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A F R I C A N C U R R E N T S



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Cover photo: India's Vaccine Maitri programme

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Editor's note

This issue of *African Currents* contains articles written by Indian scholars studying the different aspects of African affairs.

In her article 'India-Ethiopia: Capacity Building and Skilling People', Sanju Prasad has explored the Ethiopian higher education sector and its legislative policy framework. She has presented the challenges that the Ethiopian education sector faces: low quality of teaching, limited availability of learning resources, and decreased admissions to the higher education sector. The article emphasises India's public and private cooperation with Ethiopia in education, specifically how investments from the Indian private industry have contributed to the education sector in Ethiopia. Moreover, India-Africa Forum Summits (IAFS) have contributed to capacity building in Africa. The Indian government has undertaken initiatives under the IAFS for African education, such as solar multi-utility centres and India-Africa vocational training centres. Indian Technical and Economic Cooperation Programme (ITEC) is one such successful programme by India in Africa. In addition, the Indian government is giving different fellowships and scholarships to Ethiopian students. Many Indian teachers are part of the Ethiopian education system. A case study on Barefoot College, an NGO in Tilonia (Rajasthan), is included. Here, mainly rural women from Africa with no formal schooling trained women in other countries for solar electrification.

The article 'The COVID-19 Pandemic in Africa: Current Scenario and Support by Indian Pharmaceutical Industry' by Sandeep Shede describes the current scenario of the COVID-19 pandemic in twenty African countries, such as South Africa, Morocco, Tunisia, Egypt, and Ethiopia. He has highlighted data about the cases and the mortality of the COVID-19 pandemic. The article has delved into the reasons for the spread of the virus in Africa: an import-dependent local pharmaceutical manufacturing industry, insufficient testing, lack of required public healthcare infrastructure, and high prevalence of existing diseases. In his article, Shede has shared the role of the Indian pharmaceutical industry in supporting African countries

through the export of pharmaceuticals and vaccines. He also suggests that African countries take measures to reduce the impact of the Covid-19 pandemic on their healthcare system and economy.

Mahadeo Ghadge, in his article entitled 'COVID-19 and its Impact on Employment in India and South Africa', shows how COVID-19 has affected the labour market and working conditions in India and South Africa; there is a focus on the informal sector. There has been a shift from offline to online work. Workers in the unorganised sector have been negatively impacted, as they cannot afford to make the transition without accessibility to the required technology. Due to low or no demand, many industries have closed, which has adversely affected the labour force in these industries. The governments India and South Africa have initiated government schemes to assist workers; however, maintaining a healthy work environment is a challenge.

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List of Acronyms

AISHE - All India Survey of Higher Education
CD - Communicable Diseases
CMIE - Centre for Monitoring Indian Economy
CRAM - CoronaVirus Rapid Mobile Survey
DARE - Department of Agricultural Research and Education
EDQM - European Directorate of Quality Medicines
ESDP - Education Sector Development Programmes
ETP - Education and Training Policy
GDP - Gross Domestic Product
HFC - Housing Finance Companies
IAFS - India -Africa Forum Summit
ICAR - Indian Council of Agricultural Research
ICCR - Indian Council for Cultural Relations
ITEC - Indian Technical and Economic Cooperation
JDY - Jan Dhan Yojana
MFI - Micro-Finance Institution
NBFC - Non-Banking Financial Institution
NCD - Non-Communicable Diseases
NIDS - National income dynamic study
PAENP - Pan-Africa E-Network Project
PDS - Public Distribution System

R&D - Research and Development

REW - Rural Electronic Workshop

SARS - Severe Acute Respiratory Syndrome

SMU - Solar Multi-Utility

SRD - Social Relief of Distress

TERI - The Energy and Resources Institute

UIF - Unemployment Insurance Fund

UNDP - United Nations Development Programme

VTC - Vocational Training Center

1. India-Ethiopia: Capacity Building and Skilling People

Sanju Prasad

Introduction

The government of Ethiopia (GoE) recognises the impact that higher education, skill development and capacity building have on the country's development. This paper offers a background of the Ethiopian higher education sector and its legislative policy framework. The report focuses on India's public and private cooperation with Ethiopia in the education field. This paper studies the long-standing relationship between India and Ethiopia, emphasising education to understand how and to what degree India's efforts have helped improve the standard of education, particularly technical education in Ethiopia. Initiatives in the government sector include the Pan-Africa E-Network Project (PAENP) – a tele-network launched in Ethiopia to provide education and enhance access to technical courses at universities in Ethiopia; the *e-Vidya Bharti* project phase II of the PAENP; and various Indian Technical and Economic Cooperation (ITEC) schemes. The Indian Council for Cultural Relations (ICCR) and C.V. Raman scholarships have been expanded to students from Africa and Ethiopia with the highest number of slots. This paper also explores how investments from the Indian private sector have contributed to the education sector in Ethiopia. Through the illustration of the Barefoot College, an NGO in Tilonia (Rajasthan), this paper highlights the significant impact of capacity building and skilling on mainly rural women who have had no formal schooling.

1. Ethiopia's Higher Education Sector: A Background Note

Ethiopia has made significant strides in education, mainly through registration in elementary schools. The country aims to get out of deprivation by ensuring that children have access to a good education because children and young people make up 48 per cent

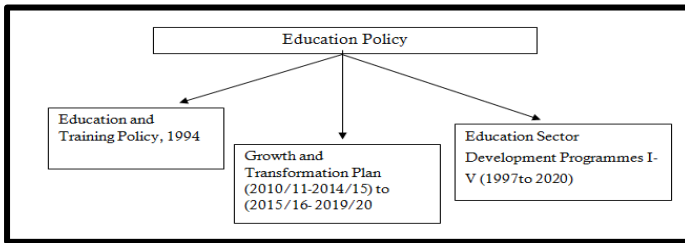
of the Ethiopian populace (United Nations Children's Fund 2018, Mellsoy 2019). The cumulative youth literacy rate (percentage of people aged 15-24) grew from 49.9 per cent in 2005 to 72.7 per cent in 2017 (World Bank 2020). At the primary stage, net enrolment rates for girls have also increased from 51.8 per cent in 2004 to 95.5 per cent in 2017. Although many children are registered in school, only 85 per cent have passed 5th grade, and 54 per cent have cleared 8th grade. Approximately 63 per cent of students in low primary schools do not achieve the critical learning outcomes required to succeed in higher education (United Nations Children's Fund 2018, Mellsoy 2019, Ministry of Education 2016). Most children do not finish their schooling, and therefore, the government makes concerted efforts to overcome this problem. Higher education is of great significance in Ethiopia (Africa's higher education sector -See Appendix I and II).

The following section underscores the limitations of Ethiopia's public sector education system in addressing the increasing social demand for education. It also studies the country's education policy framework in detail. (See Appendix VII).

1.1 Policy and Legislative Framework

In 1994, the Ethiopian Education and Training Policy (ETP) paved the way for private investors to become involved in education (Ministry of Education 2015). ETP has laid the foundations for the growth of the education sector. One of its main aims was to provide primary education for all, respecting the freedom to learn in their language of nations/nationalities. ETP also acknowledges the rights of disabled and gifted children to education "to allow both disabled and gifted children to learn according to their potential and needs" (Ministry of Education 2016). Ethiopia's development strategies and policies align with the country's social and educational development policy and plans. Figure 1.1 details the timeline of Ethiopia's education policy and plan.

Figure: 1.1: Timeline of Ethiopia's education policy



Source: MoE 2015; UNICEF 2017; Teferra et al. 2018
<https://www.bbc.com/news/world-africa-54343598>

The ESDP V (2015/16-2019/20) aims to improve the quality of teachers, reinforce core fundamental abilities. As it was distinct from that of the other ESDP stages, this was a much- appreciated focus field. ESDP V prioritises equal opportunity and participation for all, with a specific emphasis on underprivileged communities and the specification of excellence teaching that addresses the diverse knowledge needs of all children (Ministry of Education 2016).

The priorities of the ESDP V align with GTP-II, which emphasises economic growth and industrialisation. The GTP II framework outlines the expected structural changes in the economy over five years (2015/16 to 2019/20). It also talks about the importance of education and training in the emerging economic and production sectors as the primary source of supply of human capital (Ministry of Education 2015, Teferra et al. 2018, Atherton & Outhred 2018). Ethiopia has made substantial progress, but the higher education sector still faces many challenges.

1.2 Challenges Faced by the Higher Education Sector

Despite the progress in recent years, the Ethiopian higher education sector is adversely impacted by multiple challenges in the process of its growth and development. Some of these challenges include:

- Decreased quality of education,
- Unavailability of teachers due to low salaries,

- Poor English language abilities of both teachers and students,
- Decreasing quality of teaching and learning,
- Low enrolment rates in higher education,
- Inadequate investments in laboratories and human resources in education, and
- Shortage of teaching aids and textbooks (Confederation of Indian Industry 2019, Mba 2017).

The development cooperation of India with Ethiopia in the education segment has the potential to address some of the challenges listed above in the following ways and therefore the collaboration is of significance;

- Ethiopia has invited several Indian teachers to teach in elementary and secondary schools (ANI 2017).
- Indian teachers who are hired are excellent educators as they have a good command over English and respect the culture of Ethiopia (ANI 2017).
- In Ethiopian universities, Indian scholars form one of the largest and most respected expatriate teaching groups. They help boost the standard of teaching. (India Education Diary Bureau Admin 2017).

In addition, there is increasing collaboration between the government and private sector between India and Ethiopia, in the higher education sector.

2. India-Ethiopia: Public and Private Sector Collaborations in Higher Education

There have been numerous Indian interventions in Ethiopian higher education through the public and private sectors. The main objective of these initiatives is to increase access throughout Ethiopia.

2.1 Indian Public Sector Interventions in Ethiopia's Higher Education

Like India, Africa too has abundant human and non-human resources. India's comparative advantage lies in the spheres of capacity-building, skill development, and education and training. The three IAFS have a platform for both India and Africa to strengthen their economic, diplomatic and global engagements.

