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Editor's note

The current issue of African Currents Vol. 40, No.1-2, 2022 contains articles written by doctoral scholars at the Centre for African Studies, working on various aspects of African affairs.

Srinivas Anand offers an overview of the telecom sector in Africa. His article titled, *Telecom sector in SSA: building an inclusive society*, describes the historical problems along with the mobile technology growth seen in the past two decades. This article studies the entire financial inclusion model of mobile money which has transformed the local economy in most countries. Being the fastest growing mobile market in the world, many big telecom companies in the world have a presence in SSA. Their financial performance and growth in the African markets are discussed in this paper.

Shilpa Suryawanshi analyses the collaboration in the healthcare segment with a particular emphasis on medical tourism. Her paper *on India-Africa collaboration in healthcare for capacity- building through ICT and medical tourism* describes the reasons for medical tourism by Africans in India. It emphasizes the need for collaboration between India and Africa in the healthcare sector for capacity building with the effective use of ICT with specific reference to the Pan African e-Network Project. The author cites good governance in Africa as the key to solving the challenges in the healthcare segment.

In the paper titled *India-Africa: Capacity- building in agriculture*, Dr. Sheetal Hadkar studies the ongoing capacity building initiatives in the agricultural sector in Africa and India's role in strengthening Africa's agricultural capacity. In 2008, the first India-Africa Forum Summit (IAFS I) was held in New Delhi and the India Africa Framework for Cooperation was created which included the Africa-India Science and Technology Initiative. This initiative has helped in the growth of India and Africa's cooperation in the field of science, technology and innovation in agriculture. IAFS-I (2008) and IAFS -II (2011) have led to the implementation of initiatives in agriculture in the areas of capacity building, research on common focus areas and knowledge transfer, exchange programmes for researchers in India and Africa and collaboration between research institutions across Africa and India.

India-Africa entrepreneurship; way for sustainable development, by Aann Jerry, explains entrepreneurship development between India and Africa. It describes entrepreneurship and its role in India's economy as well as different initiatives in India for the growth of entrepreneurship. The author discusses the development of entrepreneurship in Africa with a focus on women entrepreneurs. The governments of African nations have formulated policies for supporting entrepreneurship. India and Africa have practically applied entrepreneurship in their economic growth and have observed that it led to the survival, success, job sustainability, and overall development of the regions. India and Africa have a growing youth population and the unemployment levels have also been increasing. Both these regions with the mutual support and active involvement of India-Africa Entrepreneurship Forum can engage the youth in entrepreneurial activities to deal with the vexed issue of unemployment.

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List of Acronyms

ABI - Agri-Business Incubation

ACTESA – Alliance for Commodity Trade and Investment in Eastern and Southern Africa

ACTN - African Conservation Tillage Network

AGRA - Alliance for a Green Revolution in Africa

ALP - African Livelihoods Partnership

ARPU - Average Revenue per User

AU - African Union

AUC - African Union Commission

CA - Conservation Agriculture

CAADP - Comprehensive Africa Agriculture Development Program

CBD - Community-based Delivery

COMESA - Common Market for Eastern and Southern Africa

CSA - Climate-smart agriculture

FTF - Feed the Future

GODAN - Global Open Data for Agriculture and Nutrition

HEI - Higher Education Institutions

IAFS - India-Africa Forum Summits

IAEF - India-Africa Entrepreneurship Forum

ICAR - Indian Council of Agricultural Research

ICRISAT - International Crops Research Institute for Semi-Arid Tropics

ICT - Information and Communications Technology

IRRI - International Rice Research Institute

ITEC - Indian Technical and Economic Cooperation

ITU - International Telecommunication Union

JCI - Joint Commission International

LBC - Livelihood Business Centres

MTN - Mobile Telephone Networks

NABCONS - National Bank for Agriculture and Rural Development Consultancy Service

NABH - National Accredited Board for Hospitals and Healthcare Providers

NASSCOM - National Association of Software and Services Companies

P4CDA - Programme for Capacity Development in Africa

PAEN - Pan-Africa e-Network

PANAFTEL - PAN African Telecommunication Network

PPP - Public Private Partnership

PSU - Public Sector Units

RUFORUM - Regional Universities Forum for Capacity Building in Agriculture

SDG - Sustainable Development Goals

SEWA - Self Employed Women's Association

SSA - Sub Saharan Africa

USAID - United States Agency for International Development

VoIP - Voice over Internet Protocol

WHO - World Health Organization

Telecom sector in SSA: Building an inclusive society

Srinivas Anand Sriram

Introduction

With a population of 1.1 billion people, Sub Saharan Africa (SSA) provides a large consumer market for any business (World Bank, 2019). Mobile phone has turned out to be a necessity for anyone like food, clothing and shelter in the 21st century. SSA is one of the fastest growing mobile markets in the world with 477 million subscribers as of end 2019 (GSMA, 2020). Mobile technology has been on two folds, first being due to mobile money which helps the urban migrant to safely send money back to their rural households without much cost and the second being the cheap cost of handset along with cheaper costs for usage. SSA never had a large fixed line connection penetration with in fact a decline seen from 1998 when it was 1.326 (per 100 people) to 0.814 (per 100 people) in 2018, which is why mobile revolution was much needed and was seen as an empowerment of the common African in any SSA countries (World Bank, 2018).

Mobile industry growth has been a catalyst for economic growth and employment in the region. This has spurred the growth of mobile money and also financial inclusion to the lowest strata of society which can be inferred from the fact that in the financial year 2019-2020, 33 percent of Safaricom's revenue came from mobile money (Safaricom, 2020). Though the sector has grown manifold, the hinterland connectivity is still poor due to the high operating costs and the low subscriber base making it unviable. This creates an importance for the national regulators that they improve the access in the hinterlands by offering incentives in terms of spectrum etc for operators to provide connectivity in such areas. This can also improve the health access to such people with the advent of tele-medicine.

History

Post the colonization of Africa by the European powers in the Berlin conference, telecommunications was introduced by them to the African continent. Considering telegraph was one of the fastest ways for communication during the 19th century telegraph poles were erected along with railway lines. During the colonial period the telecommunications were used mainly by the administration to remain in contact with their European powers. Considering the fragmentation by the European power there was absence of pan African connectivity, and everything had to be routed through Europe. The first telephone service was started in Bloemfontein, South Africa in 1891 which connected the municipality buildings and railway office (ICT Africa 2013).

Decolonization led to the African nations realize the need for a PAN Africa communication network which then led to the creation of PAN African Telecommunication Network (PANAFTTEL) in 1962 at Dakar. PANAFTTEL created a telecommunication network which included a mix of copper wire and microwave links and was supported by the United Nations, UNDP, World Bank and other institutions. During the deployment of the PANAFTTEL network, it became a mammoth task coordinating continental network of copper and microwave links. The lack of coordination between the Francophone and Anglophone countries lead to a huge delay in the implementation. Regional decentralization of the project also failed to yield any results. Many countries by then established earth satellite and preferred to utilize it rather than building lengthy copper network. Many technological innovations like fiber optic wire and internet made the PANAFTTEL network redundant because of its lower speed. By early 1990's fiber optic cables connected Morocco and France under the EURAFRICA initiative, whereas SAT-2 fiber optic cable replaced the co axial cables in Sub Saharan Africa. President Abdoulaye Wade of Senegal inaugurated SAT-3 fiber optic which connected Portugal to South Africa running through several West African nations. With the advent of SAT-3 cables Africans began to realize that fiber optic networks were critical for boosting of the ICT sector. This sector was identified as a growth driver especially after Millennium Development Goals (MDGs) propounded by the United Nations. However the high cost of SAT-3 made it out of the reach of the most service providers.

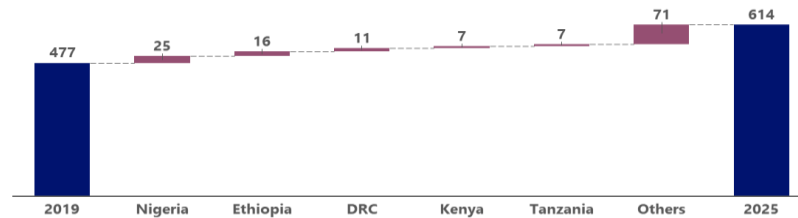
Africans had to garner support in different forums such as International Telecommunication Union (ITU) Africa events and the Kigali protocol for a better connected Africa. Presently there are 6 submarine cables which represent 20 Tbps serving Sub Saharan Africa (ICT Africa, 2018). On the access end of the African telecommunication network is the phenomenal growth of mobile technology. The mobile revolution has revolutionized the African economy from being a cash economy to now becoming a mobile economy with the introduction of mobile payments. Safaricom has been a pioneer in the mobile money transfer, with M-Pesa (Mobile based money transfer application) now contributing more than 33% of its revenues (Safaricom, 2020).

Current Environment

SSA being the fastest growing mobile market has evinced interest of the global telecom operators which include Vodafone, Orange, Airtel and others. Most of these players have tended to takeover local players than setting their own footprint which helps to save costs related to initial launch plans. Recently in 2019 Airtel Kenya announced the takeover Telekom Kenya which was finally called off in August 2020 due to challenges in regulatory approval (Mint, 2020). At the end of 2019 there were 477 million unique mobile subscribers in SSA which represents 45 percent penetration on the total

population and slated to grow at a CAGR of 4.3 percent and reach 614 million by end of 2025 (GSMA,2020).

Figure 1.1: Projected unique subscriber addition by 2025

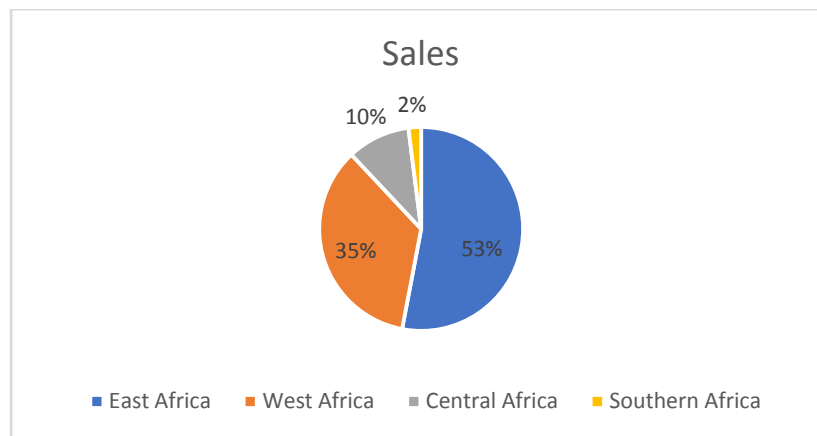


Source : GSMA Intelligence 2020

From the above figure 1.1 we can see that five countries would contribute 66 million new subscribers which makes these markets key for all the top players. Except Ethiopia which is government monopoly all the other four markets are competitive with fierce competition seen in the average revenue per user (ARPU) but also the mobile money space. In Nigeria, the competition is between MTN, Airtel and Glo mobile which roughly hold about 80 percent market share together. In fact Nigeria is such a key market for the South Africa based MTN group that one-third of its revenues are from that market (MTN, 2020). Democratic Republic of Congo (DRC) is in fact one of the fastest growing markets where the competitors include Vodacom, Orange, Africell and Airtel. Kenya & Tanzania being in East Africa are similar markets where Vodacom is the market leader though in Kenya it's called 'Safaricom' and Airtel being the dominant number two player in both the countries.

An interesting feature in these top five markets is the focus on data usage and mobile money. Mobile money has been a leading reason for the growth of mobile technology in SSA, since the commercial bank branches per 100,000 adults is the lowest in the world at 5.014 adults (per 100,000 adults) (World Bank,2018). This unserved market especially for the lowest strata of the society has led to the growth of mobile money in the region. More specifically it is used for the transfer of income from an urban labourer to his rural household since there is high amount of urbanisation in most countries. As of 2019 there are 469 million registered mobile money accounts in SSA (GSMA, 2020)

Figure 1.2: Region wise distribution of registered mobile money user in SSA



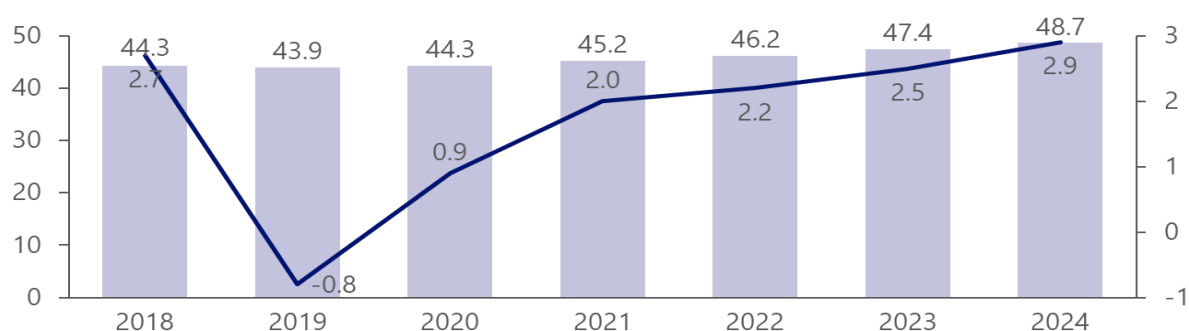
Source: GSMA Intelligence 2020

From the figure 1.2 above it can be clearly seen that East Africa is the leader in mobile money with roughly 53 percent of the total registered mobile money users in SSA. The key reason is the significant penetration of M-Pesa and Airtel money in the region especially in countries like Kenya and Tanzania. Safaricom has announced a partnership with Visa to connect its M-Pesa users with the entire global network of Visa in April 2020 (Safaricom, 2020). To this rival Airtel has announced the tie up with Mastercard under a similar partnership for its mobile money solution which is called Airtel money (Airtel Africa, 2020). Clearly SSA has led globally in terms of creating financial inclusion through mobile technology and has set an example for other countries across the world.

Consumer growth

Due to the low level of fixed line penetration across most SSA countries, mobile technology had always the advantage. Also making it affordable over the past decade and within the reach of the average African has been a tremendous effort by all stakeholders including the operators and government. Broadly there are two to three strong competitors in each market and most of them are dominated by MTN, Vodacom, Orange, Airtel and Tigo. This makes the market quite competitive enough in terms of the consumer being benefitted due to it.

Figure 1.3: Revenue (\$ Bn) & Annual growth



Source: GSMA Intelligence 2020

The above figure 1.3 shows the year on year revenue for the operators and the annual growth expected each year, post the negative growth due to covid-19 the growth trajectory is poised to be on track. An important aspect is that the revenue growth is seen at a CAGR of 1.9% which actually may look quite less however this certainly increases rapidly considering the revenue shift which is happening to most operators from voice to both data and mobile money.

Table 1.1: Revenue bifurcation of Safaricom & Airtel Africa over three years

Operator	2018				2019				2020			
	Voice	Data	Mobile Money	Others	Voice	Data	Mobile Money	Others	Voice	Data	Mobile Money	Others
Safaricom	42.5%	17.2%	28.0%	13.2%	40.0%	15.1%	31.3%	13.6%	37.6%	16.2%	33.6%	12.6%
Airtel	66.3%	18.9%	5.4%	9.5%	62.2%	22.2%	7.6%	8.0%	57.6%	27.2%	9.1%	8.8%

Source: Annual reports of Safaricom and Airtel Africa

From the above table 1.1, it is clear that the share of voice is slowly going down for the two operators over a three year period. Safaricom being the leader in mobile money now derives one third of its revenue in FY 2019-20 as shown in the table above. Airtel though being present in 14 countries currently is slowly increasing its share in mobile data from 18.9% to 27.2% within a period of three years which is remarkable and also Safaricom in the same period seems to have not grown its mobile data revenues but instead concentrated on mobile money. Similar comparison is not available for other operators like Tigo and Orange since they do not have the local listed entity which is the case for Safaricom and Airtel Africa.

From the above figure we can clearly see that the subscriber penetration will increase by 500 basis points by 2025 across all the five regional blocks. This is enormous potential for operators to invest in capital expenditure so that they can have better connections in rural areas which will also help to improve the education and health sectors through

virtual communications. Smartphone penetration will play an important role for this along with the roll out of 4G network across the region. Considering the low income levels there is still enough 2G network due to the low smartphone adoption. It is for the mobile operators to come up with attractive low investment options which will help the average African to adopt a smartphone. Also the mobile data rates are higher in Africa which also needs to be made affordable so that during times of Covid-19 especially the students can access their virtual classrooms without any extra cost associated.

Smartphones

Smartphone is a mobile phone which combines normal mobile technology of voice calls, SMS and also combines mobile computing technology. Smartphone has features of a laptop, camera among others. Most smartphones like computers use an operating system of which Android made by Google is the most widely used. However smartphones tend to be expensive the lowest ranging from about upwards of \$60 onwards depending on their storage, ram and other features. \$60 upwards price range along with the data plan makes it out of reach for an average person in SSA where the gross national income (GNI) is \$ 1554 which translates into \$ 4.2 each day. Thus it is imperative for the operators to bring out the cheap smartphone which an average person in SSA can afford with his low wages. Safaricom has partnered with Google to launch a low cost smartphone financing scheme called "Lipa MdogoMdogo", under which the subscriber needs to make a down payment of 1000 Ksh and then make a daily payment of 20Ksh for 9 months (Safaricom, 2020). Rival Airtel has partnered with Samsung and Asante financial service to roll out low cost financing of Samsung phones which shall be piloted in Uganda before rolling out to 13 other countries where they have presence (Airtel Africa, 2020).

