

## Text presentation ISASI 2019



Dear XXX

For various reasons Charles and I, as representatives of the Rwanda Accident and Incident Investigation Division (AAID), feel very privileged to be here. That is no hollow phrase. We honestly feel privileged. For me it feels like a warm coming home to the scene of accident and incident investigation, for Rwanda it is another indicator of the achievements this beautiful country has attained since the tragic events that transpired in 1994.

Now of course I fully realise that you already know all about Rwanda. Yet, strictly as a reminder, I show you here its cheerful flag and ... **mouse click**:



... its geographical location. Yes indeed, it is a small and beautiful country just South of the equator, landlocked located in the heart of Africa, thus highly depending on aviation for its economic development. And this Country of Thousand Hills is beautiful indeed for many reasons, one of them being the countless shades of green spread over its undulating scenery ...**mouse click**:



But Charles and I are not here to discuss the splendour of Rwanda, but to reflect on the challenges of accident investigation on the African continent instead. ... **mouse click**:



We like to explicate what challenges States on the African continent are currently facing with regard to aviation accident investigation. Thereafter we will focus on the underlying factors that will

determine the development of these challenges in the near future. And finally we will conclude with some thoughts on what parties involved in accident investigation both in Africa and globally, thus that includes you, could do to uphold and improve aviation safety performance on the African continent.

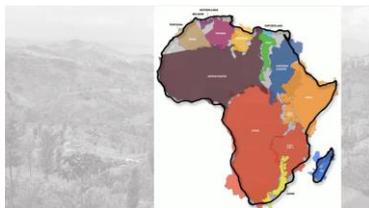
To substantiate this line of thought it is good to spend a few words on the... **3 x mouse click**:



... geographical & economic, the sociological & educational as well as the political & organisational factors that characterise the circumstances faced by the aviation sector on the African continent. As said before ... **mouse click**:



... we will wrap-up our line of thoughts and formulate a few significant issues that in our opinion should be addressed both by the joint African Member States as well as by our joint colleagues around the world through coordination by institutions like ICAO and this very Society. So once again: Charles and I are very happy indeed to be standing here at this desk, being enabled to do so by ISASI, being here amidst so many colleagues carrying an unprecedented wealth of expertise. Expertise that Africa is still lacking to a great extent. So, to illustrate its potential and its challenges let us first focus a bit more on the African continent as such ... **mouse click**:



First of all, the African continent is very big. Perhaps bigger than you had in mind. The total amount of square kilometres of Africa is larger than the sum of: ... **5 x mouse clicks (till Unites States is shown)**:



... the surface comprising China, whole of Europe, India, Japan and the United States together. It is easy to understand that the topography including deserts, high mountains and large lakes as well as

the lack of infrastructure and adverse climatological conditions can impose challenges in terms of accessibility of and working at a crash site.

Apart from that air traffic density is of a total different magnitude as compared to the what is called 'The Western World'... **mouse click:**



When looking at global air traffic flow charts, like this one issued by ICAO, one sees the big red clusters over North America, Europe, Eastern China & Japan, whereas the African continent is depicted even greener than it actually is, perhaps with the area around Johannesburg as the only exception.

So, when in general terms being ready for the investigation of that unhoped-for accident is a continuous challenge, this notion certainly applies for the African continent, taking into account its vast area, that needs to be supported by a relatively small aviation sector with limited means.

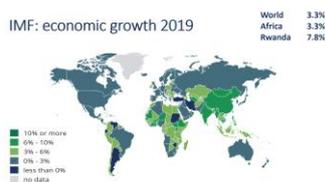
Limited means indeed. Whereas countries as the United States, Australia, and The Netherlands for that matter, have an average gross national income per capita of more than 50.000 US dollars, that same figure in the sub-Saharan region ranges from 500 US dollars in countries like Burundi and DR Congo to some 6.000 dollars for South Africa and 8.000 dollars in Botswana.