India -Africa Forum Summits (IAFS): Capacity Building Initiatives:

The three IAFS committed to undertake capacity building initiatives for the development of Africa's education sector. It was agreed that African countries would provide India with the required legal clearances from the concerned governments, access to land and infrastructure and any other necessary support to realize this goal. Additionally, India also promised to provide training and funding for certain projects and schemes in Africa (Ministry of External Affairs 2015). The following table provides details about the various initiatives committed by the various IAFSs and undertaken by India to develop capacity in Ethiopia in the education sector.

Following the successful implementation of IAFS-I, the MEA launched IAFS-II, in which several commitments were made to further improve capacity building and knowledge transfer for the Ethiopian in the higher education sector. As a result, in various parts of Ethiopia, Solar Multi-Utility (SMU) centers, India-Africa Vocational Training centers (VTCs)/Incubation centers (ICs) and India-Africa Women Solar Engineer Vocational Training centers were set up by the Indian Council of Agricultural Research (ICAR) and the Department of Agricultural Research and Education (DARE).

Besides the various capacity building initiatives, the Gol also provides many scholarships to Ethiopian students. These include the scholarship under the Gol's flagship ITEC, ICCR and C.V. Raman scholarship. These are explained in detail in the following sections.

Table: 1.1: Initiatives in the education sector

Institutes	Countries	Status	Estimated budget (in Rs)
Solar Multi-Utility (SMU) centres in African Countries under IAFS-II	Kenya, Ethiopia and Malawi)	A team of experts visited Kenya, Ethiopia and Malawi to conduct a feasibility study for project implementation	Rs.87.90 lakhs
India-Africa Vocational Training Centres (VTCs)/ Incubation Centres (ICs) under IAFS-I	Ethiopia, Burundi, Mozambique, Rwanda, Burkina Faso, Egypt, Libya, Zimbabwe, Gambia and Liberia	Project completed and handed over to FeMSEDA ¹ , Ethiopia on 15 Nov 2013	Rs. 50.00 cr
India-Africa Women Solar Engineer Vocational Training Centers in Africa under AIFS-II	Senegal, Tanzania, Burkina Faso, Liberia and Ethiopia	Procurement of equipment, tender process is underway. Aims to train rural women in Africa as Solar Engineers	Rs. 12.42 cr.

Source: MEA Outcome Budget 2017
https://www.mea.gov.in/Uploads/PublicationDocs/26823_1-MEAOutcome 2016-17_English_1.pdf

¹ Federal Micro and Small Enterprise Development Agency

Indian Technical and Economic Cooperation Programme (ITEC)

In 1969, Ethiopia became an ITEC partner country and India began to aid capacity building efforts in Ethiopia. They have received experts, and sent candidates for training in India; they have also received supplies of equipment under this programme. Going forward, given Ethiopia's emphasis on capacity building in the science and technology sectors, India and Ethiopia could further strengthen bilateral ties through the offer of more ITEC training in courses like information technology, tool design, and hydrology, which would dovetail neatly with Ethiopia's Over the years, there has been an increase in the ITEC slots allocated to students from Ethiopia (Indian Development Cooperation Research 2015).

Table: 1.2: ITEC Slots provided by India to Ethiopia (2007-2019)

Year	Slots provided
2017-18	250
2018-19	400
2019-20	406

Source: The Embassy of India, Addis Ababa, Ethiopia, 2020; MEA, 2020 <<https://indembassyeth.in/india-ethiopia-commercial-relations-2/>>

ITEC slots provided to Ethiopia have been increasing, as shown in Table 1.2 above – from 250 in 2017-2018 to 406 in 2019-20. As of 2020, almost 2574 Ethiopian students have been sent to India under the ITEC. For developing countries, the ITEC programme is a manifestation of South-South Cooperation. Initially, the impact of the ITEC programme was limited but over the years the diversified offerings of the ITEC programme have proven to be valuable for their development process (Singh 2019).

Figure 1.2: ITEC Day celebration in Ethiopia



Source: Embassy of India in Ethiopia 2017
<<https://eoiaddisababa.gov.in/itec-day-2017-celebrations/>>

Indian Council for Cultural Relations (ICCR) Scholarship Schemes

The Indian Council for Cultural Relations (ICCR) was founded in 1950 by Maulana Abul Kalam Azad, independent India's first Education Minister. Its objectives are to actively participate in the formulation and implementation of policies and programs pertaining to India's external cultural relations; to foster and strengthen cultural relations and mutual understanding between India and other countries; to promote cultural exchanges with other countries and people, and to develop relations with nations (Indian Council for Cultural Relation 2019).

Table 1.3: ICCR scholarship provided by India to Ethiopia (2019-2022)

Year	Scholarship	Courses
2019-2020	50	undergraduate, postgraduate, Ph.D. and postdoctoral courses
2020-2021	55	undergraduate, postgraduate, PhD and postdoctoral courses
2021-2022	60	Under-Graduate/Post Graduate/PhD and postdoctoral courses

Source: The Embassy of India, Addis Ababa 2021
<<https://eoiaddisababa.gov.in/iccr-scholarship-for-the-academic-year-2021-2022/>>

The Indian Council for Cultural Relations (ICCR) Government of India has decided to offer 60 scholarships to meritorious nationals from Ethiopia for the academic session 2021-22 for pursuing studies in Under-Graduate/Post Graduate/PhD and Postdoctoral courses, for which facilities are available in the Indian Universities/Institutions (The Embassy of India, Addis Ababa 2021).

The C. V. Raman Fellowship

This scholarship was initiated in 2010. Ethiopian students who are awarded the fellowship get the privilege to conduct joint research with leading research groups at Indian universities and scientific and technical research and development institutions (FICCI and Department of Science and Technology, 2016). India agreed to give 1000 C.V. Raman Scientific Fellowships to African people from 2015 to 2020 over a 5 year period during IAFS-III (The Embassy of India, Addis Ababa, Ethiopia, 2019). In June 2016, India received approximately 600 applications from African students for the fellowship. Out of these, only 112 candidates were awarded with the fellowship, 23 of whom were Ethiopian candidates (FICCI & Department of Science and Technology 2016).

Table: 1.4: C V Raman awarded candidates in 2016

Sr. no.	Candidate name	Fellowship Type
1	Mr. Michael Gidey Gebru	Visiting Fellowship
2	Dr. Molalegne Bitew Aseres	Visiting Fellowship
3	Mr. Abraham Yirgu Wondimtegegne	Visiting Fellowship
4	Mr. Asrat Endrias Kahsay	Visiting Fellowship
5	Mr. Tamrat Woldegebriel Woldemariam	Visiting Fellowship
6	Mr. Dereje Nigussie Woldemichael	Visiting Fellowship
7	Mr. Tariku TessemaRegassa	Visiting Fellowship
8	Mr. Tsehayneh Geremew Yohannes	Visiting Fellowship
9	Dr. Achenef Melaku Beyene	Doctoral Fellowship

Source: FICCI and DST, 2016

<<http://www.indoafrica-cvrf.in/img/Result-Awarded-2016.pdf>>

The fellowship brings together scientific communities in India and Ethiopia (as well as the rest of Africa) to discover gaps in education and provide solutions to these problems through research. Many Ethiopian students consider the fellowship a positive initiative because it shares the experiences of India in research and

education, which can be directly adapted and used by them in their home context (The Embassy of India, Addis Ababa, Ethiopia 2019).

After the successful implementation of Phase I of the Pan-African e Network project, the GoI began the development of Phase II which is known as the *e-Vidya Bharati* project.

E- Vidya Bharati (Tele-Education): Phase II

The agreement for the implementation of the *e- Vidya Bharati* (e-VB) project was signed on the 10th of September 2018 and it was set up on the 7th October, 2019 (Ministry of External Affairs, 2019). The MoU established the project as part of a larger pan Africa e-network project on education. According to the Indian Minister of External Affairs, Sushma Swaraj;

This e-VidyaBharati Network project serves as yet another online portal between our nations, further reducing the gap between India and Africa. It is a clear effort by India to collaborate with Africa in the areas of education...This e-network aims at providing quality tele-education facilities by linking select Indian Universities and Institutions...to African educational institutions (Business Standard, 2018).

Salient Features of the E- Vidya Bharati Project:

- This e-network aims to provide quality tele-education facilities by connecting African educational institutions to selected Indian universities and institutions,
- Over their five-year term (2019-2024), they give free tele-education courses to 4000 learners per year from African nations,
- Through this e-network, African students will have access to over 500 degrees in different fields, namely engineering, technology, education, mathematics, science and arts. Teacher training will also be provided by beamed tele-education from India, and

- The e-VB project also offers 15,000 scholarships to Africans to undertake undergraduate and graduate degrees at India's leading government and private universities (Ministry of External Affairs 2019).

2.2 Collaborations in Higher Education through the Private Sector

There are 993 universities, 39931 colleges and 10725 stand-alone institutions in India, according to the 2018-19 All India Survey of Higher Education (AISHE) report. 298 universities (i.e. they had colleges) were affiliated in 2018-19 and 385 universities were privately run and 394 universities were located in rural areas. Uttar Pradesh, Maharashtra, Karnataka, Rajasthan, Haryana, Tamil Nadu, Gujarat and Madhya Pradesh were among the top 8 states with the largest number of colleges in India. Total enrolment in higher education, with 19.2 mn male and 18.2 mn female students, is estimated at 37.4 mn. Thus, female enrollment accounts for about 48.6 per cent of the overall enrollment rate (All India Survey Higher Education 2019).