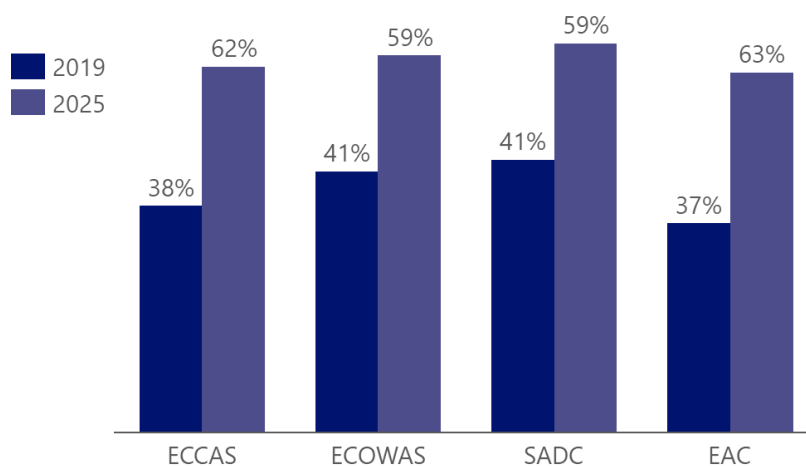
Smartphone is also a kind of enabler in terms of providing quality education and health care through video conferencing to far flung rural areas in the region which lack road accessibility. This will also empower the local rural population especially the women and reduce the gender gap in their usage. 'Maisha Ni Digital' is one such initiative by Safaricom where it tied up with Google to provide low cost phone to the women folk in rural area to address three key barriers: affordability, relevance and digital skills (Safaricom ,2019).

Figure 1.4 : Safaricom 'Maisha ni Digital' Poster



Source : Safaricom

Figure 1.5 Smartphone penetration in SSA regions



Source: GSMA Intelligence 2020

From the above figure 1.5 it is seen that there is enough smartphone penetration which is going to happen in the next five years. Major market is going to be the EAC market which includes large countries like Ethiopia, Kenya and Tanzania. However considering that Ethiopia is a government controlled monopoly in mobile it becomes imperative for them to have low cost funding smartphone schemes like is the case with private operators like Safaricom and Airtel in the region. Another key region is the ECCAS where Democratic Republic of Congo (DRC) is one of the biggest and the least penetrated

smartphone market with just 26.3% of users owning a smartphone as of March 2020 (Airtel Africa, 2020).

DRC is highly competitive market with the likes of Orange, Vodacom, Airtel and Africell being the key players, thus it is imperative for the regulator as well as the players to provide a low cost solution to increase the penetration. In terms of ECOWAS the biggest market is Nigeria where MTN is the leading player has rolled out a \$20 smartphone which works on Kai operating system with 500mb data free each month for the first six months (MTN, 2019). It is initiatives like these that significantly increase smartphone penetration and also speed the adoption of 4G technology. Smartphones make the 2G/3G network out of relevance since the subscriber then has a better user experience and also increased content.

Figure 1.6 : MTN Low cost mobile poster

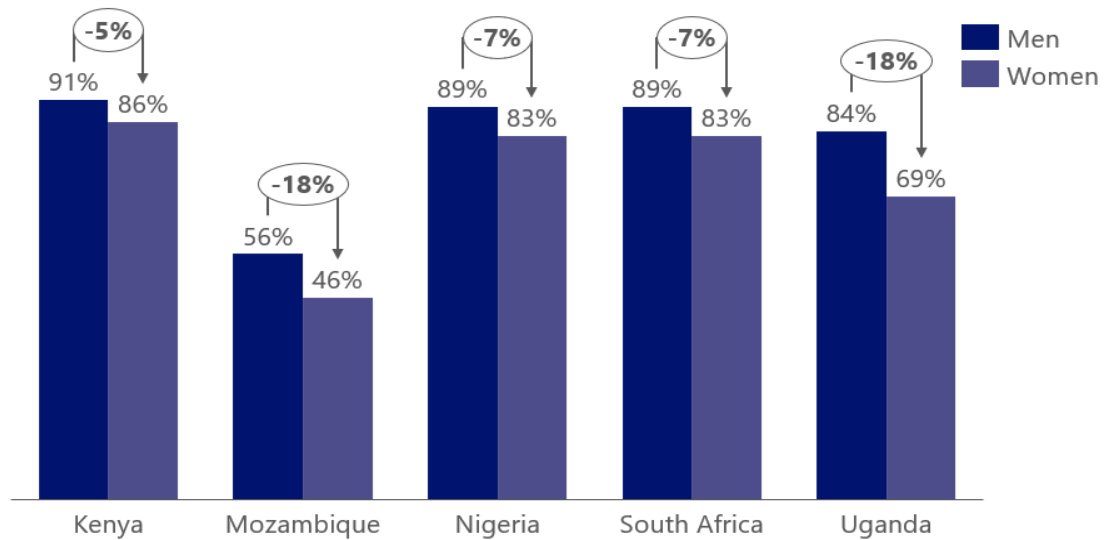


Source: MTN

Gender Gap

In terms of mobile gender gap, SSA remains the second worst region behind South Asia at 37 percent (GSMA Gender Gap, 2020). Affordability due to the lower income of women remains a barrier coupled with illiteracy which doesn't lead to the women using a smartphone and hence access to mobile internet. This can be seen from the below chart which shows the gender gap in terms of mobile phones. Top penetrated countries like South Africa & Nigeria are having a gender of 7 percent which clearly shows that affordability along being an issue. The biggest gender gap is observed in Mozambique and Uganda where around the gap is 18 percent and efforts need to be addressed by both the mobile operators and the government to reduce this gap.

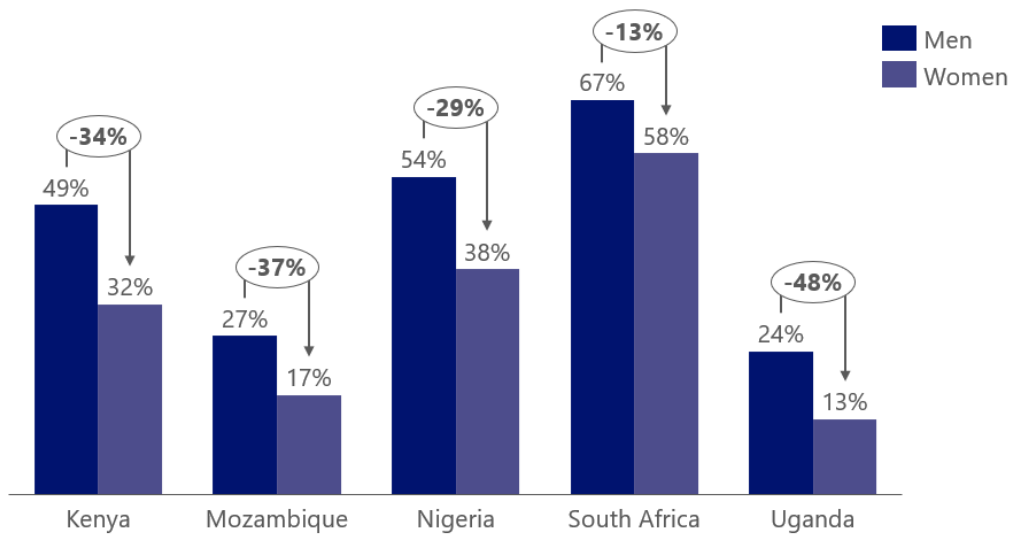
Figure 1.7 : Gender Gap between Male & Female



Source : GSMA gender gap 2020

Though mobile gender gap is significant with the advent of 4G & smartphone, the gender should also be seen from the access to mobiles. From the below figure one can see huge gender gap with regard to mobile internet access even in highly penetrated markets of Kenya and Nigeria with 34 percent and 29 percent gender gap respectively. The gap looks steep in the case of Uganda where the gender gap is the highest in SSA at 48 percent, but a highly developed market like South Africa has reduced the gap at 13 percent. Safaricom has the 'Maisha Ni Digital' program which seeks to provide the women with low cost smartphone which improves their access to mobile internet. In its third edition launched in 2019, the cheapest smartphone Neon Ray (4G) was launched for Ksh 3999 (Safaricom, 2019). Such initiatives by the operators help to reduce the gap along with also empowering the women since they are now closer to the world. The regulators and the government should also work towards a more inclusive mobile internet usage since with the advent of e-commerce it becomes important and would be a good opportunity for women to market their goods online.

Figure1.8: Gender gap on internet access



Source : GSMA gender gap 2020

Key Players in the SSA Market

The key players are divided by the colonial past due to the prevalence of the colonial languages of English, French and Portuguese. Among these we would be focusing on the financials of Airtel, Vodacom and MTN who are mainly focused in the Anglophone countries.

Airtel

Bharti Airtel is one of the leading mobile operators in the emerging markets of Asia and SSA. Once its domestic market in India got saturated, an urgent need was felt for expansion abroad. Sub Saharan Africa provided the ideal opportunity to expand considering the similarity of markets with India. Airtel then entered into negotiations with Mobile Telephone Networks (MTN) which could have created one of the largest mobile operators. The negotiations with MTN failed due to various legal and listing compulsions. Airtel did not end its African Safari and was determined to enter the market.

Bharti Airtel entered the SSA mobile market by acquiring the operations of Zain Africa in the year 2010. The deal was concluded for \$10.7 billion which many experts considered as overpriced (Bharti Airtel, 2010). To avoid any legal tangles like in the MTN deal, the deal was routed through the Netherlands. This takeover provided Bharti Airtel with foothold across 17 countries. Most of these operations were incurring, forced with

mounting debt issue for Airtel. Airtel hence sold off some of them as well as its tower assets to bring down its net losses. Airtel Africa sold assets in 3 countries and has now presence in 14 countries which are listed below

- Nigeria
- Kenya
- Tanzania
- Malawi
- Uganda
- Rwanda
- Zambia
- Democratic Republic of Congo (DRC)
- Republic of Congo
- Gabon
- Niger
- Chad
- Madagascar
- Seychelles

From the above list one can infer that Airtel is present in both Anglophone and francophone countries however in terms of revenue the Anglophone is the key drivers for it. Airtel exited its business in Sierra Leone and Burkina Faso by selling its stake to Orange in 2016 (Economic Times, 2016). In 2017 Airtel announced the merger of its Ghanaian operations with Tigo to create the second largest player with both of them having equal stakes (Reuters, 2017). Airtel Africa came out with an IPO of \$ 750 million in 2019 and listed on both the London stock exchange and Nigeria stock exchange (Mint,2019). The IPO proceeds are to be utilized towards reducing the debt of the company.

Table1.3 : Airtel Africa Financial results for year ending March 2019 & 2020

Particulars	Year Ended Mar'19	Year Ended Mar'20	Growth%
Revenue (\$ Mn)	3077	3422	11.2%
Operating Profit (\$ Mn)	734	901	22.8%
Profit after Tax (\$ Mn)	426	408	-4.2%

Source : Airtel Africa annual report

The above table shows the financial results of Airtel Africa over past two years wherein the revenue has grown in double digits with a growth of 11.2 percent clocking \$3422 million in financial year ending March'20. Also in terms of operating profit the growth has been phenomenal with 22.8 percent clocking \$901 million in financial year ending March'20. With more focus on mobile internet and mobile money they have been increasing their share of revenues from both these streams as shown below in the table. Continued focus on mobile internet has led to 36.2 percent increase in revenue along with increase of 32.9 percent in mobile money during the financial year ended Mar'20. The growth in data revenue can be attributed to the pricing strategy that Airtel has been using across countries to be the cheapest provider thereby being able to acquire new customers.

Table1.4 : Airtel Africa revenue breakup for year ending March 2019 & 2020

Particulars	Year Ended Mar'19	Year Ended Mar'20	Growth%
Voice (\$ Mn)	1915	1970	2.9%
Data (\$ Mn)	683	930	36.2%
Mobile Money (\$ Mn)	234	311	32.9%
Others (\$ Mn)	309	302	-2.3%
Total	3077	3422	11.2%

Source : Airtel Africa annual report

In an interview with Samir Waman (Chief Financial officer Airtel Zambia PLC) mentioned that all the players are pushing higher data usage as well focus on increasing mobile money revenues. He states that with the advent of apps like whatsapp and others people are using increased data and in the near future the voice revenues would continue seeing lower growth than the others.

Vodacom

Vodacom is based out of South Africa, where it was launched a 50:50 partnership between local player Telekom and British telecom giant Vodafone. However over the years Telekom diluted its stake and Vodafone has consolidated its stake to 64.5 percent as of March 2020 (Vodacom, 2020). Though mainly focused in South Africa it is strong number one or two in following markets:

- South Africa
- Tanzania
- Mozambique
- Lesotho

- Democratic Republic of Congo (DRC)
- Kenya (Through Safaricom Associate)
- Ghana (Through Vodafone)

Table1.5 : Vodacom revenue for year ending March 2019 & 2020

Particulars	Year Ended Mar'19	Year Ended Mar'20	Growth%
Revenue (R Mn)	86627	90746	4.8%
Operating Profit (R Mn)	24490	27711	13.2%
Profit after Tax (R Mn)	15532	16644	7.2%

Source : Vodacom annual report

The above table shows the financial results of Vodacom over past two years wherein the revenue has grown in single digits with a growth of 4.8 percent clocking Rand90746 million in financial year ending March'20 this due to slower growth seen in South Africa at 2.5 percent and Tanzania at 0.8 percent (Vodacom, 2020). Also in terms of operating profit the growth has been phenomenal with 13.2 percent clocking Rand27711 million in financial year ending March'20.

Table1.6: Vodacom countrywise customer and ARPU for year ending March 2019 & 2020

Country	2019			2020			Growth %		
	Customers (Thousands)	Data Customers (Thousands)	Total ARPU (Rand per month)	Customers (Thousands)	Data Customers (Thousands)	Total ARPU (Rand per month)	Customers	Data Customers	Total ARPU
South Africa	43,166	19,952	87	41,312	21,891	86	-4.3%	9.7%	-1.1%
Tanzania	14,133	7,892	36	15,513	7,687	36	9.8%	-2.6%	0.0%
Mozambique	6,843	4,289	55	7,656	4,855	59	11.9%	13.2%	7.3%
DRC	12,180	4,749	41	13,766	6,594	46	13.0%	38.9%	12.2%
Lesotho	1,464	734	66	1,660	847	69	13.4%	15.4%	4.5%

Source : Vodacom annual report

The above table shows the customer wise trends, data customer trends and the average revenue per user (ARPU) in the countries that Vodacom operates in. As seen in table 4.5 above the revenue in the home market of South Africa has marginally grown by 2.5 percent which can be attributed to the 4.3 percent degrowth in the overall customers and also the -1.1 percent degrowth in the ARPU which is at 86 Rands per month per user. Tanzania on the other hand grew by 0.8 percent as seen in table 4.5 even with 9.8 percent customer increase and flat ARPU. Mozambique, DRC and Lesotho have seen double customer growth which has been supported with increase both in data customers

and as well as the ARPU which means the growth in these three countries has been profitable also for Vodacom.

MTN

MTN formerly M-cell was founded by the South African government in 1994. Being headquartered in Johannesburg it's the largest player in South Africa and about a quarter of the revenue contributed by it (MTN, 2019). Though it started out in its home country it has expanded significantly in the SSA region with operations in the below countries

- South Africa
- Nigeria
- Benin
- Cameroon
- Ivory Coast
- Ghana
- Guinea-Bissau
- Liberia
- Rwanda
- South Sudan
- Eswatini
- Uganda
- Zambia

Table 1.7 : MTN revenue for year ending Dec 2018 & 2019

Particulars	Year Ended Dec'18	Year Ended Dec'19	Growth%
Revenue (R Mn)	134560	151460	12.6%
EBITDA before impairment (R Mn)	48246	64092	32.8%

Source: MTN annual report

The above table shows the financial results of MTN over past two years wherein the revenue has grown in double digits with a growth of 12.6 percent clocking Rand151460 million in financial year ending Decemeber'19 this due to higher growth seen in Nigeria at 23.0 percent and Ghana at 16.5 percent (MTN,2019). Also in terms of EBITDA before impairment the growth has been phenomenal with 32.8 percent clocking Rand 64092 million in financial year ending December'19 again supported by Nigeria at 51.7 percent and Ghana at 57.5 percent growing their EBITDA before impairment (MTN,2019).

Table 1.8 : MTN country wise revenue for year ending Dec 2018 & 2019

Country	Dec '18			Dec '19			% Change		
	Total Revenue (R Mn)	Data Revenue (R Mn)	Fintech Revenue (R Mn)	Total Revenue (R Mn)	Data Revenue (R Mn)	Fintech Revenue (R Mn)	Total Revenue	Data Revenue	Fintech Revenue
South Africa	36,269	12,902	918	36,430	12,631	1,021	0.4%	-2.1%	11.2%
Nigeria	37,893	5,498	1,034	46,608	8,796	1,407	23.0%	60.0%	36.1%
Ghana	11,789	3,102	2,283	13,730	3,899	2,795	16.5%	25.7%	22.4%
Uganda	5,371	610	1,323	6,639	1,035	1,662	23.6%	69.7%	25.6%
Ivory Coast	7,115	891	710	6,880	1,080	850	-3.3%	21.2%	19.7%
Cameroon	4,902	880	316	5,327	1,308	524	8.7%	48.6%	65.8%
Others	31,221	4,575	1,251	35,846	6,362	1,867	14.8%	39.1%	49.2%
Total	134,560	28,458	7,835	151,460	35,111	10,126	12.6%	23.4%	29.2%

Source: MTN annual report

The above table shows the country wise revenue for MTN as well as the breakup in the revenues in terms of data and mobile money (Fintech). Other than South Africa both the data and fintech revenue seems to be growing faster than the service revenue in most countries which can be attributed to the smartphone and mobile money penetration in countries like Nigeria, Ghana among others. This signifies that normal voice calling is a thing of the past and that companies need to focus on data and mobile money as key revenue driver in the future which can be also seen for both Airtel and Vodacom also which was analysed above.

