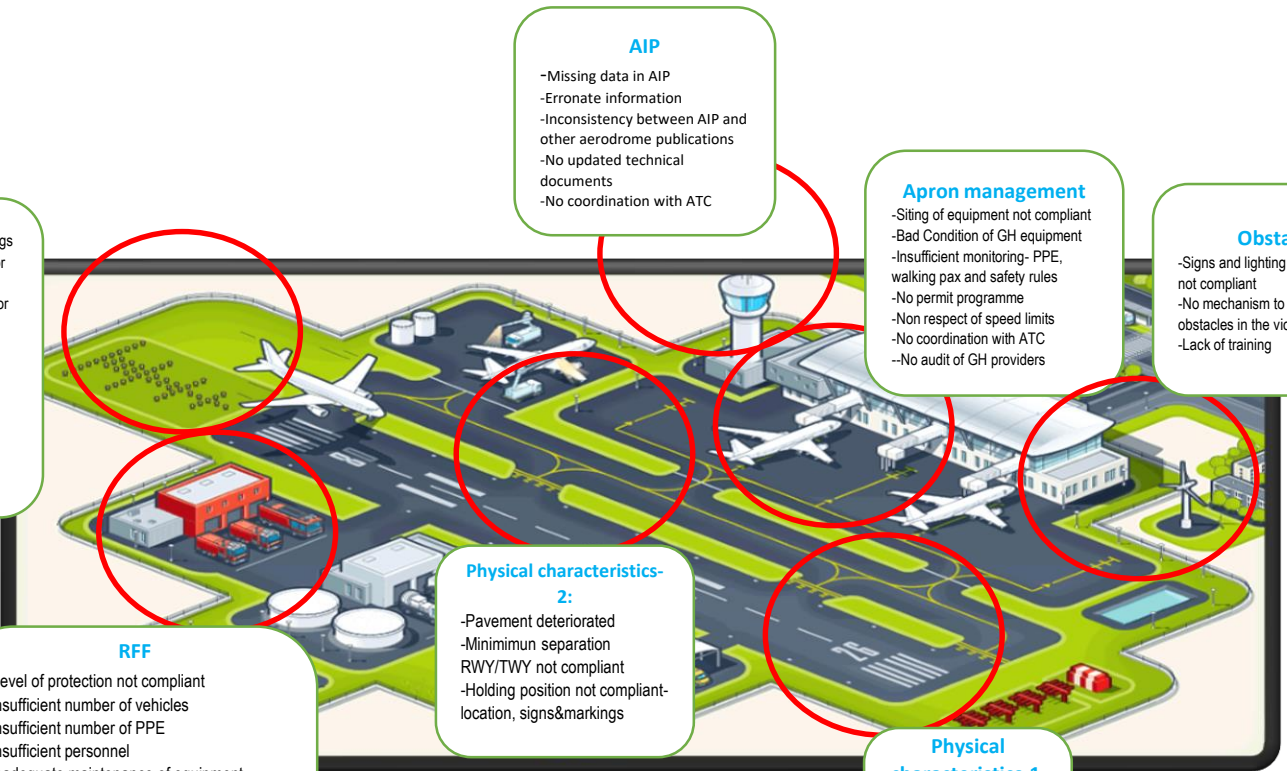


- Signs are often missing or not to standard
- Missing lights and old wiring
- Electrical systems are obsolete and over 40-45 years old.



KEY INDICATORS





Visual aids

- Insufficient Visibility of markings and signs-faded ,not reflectant or not enlited
- Incorrect Location of markings or signs
- Erronate information on signs
- Approach lights not compliant-missing lights
- Markings&signs of restricted areas not compliant
- Lack of skilled personel
- No visual aid maintenance programme

AIP

- Missing data in AIP
- Erronate information
- Inconsistency between AIP and other aerodrome publications
- No updated technical documents
- No coordination with ATC

Apron management

- Siting of equipment not compliant
- Bad Condition of GH equipment
- Insufficient monitoring- PPE, walking pax and safety rules
- No permit programme
- Non respect of speed limits
- No coordination with ATC
- No audit of GH providers