Table 1.5: Ethiopian students in India (2018-19)

Course name	Male	Female	Total
Ph.D.	281	14	295
PG	211	41	252
UG	216	104	320
PG Diploma	02	-	02

Source: All India Survey Higher Education (AISHE) 2019
<http://aishe.nic.in/aishe/viewDocument.action?documentId=262>

India is the most favored destination for higher studies for Ethiopian students. This is due to the excellent opportunities for higher

education that India offers at costs, which are available at a fraction of the price in the US and Europe. Apart from self-financed students, an increasing number of Ethiopian students attain scholarships for higher education in India. It is evident that in all courses, females have a lower enrollment rate than male students. Ethiopian students mainly come to India for PhDs. The PhD enrollment rate is thus 295, out of which, 281 are male and 14 are female (as of 2018-19) (AISHE, 2019). India to be centres of excellence for training, research and development in science, engineering and technology Ethiopia's Ministry of Education decided to collaborate with the University of Kanpur, Delhi and Bombay, Pune, Hyderabad, Chennai and Bangalore to improve the quality of postgraduate studies, Master of Science (M.Sc) and Ph.D, Master of Technology (M. Tech) courses and to develop their faculty. Given the reputation India has had in the education sector, Indian teachers have been in demand in Ethiopia since the early 1970s.

Indian Teachers in Ethiopia

Indian teachers are in high demand in Ethiopia. They have been hired since the early 1970s to teach in primary schools in remote regions of the country. Ethiopian universities rely on commercial Indian recruitment agencies to find suitable candidates. The interviews are carried out in India in the presence of an Ethiopian committee. This is an example of the South-South model of migration of highly skilled people (Thubauville, 2013). Indian teachers were welcomed to teach in elementary and secondary schools when Ethiopia embarked on its efforts to develop its education sector. Those early pioneers travelled to the nation's most remote areas, inculcated youth brains with morals and values and dedicated their entire lives to the noble mission of education (Business Standard 2017). Partnership in education has therefore become a focal point for Indian engagement with Ethiopia. Approximately 2,000 Indian lecturers contribute to teaching and academic research at institutions in Ethiopia and are the largest and among the most respected expatriate teaching groups and promote connections and research collaborations between universities and educational institutions (Business Standard 2017). Indians are hired at a higher expatriate salary, which attracts many Indian academicians to Ethiopia. However, there are several other

reasons why Indian academics migrate to Ethiopia in large numbers. Some of these reasons are explained below:

Reasons for Migration of Indian Academics to Ethiopia

There are various factors that influence academic migration from India to Ethiopia. These are:

- The salary is the first factor that attracts Indian scholars to Ethiopia. Indian private education institutions' payments are half or one-third of the salary earned by teachers at Ethiopian institutions. In addition to higher pay, the saving potential in Ethiopia is also high, as most scholars can save up to 75-80 per cent of their wages (Thubauville 2013).
- The salary of Indian scholars at public universities in Ethiopia is high, but it is still low at private higher education institutions. Ethiopia responded to the rise in wages at Indian institutes and raised its payment scale and expatriate housing allowance wages (Thubauville 2013).
- The university websites provide all required information; qualification criteria, salary size, tax-free and free air tickets between India and Ethiopia, country living costs and savings potential; but also highlight the friendly environment of Ethiopia, food availability, country safety and some good job prospects for getting work abroad in the near future (Usov 2016)
- The jobs offered by Ethiopian universities can be particularly appealing for retired Indian academics, as the age for qualified applicants should be below 65 years old and the retirement age in India is 60 (Thubauville 2013).

While most institutes require a certain level of formal education and English proficiency from prospective students, the Barefoot College has no such expectations. In fact, the international 'Solar Mamas' training programme organized at the Barefoot College, Tilonia, Rajasthan, under ITEC is specifically geared towards those with little formal education or English language skills.

Capacity Building: Women Solar Engineer Vocational Training Centers in Africa

In 2008, ITEC certified the Barefoot College in Tilonia, Rajasthan, as a part of the training institutes under the Women Solar Engineer Vocational Training programme. Since then, the Barefoot College has trained two batches twice a year, each consisting of 40 women. These women belong to remote non-electrified villages in Ethiopia. The Barefoot College trains females (particularly elderly females) from rural areas across the globe to become solar engineers. Those enrolled in the programme are illiterate or semi-literate and between the ages of 35-50 years. These women learn how to create sophisticated solar lanterns with charge controllers, inverters, and Light Emitting Diode (LED). In order to set up Rural Electronic Workshops (REWs) and install fixed solar systems in individual houses in their respective villages. The skills learnt from the REWs are utilized to undertake all repairs and maintenance work in various solar electrified villages. This unique initiative was successful because it helped empower women through vocational training and skills. It also helped the group save money because every month they invested the same amount on solar lights that they previously spent on environmentally unhealthy alternatives such as kerosene, candles, torch batteries, mobile charging, wood and diesel (Barefoot College 2016, Waljee 2017).

They enhance the capabilities of solar electrification, thermal water, and water processing through solar powered desalination (Barefoot College 2016). In Ethiopia, the preliminary success of this initiative prepared the path for Barefoot College to adopt this strategy across Africa and even internationally (WIPO 2009). Ethiopia's first solar installation was done in 2004 by a woman named Ahadi Ahmed in the village of Tukul. Subsequently, the United Nations Development Programme (UNDP) and the Ethiopian government joined the project. In 2006, a total of 36 mid-literate individuals from 19 Ethiopian communities had trained and finished solar installations, built 250 solar lanterns in 11 villages. Ethiopian solar mamas come predominantly from four major regions: Amhara, Oromiya, SNNPR and Tigray (Barefoot College 2012).

Box: 1.1: Story of two Ethiopian 'Solar Mamas'

1. Solar Mama, Negedu



2. Solar Mama, Betelesh



Solar Mamas Negedu and Betelesh came to Barefoot College in Rajasthan from Ethiopia for their solar engineering training. Both women came from very hot and dry areas where crop failure and water scarcity were common issues. These areas receive plenty of sunlight - enough to provide electricity to entire villages. Both women's villages in Ethiopia were not electrified and were in dire need of alternative energy sources. Although India was a long way away for Negedu and Betelesh, they managed to learn how to assemble and install solar panels and solar lanterns as part of their training in India. Both solar mamas were able to return to Ethiopia and harness solar energy to benefit from clean, reliable and affordable

Source: Facebook, Barefoot College, 2019
<<https://www.facebook.com/BarefootCollege/posts/india-was-a-long-way-away-for-ethiopian-solar-mama-betelesh-but-she-made-the-jou/10157112835600903/>>

As part of the solar mama project, India has set up Solar Multi-Utility (SMU) centres in Kenya, Ethiopia and Malawi for educating and skilling the youth of the countries. The Barefoot College offered the opportunity to women participating in the solar program to engage with technologic innovations and learn new skills and return to their countries to help launch the centre. They will duplicate Barefoot's Solar Program with Barefoot experts and collaborators in the field, teaching other women to electrify their communities with solar power. In the long term, a decrease in unemployment can also be realised by the Ethiopia Women Solar Engineer collaboration. This pilot initiative was an eye-opener. It proved to be a success and was later repeated outside Ethiopia in other countries. In the case of Ethiopia, UNDP commissioned an evaluation of this programme, and some of the initial results indicate significant findings:

- All 34 eligible Barefoot Solar Engineers (BSEs) remain in Ethiopia and serve their peoples. Nobody has moved to cities or towns to get a better paying career.
- Now over 500 households in the 4 poorest areas in 16 rural areas have been successfully electrified by solar, with an estimated 170 mobile solar lamps (Barefoot College 2012, World Intellectual Property Organization 2009).
- Every team decided together to charge BSEs a monthly fixed service fee per unit, which creates jobs for everyone (Barefoot College 2012, World Intellectual Property Organization 2009).
- Ethiopia has 10 trained barefoot solar engineers and 250 solar electrified houses.
- To upgrade and sustain the solar PV system, 10 rural electronic workshops were built (Barefoot College 2012, World Intellectual Property Organization 2009).

Further, many countries in Africa – such as Sierra Leone, Mozambique, Kenya, and Uganda – have also benefited from The Energy and Resources Institute (TERI's) 'Lighting a Billion Lives' ((LaBL) Campaign. TERI is also promoting the use of clean cookstoves in Kenya and Ethiopia by sharing lessons and best

practices from India. India's contribution to establishing capacity-building, institutions and focused skills training in Ethiopia.

Figure 1.3: Barefoot Grandmamas



Source: Ministry of External Affairs 2015 <<https://mea.gov.in/india-africa-forum-summit-2015/index.html#>>

Conclusion

This paper discussed the partnership of India and Ethiopia towards the development of Ethiopia's education sector and in skilling people and capacity building through private partnerships as well as GoI led initiatives. India has leveraged its comparative advantage in the education sector to enhance its relationship with Ethiopia. It provides distance education at Ethiopian universities and scholarships for Ethiopian students at Indian universities. Ethiopia also invites Indian academics to lecture at Ethiopian universities for a reasonable salary and additional benefits. Ethiopia utilizes India's cooperation to build a sustainable education model; which includes training of academic staff and the establishment of academic credibility of its universities. India is chosen as a main destination for education over Western countries due to its cost- effectiveness and cultural similarities. This can be witnessed through the number of

Ethiopian students enrolled for Ph.D., PG, diploma courses in various public and private universities throughout India.

In 2008, 'Solar Mamas' - women from rural poor non-electrified villages across Africa, were trained under the Government of India, Ministry of External Affairs ITEC Initiative which has covered all the costs of training, travel and stay (Barefoot College 2016). More than 160,000 people in Africa have received solar electrification through the 'Barefoot Approach', and its unique community-owned and managed, financially self-sufficient, empowerment model for poor communities across 36 countries in Africa (Barefoot College 2016). Solar Mama is inspired to return home to train others in solar engineering. Installing village solar lanterns and panels and sharing newly gained skills with local women, inspiring children of both sexes, and demonstrating that they are capable of grandeur to the men of their villages. Solar energy offers an alternative energy option, and helps promote gender equality, education and health and alleviate poverty. Thus India's contribution to capacity building and skilling through training and education has a proven track record in Ethiopia that can be scaled in Ethiopia and replicated across Africa.