Table 1.9 : MTN country wise EBITDA for year ending Dec 2018 & 2019

Country	EBITDA Dec'18 (R Mn)	EBITDA Dec'19 (R Mn)	% Change
South Africa	15,660	16,972	8.4%
Nigeria	16,574	25,149	51.7%
Ghana	4,452	7,014	57.5%
Uganda	1,980	3,150	59.1%
Ivory Coast	1,593	1,814	13.9%
Cameroon	455	1,635	259.3%
Others	7,532	8,358	11.0%
Total EBITDA before impairment	48,246	64,092	32.8%

Source: MTN annual report

The above table shows the bottom line profitability in terms of EBITDA before impairment and almost all countries seem to have double digit EBITDA growth in line with the revenue growth seen in table 4.8. Nigeria, Ghana and Uganda are growing their EBITDA by greater than 50 percent as seen in table 4.9. Thus MTN seems to be having

their profitability in line with revenue growth which proves the point that it's a sustainable growth.

Conclusion

Telecom sector has been a bright spot in SSA with immense global MNC interest with the likes of Vodafone, Orange, Airtel and Tigo investing billions of dollars in the region. Interesting fact has been most that the global players have been investing in the region by acquiring already setup telecom companies rather than setting up from scratch. Also the global players considering their country of origin invest in the countries where their language is spoken, which means a company from a English speaking country continues to invest in Anglophone countries like Vodafone and Airtel whereas French MNC like Orange tends to invest more in Francophone countries. All the telecom players are also working towards improving gender gap in terms of mobile access to the women through various initiatives by companies like Safaricom, Airtel and MTN.

With mobile data being the future of mobile technology, all the telecom players are increasing their growth in this revenue stream by offering competitive rates and switching the users to 4G technology. Also mobile companies are considering the ground realities and launching low cost mobile phones along with financing schemes to enable the common man to afford smartphones in SSA. Mobile money has revolutionised the entire financial sector in the region with improving the reach to bank for the common African in SSA and created a new revenue stream for the telecom companies and share of which is increasing each year. Thus, creating financial inclusion through mobile money has led to increase in levels of income in the rural economy since it is a safe and cheapest way to send money for any urban dweller to his rural home. Conducive regulatory environment will only help the increase in penetration in most countries along with stable regulatory environment. Telecom companies need to continue to focus on affordable tariffs and low cost mobile phones along with bridging the gender gap to further increase penetration within SSA.

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India-Africa collaboration in healthcare for capacity- building through ICT and medical tourism

Shilpa Suryawanshi

1. Introduction

The researcher studies medical tourism undertaken by Africans to Indian hospitals and explores the recent trends and emerging relationship between private healthcare providers in India and Africa. The Indian private sector supports medical tourism in the light of globalisation and liberalization. This study attempts to understand 'good governance' in Africa and its inextricable linkage with health sector on the continent and the reasons for African patients seeking treatment abroad, particularly in India. The medical tourism undertaken by the African patients is beneficial to India, but it cannot be a long-term alternative for Africa. The analysis of primary data regarding medical tourism suggests that there is a dire need of collaboration for capacity building in African healthcare sector, and in information and communications technology (ICT) and good governance. The effective use of ICT with specific reference to Pan- Africa e- Network project (PAEN) through the lens of 'good governance' can help capacity building of the healthcare sector in Africa.

2. Research Methodology

The main method used to carry out this research is qualitative method of data analysis to gain an in-depth understanding of the phenomenon of medical tourism of Africans to India. The researcher makes use of both, primary as well as secondary data. The primary data was collected from African patients in hospitals in Mumbai and Nagpur with purposive sampling technique. Seventy five patients were interviewed using semi-structured interviews.

This data was supplemented with secondary data in order to better comprehend the context of healthcare in Africa from which African patients came, and to understand the medical tourism industry in India that caters to them which extends beyond what each patient experiences first-hand. The researcher has also performed a SWOC analysis of the Indian medical tourism sector with the aim of identifying shortcomings and identifying potential areas that could be developed and capacity building can further be undertaken accordingly with the use of ICT in the light of good governance.

2.1 Research Questions

There are two interrelated research questions that the proposed research aims to address.

1. Why do African patients prefer India as a destination for medical tourism?
2. How collaboration in healthcare sector by India and Africa can contribute in capacity building with the help of ICT and in the light of good governance?

3. Medical Tourism

The term medical tourism is used in common parlance to describe the phenomenon of foreign patients seeking healthcare in another country at better equipped hospitals and/or at rates comparatively cheaper than in their home countries (Lunt Neil et al., 2011).

The term medical is often used interchangeably or synonymously with health or wellness tourism. However, health tourism is a broad concept that includes, both, wellness tourism and medical tourism. Although they may appear similar and are often classified under the term of medical tourism, wellness tourism is distinct in that it is associated with leisure and is treated as a luxury activity. Medical tourism caters specifically to patients with chronic diseases (Health Tourism, 2014).

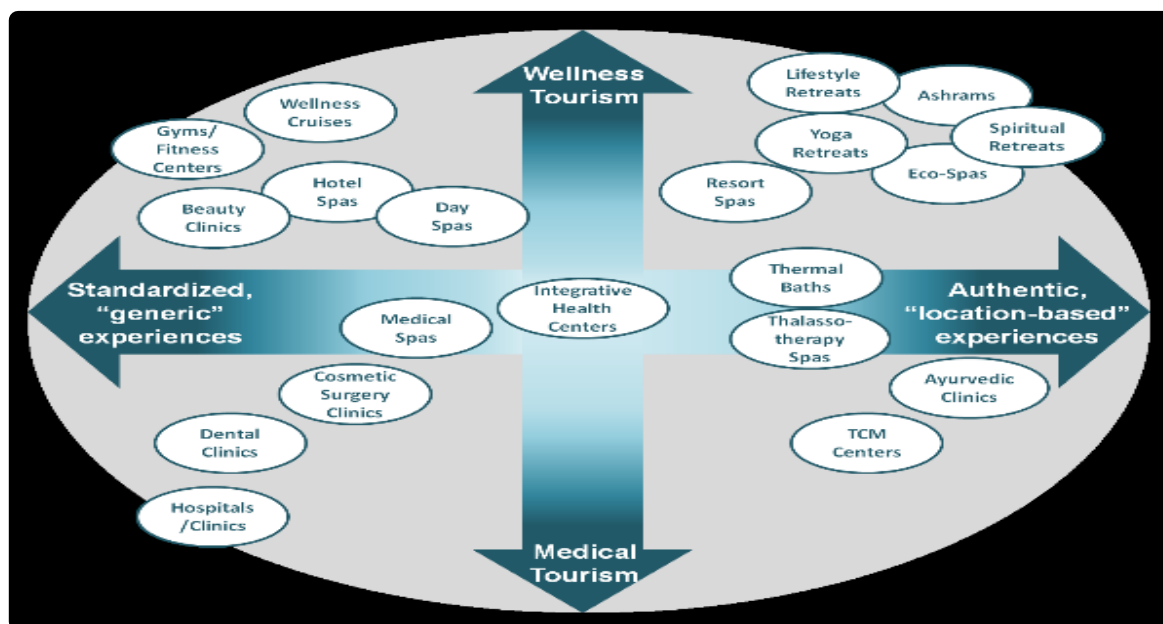


Figure 1: Market spectrum: Wellness and Medical Tourism

(Source: Shaikh, S., 2013)

Figure 1 shows that medical tourism provides services that are more universal or 'generic', while wellness tourism is more centred around the destination itself and provides services that are 'location-based' and that make a claim of authenticity in the tourist's experience of the place.

Medical tourism is broadly understood as travelling to another country for medical, dental or surgical care abroad. As an industry, medical tourism is a combination of medical and tourism sector and encompasses using the tourism infrastructure to market medical services to foreigners. It is also known as medical travel, health tourism, health

travel, healthcare tourism, healthcare abroad, medical overseas, and overseas medical (Medical Tourism, 2013). The available definitions of medical tourism focus on a different aspect of the practice i.e. nature of treatment, source of payment, reasons for seeking treatment, combination of treatment with tourist activities, etc.

The researcher defines medical tourism as travelling abroad for specific medical treatments at medical institutions, with or without the consumption of tourism services. The patients under the outbound category are the ones who travelling to other countries to receive medical treatment. This research deals with the patients under the outbound category came from Africa to India.

Patients from African countries have contributed significantly to India’s medical tourism growth. According to the Home Ministry 825,000 medical visas were issued to foreigners, mostly in African nations, between 2019 and 2021 (Dutta Taniya, 2022). It was estimated that around 60% of the medical tourists from Kenya prefer India as their destination. The reasons for why India is the choice of destinations is one of the main themes guiding this research paper are explored.

4. SWOC of Medical Tourism

In order to gain an in-depth understanding of the phenomenon of medical tourism of Africans to India the researcher has collected primary data from African patients with opportunistic and purposive sampling technique. These patients from the hospitals in Mumbai and Nagpur were interviewed using semi-structured interviews. These two sources helped the researcher to better understand the context of healthcare in Africa from which African patients come. It also helps to understand the medical tourism industry in India that caters to them which extends beyond what each patient experiences first-hand. The researcher has also performed a SWOC analysis of the Indian medical tourism sector with the aim of identifying shortcomings and identifying potential areas that could be developed and capacity building can further be undertaken accordingly. The (push and pull) factors that contributed to African patients seeking treatment in India are:

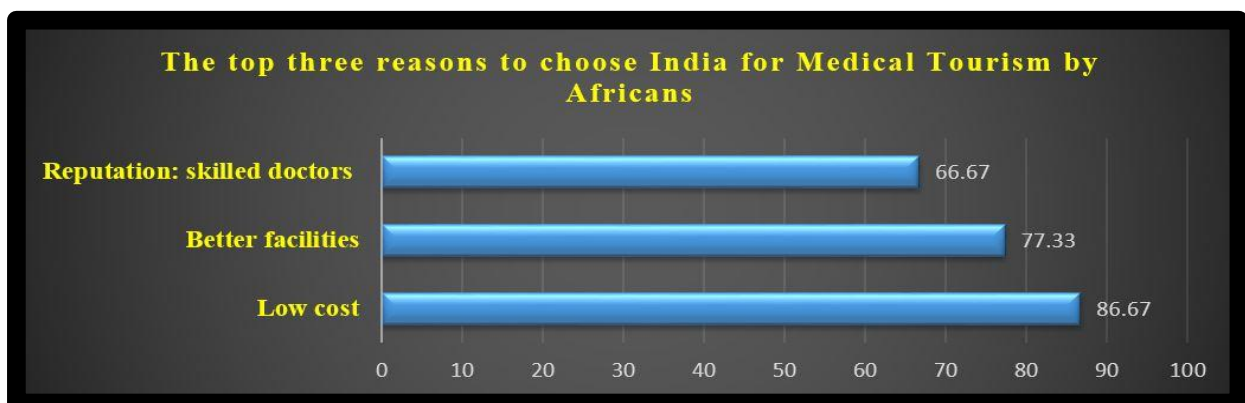
Push factors (home country)	Pull factors (India)
i. Inaccessible healthcare	i. Accessible healthcare
ii. High costs of medical care	ii. Low price (Ultra-competitive cost advantage)
iii. Lack of infrastructure	iii. State of the art infrastructure
iv. Lack of advanced technology and high-quality procedures	iv. Availability of the state-of-art equipment
v. Shortage of skilled healthcare workers due to the AIDS	v. Highly skilled medical professionals
vi. Brain drain	vi. Availability of interpreters
vii. Poor governance in healthcare	vii. Medical secrecy or confidentiality
	viii. High quality medical care and services
	ix. Successful governance and effective management of healthcare services for medical tourists by Indian corporate hospitals

4.1 Analysis of the Collected Data

The researcher, when interviewed the African medical tourists, has observed that these medical procedures offered by Indian corporate hospitals are time and again preferred by them.

The reasons behind the preference to India are most of the times 'low cost' and 'better facilities'. However, the hospitality (care) and success ratio due to skilled doctors are also reasons behind the treatment in India. Further, India offers state of art infrastructure, facilities and first world treatment to these medical tourists and that too in third world prices. Thus, African patients favour India and India has become a destination country for the inflow of patients from the African continent. Furthermore, when questioned these patients on medical tourism that 'Will you recommend this hospital to others for their treatment?' 94.66 % replied positively. Additionally, these patients were questioned about the hospital charges for this treatment and they responded as 1. Low (90.66%) 2. Appropriate (9.33%) 3. High (0. %) 4. Very high (0. %).

The researcher has found the top three reasons that persuaded African patients to select India as destination for their medical treatment are:



Graph 1: The top three reasons for selecting India for Medical Tourism by Africans

In all, the respondents strongly agreed on the quality of health services and healthcare management as successful in India. The researcher also has studied the role of Indian corporate hospitals towards providing world's best healthcare to African patients at comparatively affordable costs. Hence, if more corporate hospitals can be engaged for the tele-medicine and tele-education with the help of ICT certainly there will happen the sustainable development of African Healthcare sector.

4.2 Trends and Key Inferences

The following trends and key inferences are based on two major perspectives studied while analysing the primary data through questionnaire and interview. These two major

perspectives are: A) Low cost of treatment in India as compared to other countries and B) Successful governance and effective management of healthcare services in India, are presented hereafter.

4.2. A) Low Cost of Treatment in India

- ✓ Low cost of treatment in India, as compare to other countries, has become a viable alternative for African Patients. The researcher has found that the cost competitiveness is a key driver for many African medical tourists.
- ✓ Further, Indian hospitals have proven successful in maintaining decent international repute. The affordability, availability and accessibility of the best hospitals in the world and at a far lower cost in India has proven the best pull factor for medical tourism in India. The patients can save cost up to 60-80% including the expenditure incurred on air travel and accommodation.
- ✓ A lot of medical procedures do not covered in the health insurance in Africa and thus in order to avail the same benefits with better services, these African patients turn to India for medical treatment.
- ✓ Additionally, the increasing Indian drug/pharmaceutical business is a key reason for the low cost of medication in India.
- ✓ The cost effectiveness is also further reinforced by good governance. The corporate hospitals offer these patients enhanced access to excellent healthcare i.e. technologically advanced treatments to the patients of all categories are given. Furthermore, the cost effectiveness is accompanied with the highly skilled doctors and surgeons. India possesses highly skilled and experienced medical professionals and due to their expertise and skills the success results are very high.
- ✓ In all, '*First Class Service at Third World Cost*' is major landmark of medical tourism in India. African patients prefer to come to India due its cost effectiveness and value for money.

Africans also have alternatives such as US and the UK but the medical treatment there is comparatively costly and obtaining visas for Africans is difficult and time consuming, unlike with India, where M-visas are allotted in a week's time and the cost of medical treatment is relatively low. Thus, India is developing as the leading medical tourism destinations for Africans due to more affordable, state-of-the-art equipment and its highly skilled doctors in the light of good governance of hospitals.

4.2 B) Successful Governance and Effective Management of Healthcare Services

The researcher has found that the successful governance and effective management of healthcare services offered by the Indian corporate hospitals are the strong 'pull' factors of Indian medical tourism. The trends and key inferences are:

- ✓ Accredited hospitals complying with international quality standards are available in India. These hospitals have an accreditation/affiliation with the top medical institutes like Harvard Medical and John Hopkins. Therefore, these hospitals maintain global standards, provide world class medical facilities and maintain the quality in all respects. Indian renowned hospitals such as Fortis Healthcare, Indraprastha Apollo Hospitals, Medanta Medicity, Max Healthcare and other are accredited by the Joint Commission International (JCI). JCI is leading international organization that certifies the hospitals. Further, the medical surgeons, physicians, nurses and para-medical staff also are certified. Furthermore, hospitals such as B.M. Birla Heart Research Centre, Kolkata, MIMS Hospital, Calicut, Max Super Specialty Hospital, New Delhi, Narayana Hrudayalaya, Bangalore, Fortis Hospital, Noida, Dr. L. H. Hiranandani Hospital, Mumbai etc. are accredited by National Accredited Board for Hospitals and Healthcare Providers (NABH) in India. The researcher has noted that treatments provided for these patients are also approved by the World Health Organization (WHO) and the US Food and Drug Administration. Thus the standards enabled these hospitals to focus on patient safety and quality of the delivery of services.
- ✓ The researcher has noted that Indian government favors medical tourism and eases the process of applying for medical treatment in India through M-visas. This visa permits the tourist to stay in India up to one year. Indian government has allocated separate budget for setting up of affordable medical services. The currency exchange facility also has been made easy for the convenience of these patients travelling to India. In the countries like US or UK the patients have to wait to avail the medical facilities and consult a specialist or to do a medical procedure but in India the waiting time is almost nil. Further, affordability, availability and accessibility of medical treatment and facilities have together made the governance in the Indian hospital as effective.
- ✓ India has a high quality human resource available due to the subsidized medical education and government investments in this sector. Besides, India has a number of medical practitioners who have got their medical education from abroad e.g. UK, US and their experience and expertise makes medical facilities here better and their overall repute 'pulls' the African patients in India.
- ✓ The researcher has found that the Indian corporate hospitals are projecting the hospitals with specific/unique services such as specialty services, extra ordinary post-operative care, quality care, holistic medical services so as to promote the medical

tourism in very cost effective way. Further, these corporate hospitals provide special facilities such as accommodation in the hospitals, reservation for stay in hotels, booking for sightseeing, shopping assistance to the patient's relative and companion. These extended services or facilities help the Africans remain stress-free in India.

