AIR TRAFFIC AND INTERNATIONAL HEALTH IN AFRICA: THE NEED FOR INNOVATIVE HEALTH POLICIES AND SYSTEMS

NDI HUMPHREY NGALA, PHD
UNIVERSITY OF YAOUNDE I
ENS, DEPT OF GEOGRAPHY
TEL: 677885649/697478641
E-mail: hngalan117@gmail.com

PRESENTATION OUTLINE

I. Introduction (concept and definition)
II. Infectious diseases in international health (review)
III. Vulnerability of Africa to infectious diseases in IH
IV. International air travel and emerging infectious diseases in Africa
V. Sino-Africa migration and disease risks
VI. Conclusion

I. INTRODUCTION

- The intensity of travel at the onset of the 20th century with the invention of the aeroplane
- A significant factor in globalisation
- Disease dynamics across international boundaries led to the emergence of the concept of international health
- Concept was developed to provide a framework for prevent, report and or control outbreak of cross-border infectious diseases
- Principal tool used is the International Health Regulation

II. INFECTIOUS DISEASES IN IH

- Disease risks due to international travel have been expressed in different ways for sometime now
- Control frameworks:
  - International sanitary regulations adopted by the 4th WHA in 1951;
  - International health regulations in 1969 – plague, cholera, yellow fever, small pox, typhus & relapsing fever.
  - 1973 & 1981 amendments – reduced them to – yellow fever, plague and cholera.

- New IHRs adopted in 2005 after the 48th WHA in line with global changes in trade, traffic, disease and health options
- Went operational in 2007
- The prime objective: prevent, protect, control and provide public health response to the international spread of infectious disease without unnecessarily interfering with international travel and trade
- The 2005 IHR not restricted to any disease

TABLE 1: THE GLOBAL DIMENSION OF SOME EMERGING, RE-EMERGING AND ZOONOTIC DISEASES

Disease	Date detected	Geographical area of detection	Global spread	Status in Africa
Chicungunya	1952	The Makonda plateau at the border between Tanzania and Mozambique	India and Europe	Endemic
HIV/AIDS	1981?	Africa	All continents	Endemic
H5N1		Asia	Asia and the Pacific, Europe, and Africa	Endemic in West and Nort East Africa
H1N1	1918	USA	All continents but most severe in North and south America, Western Europe, Central and South Asia and Oceania	Occasionally epidemic
Cholera	Ancient	Indian sub-continent	Global	Endemic
SARS	2002	Guangdong-China	All continents	Inexistent
Ebola	1976	Africa	Africa, Pacific, USA, Europe	Epidemic
Mad cow disease	1980s	United Kingdom		
Malaria	Ancient	Tropical belt	Africa, North America, South America, Asia, Oceania,	Endemic

TABLE. 2: CHOLERA TRENDS IN CAMEROON SINCE 1971

Year of outbreak	Cases	Case fatality rate (%)
1971	>2000	15
1985	>1000	9
1991	>4000	12
1996	5786	8.3
2004	>8000	-
2005	2847	3.86
2006	922	3.8
2009-2011	22762	-
2014	3355	-

SOURCE: WHO Global Task Force on Cholera Control, 2012 & Reliefweb, 2014

III. SOME OF THE REASONS FOR THE HIGH VULNERABILITY OF AFRICA TO INFECTIOUS DISEASES

- A weak health care delivery system
  - In 2010, there were only 0.2 and 0.8 doctors and midwives respectively to 1000 people in Africa, compared to 0.6 and 0.9 in South Asia, the two poorest regions in the world.
- Rapid growth in commercial air travel in Africa
  - Still a Lilliputian of the sector, but impressive strides made in the sector in the last decade.