But Africa no longer is just 'Third World': a significant number of countries, like Rwanda, shows economic growth rates of 6 - 8%, as can be seen here ... **mouse click:**

IMF: economic growth 2019



This overview shows the current global Gross Domestic Product (GDP) figures as published by the International Monetary Fund. And also here the sub-Saharan area presents itself as a green region, as is further illustrated by these figures ... **mouse click**



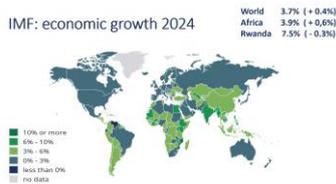
... showing that the economic growth Africa now equals the global average, with Rwanda as a significant outperformer.

And, despite threats in terms of political unrest and security issues, this growth is expected to sustain ... **mouse click:**

IMF: economic growth 2024



... as can be seen from the outlook for 2024 showing that ... **mouse click:**



... the economic growth in Africa will have surpassed the global average with Rwanda, albeit at a marginally lower pace, still continuing its sprint towards a middle income country.

To summarise on the geographic and economic factors ... **mouse click:**



... we can conclude that accident investigation in Africa is and will be a challenge because of ... **mouse click:**



- the vast area to be covered
- the currently low but increasing traffic density
- the current limited financial resources to support accident investigation, a factor that will become more prominent in view of the expected traffic growth

Charles and I think that the response to the challenges imposed by the geographical and economic factors that apply to Africa lie in ... **mouse click:**



- seeking and improving cooperation between countries in Africa and
- more specifically for the Eastern African Region: emphasis on the initiative to reach supranational cooperation in aviation accident investigation, thereby optimally combining and utilising the limited resources and expertise available from an investigation expertise centre that could be based in Rwanda's capital Kigali.

As an illustration of the political will and ambition in the East African region, we like to share the following meaningful quote from Paul Kagame, President of Rwanda, during his opening speech at the Aviation Africa Conference 2019 ... **mouse click:**



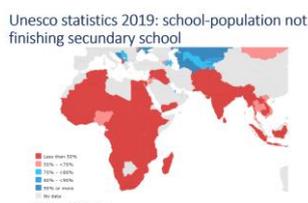
... “Sixteen countries in Africa are landlocked, including Rwanda. That is almost one-third of Africa. But every country is “air-linked”. This highlights the importance of regional integration, where there have been some notable achievements over the last year.”

The main subject that President Kagame, who in the same speech defined protectionism as a short-sighted policy, is indicating here refers to the adoption of the Single African Air Transport Market, an initiative that currently is supported by 23 African States.

So we should utilise the existing political will to spend effort and resources on development of a safe aviation sector, including comprehensive accident investigation facilities. After all aviation is a vital infrastructural element on the vast African continent with its limited road and rail network and - for that considerable number of landlocked countries - long distances from sea harbours.

Now, for the sake of time we quickly move on to the sociological and educational factors. Firstly it must be recognised that Africa still lags behind in terms of education level as is illustrated by ...

**mouse click:**



... this overview from UNESCO indicating that currently on the entire continent more than 50% of its school population does not finish secondary school. UNESCO further indicates that “of all regions, sub-Saharan Africa has the highest rates of education exclusion. This situation will likely get worse as the region faces a rising demand for education due to a still-growing school-age population”.

Furthermore many African countries still basically have an agricultural background (the Rwanda tea and coffee rank amongst the best in the world) and thus are lacking a tradition of technological expertise.

So, as a wrap-up for the sociological and educational factors that characterise Africa ... **mouse click:**



we face the following challenges ... **mouse click:**



In many African countries few people with expertise on aviation are available. Recruiting suitable native investigator candidates is therefore cumbersome. **Mouse click:**



Well-reputed accident investigation courses are not (yet) offered on the African continent. Attending such courses by African investigator candidates therefore requires long distance travelling and thus additional time and money. **Mouse click:**



Currently no structured exchange programmes or facilitation for on the job training between African Safety Boards and well established Boards in the Western world are available.