- ✓ The researcher has found that the post recovery treatment and / or follow-up visit to India is not possible for all the African patients. However, this issue can be tackled with the help of the PAEN ensuring the tele-education and tele-medicine to care for African patients treated in India continuously. Further, the researcher suggests that the hospitals in Africa must be well connected to sister hospitals in India.

Thus, the researcher concludes that successful governance and effective management of healthcare services offered by the Indian corporate hospitals are proven the strong 'pull' factors for the African patients for medical tourism in particular and the patients overseas in general. Hence, with the help of much tested path i.e. PAEN the future collaboration between India and Africa in healthcare sector can be strengthened through ensuring the tele-education and tele-medicine to care for African. The same channel can be utilised for the capacity building of the stakeholders whereby the expertise of India will be utilised for training of the African healthcare sector through the ICT.

5. African Healthcare Sector in Bird's Eye View

The situation of health in Africa is unique because it is complicated by years of colonial exploitation, the impacts of which can be felt to this day – including debt, political instability, technological stagnation and lack of infrastructure. Moreover, Africa's health scenario is worrying, particularly for countries of Sub-Saharan Africa. The Sub-Saharan Africa region that accounts for 11-13% of the world's population carries 24% of the disease burden but only commands 1% of the global health expenditure (Azevedo, 2017). This is worsened by the unavailability of medical practitioners and required infrastructure. According to the World Health Organization Report (2016), there are only 2.7 physicians and 10 hospital beds per 10,000 people. Some of the major challenges identified in 2019 in African countries are inadequate human resources, inadequate budgetary allocation to health and poor leadership and management. There is a need for providing training and capacity building for health workers, increase budgetary allocation to health and advocacy for political support and commitment (African Development Bank, 2013).

The report entitled 'India-Africa Healthcare: Prospects and Opportunities' by Export-Import Bank of India (2021) notes that Africa spent around US\$ 6 billion in 2016 on medical and on an average more than 50,000 African patients visit India every year. It signifies affordable and quality healthcare services in India. The report observes that the

medical tourism is likely to grow US\$ 7-8 billion by 2020 in India. India is enabling African nations to relieve from infectious diseases by making affordable generic medicines and vaccines. In this light the role of India is critical in aiding Africa's healthcare sector.

A comparative analysis of health expenditure is made in the following table. It reflects the figures and the change that took place in the span of ten years.

Parameters: Indicators- Health spending	Health expenditure											
	Out-of-pocket expenditure as % of private expenditure on health		Private prepaid plans as % of private expenditure on health		Per capita total expenditure on health at average exchange rate (US\$)		Per capita total expenditure on health (PPP int.\$)		Per capita government expenditure on health at average exchange rate(US\$)		Per capita government expenditure on health (PPP int.\$)	
Year	2000	2011	2000	2011	2000	2011	2000	2011	2000	2011	2000	2011
African Region	56.2	56.6	34.6	31.7	35	99	89	158	15	49	39	76
Global	49.5	49.7	38.6	38.2	485	1007	568	1053	280	613	320	619

(Source: World Bank Statistics-Indicator, 2021)

The above table shows that there has been no major change in the expenditure pattern in almost two decades. This itself should be a wakeup call for African countries.

In this regard, Zekeng Elsa (2016) in the research paper titled 'Healthcare Systems in Sub-Saharan Africa – focusing on community-based delivery (CBD) of health services and development of local research institutes' reviews the healthcare systems of Sub-Saharan Africa. The researcher notes that the region accounts for 11% of the world's population but carries 24% of the global disease burden. Various attempts have been made so far to improve the healthcare systems of the Sub-Saharan Africa, however the region has a long way to go. Strengthening the CBD of health services and development of local research institutes in tangent with the existing order is indeed a difficult task for the countries in the region.

It is very well noted that the economy of any country gets hampered as the revenues flow out. In this light, the substantial outflow of African patients opting for medical tourism is also indicative of a substantial outflow of value from the economies of their respective countries.

According to Professor Khama Rogo, though Africa is heavily resource-constrained, a huge amount of money is spent on treatment abroad that might have instead helped in

developing the capacity of the nation themselves. According to Rogo, Africa is exporting money and patients to the East, particularly India, which in turn has largely contributed to a flourishing private health sector at Africa's expense (IMTJ Team, 2016). Thus, in 2012 almost 47% of Nigerian medical tourists visited India for medical treatments and spent \$260 million (Jagyasi Prem, 2020). Similarly, in Kenya over 10,000 patients travel abroad for medical tourism each year and spend an estimated \$80 million in India (Koigi Bob, 2020).

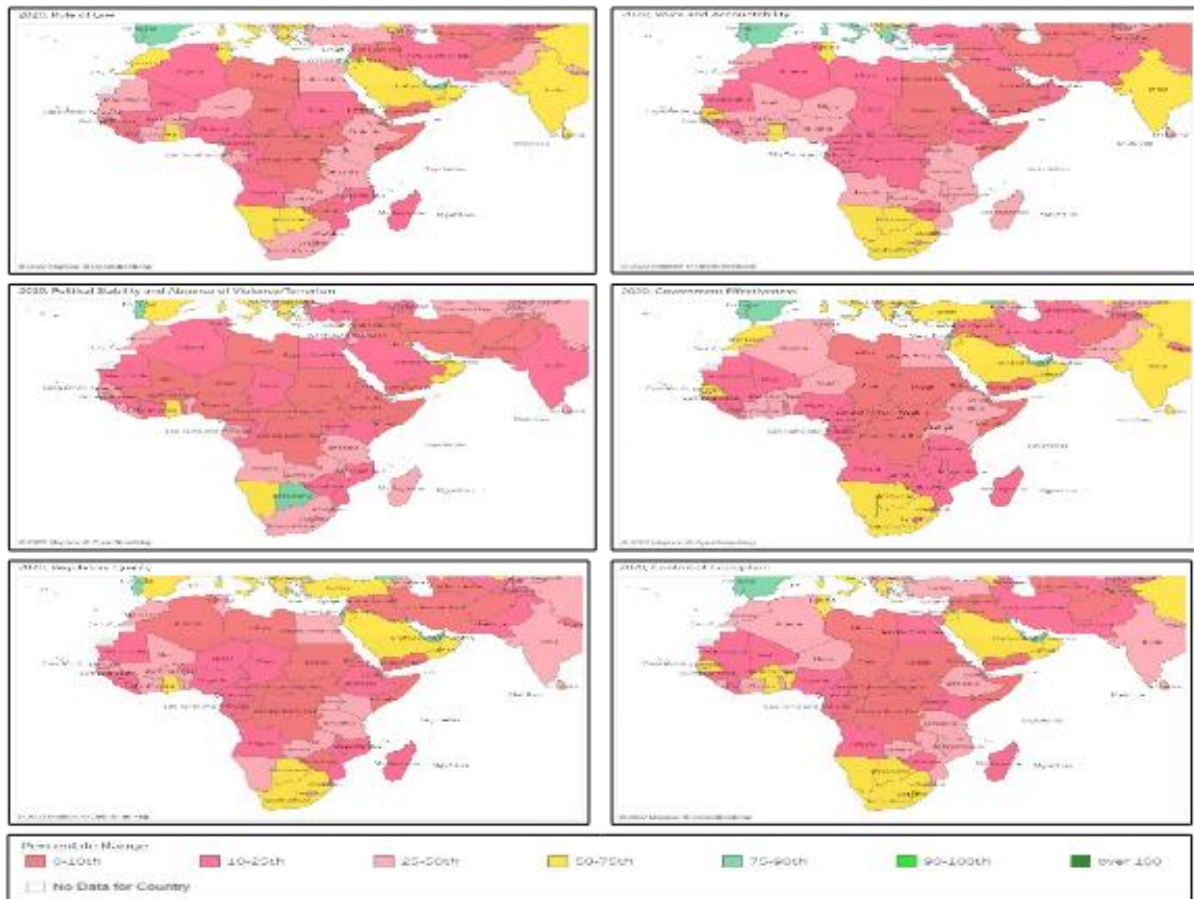
In all, the healthcare was not always thought of as a right and 'healthcare for all' continues to be a contentious issue.

6. Good Governance and Capacity Building

The following section of the research paper discusses the relationship between good governance and healthcare. According to the African Development Bank (AfDB) good governance refers to "*sound development management*" based on five interrelated pillars - *accountability, transparency, combating corruption, participation and an enabling legal/judicial framework*"(AfDB, 2004, Kerandi 2008).

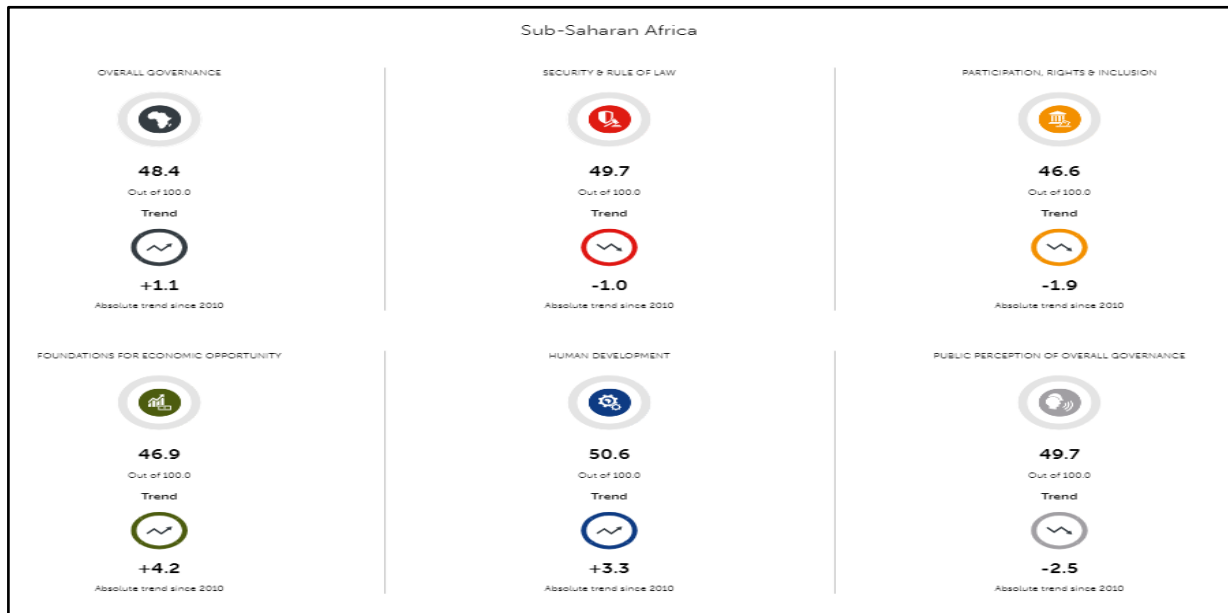
Rotberg (2014), instead, believes that most measures of governance have been content to measure inputs rather than outputs. However, there seems to be a consensus that good governance is an important prerequisite to economic and social development, and the promotion of public good. The scholars (such as Naim 1999 and Grindle 2004 cited in Kerandi 2008) have questioned that in many advanced countries good governance was an outcome long and often fraught historical processes that followed economic development rather than preceded it. Nevertheless, regardless of causation there is a clear co-relation between good governance and development. Kerandi (2008), therefore, proposes that both good governance and poverty reduction goals should be pursued simultaneously and independently.

The graph no. 2 deals with indicators of good governance in Africa. A study of various governance indicators for Sub-Saharan Africa show that most countries in the region rank below the world average. In the graph below we grasp the ranking of African countries on each of the Worldwide Governance Indicators identified by the World Bank for the year 2020. The data reveals that most countries fall within the lowest 25th percentile on almost every single indicator. Only a few countries like South-Africa and Botswana performing better than the average.



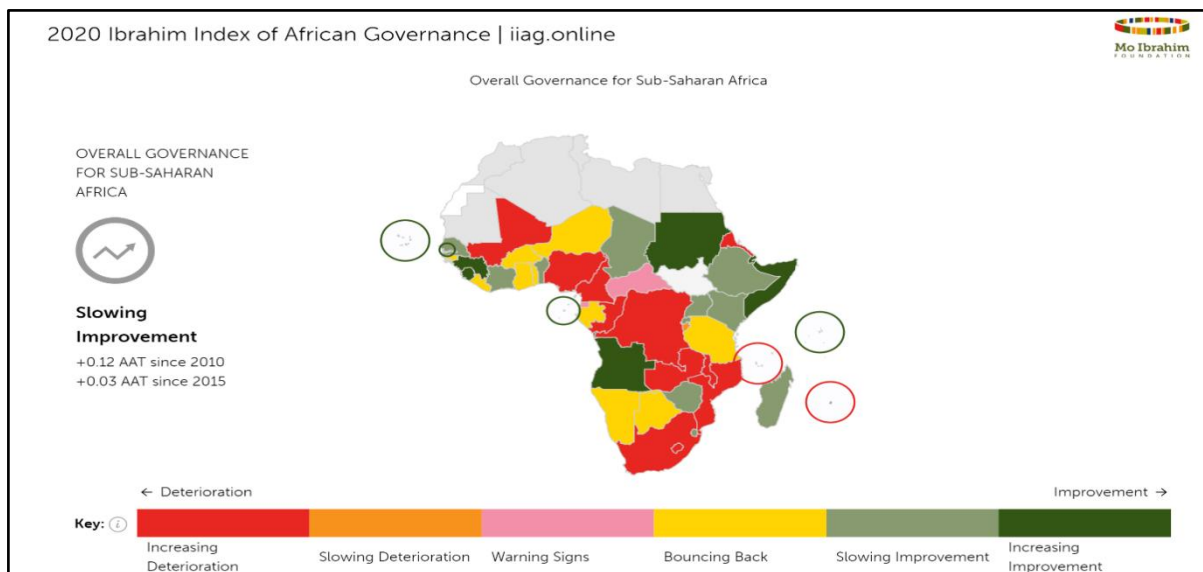
Graph 2. Good Governance Indicators for Africa (percentile rank)

(Source: info.worldbank.org.)



Graph 3. Ibrahim Index of African Governance, Sub-Saharan Africa trends since 2010

(Source: <https://iiag.online/data.html>)



Graph 4. Ibrahim Index of African Governance, Country-wise trends in overall governance since 2010

(Source: <https://iiag.online/data.html>)

The graph nos. 3 and 4 (Ibrahim Index) reflect on overall governance, security and rule of law, participation, rights, and inclusion, foundations for economic opportunity, human development, public perception of overall governance and country-wise trends in overall improvement or deterioration of governance in Sub-Saharan Africa.

The researcher has observed that the different data sets and methodologies tell a similar story. The Ibrahim Index of African Governance, that focuses specifically on Africa rates governance in Africa with a score of 48.4 out of 100 with only a marginal increase of 1.1 percent points over the past decade (since 2010). When considering specific indicators we can observe improvement in human development indicators and economic opportunities, however we see a downward trend in security and rule of law, and participation rights and inclusion. It is unsurprising then that there is a decrease in the perception of overall governance. Looking at country wise disaggregated data shows that a majority of the countries in the region, in fact, face a trend of deteriorating governance although there are some examples of improvement.

A recent book on Good Governance in Sub-Saharan Africa published by the IMF (Newiak et al. 2022) also confirms these finding and focuses on some of the good example countries from which lessons can be learnt. These include Botswana that developed a good policy framework to manage its mining resources, Rwanda whose post-conflict redevelopment made possible by more advanced institutional models, Seychelles that successfully implemented economic and institutional reforms in response to the 2008

debt crisis, and also Angola, Liberia, and Sierra- Leone that have improved the overall quality of their institutions. The book further argues that

"A good understanding of the political- economy context is necessary for successful governance reforms. This is particularly important in fragile states and resource- rich countries, where stakes are high because of extreme scarcity or abundance of resources. A strong social consensus through which stakeholders acquiesce to the process and substance of change is a critical building block of a successful governance strategy"

(Newiak et. al. 2022: 7).

Thus the researcher has observed that the level of governance in Sub-Saharan Africa still leaves a lot to be desired and in many cases the situation is getting worse.