Obstacles

- Signs and lighting for obstacles not compliant
- No mechanism to monitor obstacles in the vicinity of airports
- Lack of training

RFF

- Level of protection not compliant
- Insufficient number of vehicles
- Insufficient number of PPE
- Insufficient personnel
- Inadequate maintenance of equipment
- Insufficient communication equipment
- No direct line between ATC/Firestation
- Inadequate storage conditions of extinguishing agents
- Difficult access to emergency roads
- No emergency procedures/not updated/no coordination with other stakeholders
- Inadequate facilities for training
- Documentation not updated
- No SOPs

Physical characteristics-2:

- Pavement deteriorated
- Minimum separation RWY/TWY not compliant
- Holding position not compliant- location, signs&markings

Programmes and documents

- No pavement management programme
- No friction test programme
- No SMS
- No emergency plan/updated
- No wildlife hazard management plan
- No aerodrome manual/updated
- No safety KPIs
- No training programme

Physical characteristics-1:

- Obstacles in the strips
- Obstacles in RESA
- Dimension of RESA not compliant
- Insufficient bearing capacity-graded areas

- Some Examples



Some Examples

As a matter of high priority, make all necessary repairs of all holes, cracks and areas that are creating foreign object debris/damage (FOD) on the runway; also, reinforce the inspection of pavements.

Issue a Notice to Airmen (NOTAM) indicating the pavement conditions of the runway.

Implement procedures and allocate adequate resources to ensure that cracks and holes are repaired before they escalate, becoming a hazard to aircraft operations, and grant runway closures when the damage (i.e. crack, hole, etc.) is sufficiently serious. Guidance material for conducting the inspections can be found in ICAO Doc.9137, Part 8, Chapter 3.





Friction

b) The APEX team was informed that the last friction test was conducted over two years ago. The runway requires immediate attention because it shows a considerable accumulation of rubber and appears to be slippery when wet.

Perform a friction test and the necessary rubber removal as a matter of high priority.

Issue a Notice to Airmen (NOTAM) which points out the portion of the runway that has friction values below the minimum friction levels indicated by the national regulation.

c) A self-wetting, continuous friction measuring device is not available for conducting friction tests.

- Implementation of the new Global Reporting Format For Runway Surface Conditions (GRF2019)
- Main contaminants identified are
 - Rubber deposits
 - Ponding of water/Mud
 - Not snow or Ice



ARFF Simulators ??



Fire Drills

ICAO Annex 14 states: “All rescue and fire-fighting personnel shall be properly trained to perform their duties in an efficient manner and shall participate in live fire drills commensurate with the types of aircraft and type of rescue and fire-fighting equipment in use at the aerodrome, including pressure-fed fuel fires”. There are no appropriate hot fire training facilities at the airport. The fire training ground has only wooden pallets with a small pressure-fed fire which does not comply with the ICAO standard

- **Pavement Management**
- **The AIP shows a pavement strength load classification number (LCN) of 100; LCN is not used to classify the pavement strength, rather the pavement classification number (PCN) should be used as per ICAO Annex 14, Section 2.6. If the AIP is referring to the pavement classification number (PCN) with a value of 100 (which is the maximum value for the strongest pavement), it does not reflect the reality of the pavement conditions. The AIP shows also a concrete pavement while the pavement is in asphalt. 1.3. RUNWAYS**
- **a) Runway pavement is in very poor condition and needs immediate attention. There are many high severity cracks and holes in different areas of the runway. Many of the cracks are very deep and allow the water to penetrate the base of the pavement, accelerating the deterioration of the runway.**



- Aircraft Recovery Kit-Disabled A/C removal



Status Of Aerodrome Certification

Total Number of International Aerodromes	191
Certified	53(27.18%)
Not Certified	142(72.8%)

Abuja Targets

One Int Aerodrome per State	2020
All aerodromes	2022
Runway safety team	2020
Airports operators to undergo Internationally recognised Assurance program(Apex)	2020

Can we do this in 2 years?





WWW.ACI.AERO/APEX

THANK YOU!