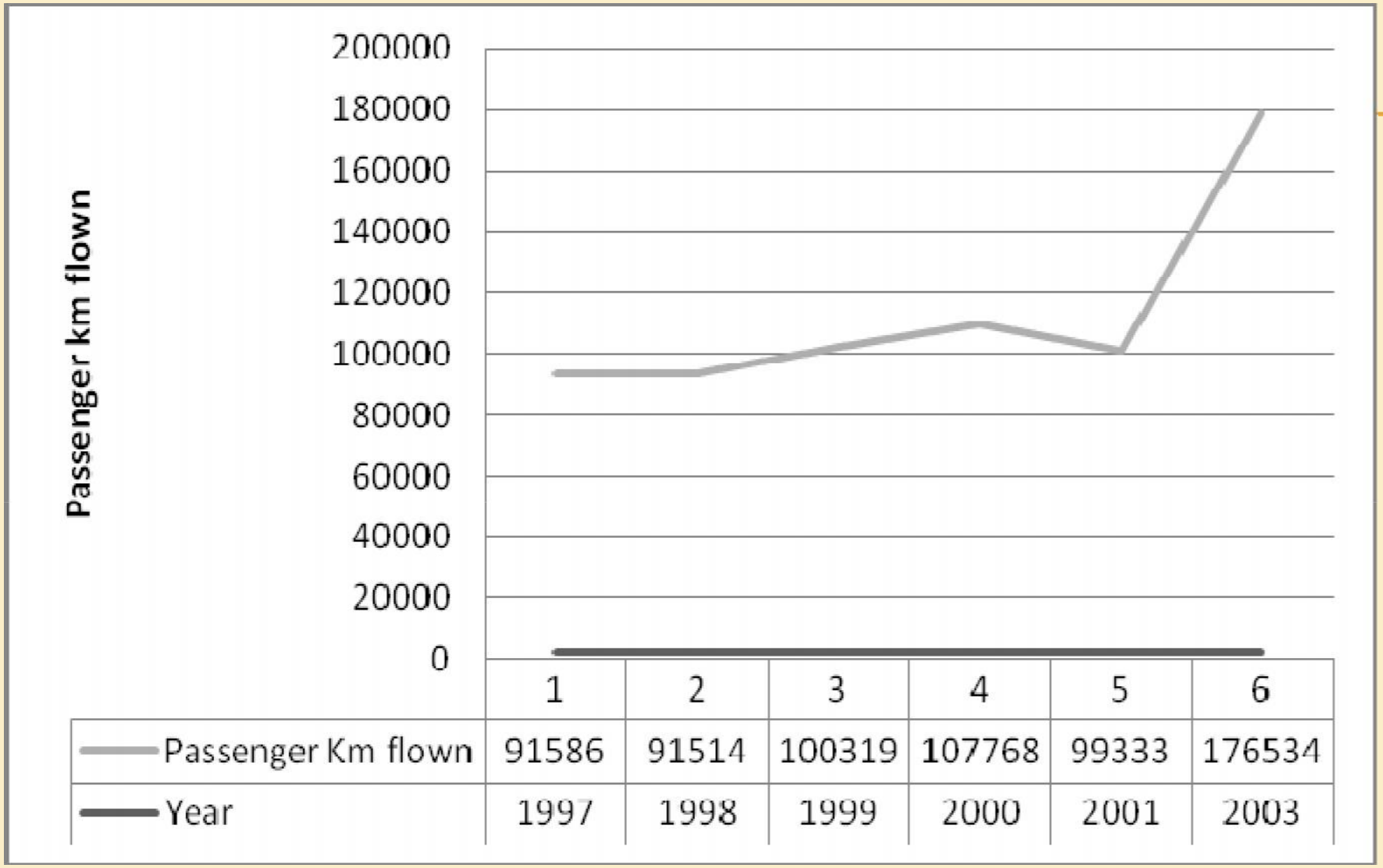

FIG.1: GROWTH IN AIR PASSENGER TRANSPORT IN AFRICA, 1997-2003
SOURCE: FATOKUN, 2005

- Quite apart from passenger-km flown, the number of people travelling by air in Africa has also increased tremendously. For example between 2010 and 2013, air traffic passengers increased by 13%, representing 8.7 million passengers.