6.1 The Impact of Good Governance on Healthcare

Inspired by the work of Amartya Sen who argued that famines occurred only in those nations that were immune to the political will of the people, Menon-Johansson (2005) explores the relationship between good governance and good health through a study of the AIDS pandemic. They observed a significant correlation between the prevalence of HIV and poor governance. The study recommended that international public health programmes should address societal structures to create strong foundations for the implementation of effective healthcare systems. A recent report by Transparency International titled *The Ignored Pandemic: How corruption in healthcare service delivery threatens Universal Health Coverage* (Bruckner, Till. 2019) looks specifically at one of the main challenges to good governance in Africa, namely corruption. It identifies 6 types of corruption that thwart healthcare systems. These are:

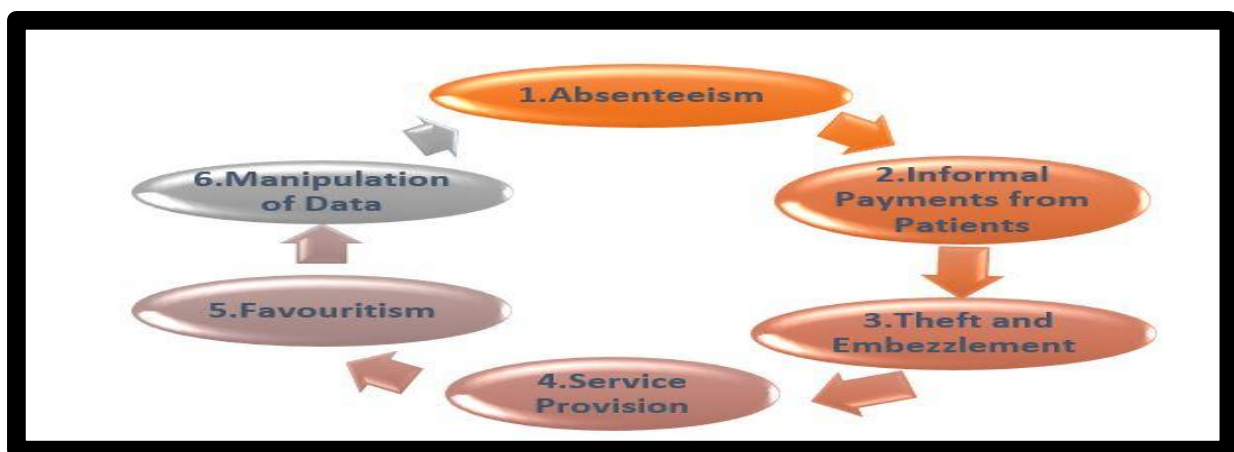


Figure 2. Six types of corruption that affect healthcare system

(Source: Bruckner, Till. 2019)

Consequently, Makuta and O'Hare (2015) point out although public spending on health is often viewed as a potential complement to economic growth in improving health research shows that this is not always the case. The reason for this is that while public spending on health improves health outcomes its quality of governance has a significant influence on the impact that public spending has on healthcare. They explain that in cases where the impact of public expenditure on healthcare is lower might be attributed to poor targeting and/or institutional inefficiencies such as leakage in public spending and weak institutional capacity and substitution effect between public and private (out of pocket) spending on health. The results of their study suggest that *"the same amount of resources is twice as effective in improving health outcome in countries with higher quality of governance as in those countries with lower quality of governance"* (Makuta and O'Hare 2015: 9). They conclude that Good Governance is an important factor in effective health care delivery and returns on investments in healthcare. It is therefore imperative that countries in Sub-Saharan Africa work to implement good governance as a way of improving health outcomes.

In all, the poor governance is also responsible for poor health. Lack of good governance is also a barrier to economic development. Thus the World Bank has time after time attributed the poor economic performance in most developing countries, particularly in Sub-Saharan Africa to poor governance. Poor economic performance translates into smaller budgets for healthcare which is a problem for many countries on the continent. Another factor that diverts resources away from healthcare is the absence of peace, security, and rule of law. When resources are available for healthcare, governance is shown to have a significant effect on the impact of public spending on healthcare. The good governance can even double the impact of the same amount of spending.

In this light, the researcher observes that more money is not just enough to improve healthcare system and what is required is a more targeted approach to tackle corruption with good governance. Thus, there is an urgent need for countries in Sub-Saharan Africa to increase their spending of healthcare with more targeted holistic approach in the light of good governance. Hence, just funds are insufficient to improve healthcare system in African countries. A more targeted all-inclusive approach with the effective use of ICT with specific reference to PAEN so as to have capacity building of the healthcare sector in Africa in the light of good governance is required to tackle the said issue.

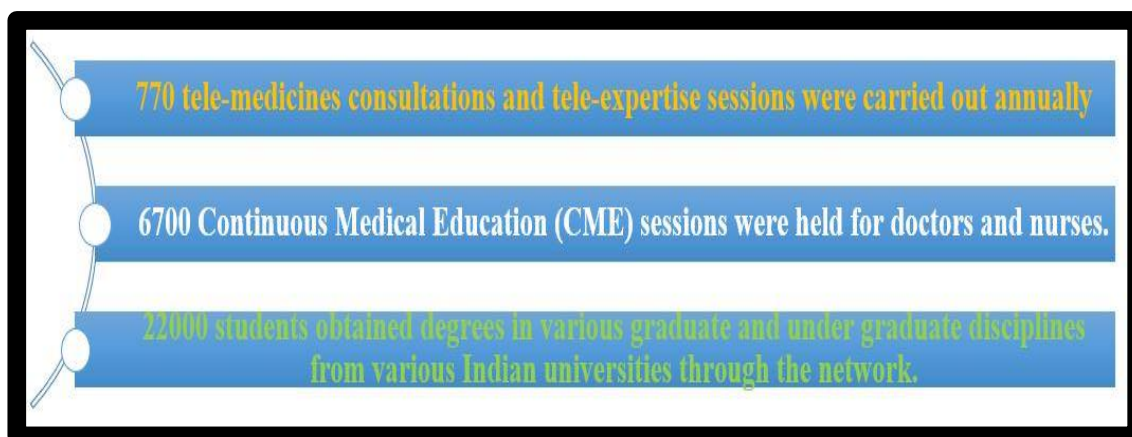
7. Pan African e-Network and Capacity Building

PAEN is a ICT project between India and the African Union. It seeks to connect the 53 member states of the Union through a satellite and fibre-optic network to India and to each other to enable access to and sharing of expertise between India and African states in the areas of tele-education, tele-medicine, Voice over Internet Protocol (VoIP),

infotainment, resource mapping, meteorological services, e-governance and e-commerce services. The Indian Hospitals such as All India Institute of Medical Sciences, New Delhi; Amrita Institute of Medical Sciences and Research Centre, Kochi; Apollo Hospitals, Chennai; Dr. Balabhai Nanavati Hospital, Mumbai and other are contributing in the said project. The project is a joint undertaking of the Government of India and the African Union (AU) High Commission. The project has two main components: Tele-Education Services and Tele-Medicine Services (Ministry of External Affairs, 2017).

Modi, Renu (2009) in her article entitled, 'Pan African e-Network: a Model of "South-South Cooperation"', deals with PAEN and tele-medicine that can be a blessing for treatment of patients in Africa transmitted by hospitals located in India. PAEN acts as a facilitator for medical tourism by building trust in the Indian medical practitioners and building relationships with hospitals in India. In view of the above, the following collaborative benefits through the PAEN can be achieved and the capacity building of the African stakeholders of health sector can be enhanced. Thereafter if timely consideration on the following points can be ensued:

- ✓ The rigorous collaboration in the health sector enables the optimum use of the existing infrastructure, like the PAEN for tele-medicine and tele-education. African government can cash on the strengths of India's proficiency in healthcare sector through the information technology and in turn can support the healthcare services including higher education to all African countries.
- ✓ Tele-medicine through PAEN allows people from the remote locations to have contact with a medical professional whom they may otherwise not have had access to. It allows doctors to consult each other despite being geographically distant. This will ensure that the patients can get best possible medical care while simultaneously reducing costs. This collaborative process can ensure the knowledge and expertise sharing of the best Indian doctors with African ones. In the long run the African doctors and patients will be benefitted alike.
- ✓ The collaboration through the lenses of 'e-governance', can create significant linkages for tele-education and tele-medicine by connecting India's leading educational institutions and super-specialty hospitals with African countries.
- ✓ The chairman of the AU shared the progress report of PAEN on 30th March, 2018. The highlights of the said reports as quoted by Jagyasi Prem (2020) are:



- ✓ Further, the add-on services by the PAEN infrastructure including a pre-feasibility study on Continental Mass Education TV (CMETV), setting up of a Pan-African University and setting up of African Virtual (e-) University etc. were also listed. Thus, the researcher would like to recommend that, in (future) collaboration between India and Africa for healthcare sector the extension of the network so as to cover all the African continent and the expanded services like CMETV and Virtual (e-) Universities should be the priority.
- ✓ The preparation and timely execution of an action plan for the sustainable development of the collaborative services through the said project in the light of good governance will be the key to success in dealing with the healthcare sector of African countries. The effective e/governance can tackle the following issues and cover the health services to the masses. The good governance is much required in the following challenges/issues:

Lack of Commitments and Timely Resources/Funds	-The main challenge for the PAeN project is the lack of strong commitment by the concerned members to assign funds and resources to make certain the sustainability of the network for tele-medicine and tele-education
Accountability, Expansion and Follow up	-Follow up and make responsible or accountable the users of PAeN project in order to build a very strong tele-education and tele-medicine network open to the whole African continent on priority and later on to the world so as to seek the expertise from every nook and corner of the world.
Content Diversification and Language Barriers	-The language barrier can be tackled with the help of translators and the governance is further required in diversifying the content and languages by including local and other official languages of African Union e.g. Swahili and French, Arabic, Portuguese etc. as per the requirement of the masses and for the purpose of reaching the unreached for offering the healthcare services through tele-medicine and tele-education

- ✓ Considering the future collaboration between India and Africa, the best momentum to the said PAEN project and accordingly to the growth and expansion of health services can happen once the Indian Government extend the technical and financial assistance. However, as the part of good governance, the PAEN Oversight Committee (POC) and the Assembly of Users should evaluate the

deployment of the project. Further, the African Union Commission (AUC) proactively can collect and evaluate collective response from the participating African countries.

- ✓ African countries have applauded the PAEN project with enthusiasm. The project, chiefly in education and health sector, can empower Africans and can aid Africa's journey towards achieving Sustainable Development Goals (SDG) targets once the network is expanded so as to cover the African continent.

Thus, considering the future collaboration between India and Africa for capacity building of health sector, Indian expertise must be utilised through the said PAEN project. The PAEN project, an ICT (Information and Communications Technology) based project can play very crucial role in the capacity building of the African Healthcare sector. This is done by bringing in worldwide benchmarked expertise in tele-medicine, tele-education, research and training by establishing the outstanding institutions, virtual universities in Africa. Thus, the hypothesis can be realised that 'the collaboration by India and Africa in healthcare sector can prove effective for the capacity building of the said sector with the help of ICT'.

8. Conclusion

The challenging state of healthcare in many countries in Africa has become the 'push factor' for patients and the affordable qualitative treatment in Indian hospitals has become the 'pull factor' for patients. The inability of Africa to rise up to the demand for healthcare in their countries is constantly driving patients outside their country. The doctor-patient ratio in African countries is extremely bad and there are not adequate beds in hospitals to cater to everybody. Further, the unregulated procedures, insufficient equipment, undertrained staff (medical and para medical) etc. are causing the decline in healthcare sector. Hence, using the ICT based PAEN project in the light of good governance can help in the sustainable development of the healthcare sector of Africa.

African countries need to strengthen their own capacity to sustain their healthcare sector. Governance is very crucial part of healthcare. In the case of Africa, healthcare becomes a burden because the issues with governance have impeded healthcare. However, with the expertise of Indian corporate hospitals through the PAEN project this sorry state can be changed.

As suggested by Zekeng Elsa (2016) elevating the standard of the quality of healthcare services and developing mechanism accordingly, encouraging private donors, easing of stringent rules in order to allow the entry of private sector in the field of healthcare and encouraging local financial bodies to support private healthcare entities are some viable

solutions for the sustainable development of African healthcare sector. Here, India can play a crucial role by extending the expertise in healthcare sector.

Considering the precarious state of the global economy, African countries will need to re-evaluate their relationships with international aid agencies and bilateral partners. Considering COVID 19 pandemic, it is probable that the foreign flow of funding to African healthcare system is likely to decline. The reason behind this is that foreign aid from traditional international donors towards developing countries is declining. This will affect African development and hence the collaboration with countries like India is essential for Africa.

Due to corruption and as WHO (2018) observed the funding for the healthcare industry in Africa goes on the back burner and resources are spent on defence so as to tackle conflicts. Thus the budgets reserved for the social sector e.g. public health are affected. On an average about 4% or less of budget is allocated for the health sector in several countries in Africa. Thus, there are loopholes generated out of inefficient governance in Africa. However, mere funding is not just enough to improve healthcare system and what is required is a more targeted approach to tackle corruption with good governance. In view of the above, the ICT based PAEN project can do a wonder if it is thoroughly managed, implemented, monitored and evaluated more objectively.

African governments and public health officials need to build on the established networks of community health workers combined with technology enabled delivery mechanisms to address the health issues. African governments can seek technical, financial, and logistical support from India while having collaboration.

In view of the above, the existing infrastructure, like the PAEN for tele-medicine and tele-education, should be used more proactively. African countries can make use of the strengths of their international partner, i.e. India's proficiency in information technology, to support the healthcare services including higher education to all African countries and try to achieve sustainable development in a long run.

India while collaborating with African healthcare sector should aid in local production of pharmaceuticals in Africa for creating healthcare more reasonable and affordable and thus can generate employment. Indian Technical and Economic Cooperation (ITEC) also can play a vital role by enabling technical cooperation and capacity building of key health components in Africa. Further, the better partnership on tele-medicine, healthcare edification and knowledge sharing on best practices the investment in digital technology must be increased in India and Africa as well.

The triennial India-Africa Forum Summits (IAFS) must be organised annually so as to have more persistent engagement with Africa and a well-thought-out and solid

partnerships in the areas such as research and development, capacity building, pharmaceutical trade and manufacturing capabilities for drugs and diagnostics will be in effect to improve the of healthcare services.

Africa needs to make serious efforts to improve governance and increase investment in social sectors realising that the two are interlinked and that both are required for the development of Africa. In view of this, while having collaboration, determined and manifold efforts must be made to build up health care services in Africa by India.

India, through economic diplomacy and by employing the strengths of the Indian private sector, can increase the health and development competencies of African countries. The initiatives such as Jawaharlal Nehru Hospital in Mauritius (initiative of Govt. of India), Tasakhtaa Global Hospital in Tanzania (associate of Hyderabad-headquartered Global Hospitals India), Apollo Bramwell Hospital in Mauritius, and Apollo Medical Centre in Dar es Salaam, Milimani, Tanzania (divisions of Apollo Hospitals Group, India) are taken. However, on the same lines the Public Private Partnership (PPP) of India and Africa in health sector needs to be expanded. This can aid India's geopolitical objectives and can lead a similar healthcare rollout to other countries.

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India-Africa: Capacity- building in agriculture

Sheetal Hadkar

African agriculture sector requires capacity building programmes for the growth of the sector. Policies for capacity building should include innovation and technological advancements (Rajendran 2018). In Africa human resource development in the agricultural sector is very low because recruitment in the public sector is not done. So the young graduates are not able to have experience in the field. Private agricultural sector does not invest much in capacity development. There is a weak institutional structure and shortage of agriculturalists also the expenditures done on the scientists are very low.

Africa is in need of graduates having practical knowledge of agricultural value chain and financial management. They need to have entrepreneurship skills so that they can create their own employment. For this the universities need to have partnership with the public and private sector employers. They have to develop courses having recent developments in the regional and international science. In African agriculture women farmers play a major role. So Africa is in need of more female scientist and extension agents who can understand their needs (Blackie, M, Blackie, R, Lele, U & Beintema, N 2010).

There are different initiatives for capacity building in agriculture in Africa. They are:

- **International Level:**
 - **AGRA**

Alliance for a Green Revolution in Africa (AGRA) is an institution which is focused on farmers to change the smallholder farming in Africa, to productive one for the benefit of farmers. Since 2007, AGRA has helped 1100 African scientists to become post graduate. Also training for enhancing efficiency, profitability and outreach was given to more than 950 seed enterprise personnel from about 100 main local seed companies in Africa. Six hundred personnel from small and medium enterprises and agri-businesses were given training in business development. Training was given to about 260 field and laboratory technicians, 2780 fertilizer inspectors, 47900 extension agents for improving their work efficiency.

In the latest strategy (2017-2021) AGRA wanted to use the improved institutional and human capacities in further capacity building of 30 million smallholder farmers in production, processing and marketing so as to increase their income as well as food security. It targets to support the institutions in fertilizers, seed, markets, input delivery, extension, finance system so that farmers can get information about appropriate

technologies. This can help the farmers to increase their farm productivity and they can get access to markets to sell their farm produce (AGRA 2022).

- **Programme for Capacity Development in Africa**

GODAN (Global Open Data for Agriculture and Nutrition) Nairobi Declaration was signed by 15 African nations in June 2017. Programme for Capacity Development in Africa (P4CDA) provides framework for GODAN's Open Data Agenda for Agriculture and Nutrition in Africa. It assists in creating and implementing open data platforms and accepting technology required for agricultural growth (Programme for Capacity Development in Africa 2022).