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2. COVID-19 Pandemic in Africa and the Indian Pharma Sector

Sandeep M. Shede

Introduction

The African continent has already had past experiences in managing the spread of various viruses. Many African countries were adequately prepared at the start to tackle the COVID-19 spread and at least 42 of them have imposed a partial or full lockdown on the movements and activities of people to reduce the further spread and to save precious human lives. It was estimated that one month of lockdown restrictions in the African continent has resulted in a loss of 2.5 percent in Africa's annual gross domestic product (GDP) which is equivalent to the US \$65.7 billion thereby creating a major blow to many of already fragile African economies (United Nations Economic Commission for Africa 2020a).

Due to these drastic measures, the spread of COVID-19 was very slow within the African continent at the start of the disease spread. In addition to that, relatively fewer international flights originating from affected countries were allowed. But the recent trend in the month of March 2021 is very alarming due to the spread of new South African strain and it brings in a score of new challenges that can be seen as a big threat to the ongoing control of the pandemic in Africa. Many African countries have lifted the lockdown measures in a phased manner to protect the livelihood and economic structure but this action has also resulted in further spread of the virus across the continent (United Nations Economic Commission for Africa 2020a).

Many people in the African countries are not strictly following the social-distancing practices, regular hand sanitization with a sanitizer, handwashing at homes and wearing of quality masks in public places. As of 15 March 2021, the African continent accounts for only

3.37% of the global caseload and 4.05% of global death but things will go haywire in the future if it spreads unabated throughout the continent. As of 15 March, 2021, South Africa has become the epicentre of the outbreak with over 1.53 million confirmed COVID-19 cases and 51,421 deaths. South Africa has about 37.54% of all cases out of 54 African countries (Worldometers 2021a).

1. Coronavirus (COVID-19)

COVID-19 (SARS-CoV-2) was first reported in early December 2019, by officials in Wuhan city from Hubei Province in Central China. It spread rapidly from the wet market in Wuhan city to the local population. Wuhan is considered as an epicentre of the global outbreak and played a role in the initial amplification and community transmission among the local population and international travellers. The major symptoms of the COVID-19 virus include high temperature, continuous cough, fatigue, muscle aches, sore throat and loss of sense of taste or smell (World Health Organization 2020a).

A COVID-19 virus has the capability to mutate into new strains or variants. Such genetic changes to viruses create newer copies of themselves, having the capacity to become more infectious or threatening to spread faster and thrive among the vulnerable human beings. It is estimated that thousands of variants of the COVID-19 virus are currently circulating globally. The original virus was creating a big risk to the elderly or to people with underlying health conditions (Roberts 2021). As of 15 March, 2021, three strains identified as UK (Kent), South African and Brazilian are considered more dangerous and currently circulating more quickly in their respective countries. These three new strains have the same key symptoms as found in the original COVID-19 virus (British Heart Foundation 2021).

COVID-19 is still an ongoing health battle despite the active containment response and preparedness measures being undertaken by various countries affected by or at risk of importations of COVID-19. Governments along with the active

collaborations from private pharmaceutical companies are prioritising research and development activities to address critical gaps in knowledge about future response measures and readiness (World Health Organization 2020b).

2. Current Global Scenario of COVID-19

Coronavirus (COVID-19 - SARS-CoV-2) has become a global pandemic and created a healthcare emergency worldwide. As of 15 March, 2021, Johns Hopkins University database indicates that globally 120,777,148 cumulative cases and 2,671,892 cumulative deaths were reported due to COVID-19 health complications. The daily caseload of 339,082 cases and 6,658 daily deaths were also reported (Worldometers 2021a).

North America and the European continent are equally affected with massive cumulative infection among the local population, daily infections and the total death count. The major reason behind the death was the elderly population in these two continents (Worldometers 2021a).

Table 1: Continent-Wise Scenario of COVID-19 as on 15 March, 2021

Sr. No	Continent	Total Cases	Daily Cases	Total Deaths	Daily Deaths	Total Recovered	Active Cases
1	Europe	36,403,552	114,880	859,065	2,554	25,809,808	9,734,679
2	North America	34,637,277	54,389	792,626	1,085	26,022,155	7,822,496
3	Asia	26,262,275	94,550	410,822	817	24,566,948	1,284,505
4	South America	19,346,136	66,499	499,976	1,884	17,327,118	1,519,042
5	Africa	4,075,159	8,620	108,299	313	3,646,092	320,768
6	Oceania	52,749	234	1,104	5	34,378	17,267

Source: Worldometers 2021a
<https://www.worldometers.info/coronavirus/>

Table 2: Top 5 Globally Worst Affected Countries as on 15 March, 2021

Sr. No	Country	Total Cases	New Cases	Total Deaths	New Deaths	Total Recovered	Active Cases
1	USA	301,38,586	45,045	5,48,013	785	222,86,551	73,04,022
2	Brazil	115,25,477	42,107	2,79,602	1,275	101,11,954	11,33,921
3	India	114,09,595	24,437	1,58,892	130	110,25,631	2,25,072
4	Russia	44,00,045	9,437	92,494	404	40,03,576	3,03,975
5	UK	42,63,527	5,089	1,25,580	64	35,26,715	6,11,232

Source: Worldometers 2021a
<https://www.worldometers.info/coronavirus/>

3. Current Scenario of COVID-19 in Africa

The African continent accounts for only 3.37% of the global caseload and 4.05% of global death. But despite that COVID-19 pandemic has already crippled the fragile healthcare system of many African countries. As of 15 March, 2021, Johns Hopkins University database indicates that 57 African countries have 4,075,159 cumulative cases (3,646,092 recovered & 320,768 active cases) and 108,299 deaths due to COVID-19 health complications. The daily caseload of 8,620 and 313 daily deaths are also reported (Worldometers 2021a).

At least 40 countries in the African continent have already passed through the second wave of the pandemic; these include all of the countries from the southern and northern African region. The newer

South African strain needs laboratory capacity of specialised genomic sequencing to detect Coronavirus variants. The absence of genomic sequencing laboratories in African countries to check the new strain has resulted in both an increase in the number of cases and deaths across many countries in Africa (Roberts 2021).

To immunize the African population, Geneva-based GAVI vaccine alliance COVAX will provide 88.7 million doses of the AstraZeneca/Oxford (38 African countries will receive 75 million doses manufactured by Serum Institute of India, India and nine African countries will receive 13 million doses manufactured by SK Bioscience, South Korea) and Pfizer-BioNTech (4 countries - Cabo Verde, Rwanda, South Africa and Tunisia will receive 320,000 doses manufactured by Pfizer) vaccines to 47 African countries. The contribution by the low-cost Indian vaccine maker has the potential to stop the spread of the virus in Africa (Finnan 2021).

In the African continent, COVID-19 infections rose by 50% and deaths doubled between 29 Dec. 2020 and 25 Jan. 2021 period as compared to the previous four weeks. The 15000 deaths between 29 Dec. 2020 and 25 Jan. 2021 time frames are concentrated in 10 southern and northern African nations. Within this period thirty-two African countries reported an increase in the number of deaths, while in the remaining 21 African countries the death rate remained the same or reduced slightly (World Health Organization 2021).

Initially, Africa's overall fatality rate due to COVID-19 was lower as compared to the global average. It was considered mainly because of the younger population and the herd immunity gained by other viruses in the past. In Feb., 2021, the fatality rate of 20 African countries was way above the current global average of 2.2% and continued to rise to 3.7%. Many African countries are doing inadequate COVID-19 testing and will not detect the many asymptomatic and mild cases resulting in the higher fatality rate. In addition to this, many deaths due to COVID-19 complications across the African continent are most likely under-recorded by government agencies (Roberts 2021).

As of 15 March, 2021, the COVID-19 virus is spreading fast across the continent. South Africa being the epicentre of the virus in the

African continent has effectively led the continent in fighting the pandemic. The newer South African strain has already spread throughout the continent and the nature of its impact on tackling the COVID-19 pandemic is detrimental to the wellbeing of economies (World Health Organization 2021). The African continent currently accounts for only 3.37% of the global caseload and 4.05% of global death but things will go haywire if it spreads unabated throughout the continent in many unplanned urban slums and congested overcrowded residential locations (Worldometers 2021a).

The 501Y.V2 South African variant is predominant in South Africa, Botswana, Ghana, Kenya, Comoros, Zambia and in other 24 non-African nations. The daily COVID-19 caseload in South Africa is decreasing, but experts are alarmed with the increasing daily caseload in other 22 African countries (World Health Organization 2021).

Table 3: Africa Top 20 Country-Wise Scenario of COVID-19 as of 15 March, 2021

Sr. No	Country	Population	Total Tests	Total Cases	Total Deaths	Total Recovered	Active Cases
1	South Africa	598,33,051	94,65,515	15,30,033	51,421	14,55,325	23,287
2	Morocco	372,17,457	58,05,216	4,89,096	8,733	4,76,126	4,237
3	Tunisia	119,05,426	10,37,974	2,42,124	8,404	2,09,166	24,554
4	Egypt	1036,83,741	10,00,000	1,91,555	11,340	1,47,767	32,448
5	Ethiopia	1169,48,417	22,33,489	1,76,618	2,555	1,43,828	30,235

6	Nigeria	2097,00,684	16,84,305	1,60,895	2,016	1,45,752	13,127
7	Libya	69,36,782	7,89,394	1,46,080	2,402	1,32,697	10,981
8	Algeria	444,04,834	NA	1,15,410	3,040	79,994	32,376
9	Kenya	545,98,005	13,73,839	1,13,967	1,918	88,596	23,453
10	Ghana	315,25,924	9,45,743	87,985	691	83,621	3,673
11	Zambia	187,42,215	11,65,041	84,950	1,164	82,375	1,411
12	Mozambique	318,64,760	4,50,293	64,516	725	50,380	13,411
13	Namibia	25,73,086	3,24,162	41,424	465	38,514	2,445
14	Cameroon	270,06,405	9,05,000	40,622	601	35,261	4,760
15	Uganda	467,44,315	9,03,648	40,591	334	15,099	25,158
16	Ivory Coast	268,33,559	4,64,302	37,908	213	34,616	3,079
17	Senegal	170,51,222	4,14,437	36,996	978	32,769	3,249
18	Zimbabwe	150,14,503	3,58,609	36,504	1,504	34,051	949
19	Botswana	23,84,799	8,80,029	34,999	447	29,916	4,636
20	Malawi	194,74,308	2,08,678	32,864	1,084	26,607	5,173

Source: Worldometers
<https://www.worldometers.info/coronavirus/>

2021a

African Countries Objectives to Contain COVID-19 (World Health Organization 2020a):

- Interrupt human-to-human transmission among infected persons, close contacts and health care workers.
- Identify, isolate and care for patients early to avoid transmission amplification and further domestic and international spread.
- Provide possible local treatment options with guidelines for the development of diagnostics, therapeutics and vaccines.
- Communicate critical risk factors and information to all the countries within Africa and counter any misinformation to avoid the negative impact.
- Minimize social and economic impact through multispectral public-private partnerships.