Thus: for safety boards from African countries it really is a difficult job to realise state-of-the-art on the job training for their trainee investigators.

So let me misuse a short moment of my presentation time by saying that any offer to train these excellent guys ... **mouse click:**

**To be incorporated: photo of Samuel and Yves**

... Samuel and Yves, investigators for the Rwanda AAID, would be highly appreciated.

The answer to the challenges with regard to investigator training, although easier to be said than done, in itself is pretty obvious ... **mouse click:**



Arranging for high quality investigator training courses on the African continent and ... **mouse click:**



Promoting structured preparedness from well-established Safety Boards to accommodate exchange programmes and on the job training for African trainee investigators.

A strong coordinating role from international institutions like ISASI, ICAO (more explicitly: the Eastern and Southern Regional African Regional Office (ESAF) in Nairobi) would be most helpful in effectuating the above mentioned two objectives.

Finally a few words on political and organisational factors, both on African and global level. In many African countries accident investigations are still conducted under the authority of the national CAA, thus hampering an impartial, transparent approach to accident investigations.

Apart from that, quite a few countries in Africa do not dispose of a permanent investigation body, but need to rely on compiling an ad hoc investigation commission in case an accident or serious incident occurs. In Rwanda the AAID has become a separate body from the Rwanda CAA in 2017.

Highly specialised investigation techniques, with particular emphasis on recorder readout capability, are not readily available to African countries. Thus, as an important organisational factor in the hectic moments after an aircraft accident on the African continent, who is doing the recorder readouts? The Ethiopian ET302 accident is a more than illustrative example. **Mouse click:**



DFDR and CVR as discovered on the accident site.

It took a bit of a search, whereby the German BFU and the United States NTSB passed the scene before ultimately the French BEA performed the readouts successfully. The recorders were recovered on March 11<sup>th</sup> 2019 and arrived at the BEA facility three days later. This may be rather swift, however: when a less high profile accident would occur on the African continent, currently timely access to an adequate readout facility is by no means warranted.

Whereas European Member States can rely on agreements made through ECAC, African countries remain empty handed when it comes to pre-arranged availability of support from specific Member States when specialised expertise, like recorder readout and analysis facilities, is required.

Despite all above mentioned challenges and its limited resources, statistics on safety performance in Africa show remarkable positive results ... **mouse click:**

(per million departures) by region of operator  
Source: IATA Airline Safety Performance 2018

Region	2018	2013-2017
Africa	0.00	0.1
Asia Pacific	0.21	0.2
Commonwealth of Independent States (CIS)	1.18	0.0
Europe	0.00	0.2
Latin America and the Caribbean	0.00	0.2
Middle East and North Africa	0.10	0.0
North America	0.00	0.0
North Asia	0.19	0.0
Industry	0.19	0.2

Even the figures for turboprop hull loss rates, that were of concern over the past years, have improved significantly ... **mouse click:**

Turboprop hull loss rates by region of operator (per million departures)  
Source: IATA Airline Safety Performance 2018

Region	2018	2013-2017
Africa	1.90	5.69
Asia Pacific	0.58	1.17
Commonwealth of Independent States (CIS)	7.48	18.13
Europe	0.00	0.56
Latin America and the Caribbean	0.00	1.01
Middle East and North Africa	5.85	1.82
North America	0.00	0.99
North Asia	0.00	6.20
Industry	0.60	1.83

To summarise on the political and organisational factors ... **mouse click:**



... the following challenges apply

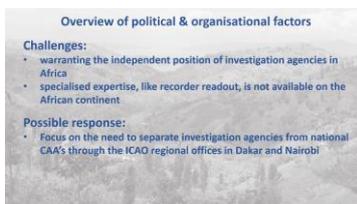


Firstly, Africa should improve on warranting the independent position of their accident investigation agencies, and secondly ... **mouse click:**