Following are the aims of P4CD programme:

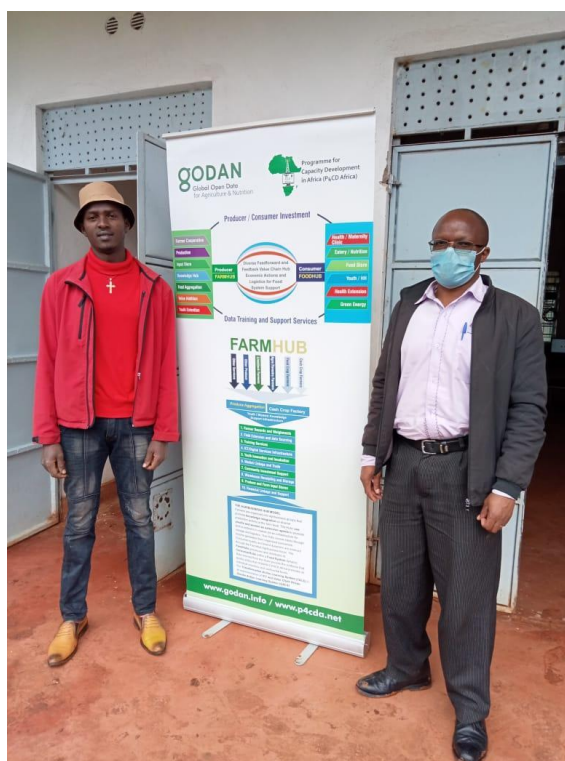
1. Capacity building with the help of development programmes for fulfilling the Open Data Agenda for Agriculture and Nutrition in Africa
2. Generate initiative for creation of approaches to get the data from smallholder farmers
3. Encourage partnership with the universities and Technical and Vocational Education and Training institutes in the countries where GODAN has collaboration for capacity building (Programme for Capacity Development in Africa 2022).

Below are the courses offered by P4CD for capacity building in agriculture:

1. Value Chain Driven Agribusiness Management: In this course participants are taught about food systems for the basic understanding of value chain. Value chain optimization along with advantages of open data for design thinking, input sourcing, etc is also done.
2. Gender Action Learning System (GALS)
3. Office productivity platforms
4. Design thinking and development of web solutions
5. Statistics and Geospatial Information Learning – It trains about data sourcing with the use of GIS learning at the FarmHubs using GIS and statistical packages for the agricultural sector
6. Digital Marketing – In this course participants are taught about how to develop online marketing strategy, and importance of social media in marketing, as well as promoting paid for advertising (Programme for Capacity Development in Africa 2022).

P4CD makes working groups of farmers according to farming practices such as crops and livestock. It allocates trained youths to deliver respective information to the farmers and

accepting the required technological tools for the growth of farm sector (P4CD.net 2022).



GODAN P4CDA Champions Meeting

Source: P4CDA, 2021

<https://www.fao.org/agrovoc/news/agrovoc-use-case-programme-capacity-development-africa>

- **Capacity building in Climate Smart Agriculture**

“Climate-smart agriculture (CSA) is defined as agriculture that sustainably increases productivity and resilience and reduces or removes greenhouse gases while enhancing the achievement of national food security and development goals” (FAO 2010).

International Crops Research Institute for Semi-Arid Tropics (ICRISAT), started projects in different countries in Africa such as Ethiopia, Sudan for empowering the extension functionaries so that they can cater to the farmers regarding climate smart agriculture. Under this project CSA farms and technologies will be developed in Sudan and Ethiopia. Improved soil fertility management, agroforestry, integrated pest and weed management, improved crop varieties and land management, improved livestock systems are the technologies under CSA. The CSA farms could work as demonstration sites. They can also act as training and research sites for students from the universities.

It is necessary to have capacity building in climate change agriculture because it can help farmers especially smallholders to handle the negative effects of climate change. Smallholders do not have knowledge or financial strength to fight with the climate change effects. So capacity building will help them in this.

In Kenya the smallholder tea farmers were having difficulties in farming because of high temperatures leading to poor tea quality, heavy rainfall, etc. Extension technicians were given a training manual about skills to reduce the effects of climate change. The adaptations needed are be ready for future diseases and pests, change in agriculture practices, strengthen soil and water management, and manage existing environmental threats.

Technical advisors were given training to achieve better technical knowledge so that they could guide and educate farmers. This would upgrade farmers' capacity to handle the effects of climate change. This project will help to create CSA farms and CSA technologies in Sudan and Ethiopia (Zwane 2019).

➤ **Regional Level:**

• **African Conservation Tillage Network**

African Conservation Tillage Network (ACTN) is a registered not-for profit membership association which works to encourage, assist in sharing information about conservation agriculture (CA). It conducts capacity building programmes for training in promotion of conservation agriculture to its staff, members, and partners from private sector, government non government institutions and farmers. It helps the trainees to get knowledge about technological alternatives available for growth in the agriculture. According to the requirements of partners and specific objectives, the appropriate method of capacity building is chosen. Capacity building is done by ACTN through formal education, policy dialogue, training, discussion workshops, networking, regional meetings and capacity building projects, farmers exchange visit, and agricultural fairs (African Conservation Tillage Network 2022).



Training of Trainers practical training session on CA equipment, Arusha, Tanzania

Source: <https://www.act-africa.org/content.php?com=2&com2=3&com3=#.YqsRPv1BzIU>

Capacity building initiatives undertaken by ACT help it to fulfill its targets by providing knowledge and principles on conservation agriculture as the sustainable suitable way of farming. It offers practical knowledge and skills required for application of conservation agriculture practices for various agro-ecological and socio-economic environments. This helps the ACT partners and stakeholders to train and spread the CA technologies to farmers and players with whom they work. It offers stakeholders with methodologies and approaches for better documentation and wide spread acceptance of profitable conservation agriculture.

ACT gives young professionals and students scope for obtaining hands on experience through practical involvement and supervision. Internship and student attachment are provided as per the demand at different levels such as secretariat headquarters, on-farm project through implementing organization (African Conservation Tillage Network 2022).

- **Regional Universities Forum for Capacity Building in Agriculture (RUFORUM)**

Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) is a consortium of 147 African universities in 38 countries of Africa. Secretariat hosted by Makerere University in Kampala, Uganda acts as a coordinator for this forum. A

cooperation agreement was signed between RUFORUM and African Union for supporting implementation of the new African Union for Science, Technology and Innovation Strategy for Africa, 2024. This consortium engages universities for developing agricultural sector and builds innovation capacity in Africa's agriculture.

For coordinating in capacity development and transformation of higher education in agriculture in Africa through the Alliance for Commodity Trade and Investment in Eastern and Southern Africa (ACTESA), RUFORUM had signed MoU with Common Market for Eastern and Southern Africa (COMESA). They coordinate with each other so as to add knowledge in their core areas to guide policy development for research and capacity building in agricultural development.

RUFORUM had also signed MoU with Food and Agricultural Organization of the United Nations (FAO) in 2017 for creating the new generation of technologies and human resource in agriculture. It was formed to enhance RUFORUM member universities' capacity in food security, strengthening inclusiveness, sustainability and resilience of food and agricultural systems. In this cooperation, main focus was on sharing of knowledge and expertise, growth in the technical proficiency and institutional capacities of member universities of RUFORUM. Also it aims to involve research and academic community in policy processes that are evidence based.

The aims of this forum are:

1. Give university support to the smallholder farmers with the help of linkages it has with private sector, national agricultural research systems and rural communities.
2. Promoting academic exchanges and regional centres of excellence for training of future agricultural scientists.
3. To advocate regional and national policies for backing agricultural research and training at postgraduate levels (RUFORUM 2022)

- **Africa—Leadership Training and Capacity Building Program (Africa Lead)**

Africa—Leadership Training and Capacity Building Program (Africa Lead) is a capacity building programme under US Government's Feed the Future (FTF) Initiative. In this programme capacity building initiatives are organized for Africa's food security leaders in private and public institutions. These initiatives help them to create and manage their country investment plans. The impact of the programme is assessed by institutional strengthening, training and leadership development. This programme was covered under the framework of the New Economic Partnership for African Development's Comprehensive Africa Agriculture Development Program (CAADP). The programme is organized across sub-Saharan Africa having centres in Ghana and Kenya.

➤ **Programme activities**

1. Evaluate requirements for capacity building by perceiving the roles played by people and training institutions in achieving the goals of FTF initiative and linking those roles to the capacity building effort.
2. Decide which institutions needs evaluation, track their progress, form cost-effective assessment, and inform the institution about their capacity building needs.
3. Train food security leaders in Africa about the knowledge and skills required for expanding activities in agriculture and food security.
4. Develop interactive, upgradable database for training which helps institutions for arranging suitable training programmes.

➤ **Results**

1. Under the programme more than 1600 CAADP champions from 29 African countries were trained in change management, leadership, strategic planning. More than 600 agricultural institutions are added for giving training.
2. A database is created having 650 short courses that are relevant for agricultural professionals in Africa.
3. It has assisted 553 members of non-governmental organizations and private sector for attending CAADP workshops. About 40 institutional capacity assessments were done.
4. Eight agribusiness specialists from Kenya, Ethiopia, Uganda, Rwanda, Zambia, Liberia were given placements in Johannesburg Stock Exchange/South Africa Futures Exchange, Hershey Company USA, and Zamindara Farm Solutions, India (DAI 2022).

Capacity Building Initiatives between India and Africa

India and Africa have long history of cooperation and agriculture is one of the important sectors in this cooperation. Agriculture is primary occupation of people of India as well as African nations. India and Africa have similarities in socio-economic and agro-climatic conditions such as smallholder farming. This has enhanced the opportunities for cooperation. In 2008, the first India-Africa Forum Summit (IAFS) was held in New Delhi. In that summit, India Africa Framework for Cooperation was created which included the Africa-India Science and Technology Initiative. This initiative has helped in the growth of India and Africa's cooperation in the field of science, technology and innovation in agriculture. IAFS 2008 and 2011 have led to implementation of initiatives in agriculture in the areas of capacity building, research on common focus areas and knowledge transfer. This has helped in exchange programmes for researchers in India and Africa.

Also it strengthened the research institutions in different African countries (KPMG & CII 2015).

As a result of first India-Africa Forum Summit capacity building programmes between India and Africa were given priority. Department of Agricultural Research and Education of Government of India is implementing these capacity building programmes. African students are given admission in the Indian agricultural universities for M.Sc. and Ph.D. programmes.

India is doing capacity building in agriculture in Africa through encouraging local food production by increasing yield and land through appropriate, adaptable and affordable technology in agricultural mechanization. Also with the help of drip irrigation and precision agriculture, transferring skills in water management for crops through micro-irrigation and agro-processing sector local food production is expanded (Udensi 2020).

➤ **International Level:**

Platform for India-Africa Partnership in Agriculture

Indian Council of Agricultural Research (ICAR), the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the International Agriculture Consulting Group (IACG) have established Platform for India-Africa Partnership in Agriculture (PIAPA). The aim of this programme is to provide farmers especially dry land farmers better policies, good infrastructure, best quality inputs, enhanced access to markets by bringing different stakeholders together as consortium partners (Export-Import Bank of India 2017).

Other Initiatives

The Director General of Ethiopian Institute of Agricultural Research (EIAR), Ethiopia, ICAR and the Department of Agricultural and Research and Education (DARE) have signed a MoU for collaboration in agricultural education and research. The cooperation would be done by collaborative research projects and exchanging scholars, scientists, literature, technologies, information (Export-Import Bank of India 2017).

India is helping African countries in the capacity building in agro-financing and entrepreneurship development. For this MoU is signed between Government of India and National Bank for Agriculture and Rural Development Consultancy Service (NABCONS) for establishing India-Africa Institute of Agriculture and Rural Development (IAIARD) in Malawi. In this pan-African institute training on capacity development in the areas of agro-financing and micro-financing will be given to the African participants (Muraleedharan 2021).

The expenditure for this programme which includes travel, logistics, faculty from India, training course expenditure on students from other African countries was done by Indian government initially for three years (MEA 2019).

International Rice Research Institute

The International Rice Research Institute (IRRI) launched IRRI Education programme in partnership with the Asian Development Bank. In this programme leadership and executive education is given which includes complexities of agri-food systems, climate change adaptation, trade and markets and social equity. A centre of IRRI education was established at the IRRI South Asia Regional Centre in India in 2019. It supports training, research collaboration to scientists, extension workers in Africa and South Asia (CGIAR 2022).

The vision of this centre is as follows:

1. Conduct research for the public and private sectors through its laboratory facilities for crop production, grain and nutritional quality.
2. Strengthen south-south cooperation and capacity building for the rice producing countries of South Asia and sub-Saharan Africa in seed quality, crop production and to increase farmers' income.
3. Enable transfer of knowledge by arranging short courses on rice-based agri-food systems and other agriculture products of IRRI (International Rice Research Institute 2018)

South Asia Biotechnology Centre

South Asia Biotechnology Centre is aimed at increasing collaboration with partner institutions from Africa under India-Africa partnership for capacity building in new agricultural technologies (South Asia Biotechnology Centre 2022).

➤ **National Level:**

India-Africa Fellowship Programme

For assisting Africa in its agricultural human resource development, the Government of India had given 300 fellowships (25 Ph.D. and 50 Masters fellowships per year) to African students, faculty or professionals from 2010 to 2014. Candidates from Nigeria, Sudan and Ethiopia have shown maximum enrollment for the fellowship (Ayyapan 2015).

Cotton Technical Assistance Programme

Cotton is an important agricultural commodity in the African countries. In Cotton-4 countries (Chad, Benin, Burkina Faso and Mali) cotton plays a major role in their

economy. India has a large cotton sector and is a big player in the world's cotton sector. At World Trade Organisation, Geneva, Cotton-4 countries requested India to help them in the development of their cotton sector. In response to this, India developed Cotton Technical Assistance Programme (TAP) to assist them with the expertise and competencies it has (TAP for Cotton 2012).

This programme was launched in 2012 which is financed by the Ministry of External Affairs, India. It is implemented by the Department of Commerce with support from cotton research and development organizations falling under Indian Council of Agricultural Research (ICAR) and Government of India's Ministry of Agriculture. IL&FS Clusters was the programme management agency. The cost of the project was Rs. 210 million. The first phase was implemented from 2012 to 2018. The beneficiary countries are Chad, Benin, Malawi, Uganda, Burkina Faso and Nigeria (Department of Commerce 2015).

Below are the objectives of the programme:

1. The main objective is to build local capacities in cotton production technologies, utilization of by-product, post-harvest handling. It aims to increase the research and development capacities in bio-control measures, biotechnology, ginning technology and creating infrastructure for achieving these. The programme also involves developing downstream activities in the cotton sector through training. (Department of Commerce 2015). It proposed to transfer India's knowledge and technology in the cotton sector so that African countries can get knowledge of advanced and latest technology in this sector.
2. To help the governments in the African countries to plan programmes and policies for the growth of the cotton sector
3. To enhance the upstream and downstream cotton sector by training and giving exposure to India's cotton and textile sector (TAP for Cotton 2012).

In this programme about 200 stakeholders which included farmers, extension officers, scientists, policy makers, were given training in India. Also 200 more stakeholders were given training in the in-country training programme in the African countries. The training has helped the African countries to have experts in different areas of cotton sector such as production, post harvest handling, biotechnology, textile sector development (Department of Commerce 2015).



"In-country training programme on Post-harvest Management of Cotton and Value Addition to Cottonseed and Crop Residues" at Benin

Source: <https://icar.org.in/node/6658>

To achieve the objective of capacity building it was required to create the infrastructure for the same. The programme included creation of below infrastructure:

- 1. Regional Knowledge Cluster in Benin** – In this centre hands-on training on post harvest handling of cotton will be given. This unit is established for making the cotton industry in Benin acquaint with latest technologies and the recent developments in the post harvest management of cotton. This unit has six latest double roller cotton gins and their related equipment.
- 2. Two skill schools in textile sector in Malawi and Nigeria**
In Nigeria's Kaduna state skill school for textile sector was established to give training in modern skills for material manufacturing and operating of textile machines. In June 2016, one month training programme was conducted in the school for 20 candidates and three master trainers (Department of Commerce 2015). The second skill school was established in Malawi in August 2016.
- 3. Bio-pesticide laboratory in Uganda**
In Uganda bio-pesticide laboratory was established to assess local potential bio pesticide materials. It was also aimed at providing certification and standardization of bio-pesticides.
- 4. Promotion of agri implements**
The participating African countries were provided with a set of three agri implements to show how to use agricultural equipment and reduce the manual work by smallholder farmers. This will enhance labour productivity in smallholder

farmers. In September 2016, training was given on use of these implements. The implements were placed at below institutions in the African countries.

Chad: Cotton Chad facility, Mundou

Benin: Cotton Research Station, Bohicon

Nigeria: Institute for Agricultural Research (IAR), Ahmadu Bello University, Zaria

Burkina Faso: Association Interprofessionnelle Du Coton Du Burkina (AICB), Ouagadougou

Malawi: Makoka Agriculture Research Station, Zomba

Uganda: Ngetta Zonal Agricultural Research and Development Institute (NgZARDI), Lira

5. ICT based disease and pest surveillance system

For transferring pest surveillance technology ICT based disease and pest surveillance system was formed in Malawi. Its aim was to reduce the pests on crops by providing real time feedback to farmers through SMS. This facility was availed by 500 farmers and more farmers were being registered (Department of Commerce 2015).

The second phase of the programme was launched in 2019 to cover five more African countries namely, Ghana, Mali, Tanzania, Togo and Zambia (Press Information Bureau 2019).

Indian Government Efforts for Capacity Building

Indian government is establishing incubation centres in Africa. They are:

1. Agri-Business Incubation (ABI) Programme – This initiative includes launching five Food Processing Business Incubation Centers (FPBICs) in African countries Angola, Uganda, Ghana, Mali and Cameroon.
2. Vocational training institutes or incubation centres
3. Indian government proposed establishing food-testing laboratories along with implementing agency International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in the countries Zimbabwe, Rwanda, Nigeria, Gambia, Republic of Congo.
4. Soil health card and soil testing – Soil health card has information and recommendations about fertilizers and nutrients that are needed for different soil types. These soil health cards were given to the farmers (Viswanathan & Mishra 2020).