4. Local Issues in Containing COVID-19 Pandemic in Africa

4.1 Lack of Local Pharmaceutical Manufacturing Capacity

African countries lack the local pharmaceutical manufacturing capacity and 94 per cent of Africa's total pharmaceutical products are imported. All of the African countries are net importers of pharmaceutical products. So it makes them totally dependent upon the import of high-cost, branded medicines and other pharmaceutical products. African countries are also dependent upon countries like India and China for the import of cheaper generic medicines (United Nations Economic Commission for Africa 2020b).

During the COVID-19 pandemic at least 71 countries have imposed some sort of limitations or outright bans on exports of certain COVID-19 essential supplies. So in such a scenario getting access to cost-effective pharmaceutical supplies to African countries was a daunting task. The Indian government has taken the initiative to support African countries by keeping the supply through air cargo services (United Nations Economic Commission for Africa 2020b).

India is the reliable supplier of generic pharmaceutical products to African countries (United Nations Economic Commission for Africa 2020b).

4.2 Inadequate Testing in Africa

As per the WHO the COVID-19 testing in Africa even in March 2021 is still fairly low and it did not provide the true picture of the spread. Irregular testing by governments and high testing rates of private labs has reduced the overall testing. Some governments were able to increase the number of tests as needed during the peak period of the pandemic. Some countries have reduced the testing after the first wave of the virus was over. South Africa led all the countries in per capita testing while Nigeria was found to conduct the least number of tests. Some countries are not releasing the testing data (Roberts 2021).

4.3 Fragile and Strained Public Healthcare Infrastructure

Many African countries lack the basic healthcare infrastructure and trained healthcare professionals are needed to effectively deliver health care services (United Nations Economic Commission for Africa 2020b).

4.4 High Prevalence of Existing Diseases

Africa already suffers a double burden of Communicable Diseases (CD) and Non-Communicable Diseases (NCD) and has the highest prevalence of diseases like tuberculosis, malaria, cholera, and HIV/AIDS (United Nations Economic Commission for Africa 2020b).

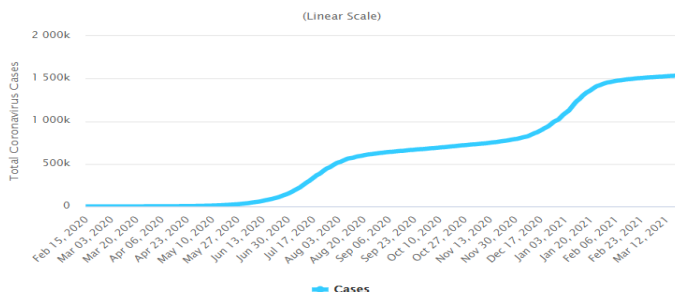
5. Top 5 Worst Affected Countries in African Continent

5.1 South Africa:

The first case of COVID-19 was reported in South Africa on March 5, 2020. The patient was a 38-year-old male who returned from Italy on March 1, 2020 (National Institute For Communicable Diseases 2020). Since then South Africa is the worst affected by the COVID-19 pandemic within the African Union (Worldometers 2021a).

Total Cases:

As of 15 March, 2021, South Africa has over 1.53 million confirmed COVID-19 cases and 51,421 deaths. The country has about 37.54% of all caseloads out of 54 African countries (Livemint 2021a).

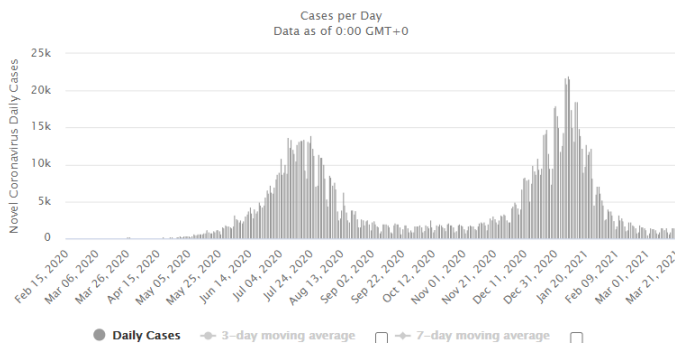


Source: Worldometers 2021b

<<https://www.worldometers.info/coronavirus/country/south-africa/>>

Daily New Cases :

On 10 Dec., 2020, the South African government declared a second wave of COVID-19 as cases surge, currently the number of daily cases have declined substantially (Hindu 2020).

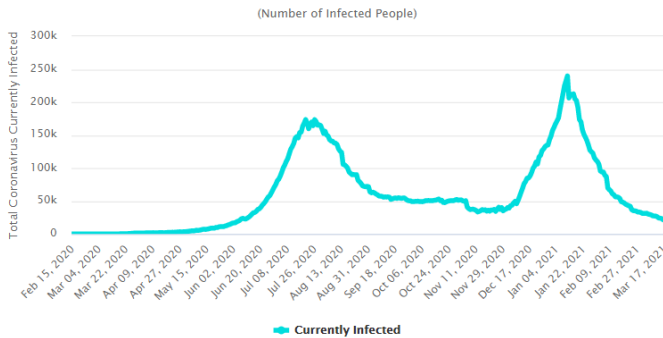


Source: Worldometers 2021b

<<https://www.worldometers.info/coronavirus/country/south-africa/>>

Active Cases:

South Africa faces a second wave of COVID-19 but as of 15 March, 2021 active cases have declined substantially to 23,287 cases (Worldometers 2021a).



Source: Worldometers 2021b
 <<https://www.worldometers.info/coronavirus/country/south-africa/>>

South African COVID-19 Variant

Ninety-five percent of COVID-19 infections in South Africa belong to the 501Y.V2 variant. The South African variant (501.V2 or B.1.351) spreads more readily due to wide changes in the virus's spike protein that actively help the virus to get an entry into human cells easily. The variant has the ability to potentially undermine the immune response capability generated by prior exposure to the Coronavirus or earlier administered vaccines (Roberts 2021).

It makes the virus more contagious or easy to spread. This is the big cause of concern as experts think many vaccines are designed around the same protein and mutations to these particular structures may make many vaccines developed or under development useless as they may not work as intended effectively against it. The South African mutation, called N501Y and E484K, makes the virus more powerful by attacking an individual's immune system making vaccines somewhat useless. Further research is needed to shed light on cross checking the vaccine's effectiveness (Roberts, M 2021).

South African COVID-19 Response to Vaccination

The South African government is planning to vaccinate 40 million people (67% of the population) by the end of the year 2021. On 1 Feb., 2021, India delivered 1 million doses of the Serum Institute of India produced AstraZeneca vaccine, while additional 500,000 doses of the vaccine will be delivered at the end of Feb., 2021. The AstraZeneca vaccines will be given to front-line health workers after it is tested and approved by South Africa's drug regulatory authorities (Livemint 2021a).

In addition to this South Africa has acquired 20 million doses of the Pfizer vaccine (delivered in the second quarter of 2021), and expecting 6 million vaccine doses from the international COVAX facility, 9 million of the Johnson & Johnson vaccine, and 20 million from the African Union's vaccine acquisition (Livemint 2021a). The South African government is in negotiations with companies like Moderna, China's Sinopharm and Russia's Sputnik V vaccine. In the clinical trials in South Africa, Johnson & Johnson vaccine is found to be 89 percent and 57 percent effective at preventing severe disease and moderate-to-severe disease respectively.

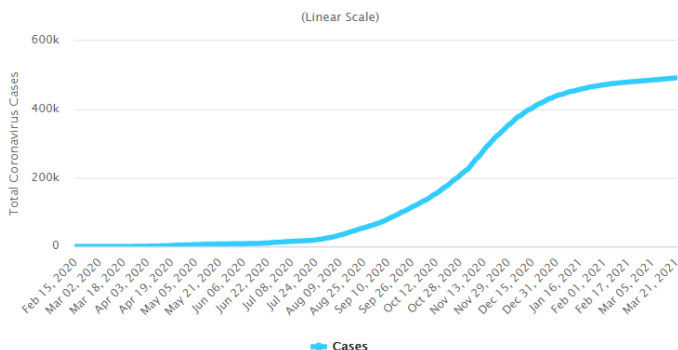
A small clinical trial study found that the AstraZeneca vaccine is not that effective against mild to moderate COVID-19 illness from the South African variant. As of 10 Feb., 2021, The South African government stopped the usage and is expecting further advice from scientists to decide upon either to sell or swap 1 million delivered and 500,000 due AstraZeneca vaccine (News18 2021a).

5.2 Morocco

On March 2, 2020, Morocco confirmed the first COVID-19 case (GardaWorld 2020a).

Total Cases

As of 15 March, 2021 the number of total cases of COVID-19 in Morocco surges to 4,89,096 cases (Worldometers 2021a).