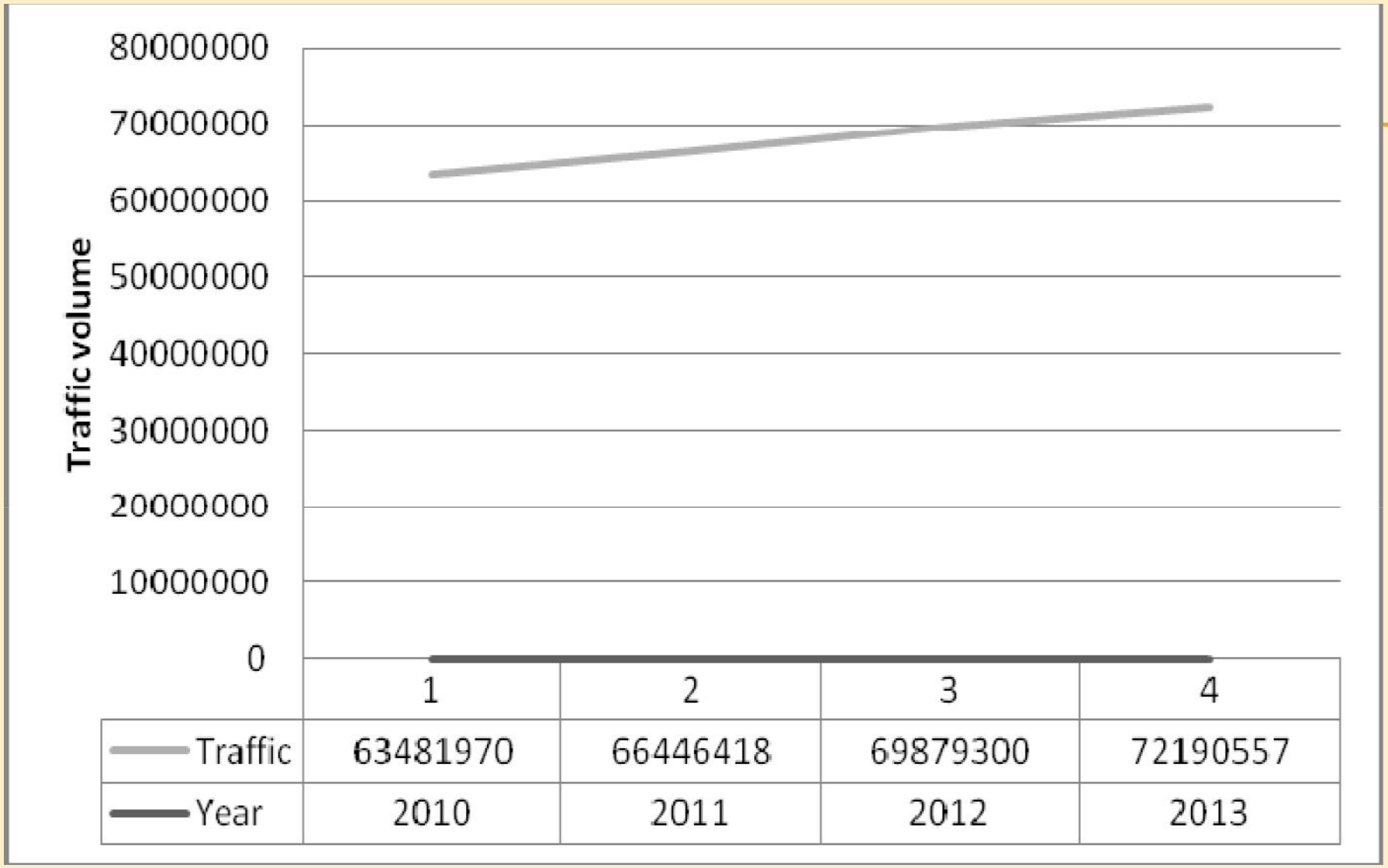

FIG. 2: GROWTH IN PASSENGER AIR TRAFFIC IN AFRICA BETWEEN 2010 AND 2013. SOURCE: FATOKUN, 2005.