India-US-Africa Triangular Programme

When President Barack Obama visited India in 2010, it was decided to use the expertise of India and United States in capacity building in agriculture for food security in other countries. In January 2013, the first triangular India-US-Africa partnership programme was launched. It is a three year partnership programme having objective to improve agricultural value chains, enhance agricultural productivity, and help market institutions in Liberia, Malawi and Kenya. This programme is supported by the Ministry of External Affairs, the Ministry of Agriculture of India and Government of US through the United States Agency for International Development (USAID). The implementing agricultural training institutes are National Institute of Agricultural Extension Management (MANAGE), Hyderabad, and Chaudhary Charan Singh National Institute of Agricultural Marketing (NIAM), Jaipur (Ministry of External Affairs 2013).

The programme targeted to train 180 mid-level agricultural professionals from Liberia, Malawi and Kenya. The topics of training were agricultural marketing, agricultural extension practices, and agri-business which were taught through field trips, group work, classroom sessions, interacting with industry experts.

In the first training programme, agricultural training was given to 30 trainees from Liberia, Malawi and Kenya at the National Institute of Agricultural Extension Management (MANAGE), Hyderabad in January 2013. The topic of this two month training programme was agricultural extension management. It also included training on basic computer skills, internet and other information technology tools (Ministry of External Affairs 2013).

In phase 1 of the programme 219 participants were trained in agricultural marketing, food processing, and other agricultural practices to avoid post-harvest losses. In July 2016, the second phase of the programme was launched which involved training to 1500 professionals in the agricultural sector of Africa and Asia. The participating countries in Africa are and Malawi, Liberia, Mozambique, Kenya, Botswana, Ghana, Uganda, Democratic Republic of Congo, Rwanda, Tanzania, Sudan (Press Information Bureau 2016).

In India and Africa's cooperation in agriculture, improving the capacity building in agricultural technology management is one of the important focus areas. Indian Council of Agricultural Research (ICAR) with its vast experience can play an important role in improving Africa's agricultural education and research institutions. Along with it, private agricultural companies in India can also share their experience with African nations. Climate change and seed systems are the main areas where capacity building programmes can be initiated between India and Africa. Along with these more areas for cooperation in capacity building could be identified which will benefit both India and

African nations such as value chain development of pulses, grains, oil seeds (Shetty et al. 2021).

Efforts by Indian NGO in Capacity Building in Africa

The Self Employed Women's Association (SEWA), which is an Indian NGO shared its experience and knowledge in female empowerment in rural India with smallholder women farmers in Ghana. This has helped them to create a supply chain to export 200 tons of Shea butter to Japan. This export gives them good earnings to be self reliant. SEWA is also working for women farmers in other African nations such as Ethiopia, Burkina Faso, Nigeria, Mali, Zimbabwe, Kenya and Mozambique. (Udensi 2020)

ITEC for Agriculture

The Indian Technical and Economic Cooperation (ITEC) Programme was started in 1964 as the Government of India's bilateral assistance programme. Capacity building is one of the important activities in ITEC. In this, training programmes are arranged for people, students, professionals from developing countries in various training centres in India. These programmes are civilian as well as defence. In civilian programmes training is given on different sectors such as information technology, aeronautics, agriculture, entrepreneurship, etc. (ITEC 2022). African nations are one of the major recipients of these ITEC programmes.

Rwanda was not having capacity to distill the fragrances from the aromatic plants. They asked India to help them in distilling fragrances into oils and using them in bath oils, shampoos, etc. They asked ITEC organizers to conduct courses on capacity building in fragrances and flavours. About 20 young people from Rwanda were given training in the Fragrance and Flavour Development Centre, Kanuj in Uttar Pradesh. They were trained in recognizing various aromatic plants, how to do partial distillation so that different aromas and fragrances can be isolated. Also training was given on preparing usable products such as soaps, body oils, shampoos, etc. from the distilled aromas. ITEC organizers also did follow-up with the participants if they needed any further help.

Through ITEC, about 200 participants from Malawi, Kenya and Liberia were given capacity building training in agriculture. The training was given at the National Institute of Agricultural Marketing in Jaipur and the National Centre for Management of Agricultural Extension in Hyderabad about agricultural marketing, storage techniques, cold storage.

Conclusion

India and Africa's relationship in agriculture has come a long way. India's trade and investment in African agriculture has grown substantially. The partnership is seen in

upstream sector, food processing, capacity building and research and development in agriculture. India has various programmes in agriculture for Africa that are showing good results. Feed the Future India Triangular Training Program along with USA involves training of African farmers for increasing the agricultural productivity in Africa. Other programmes such as Platform for India-Africa Partnership in Agriculture (PIAPA), Cotton Technical Assistance Programme specifically focus on the development of the African agriculture through partnership with India (Biswas & Dubey 2014).

India-Africa Forum Summits (IAFS) have helped in the capacity building in agriculture in Africa. They have given importance to cooperation in agriculture. As a part of this cooperation, the Department of Agricultural Research & Education (DARE) of India has taken initiative of enrolling African students for various educational programmes in agricultural universities and deemed universities of Indian Council of Agricultural Research (ICAR). Also DARE has established some centres related to agriculture in Africa. These programmes are beneficial for African farmers to grow their agricultural sector (Ayyappan 2015).

India and Africa both need a strong agricultural sector that would create long lasting economic development. The cooperation in the research and capacity building will lead to growth of Africa's agricultural sector.

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India-Africa entrepreneurship; way for sustainable development

Aann Jerry

Introduction

Entrepreneurship has been globally acclaimed as the bedrock of any economy. Entrepreneurship is a major contributor to sustainable growth in modern times. It has been seen by many people literate and illiterate alike as the wheel through which the growth and development of economies all over the world revolves. Many countries of the world have practically applied entrepreneurship in their economic growth and development and have observed that it led to their survival, success and sustainability. Entrepreneurship is the professional application of knowledge, skills and competencies and/or of monetizing a new idea, by an individual or a set of people by launching an enterprise or diversifying from an existing one, thus to pursue growth while generating wealth, employment and social good (National Knowledge Commission, 2008:p.12). Entrepreneurship is therefore a key priority area with the potential to stimulate job and wealth creation in an innovative and independent way.

India's 1.3 billion people make it the second most populous country in the world, but with an average age of 29, it has one of the youngest populations globally. India is among the 'young' countries in the world, with the proportion of the work force in the age group of 15-59 years, increasing steadily (United Nations, 2021). Similarly in Africa, the working-age population of 15-64 years is forecasted to increase from 601.1 million to 1313.4 million (2020 to 2050) (UN, 2019). The large youth population offers both a workforce as well as a market. Entrepreneurs and start ups, are the source for large scale employment generation here, especially for the growing young population of India and Africa.

The Entrepreneur and Entrepreneurship

Entrepreneurs have been described as people who have the ability to see and evaluate business opportunities, gather the necessary resources to take advantage of them and initiate appropriate action to ensure success (Iuliana et. al 2014). The entrepreneur demonstrates a unique combination of energy, originality and shrewdness. Most importantly, entrepreneurs are the driving force of any nation; they are value added and represent the wealth of a nation and its potential to generate employment.

Entrepreneurship means much more than starting a new business. It denotes the whole process whereby individuals become aware of the opportunities that exist to empower themselves, develop ideas, and take personal responsibility and initiative. In a broader sense, entrepreneurship helps young men and women develop new skills and experiences that can be applied to many other challenges in life. Entrepreneurship is

therefore a key priority area with the potential to stimulate job and wealth creation in an innovative and independent way. Entrepreneurship provides young people across the nation with valuable life skills and tools to empower them to build sustainable and prosperous futures for themselves and their communities (Brown et.al, 2001) defines entrepreneurship as the process of creating value by putting together a unique package of resources to exploit an opportunity. Entrepreneurship is the ability to create and build something from practically nothing. It is initiating, doing, achieving, risk- taking, and building an enterprise. Entrepreneurship instills the enterprise culture into the individuals. It is actually, the functions of seeking investment, production opportunity, organizing an enterprise to undertake new production process, raising capital, hiring labour, allocating resources, and creating new enterprises (Global Entrepreneurship Monitor Report 2014:p.19).

Innovation and creativity are the prime elements needed for entrepreneurship. Innovation includes adding something new to an existing product or process. Innovation is the successful exploitation of new ideas. Innovation calls for special entrepreneurial and management skills, the cooperation of a committed workforce, finance and a climate which will create the optimum overall conditions to encourage success.

Creativity is marked by the ability to create, bring into existence, to invent into a new form, to produce through imaginative skill, to make to bring into existence something new. Creativity is also an attitude, the ability to accept change and newness, a willingness to play with ideas and possibilities, a flexibility of outlook, the habit of enjoying the good, while looking for ways to improve it.

Creativity and innovation are at the heart of the spirit of enterprise. It means striving to perform activities differently or to perform different activities to enable the entrepreneur deliver a unique mix of value. Entrepreneurs and enterprises are continuously creative and innovative to remain relevant to the customers, which is the purpose of every business.

According to the GEM (2015-16), within the individual economies, the highest average innovation levels with development levels, can be seen in Chile and India, where over half of the entrepreneurs have innovative product or services. Entrepreneurs are solid job creators. They stimulate growth, challenge orthodox methods and create new markets for goods and services.

Also, there is a strong relation between the youth and entrepreneurs. The EY Megatrends 2015 report, pegs nearly half of the world's entrepreneurs between the age of 25-44 years.

The top 10 sectors, wherein the youths have invested their ideas and talents are tabulated below:

Consumer Products	18%
Technology	15%
Media and Entertainment	11%
Hospitality	9%
Banking and Finance	5%
Automotive	5%
Construction	5%
Life Sciences	4%
Telecoms	4%
Utilities, Power and Cleantech	3%

Source: EY Global Youth Entrepreneurship Survey, 2015

It adds that, though entrepreneurs represent more than 75% of employment in the G20 and rapid growth economies, the alarming rate of youth unemployment is nearly 75 million. 77% of the world's most dynamic entrepreneurs expect to increase their total global workforce. These are likely to mentor, provide internships and apprenticeships to the youth of the world. 74% of the global entrepreneurs express confidence in a sufficient talent pool of young people with the right skills for their organization (EY Global Youth Entrepreneurship Survey, 2015).

The objective of the study:

India and Africa has a rising youth population. With the increase in population the unemployment status is also increasing. The youth in both regions could be channeled into entrepreneurial activities.

India and Entrepreneurship

Nasscom's annual report states, that India continues to be the third largest start up economy in the world. Following Start up India, PM also flagged off the 'Make in India campaign'. With the growing youth population, India needs to leverage its demographic bounty, to address the existent skill gap for the job seekers. Though the adult literacy rate (15 years and older) for both genders is increased from 1990 to 2015, the illiterate youth also needs to be considered for the job platform. The entrepreneurship set ups come handy for these. The growing potential for startups should augur well for the Indian economy because new venture creation has been statistically linked to both job creation and regional development.

In India, while most sectors have seen increasing influx of capital, fintech has been the biggest beneficiary of 2021. Fintech companies received a total of \$8 billion in 2021, saw 12 companies enter the unicorn club, and 3 companies go public. Having built highly scalable businesses before, these entrepreneurs have new and innovative approaches to building ventures, and are able to grow at a much faster pace (Agarwal, 2021). The other segment which has seen a rapid surge in 2021 is healthtech. Healthtech startups received a total funding of ~\$2bn in 2021, six times than that of 2020. Adoption of online healthcare was accelerated further by the newly launched Ayushman Bharat Digital Health Mission and universal Health ID by the government. Private players such as Eka Care partnered with the National Health Authority to create seamless workflows for the utilization of these initiatives. In the next few years, we will see technology penetrate the existing infrastructure within these segments to enhance customer experience and improve the following outcomes (Agarwal, 2021). Broadly startups can be classified under five heads:

a) means of livelihood b) due to policy support c) response to the needs of large firms d) innovative ideas based on knowledge acquired and experience gained over a period of time, and e) understanding wider market opportunities.

In an emerging economy like India startups have a different journey for emergence. In traditional manufacturing industries, they had emerged and continue to emerge as (i) cottage industries/household industries/handicraft artisans, which are run exclusively based on household labour and thus employed no hired labour, and (ii) unregistered workshops or artisan workshops, which hired labour. The latter is an extension of the former and is likely to involve a larger scale of production relative to the former.

In modern manufacturing industries and services, promoted since independence, startups can emerge as microenterprises or small scale enterprises or medium-scale enterprises (together known as the MSME sector), which are determined based on the scale of investment. In technology/knowledge intensive industries and services, startups are generally coming up as proprietorship or partnership firms or as private limited companies, based on the nature of ownership. Own account enterprises (OAE's) are also a great source of employment in India. These primarily represent livelihood based entrepreneurship. These are going strong in Indian economy, in terms of supporting subsistence livelihood to poor income-less educated households (Ministry of Finance, 2013). These start-ups have multiple sources of entrepreneurship such as ICT industries, higher education institutions (HEIs), public sector units (PSUs), research and development laboratories, technology business incubators (TBIs) and accelerators, return migration of highly qualified and resourceful Indians (entrepreneurs as well as former employees of MNCs) in the form of "reverse brain drain". The initiatives of National Association of Software and Services Companies (NASSCOM), Tata and some of

the MNCs, such as Microsoft and Cisco, promote start-ups in India. Informative programmes (such as Start-up Garage) enable prospective entrepreneurs to understand the “prerequisites” of entrepreneurship. Great Indian Start-up Carnival a Nasscom initiative, has initiated 10,000 Start-ups Programme with the support of Google, Microsoft, Kotak, Intel and Verisign. NASSCOM has also launched a NASSCOM Technology Start-up Registry and introduced start-up skills initiative (Express News service, 2018). NASSCOM had put up the assumption that 50,000 start-ups can generate about 3 million jobs and contribute 2 % of the GDP by 2020. Following this success, it came up with the launch of its third phase and 10000 startups.

Agro startups like Ubi Biotechnology Systems (V.I. Bishor), Farms and Farmers (Shashank Kumar) address to the income, productivity and farmers long term prospects. These agro setups help the farmers to set a right pitch to market their produce. Zone startup by Ajay Ramasubramanian started in February 2014, has taken in and incubated 106 startups of which more than 40 have raised funds of US \$35 million. Another startup incubator ‘Sandbox’ by Deshpande in 2008 is note worthy. Jet Airways pilot Amol Yadav, with his assembled 6 seater plane displayed at the Make in India campaign, symbolizes innovation. The government has nodded for the project with the allotment of a 157 acre plot in Palghar for six-seater and 20-seater planes (Mumbai Mirror, 2017). Over the decades, big ideas and successful entrepreneurs have made a mark in small-town India, as shown by the 20 profiles in the new book by Rashmi Bansal, *Take Me Home*. Start ups cater to the needs of the semi literate as well. The innovative cab service OLA (Bhavish Aggarwal) serves as a source of livelihood generation for the semi literate crowd of India.

For entrepreneurship to pick up in India, we need to work majorly on two aspects:

- To enhance the budding ecosystem of skills development, entrepreneurship-led education and mentorship here.
- Look into the need, for bringing in more risk capital to entrepreneurial activity.

Indian Premier Institutes Support Entrepreneurship Training

The country’s top educational institutions such as the IITs, IIMs and BITS Pilani (as also many others) are spawning a breed of top-notch entrepreneurs, who look upon failure as a badge of success—Sachin Bansal and Binny Bansal of Flipkart and Ankit Bhati of Ola are from IITs; Amiya Pathak of ZipDial and Niranjana KM who has set up a manufacturing unit for low-cost sanitary pads for rural India are from IIMs; Phanindra Sama, co-founder, redBus, is from BITS Pilani. Many of these institutes have extensive support systems and accelerators for entrepreneurs. IIT Bombay, for example, has a highly successful Entrepreneurship Cell while IIM Bangalore has the NS Raghavan Centre for Entrepreneurial Learning (NSRCEL). According to Research and Markets' 2011 report on

'Entrepreneurship Education in India,' in 2010, 1,500 students were being trained at institutions that are solely focused on entrepreneurial education, while 4,700 students were enrolled in entrepreneurship programs at different business schools and institutions across India (India Today, 2016). Even though enrolment doubles each year, it is far from meeting the nationwide demand for entrepreneurship training.

In rural areas, where about 70% of India's population lives, residents have few chances to take advantage of these opportunities. Government must simplify tax laws, reform investment regulations, reduce the number of procedures required to start a business, and reduce the time and cost of enforcing legal contracts and society such as increasing the interactions and collaboration among investors, aspiring or existing entrepreneurs, and advisers or educators. Government has come up with various policies and initiatives like the 'Startup' drive for the young entrepreneurs. PM has announced a self-certification scheme related to nine labour and environment laws. He also said that there would be no inspection during the first three years of the launch. Modi has announced an all-inclusive action plan to boost such ventures that would boost employment generation and wealth creation (India Today, 2016).