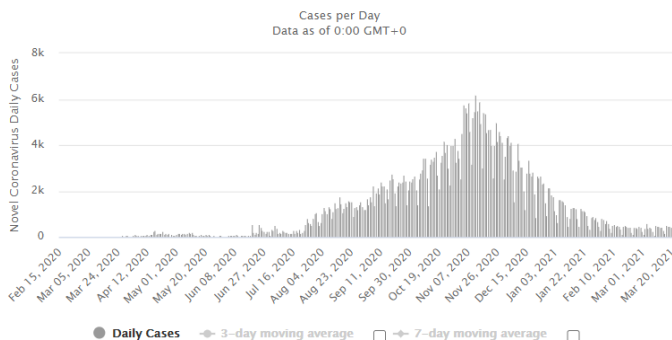


Source: Worldometers 2021c

<<https://www.worldometers.info/coronavirus/country/morocco/>>

Daily New Cases:

As of 15 March, 2021 the number of daily cases of COVID-19 in Morocco have declined substantially to 479 cases per day. The country is in the decline mode of the first phase of COVID-19 pandemic (Worldometers 2021a).

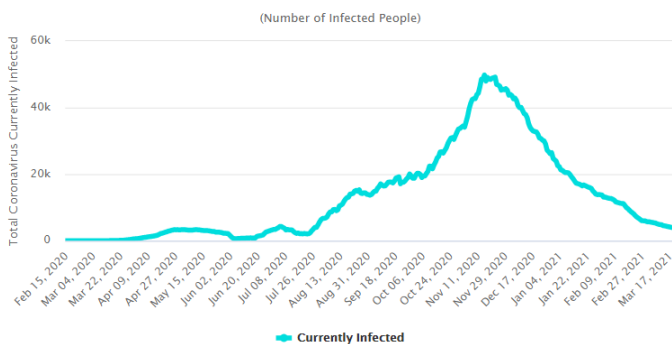


Source: Worldometers 2021c

<https://www.worldometers.info/coronavirus/country/morocco/>

Active Cases:

As of 15 March, 2021 active cases of COVID-19 in Morocco have declined substantially to 4,237 cases (Worldometers 2021a).



Source: Worldometers 2021c

<https://www.worldometers.info/coronavirus/country/morocco/>

Morocco COVID-19 Response by Vaccination:

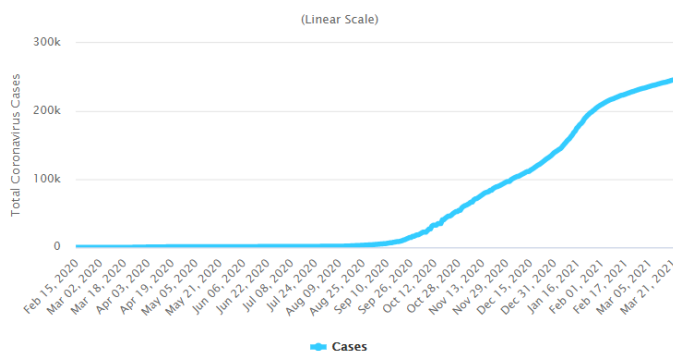
The Moroccan government expects to vaccinate 80 per cent of the total population. It had ordered 65 million doses of COVID-19 vaccines from China's Sinopharm (under review) and Britain's AstraZeneca (approved for emergency use). In a phase wise manner, the government will first vaccinate frontline health workers and people suffering from chronic health diseases (Hindu 2021). On 22 Jan., 2021, Morocco received 2 million doses of the SII manufactured Covishield AstraZeneca vaccine (Reuters 2021b).

5.3 Tunisia

On March 2, 2020, the Tunisian government confirmed the first COVID-19 case. The Tunisian national has returned from Italy (GardaWorld 2020b).

Total Cases:

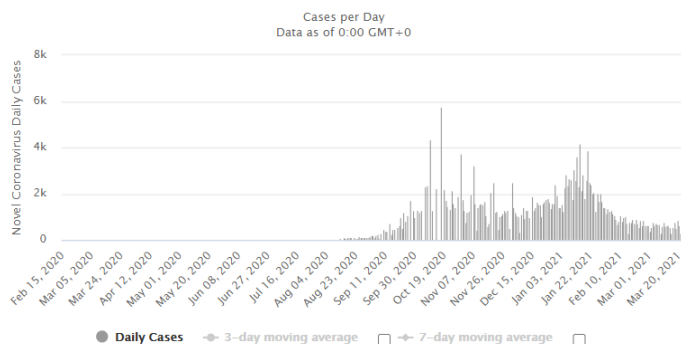
As of 15 March, 2021 the number of total cases of COVID-19 in Tunisia has surged to 2,42,124 cases (Worldometers 2021a).



Source: Worldometers 2021d
<<https://www.worldometers.info/coronavirus/country/tunisia/>>

Daily New Cases:

As of 15 March, 2021 the number of daily cases of COVID-19 in Tunisia have declined substantially to 1,049 cases per day. The country is in decline mode of the second phase of the COVID-19 pandemic (Worldometers 2021a).

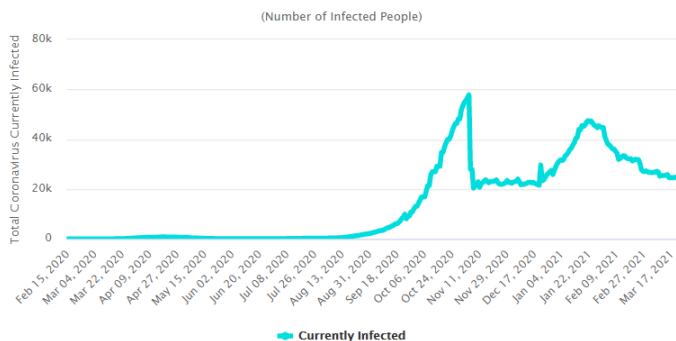


Source: Worldometers 2021d

<https://www.worldometers.info/coronavirus/country/tunisia/>

Active Cases:

Tunisia faces the second wave of COVID-19 but as of 15 March, 2021 active cases have declined substantially to 24,554 cases (Worldometers 2021a).



Source: Worldometers 2021d

<<https://www.worldometers.info/coronavirus/country/tunisia/>>

Tunisia COVID-19 Response by Vaccination

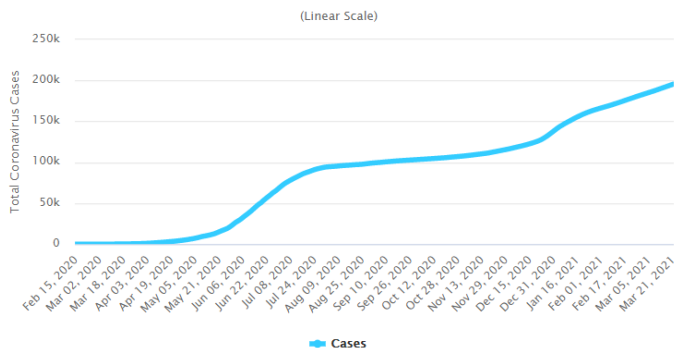
Tunisia has approved Russia's Sputnik V vaccine. Geneva-based GAVI vaccine alliance will provide four million free doses of COVID-19 vaccine to Tunisia from mid-Feb., 2021 onwards (Reuters 2021c). COVAX Facility led by WHO will give 94000 doses of Pfizer vaccine to Tunisia by mid-Feb., 2021 to vaccinate the frontline health worker and people at-risk (Reliefweb 2021).

5.4 Egypt

On Feb 14, 2020, The Egypt government confirmed the first COVID-19 case. The person infected was a "foreigner". This Egypt case was the first COVID-19 case in the African continent (Africanews 2020).

Total Cases

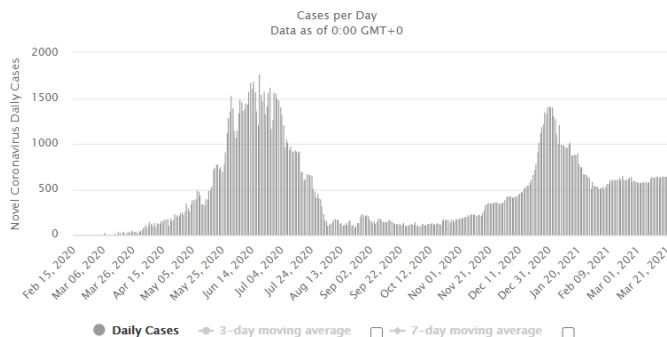
As of 15 March, 2021 the number of total cases of COVID-19 in Egypt surged to 1,91,555 cases (Worldometers 2021a).



Source: Worldometers 2021e
<https://www.worldometers.info/coronavirus/country/egypt/>

Daily New Cases:

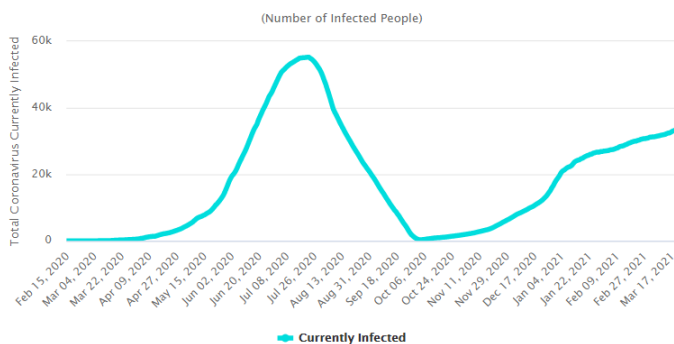
As on 15 March, 2021 the number of daily cases of COVID-19 in Egypt have declined substantially to 600 cases per day. The country is in decline mode of the second phase of COVID-19 pandemic (Worldometers 2021a).



Source: Worldometers 2021e
<https://www.worldometers.info/coronavirus/country/egypt/>

Active Cases

Egypt faces a second wave of COVID-19 but as of 14 March, 2021 active cases have increased substantially to 32,448 cases (Worldometers 2021a).