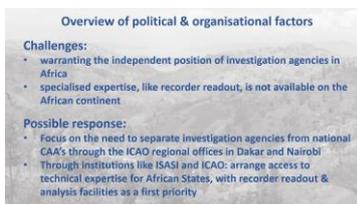
Currently Africa must on ad hoc basis rely on well-established investigation agencies elsewhere in the world when it comes to specific investigation expertise techniques. On the African continent no facilities for readout of recorders that are damaged in an accident are available.

For the answers to those challenges one could think of ... **mouse click:**



... more focus on the need to separate the investigation agencies from the national CAA's through the ICAO regional offices in Africa and by intensifying the efforts through the Continuous Monitoring Approach as part of the ICAO Universal Safety Oversight Audit Programme.

Further it would be good when ... **mouse click:**



... a global inventory on available technical expertise around the globe could be drawn up through coordination by institutions like ISASI and ICAO, with specific emphasis on recorder readout facilities.

Historical case studies show great commitment and willingness amongst well-established Safety Boards to render assistance in case of complicated accident investigation issues in less well equipped parts of the world. It would however demonstrate proactive governance when that valued support could be formalised through an international policy that applies to all ICAO Member States.

### **In summarising:**

To uphold the current safety trend for Africa, and to face all of the above depicted future challenges on the African continent, requires efforts both from the joint African Member States as well as the international community. The scope of these required efforts can be summarised as follows ...

**2 x mouse click:**

#### Resume & appeal

Coordinated by the ICAO regional offices in Dakar and Nairobi, Africa should:

Firstly there is a role, primarily to be fulfilled by the ICAO regional offices in Africa, to ... **mouse click:**

#### Resume & appeal

Coordinated by the ICAO regional offices in Dakar and Nairobi, Africa should:

- promote the cooperation between African Member States to optimise use of scarcely available resources for accident investigation

... promote the cooperation between African Member States in order to optimise use of scarcely available resources for accident investigation, and ... **mouse click:**

#### Resume & appeal

Coordinated by the ICAO regional offices in Dakar and Nairobi, Africa should:

- promote the cooperation between African Member States to optimise use of scarcely available resources for accident investigation
- focus on separation of investigation agencies from the national CAA's on the African continent

... to focus on separation of investigation agencies from the national CAA's on the African continent.

Secondly there is a role for international institutions like ISASI, ICAO and well-established investigation agencies to ... **2 x mouse click:**

#### Resume & appeal (continued)

Coordinated by institutions like ISASI and ICAO, States with well-established investigation agencies should:

- offer on the job training for trainee investigators from African States

... offer on the job training for trainee investigators from African States, and ... **mouse click:**

#### Resume & appeal (continued)

Coordinated by institutions like ISASI and ICAO, States with well-established investigation agencies should:

- offer on the job training for trainee investigators from African States
- make well-reputed accident investigation courses available on the African continent

... to make well-reputed accident investigation courses available on the African continent.

Finally Charles and I like to conclude with ... **mouse click:**

#### Resume & appeal (continued)

Coordinated by institutions like ISASI and ICAO, States with well-established investigation agencies should:

- offer on the job training for trainee investigators from African States
- make well-reputed accident investigation courses available on the African continent
- pro-actively offer expertise to African States with recorder readout facilities as a first priority

... the appeal to pro-actively offer specialised technical expertise to African States with recorder readout facilities as a first priority.

Perhaps, after the Western World has taken so many things from Africa, ranging from slaves, gold, copper and diamonds to Coltan for the operation of your smart phone, it is now time to bring Africa some support in further developing their accident investigation expertise.

Let us conclude with another stunning picture of the Rwanda scenery ... **mouse click:**



... depicting Volcano's National Park, the home of the mountain gorilla's.

-ooOoo-