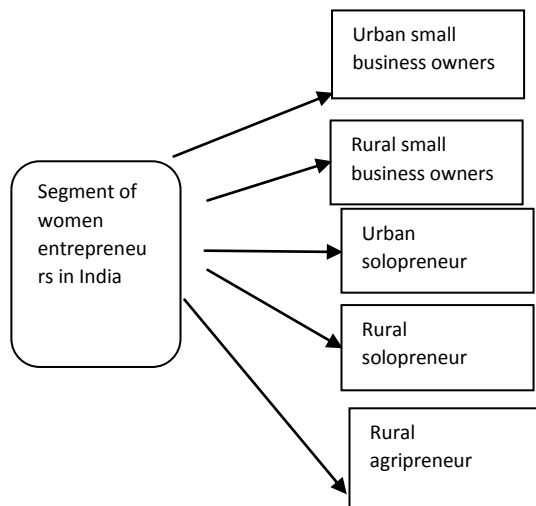
The CII has taken initiatives to establish PPP Start-up centres in the States - a new model institution for end-to-end incubation of potential entrepreneurs to build future business houses generating large scale employments. This incubation program will promote non-IT and rural entrepreneurship. The first ever initiative taken by policy makers, Technopreneur Promotion Programme (TEPP) is a mechanism to promote individual innovators to become technology based entrepreneurs. TEPP has 34 outreach centres across the country to promote individual innovators (Department of Science and Industrial Research, 2011:p.21). The introduction of Promoting Innovation in Individuals, Start-ups and MSME's in the 12th five year plan is another important development. Indian entrepreneurs have come to accept that success is built on the back of several failures and that there is deeper wisdom in iterative, independent and bold decision-making. The factors to be worked upon are:

- *Reliable support from honest and efficient government institutions is essential*
- *Indian entrepreneurs need more diversified, localized funding at the initial stage*
- *Indian entrepreneurs need more access to training and mentorship, particularly in rural areas*
- *Along with the entrepreneurial talents, willingness to take risks.*

NSIC has started a new initiative by entering into franchisee arrangements with private partners interested for setting up of Training-cum-Incubation Centres (NSIC-TIC) at various locations across the country under Public-Private Partnership (PPP) mode. NSIC has already set up more than 110 NSIC-TICs under Public-Private Partnership (PPP)

mode in the country. NSIC Training-cum-Incubation Centres provide an opportunity to first generation entrepreneurs to acquire skill for enterprise building and also incubating them to become successful small business owners. In order to inculcate a desire to become entrepreneur among the students NSIC has devised a unique 'Entrepreneurship Orientation Programme' (EOP). The program is specially designed for the students, who are still pursuing their studies in schools/colleges/institutions and do not have any idea about entrepreneurship.

Figure 1.1: Segments of Women Entrepreneurs in India



Source: Author Compiled

Her Second Innings (Manjula Dharmalingam) is a national network of women professionals to help women be financially independent. Sairee Chahal with Sheroes curates corporate jobs as well as flexible and work from home options for women who have taken a career break. Startups aim to tap into female workforce in small towns (The Times of India, 2017). The 6th Global Economic Summit on women's empowerment, organized by All India Association of Industries, held in March 2017, focused on Entrepreneurship, Innovation and Capacity Building.

Africa and Entrepreneurship

Africa's population (currently 1.2 billion people) is projected to more than double, by 2050. This entails a sharp increase in the youth population – by 2050, Africa will be home to 38 of the 40 youngest countries in the world, with median populations under 25 years of age (United Nations, 2019). As a result, the labour market will grow with an estimated 12 million new people joining the labour force each year (ILO, 2020).

The demographic challenge of ensuring adequate employment opportunities for the youth is both Africa's biggest opportunity and the biggest threat to its stability and growth prospects. So innovation is needed to capture the potential of Africa's youth bulge wherein Africans are dynamic and innovative. Countries with low human

development are establishing new businesses at a higher rate than more advanced ones. These countries are supporting higher levels of business ownership. Entrepreneurship in the provision of low-cost rural health and education services (including health insurance and e-learning) are among the sub-sectors being supported by the Boost Africa Initiative. The Boost Africa Initiative is a joint collaboration between the AfDB, the European Investment Bank and the European Commission, with other partners expected to join or co-finance. It has an initial budget of EUR 150 million to deliver innovative, additional and long-term financial capacities in Africa; provide business advisory services and skills transfer for youth entrepreneurs to help them grow in an efficient and sustainable way; and improve knowledge, information, and networks regarding the development of entrepreneurship and of small and medium-sized enterprises (SMEs) in Africa. Youth entrepreneurs are prioritised for support in sectors with development impact, including healthcare, education, agriculture/agribusiness, manufacturing and climate mitigation (African Economic Outlook, 2017).

Though women and men both are active in labour force and entrepreneurship, there is difference in activities they are involved with. Women are far more likely to be in self-employment, as opposed to being employers or wage workers. Women are more likely to be in smaller informal firms and in traditional lower-value-added sectors such as the garment and food processing sectors.

So the four factors recognized to expand opportunities for women entrepreneurs are:

- a) women's access to and control of assets and resources required for entrepreneurship
- b) education and experience, which are important drivers of economic choice, opportunity, and performance
- c) limited access to finance, which is a key obstacle to business development, and
- d) women's limited opportunities for networking and exclusion from decision-making bodies and from policy dialogue, especially in business environment.

The women LEED Africa programme has found solutions to these issues. Also, women need to be active in business environment reform as the perspectives they bring, are quite often different from those of their male counterparts. Taking the steps, Africa business network identifies some useful experiences of promoting businesswomen's associations, and some important new initiatives to amplify the voices of women entrepreneurs in policy making and in investment-climate reform (African Economic Outlook, 2017).

Women's Business Associations tend to provide direct support to women's businesses, through networking, developing market opportunities, improving business skills, and getting finance. The Africa Business Women's Network, brings together women's business associations from several African countries; providing an umbrella to support various national hubs to develop women's business associations, strengthening their

capacity to serve members, and lobbying for policy changes in the business environment.

In Africa, Huffington post Uganda has the highest percentage of female entrepreneurs in the world, with 90.5 percentage of women borrowing and saving money to start a business. In a report based on Master Card Index of Women Entrepreneurship, it was highlighted that 34.8 percent of businesses in Uganda are owned by women, making the East African nation the top performing country in Africa in terms of women entrepreneurship. Women entrepreneurs are powerful engines of economic development and financial inclusion, especially in developing economies like Africa. Helping women entrepreneurs develop viable and productive firms requires an integrated strategy by improving women’s rights to make decisions about their own lives and enterprises with adequate, flexible and affordable financial services and business education.

Table 1.1: Leading African countries in the Mastercard Index of Women Entrepreneurs in 2021

African Countries	Women Entrepreneurs (%)
Botswana	56.3
South Africa	54.9
Ghana	51.1
Madagascar	44.3
Nigeria	43.8
Uganda	43.8
Ethiopia	43
Angola	42.4
Tunisia	41.7
Morocco	38.6

Source: Mastercard Index of Women Entrepreneurs, 2021

So lets list the challenges facing the female entrepreneurs in Africa;

- I. Lack of financial funding or venture capital
- II. Women in many African communities are still not allowed to own property, they encounter numerous hurdles trying to access credit facilities from financial institutions as they have nothing to offer as collateral. Often women endure harassment and discrimination in the market place and from government and financial institutions.

III. Institution inefficiencies and regulatory restrictions, lack of confidence and entrepreneurial drive, socio-cultural restrictions, fear of failure, and lack of training.

Thus women can be viewed, as the change agents for entrepreneurship, here in Africa (Ngugi, 2017). Africa's Grow Movement is a successful example of an organisation that offers innovative, inclusive and empowering business education services to women entrepreneurs.

Having understood the influences, factors and agents responsible for the entrepreneurial and economic upliftment of the African continent, there exists common political will and shared development agenda for prioritising human development to support entrepreneurial development in Africa. These include UN 2030 Agenda (SDGs), African Union Agenda 2063 and the AfDB's High 5s priorities, which place human development front and centre for achieving entrepreneurial growth. These agendas set out pathways towards sustainable jobs, enhanced entrepreneurship skills, and accelerated economic diversification and growth.

If Africa is to reap the benefits of its demographic dividend by achieving lasting improvements to the lives and livelihood of Africans, the African governments working with development financiers and the private sector needs to invest in human development.

Government Policies Supporting Entrepreneurs

Governments can design industrialisation strategies to promote entrepreneurship in the continent. Innovative industrialisation strategies should be participative, multi-sectoral and place based. Some African industrialisation strategies prioritise private sector development, including entrepreneurship. For instance, Ethiopia's Industry Development Strategy identifies small and medium-sized enterprises (SMEs) as an important sector for domestic entrepreneurs and for employment creation.

According to a survey of 42 African countries and research conducted for this report, national entrepreneurship strategies often aim to reduce poverty by stabilising income for survivalist microenterprises. They rarely aim to increase waged employment and productivity necessary for industrialization. Several African governments have effectively integrated entrepreneurship development into their industrialisation strategies.

- a) One example is Morocco's Industrial Acceleration Plan 2014-2020, which lays out special measures to support entrepreneurship growth through five pillars of self-employment, social security, financing, taxation and direct support to entrepreneurs through coaching, financing and digitalization.

b) Another example is Côte d'Ivoire's development plan for the ICT sector, by reducing start-up costs, investing in infrastructure and improving the legal framework. This initiative helped the country climb to 142nd position in the Doing Business 2017 ranking (World Bank, 2016).

To make entrepreneurship sustainable, the continent needs to find ways and adhere to it.

- Each country must develop its own policy mix based on its resources, development vision, technological capability and production systems. All policies should follow the development stages of business: from seed to start-up, growth and expansion.
- A holistic policy approach is needed to strengthen entrepreneurship for Africa's industrialization and tackle hindrances like improving skills of entrepreneurs and of workers in general and aligning them with labour market needs.
- The second policy area relates to grouping firms in business clusters, such as industrial parks and special economic zones, which can promote start-ups and increase the productivity of the current firms.
- The third important policy area is improving firms' access to funds.
- A lack of managerial skills is one of the main constraints to successful entrepreneurship in Africa which together with inadequate worker skills, hampers Africa's productivity and competitiveness and holds back industrialization (UNCTAD, 2017).
- Africa will have to prioritise education and upscale its investments in the quality of its workforce in order to partake in the new industrial revolution with improved school systems to equip entrepreneurs and workers with the skills. It is suggested that, formal education in Africa could integrate entrepreneurship training with the syllabus.
- Also, vocational training could be used as a tool for productivity gain by entrepreneurs. Business schools and colleges for technical and vocational skills development (TVSD) could develop stronger links to the commercial sector and focus on apprenticeships, management support and lifelong learning for entrepreneurs of small firms (AfDB, 2016). The AfDB launched a Skills Enhancement Zones (SEZs) programme in 2016 to develop young entrepreneurs and enhance the skills of youth to meet private sector needs.
- In formulating policies, priority actions differ according to the skill level in a country and the proportion of survival entrepreneurs.
- Countries with lower skills profiles and a higher proportion of survival entrepreneurs could encourage survival entrepreneurs to shift to wage

employment by providing on-the-job or applied training programmes. Countries with higher skills profiles and a smaller population of survival entrepreneurs could promote on-the-job learning through certified courses. Mentoring and enhanced cooperation with foreign companies could also promote the transfer of specialized skills to local workers (AfDB, 2016).

Co-operation between governments, development partners and the private sector is key to increase entrepreneurs access to finance. Initiatives such as Boost Africa, jointly launched by the AfDB, the European Investment Bank and the European Commission, allow mobilizing private capital through initial public investments.

India -Africa Entrepreneurial Collaboration

India-Africa Entrepreneurship Forum (IAEF) has been dedicated to the cause of uplifting the entrepreneurs of both regions with the needed resources and capacity. Africa's fifty-four states produced a combined GDP in excess of US\$3.2 trillion - almost the same as India. The economic growth of the continent which is estimated to be 3.2 percent in 2022 also houses six of the world's fastest-growing economies. This forum harness the creative capacity of entrepreneurs in both regions to work together to solve common and pressing problems and accelerate trade and investment in the process. Educational institutes like SRM in partnership with MEA had organized enterprise development programmes for about 200 African students. Under the theme "Don't Hunt for the Job- Be your Own Boss", conducted at SRM University in March, 2015 was to encourage them to start their own enterprises and make their country self-reliant and sustainable in the competitive market (SRM Institute, 2015).

India through its South -South co-operation model, has been deepening the India-Africa partnership in all important areas of inclusive development, financial inclusion and poverty reduction. India with its multi- dimensional engagement with focus on capacity building, training, trade and technology transfer, has been committing its resources and expertise for the African renaissance. In this dimension, India has been proactive with its network of agencies to cooperate with Africa to create a new paradigm of inclusive development. In this regard, BASIX Social Enterprise Group with its holding company, Bhartiya Samruddhi Investments and Consulting Services (BASICS Ltd.), is playing a critical role in aiding sustainable livelihood and financial inclusion through its new generation livelihood promotion institution. The overall goal of BASIX's African Livelihoods Partnership (ALP) was to enhance livelihoods of the poor in select African countries in a sustainable, scalable and innovative manner. ALP would work with vulnerable populations like smallholder farmers, including pastoralists and fishermen, women as micro-entrepreneurs and homemakers, and the youth, who are aspiring and

jobless (Arora and Chand, 2015). Transformational change is catalysed through the three interventions:

- Inclusive financial services through access to savings, payments, insurance and credit, especially for women. For youth, the focus would be on savings or participatory finance for start-up enterprises.
- Agriculture and rural development by mitigating the risks of the farmers by helping them to participate in smallholder value chains of the commodities they produce.
- Human resource development focused on youth self employment, promoting youth entrepreneurship through agro-enterprises and franchises, post vocational education and training

ALP with BASIX has started work in March 2013 in Tanzania, Mozambique and Cameroon. These involve identifying the gaps in the developmental efforts related to the three areas of intervention in each country, followed by innovative solutions catering to the identified gaps. The focus of ALP is first on entrepreneurship, and then to work with local partners to catalyse the availability of vocational training and self-employment promotion services. Field innovations, which have a good local acceptance are then scaled up and mainstreamed through a key institutional partner. The captured lessons from Africa, are disseminated to the policymakers, first in the country of intervention, then more widely in Africa and India with the help of aid channels. Thus, the learning is two-way and fed back to the project countries.

Among specific activities include, setting up five Livelihood Business Centres (LBC) including two in Tanzania and three in Mozambique.

A) Strategy of LBC's:

These are identified as business model eco-systems to provide farmers with financial services (credit, savings and insurance) along with technical assistance to improve agronomic practices that enhance agricultural productivity and fetch them higher and remunerative prices through linkages to markets. Farmers, as partners in the LBCs, build their capacity to become self dependent on their own finances and market infrastructure. ALP also works with a few women's economic groups (WEGs) in the rice and cassava value chains along the Beira corridor in Mozambique (Arora and Chand, 2015).

B) Aim of LBC's : Livelihood Business Centres were set up to offer:

- Financial assistance to implement the women's business plans
- Skill development
- Secondary income generation activity
- Diversification of agriculture crops

- Access to additional raw materials to run processing centres at full capacity
- Access to quality fertilisers based on soil testing reports and agro-climatic zones
- Infrastructure for storage
- Market linkages and private sector involvement
- Entrepreneurship Development Programme

C) Projects of LBC's: In Tanzania ALP is involved with youth entrepreneurship programmes, to find sustainable means of livelihood. ALP has partnered with the central, regional and local governments to train community development officers under Training of Trainers (ToT) mode for entrepreneurship development among rural youth and women by building capacities and improving existing livelihoods, or setting up new enterprises. These have opened up avenues for income generation and self employment for the youth.

ALP's innovative model could be witnessed in the Country Chicken Poultry Project initiated in 2014, where the youth were encouraged to build chicken cooperatives with their own resources. Under the programme to develop entrepreneurial skills in youth through local chicken rearing, ALP is working with 236 members from 16 groups.

ALP is working for capacity building of Caixa Mulher, a women-only microbank, at Matola in Mozambique, owned equally (50:50) by GAPI and a group of private women investors. Caixa Mulher has been permitted by the Bank of Mozambique to expand its outreach by growing its branch network to other geographical locations in Mozambique (Arora and Chand, 2015).

D) Impact on the Development of Entrepreneurial Skills: ALP has worked with 823 young individuals to develop their entrepreneurial skills. A pool of professionally trained government officers in Mwanza and Dodoma regions of Tanzania has been created. ALP was able to reach 25 district youth officers and women development officers, who in turn reached 14 districts and through ward level youth and women development officers trained 587 youth and women group members to develop entrepreneurial skills.

The slew of programmes launched by ALP has managed to gain momentum, with the help of BASIX to make them sustainable through its uninterrupted services.

Conclusion

India and Africa can involve the youth population in entrepreneurial activities. The evident working age population is a rich resource to be absorbed in business activities. As both the regions have a considerable amount of people who lack qualifications and skills for formal jobs they can be trained for entrepreneurship ventures.

In this aspect;

- Government can design industrialization strategies to promote entrepreneurship

- Each region may develop its own policy mix based on resources, development vision, technological capacity, and production systems.
- To prioritise secondary education with an improved school syllabus to include entrepreneurship skills.
- India-Africa Entrepreneurship Forum harness the creative capacity of entrepreneurs in both regions to work together to solve common and pressing problems and accelerate trade and investment in the process.

India and Africa can go for joint programmes through South-South Cooperation, MEA and educational institute tie-ups, and other entrepreneurship forums for bolstering the trade, economic, and bilateral relations. These ventures can train the African students with the needed skills, knowledge, and expertise to start their business.

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- Book reviews must contain the name of the author, year of publication, title of the book, name of publisher, place of publication and the number of pages. The name of the reviewer and full particulars of his/her affiliation should appear at the end of the text and the review should be between 1,200 and 1,800 words.
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