INTERNATIONAL TRAVEL AND EMERGING INFECTIOUS DISEASE IN AFRICA

- Air traffic still lowest in Africa compared with other world regions
- However, great strides have been recorded in the past few years

TABLE 3: GLOBAL AIR PASSENGER GROWTH IN VOLUME BY REGION IN 2011 AND 2012

Region	Passenger volume 2011 (millions)	Passenger volume 2012 (millions)	Change (%)
Asia	724	787	9
Europe	658	680	4
North America	587	597	2
Latin America	178	189	6
Middle East	97	99	2
South West Pacific	79	82	4
Africa	51	52	2

Source: Travel PR News Editors, 2013

TABLE 4: POPULATION AT RISK, ESTIMATED NUMBER OF CHOLERA CASES AND ESTIMATED ANNUAL INCIDENCE IN ENDEMIC COUNTRIES BY WHO MORTALITY STRATUM

WHO mortality stratum	Total population at risk	Cholera cases	Incidence (per 1000 at risk)
AFR-D (Africa with high child mortality and high adult mortality)	196 462 691	392 929	2.0
AFR-E (Africa with high child mortality and very high adult mortality)	254 606 241	1 018 524	4.0
EMR-B (Eastern Mediterranean with low child and low adult mortality)	11 817 550	1174	0.1
EMR-D (Eastern Mediterranean with high child and high adult mortality)	114 459 890	187 619	1.6
SEAR-B (South East Asia with low child and low adult mortality)	50 443 558	22 686	0.4
SEAR-D (South East Asia with high child and high adult mortality)	694 832 590	1 201 682	1.7
WPR-B (Western Pacific with low child and low adult mortality)	120 530 784	12 055	0.1
TOTAL	1 443 153 304	2 836 669	2.0

Source: Ali M et al., 2012

INFECTIOUS DISEASES THREATS IN IH

- The greatest health threats to international air travel comes from:
  - Influenza
  - Plague
  - Viral hemorrhagic fevers (ebola, marburg, and lassa)
  - Anthrax

SINO-AFRICAN MIGRATION AND DISEASE RISKS

- The Chinese “open door” policy introduced in 1978;
- The industrial and entrepreneurial reforms of the 1980s;
- The “go out” policy of the late 1990s;
- Her admission into the WTO in 2001;

Were major factors in the emergence of China into a global economic power.

- New patterns of global migration have emerged
- Between 1990 and 2003, emigration from China grew by 128.6%;
- In 2013, China ranked 4th largest source of migrants
- There are barely about 800 000 foreigners in China, originating mainly from S. Korea, the USA, Japan, Burma and Vietnam.
- Today, there are over 100 000 African migrants in China.
- Conversely there are over 1million Chinese citizens on the African continent.

- The African and Chinese colonies are growing rapidly on both sides.
- Although there is a deficit of over 90% in Sino-African migration, air traffic between the two regions is gradually becoming significant
- Companies with regular flights to China are:
  - Ethiopian airlines
  - EgyptAir
  - South African Airlines
  - Kenya Airways
    - Notable destinations are Guangzhou and Peking