Source: Worldometers 2021e

<https://www.worldometers.info/coronavirus/country/egypt/>

Egypt COVID-19 Response by Vaccination

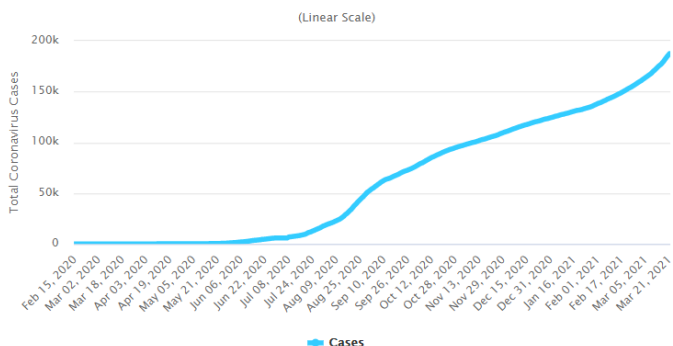
Egypt is expecting to receive 40 million doses from the Geneva-based GAVI vaccine alliance. Also, the country has secured 40 million and 20 million doses from two countries. Egypt will initially vaccinate the frontline health workers, then senior citizens and people with chronic diseases. On 24 Jan., 2021, Egypt started the vaccination drive with a vaccine developed by China National Pharmaceutical Group (Sinopharm) (News18 2021b).

5.5 Ethiopia

On March 13, 2020, The Ethiopiangovernment confirmed the first COVID-19 case. The infected person was a 48- year old Japanese man, who traveled from Japan to Burkina Faso and then to Ethiopia (World Health Organization 2020c).

Total Cases:

As of15 March, 2021 the number of total cases of COVID-19 in Ethiopia surges to 1,76,618 cases (Worldometers 2021a).

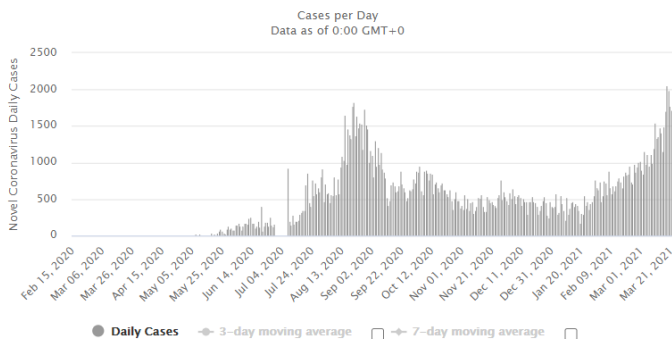


Source: Worldometers 2021f

<https://www.worldometers.info/coronavirus/country/ethiopia/>

Daily New Cases:

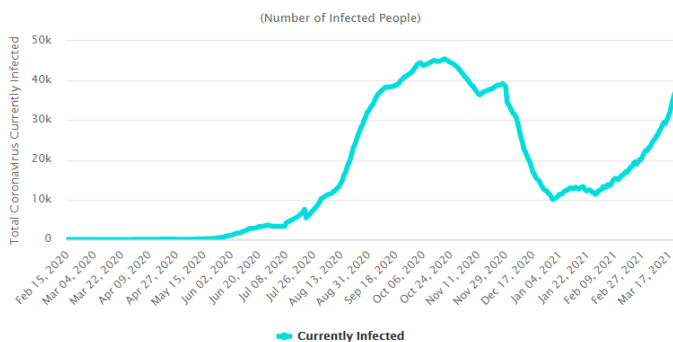
As of15 March, 2021 the number of daily cases of COVID-19 in Ethiopia have declined substantially to 156 cases per day. The country is in the increasing mode of the second phase of COVID-19 pandemic (Worldometers 2021a).



Source: Worldometers 2021f
<https://www.worldometers.info/coronavirus/country/ethiopia/>

Active Cases:

Ethiopia faces the second wave of COVID-19 but as of 15 March, 2021 active cases have increased slightly to 30,235 cases (Worldometers 2021a).



Source: Worldometers 2021f
<https://www.worldometers.info/coronavirus/country/ethiopia/>

Ethiopia COVID-19 Response by Vaccination

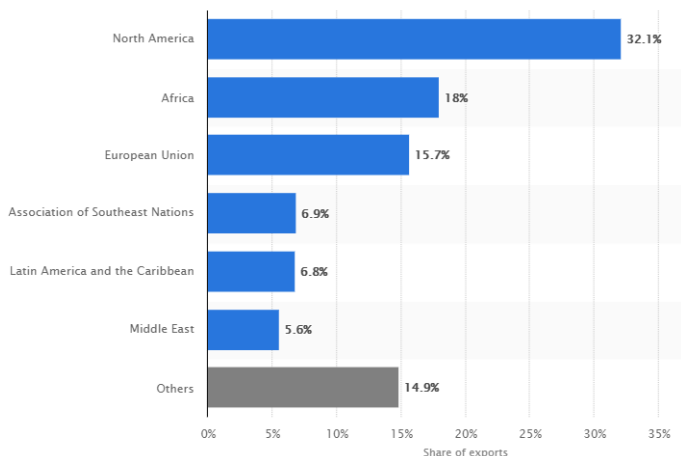
Ethiopia will receive 9 million doses from the Geneva-based GAVI vaccine alliance by April 2021. Ethiopia has not sourced vaccines directly from manufacturers and expects to get them from the GAVI vaccine alliance. The Ethiopian government is expecting to vaccinate 20% out of its 110 million population by the end of the year 2021 (Reuters 2021d).

6. Indian Pharmaceutical Industry

Indian pharmaceutical production globally ranked 3rd by volume and 14th by value. India is a prominent supplier of generic medicines with 60,000 generic brands across 60 therapeutic categories and accounts for 20% of the global market share by volume. It also supplies 62% of global vaccines and is rapidly growing its presence in patented pharmaceuticals exports. The Indian Active Pharmaceutical Ingredients (API) industry manufactures more than 500 different (APIs) and is ranked third globally contributing 57% of APIs supplied to prequalified WHO-GMP approved manufacturing plants (Invest India 2020).

The Indian pharmaceutical industry has more than 3,000 pharmaceutical companies having more than 10,500 modern state of the art manufacturing facilities. India depends on China for more than two-thirds of its bulk drug generic API needs. The Indian pharmaceutical industry has more than 262 (including APIs) US-FDA compliant pharmaceutical manufacturing plants and is the only country having so many plants outside of the USA. In addition to this India has more than 2000 WHO-GMP approved and 253 European Directorate of Quality Medicines (EDQM) approved pharmaceutical manufacturing plants (Invest India 2020).

6.1 Share of Indian Pharmaceutical Exports in FY 2019, by World Region Before COVID-19



Source:

Statista

2020<https://www.statista.com/statistics/1038167/india-pharmaceutical-exports-share-by-world-region/>

6.2 Two COVID-19 Vaccines Approved in India

India's drug regulator "Drugs Controller General of India" has approved Covishield (Developed by the Oxford-AstraZeneca in the UK and manufactured by the Serum Institute of India (SII) and Covaxin (100% locally developed by Bharat Biotech). Both of these vaccines were approved under the "restricted use in emergency situation". In June 2020, AstraZeneca and Serum Institute of India (SII) signed a licensing agreement to supply one billion doses of Covishield for low-and-middle-income countries. The agreement was reached to provide 400 million before Dec. 2020 (BBC News 2021).

Figure 1: Effectiveness of Covishield in Comparison with other Vaccines

Company	Type	Doses	How effective*	Storage	Cost per dose
 Oxford Uni- AstraZeneca	Viral vector (genetically modified virus)	x2 	62-90%	Regular fridge temperature	£3 (\$4)
 Moderna	RNA (part of virus genetic code)	x2 	95%	-20C up to 6 months	£25 (\$33)
 Pfizer- BioNTech	RNA	x2 	95%	-70C	£15 (\$20)
 Gamaleya (Sputnik V)	Viral vector	x2 	92%	Regular fridge temperature (in dry form)	£7.50 (\$10)

*preliminary phase three results, not yet peer-reviewed

Source: Respective companies, WHO

BBC

Source: BBC News 2021

<https://www.bbc.com/news/world-asia-india-55748124>

6.3 30 COVID-19 Vaccine Candidates under Development in India

In India 30 vaccine candidates are under development, which helps in its domestic immunization programme and also adds to the capacity for its export to the other poorer countries. Three vaccine candidates are in an advanced pre-clinical developmental stage. These are DNA vaccine candidates (ZyduS Cadila), Gennova Phase I (Gennova Biopharmaceuticals) and Sputnik V (Hetero Biologics) (Livemint 2021c).

7. Support by Indian Pharmaceutical Industry to African Countries

7.1 Export of Pharmaceutical Products During COVID-19

Indian pharmaceutical products are developed with indigenous Research and Development (R&D) innovation and are globally

trusted for their quality and affordability. Indian Pharmaceutical Industry has provided the COVID-19 testing kits and protective equipment to several African countries. India lifted a ban on the export of hydroxychloroquine (HCQ), paracetamol medicines and other drugs immediately to African countries as per the request by Cyril Ramaphosa (African Union head and South African president) to supply these medicines on April 17, 2020 (Express Pharma 2020). India has donated 100,000 HCQ tablets to 19 African countries (Parashar, S 2020). (India's export of pharmaceuticals to African nations-See Appendix III).

7.2 Export of Vaccines During COVID-19

As of 8 February, 2021, India exported Covishield vaccines manufactured by Serum Institute of India (SII) worth Rs. 338 crore. It includes 62.7 lakh FoB (free on board) doses worth Rs. 125.4 crore and paid exports of 1.05 crore doses worth Rs 213.32 crore (Timesofindia 2021). Serum Institute of India under partnership with Geneva-based GAVI vaccine alliance COVAX will provide 240 million doses to poorer countries in the world and hopefully expected to deliver in the first half of 2021 (Reuters 2021d). (See Appendix IV).