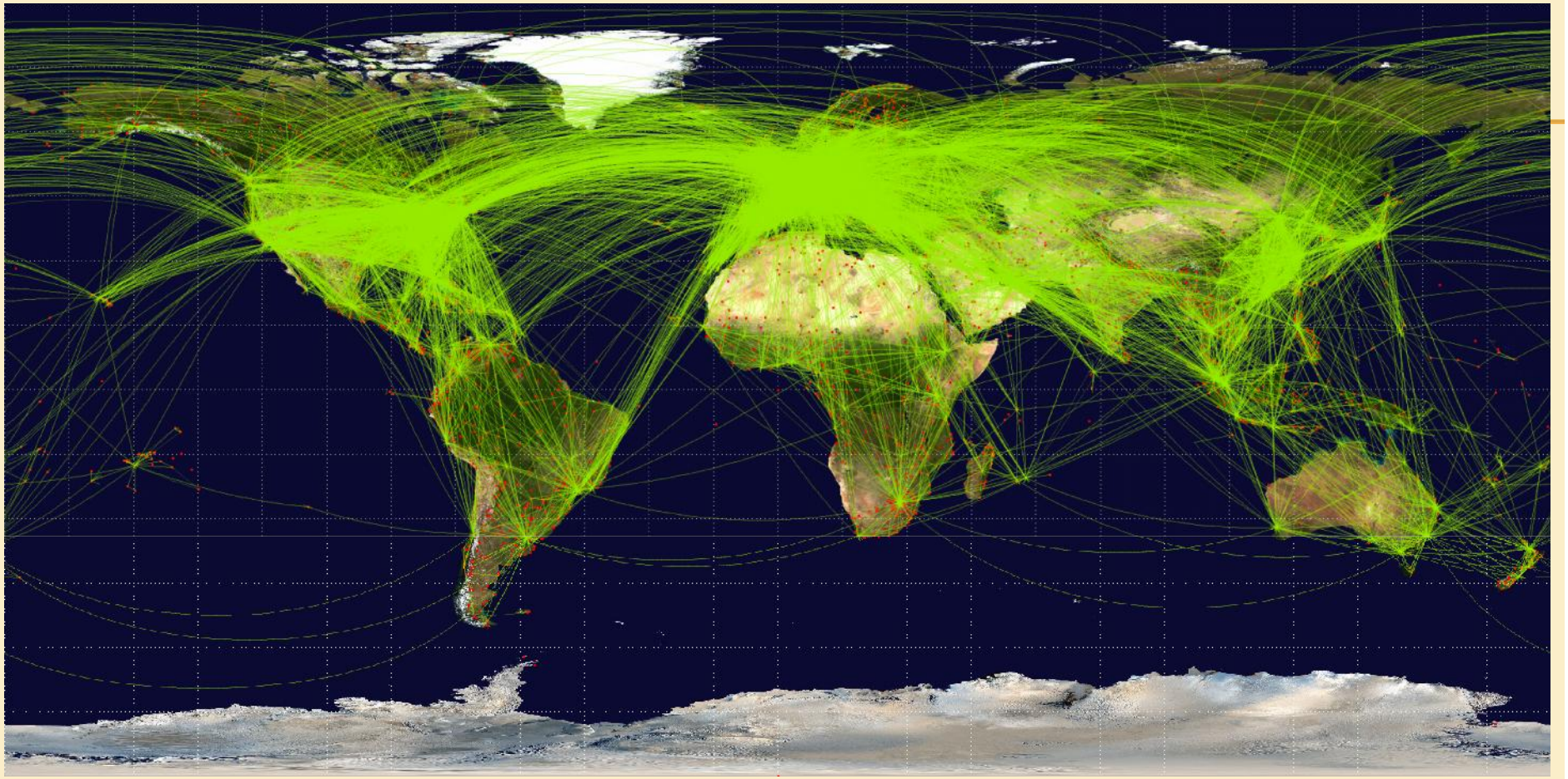

FIG. 3 GLOBAL PATTERN OF AIR TRAVEL

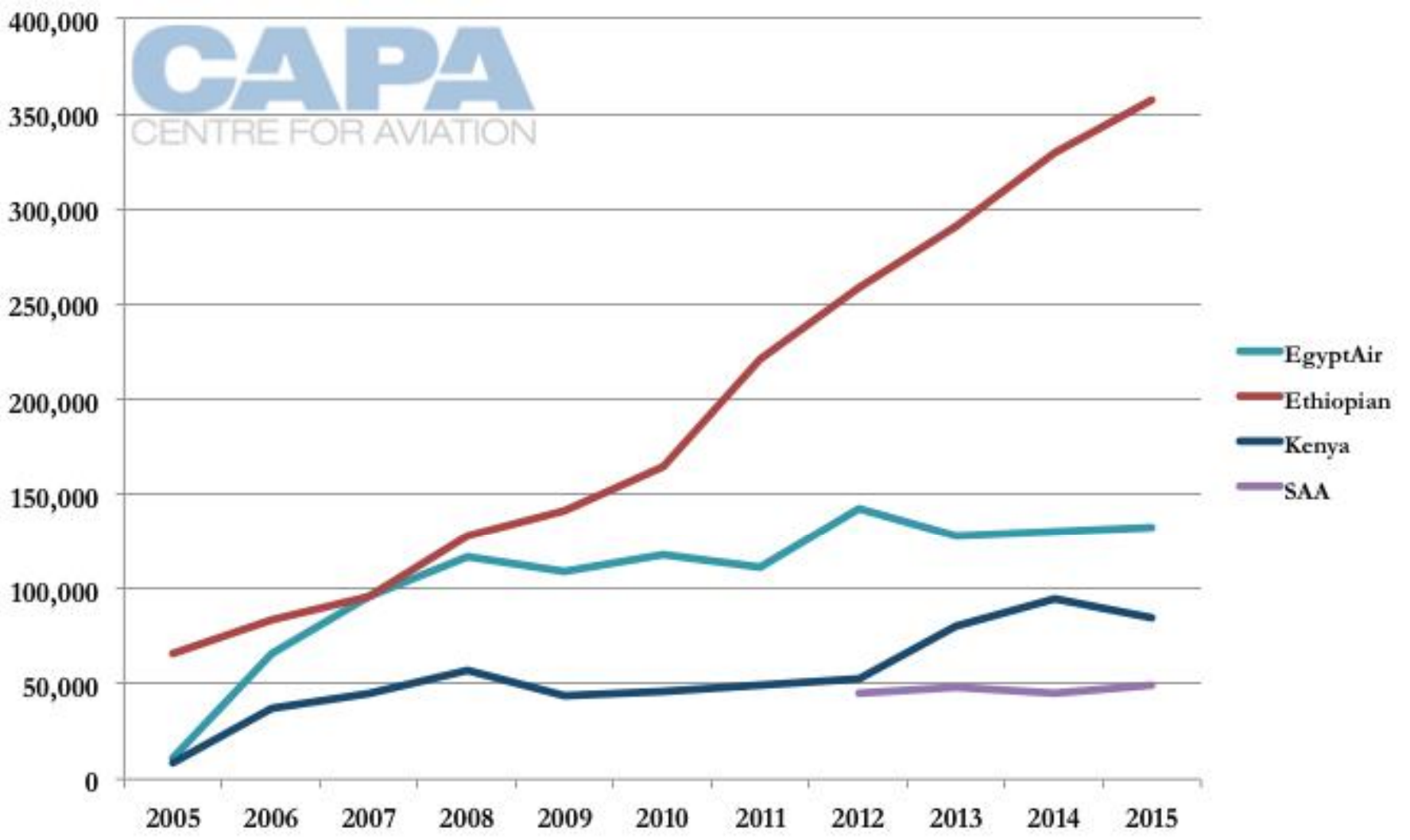

FIG. 4: ANNUAL AFRICA-CHINA CAPACITY OF MAJOR AFRICAN CARRIERS (EGYPTAIR, ETHIOPIAN AIRLINES, KENYA AIRWAYS AND SOUTH AFRICAN AIRWAYS): 2005-2015
SOURCE: CAPA - CENTRE FOR AVIATION AND OAG

- Given the weak resilience of African health systems, heightened interactions with China exposes her to the risks of an eminent influenza pandemic
- Of the three pandemics in recorded history, two originated in China, in 1957 and 1968.
- Similarly SARS is known to have originated from Guangdong province in Southern China.
- In 2003, an outbreak of SARS in Hong kong infected 8000 people in 26 countries and five continents in a few weeks.
- Sub-Saharan Africa was spared because of its weak connectivity to global traffic route (Figs. 3 & 5)

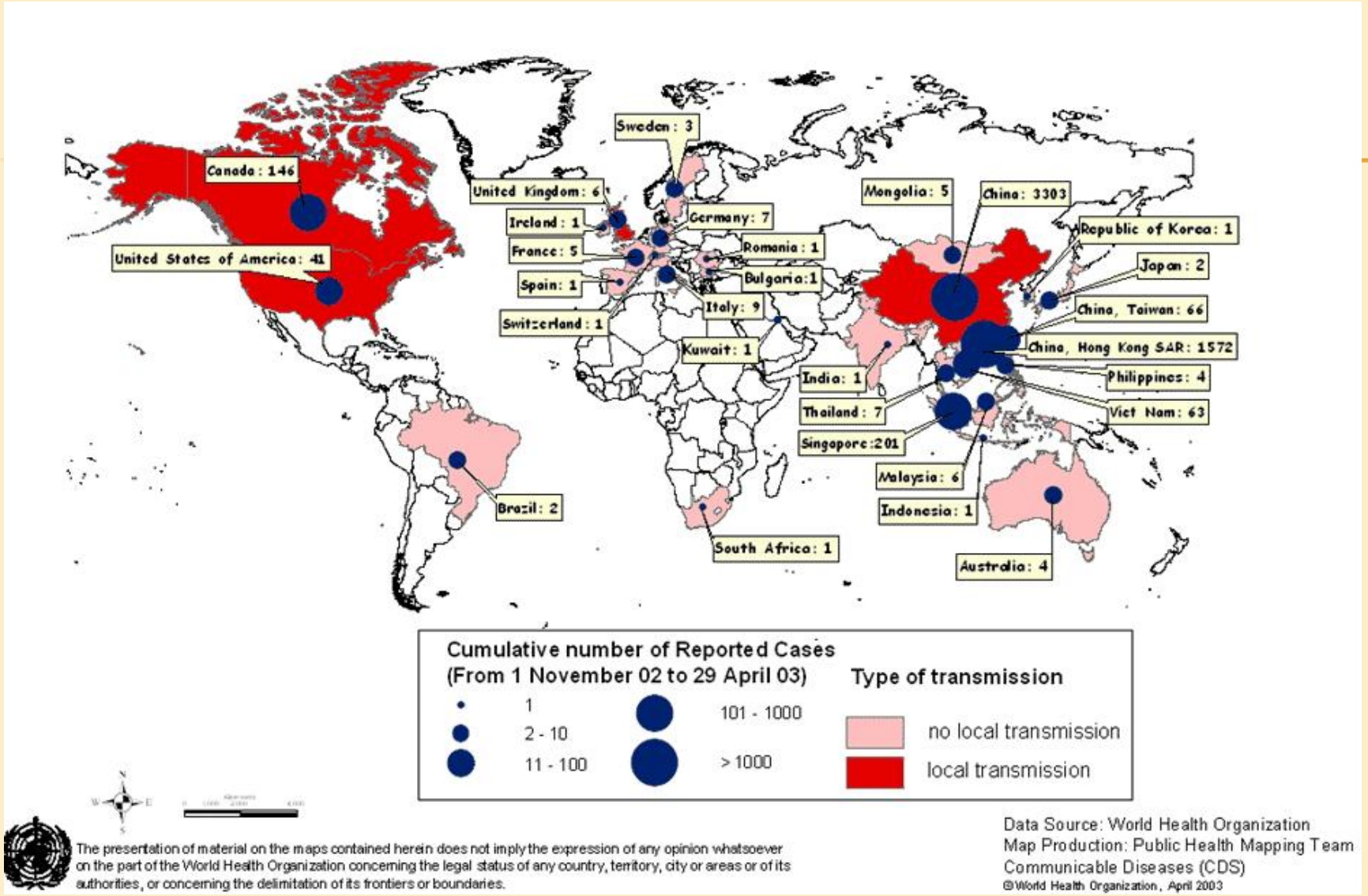

FIGURE 5: SEVERE ACUTE RESPIRATORY SYNDROME: CUMULATIVE NUMBER OF REPORTED PROBABLE CASE ON 29 APRIL 2003.

- Africa is relatively remote from global traffic routes
- Fears that viral and bacterial infections imported into Africa may become easily endemic are high
- Risks of disease imports are evident

CONCLUSIONS AND RECOMMENDATIONS

- Africa needs heightened disease surveillance at international entry points, airports and sea ports
- This can be achieved by reinforcing health personnel strength equipped with state of the art equipment for detecting and diagnosing suspected cases for emerging viral and bacterial infections.

- Disease surveillance is crucial to the security of a nation because it permits tracking, identification, isolation and treatment of people carrying such conditions.
- A health information system built on mobile phone connectivity can alert millions of people of the outbreak of a disease or the risk of it.
- Community radio and television stations run by local councils can also disseminate information rapidly and efficiently throughout the population.

THANKS FOR LISTENING