India's drug regulator found SII's Covishield vaccine is about 72% effective (Reuters 2021a). Serum Institute of India under a partnership with Geneva-based GAVI vaccine alliance COVAX will provide 75 million doses of the AstraZeneca/Oxford vaccine to 38 African countries (Finnan, D 2021). India already exported vaccines to African countries like Morocco (2 million doses delivered), South Africa (1 million doses delivered + 500,000 doses will be delivered by end of February, 2021), Mauritius (1 lakh doses delivered), and Seychelles (50000 doses delivered) (Livemint 2021b).

Figure 2: Made-in-India Coronavirus vaccines arrive in Algeria.



Source: <https://www.ndtv.com/india-news/india-sends-COVID-19-vaccines-to-algeria-south-africa-2361493>

7.3 Managing Supply Chain Bottlenecks during COVID-19

Delivery of pharmaceutical shipments to Africa through sea routes usually takes 60-90 days. The consignment shipment by air increases the cost by almost double as air freight rates are higher for African countries. The COVID-19 pandemic has disrupted the supply chains but the medicines were airlifted for timely delivery. During the COVID-19 pandemic, many African pharmaceutical importers put the purchase orders on hold as they felt the shipment prices were quite higher due to supply chain issues. The Indian civil aviation ministry under "Vande Bharat Mission" operated special cargo flights on India-Africa routes for faster shipment of pharmaceutical consignments to many African countries (Yadav 2020).

8. Conclusion

The African continent already suffers a double burden of the Communicable Diseases (CD) and Non-Communicable Diseases (NCD). Many African countries lack the basic healthcare infrastructure and trained healthcare professionals needed to effectively deliver health care services. It also faces a severe shortage of locally manufactured essential medicines and is totally dependent upon the import of cheaper medicines from India. Many African countries were actively making efforts towards improving their healthcare infrastructure by taking initiatives.

The COVID-19 pandemic has added to the additional healthcare burden of many of the crippling economies. African governments have taken bold initiatives early on to delay the initial transmission among the population. The African Government's effort to increase the testing capacity to identify and treat cases was a first step in the right direction. Initiatives like declared lockdown depending upon each country's economic capabilities and willing compliance by the masses vary widely across the continent.

Going forward African countries need to reduce the lockdown measures and effectively enforce the key practices to reduce the overall impact of COVID-19 on livelihood and the economic structure. The government should undertake the improvement in the number of testing centres to increase the testing capacities and rigorously follow the contact tracing of the COVID-19 infected person. In addition, active participation by the people is needed by adopting the precautionary measures and following the COVID-19 guidelines.

African country governments on the other hand should constantly communicate with all the stakeholders involved about the current situation of COVID-19 happening in ground zero. Local municipal corporations should strictly enforce the use of face masks in public places, also crosscheck the office facilities and establishments for hand-washing and sanitation measures to avoid the spread of COVID-19.

India being home to 1.35 billion people has its own vaccine demand for the vaccination of the frontline health workers, elderly people and people with chronic illnesses. Despite that, the Indian government is trying to accommodate the request of many governments for the shipment of vaccines to control the spread of the COVID-19. SII is committed to supplying the vaccine under the GAVI vaccine alliance to the poorer African countries.

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3. COVID-19 and Its Impact on Employment in India and South Africa

Mahadeo Parbati Ghadge

Introduction

The COVID-19 global pandemic has put a break on economic growth of all the countries and exposed the working conditions, human rights implementations, social security measures particularly in developing countries such as India and South Africa. Humankind has gone through quite a lot of epidemics such as the Spanish in 1918, HIV/AIDS, Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS) and Ebola. In the past, India and many other developing countries had witnessed contagious diseases such as smallpox, plague and polio. The COVID-19 (novel Coronavirus) first detected in China in the month of November-December 2019, very soon got transmitted to several countries and became a major global health crisis in the last 100 years. The COVID-19 pandemic has caused great shock to the health system and economy of most of the countries in the world. . Strict and stringent regulations of working from home, lockdown, segregating areas into containment zones, etc. are being adopted by the governments. This resulted in the collapse of many small and medium scale businesses and stoppage of works. Hence, the eruption of COVID-19 has posed severe challenges mainly for economic growth of developing countries. It has caused a brutal troublesome blow on both demand and supply side. In 2020 nearly 225 million jobs were lost globally due to COVID-19 pandemic. 50 % working hours were lost globally in the year 2020 due COVID-19 pandemic (ILO 2021).

Table 1: Loss of Working Hour Globally by Income Group in the Year 2020:

	2020	1 ST quarter	2 ND quarter	3 RD quarter	4 TH quarter
World	8.80%	5.2	18.2	7.2	4.6
Low-income countries	6.70%	2.50%	13.40%	7.60%	3.30%
Lower-middle-income countries	11.30%	2.50%	29.00%	9.30%	4.50%
Upper-middle-income countries	7.30%	8.40%	11.50%	5.60%	3.90%
High-income countries	8.30%	3.00%	15.80%	7.30%	7%

Source: ILO Monitor 2021
https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/briefingnote/wcms_767028.pdf

There is very little information available on COVID-19 pandemic's impact on employment, labour and working conditions in developing countries. The informal economy is more of a permanent feature of labour markets in developing countries such as India and South Africa. It employs 86 % of workers in Africa and 85% workforce in India. Hence, a study of labour markets would be incomplete without the inclusion of informal economy in developing countries. The unemployment rate in South Africa is the most concerning issue from many years and grew up to 30 and 40 % during the first quarter of 2020 and settled to 30.8% at the end of third quarter of 2020 (Stats SA). It has the highest unemployment rate since 2008 in South Africa. Employment rate was a little bit stagnant in India in the year 2018-19. Primary sector workers

(regular protected workers) have good working conditions, secure jobs and higher wages whereas informal sector workers have indecent jobs, poor working conditions and low remuneration with less or no social security benefits. Workers engaged in informal sector experience discrimination in wage policy, welfare benefits, social security benefits compared to their equally productive counterparts in the primary (formal) sector. The COVID-19 pandemic has forced people to seriously think about structural inequalities, poor labour market conditions, unhygienic working conditions, low-paid workers, young people, women, ethnic minorities, the self-employed and informal workers.

1. Methodology

This paper examines the impact of COVID-19 pandemic on employment and working conditions in developing countries particularly in South Africa and India. It critically examines informal sector employment conditions and impact of COVID-19 pandemic on working conditions in the informal sector. This study is focused on understanding the impact of COVID-19 pandemic on employment and working conditions to understand changes occurring in the labour market in developing countries.

This study is based on primary data and secondary data collected from official websites of the Government of India and Government of South Africa. This study is also based on data published in various research journals.

Major objective is to find out the impact of COVID-19 pandemic on employment in developing countries such as India and South Africa. Other objectives are to understand associated factors such as poverty, job stability, social security, working conditions of workers in the background of COVID-19 pandemic.

2. India

India is a country with a large workforce and demographic dividend. Majority of the workforce are engaged in the informal sector. India has witnessed a good economic growth rate during 2010-2017 and also generated jobs and controlled unemployment rate. However, the economic growth rate was stagnant in the year 2018-2019 before the crisis of global pandemic of COVID-19. Prior to entering into the global COVID-19 pandemic crisis, India has witnessed slower economic growth. India is having long term labour market challenges. There is a slow and uncertain transformation. In India 85% of the workforce is engaged in informal works and compromised social security or no social security benefits (Kapoor 2020).

The first novel Coronavirus (COVID -19) case was found in the month of January 2020 in India i.e. in Kerala state. Students from Wuhan University (China) reported CORONA positive in Kerala. After a few days, a few more students from Wuhan University found CORONA positive in Kerala. By the mid of March 2020 there were 100 cases tested positive for novel Coronavirus. On 11th March 2020, WHO (World Health Organisation) first declared the novel Coronavirus (COVID -19) as a global pandemic. Thereafter on 24th March 2020 Indian Government declared nationwide lockdown for 21 days. Sudden lockdown conditions put more difficulties and stringent life conditions for migrant workers and many workers in the informal sector. Twenty-one days lockdown to minimise COVID-19 suspended most economic activities. The lockdown conditions reduced demand and supply to greater extents. Indian economy is dominated by small and medium scale businesses. Most of the workers in this industry are non regular workers. India's 22.9% workforce is regular workforce and it includes 9.1% regular and protected workforce and 13.7% regular unprotected workforce. In India 77.1% of the workforce is in non regular employment. Out of these 77.1%, casual workers contribute to 25% and self employed contributes to 52.2%. In India almost 15% of the workforce is self employed and connected with trade in the retail and wholesale market. In India 43 % of the workforce is engaged in agricultural, forestry, fishing activity; 12% workforce is in the construction industry; 12% workforce is in manufacturing; and 30% are engaged

in other economic and non economic activities.²Construction industry employs a large force of informal migrant workers. These workers faced stringent life conditions and job loss during the lockdown period. Most casual workers are from rural and urban areas and engaged in construction, production and service industry.

2.1 Measures to Control Spread of COVID-19 in India

On 24th March 2020 Government of India announced total lockdown from 25th March for next 21 days. On 25th March 2020 all factories, services were suspended. On 26th March 2020 Government of India announced a \$24 Billion stimulus package to help people affected by lockdown. On 14th April 2020 lockdown extended to 3rd May 2020. On 20th April 2020 Government announced relaxations for agricultural businesses, including dairy, aquaculture and plantations and farming supplies shops; public works programmes resumed (with physical distancing); cargo transportation (ground and air) allowed; banks and government aid distribution centres re-opened. On 25th April 2020 small retail shops reopened with 50 per cent of their staff on 1st May 2020 lockdown further extended from 4th May 2020 for next two weeks. In the month of June unlock policy was declared and workers started to return to their employment. However, it was not an easy exercise as a lot of restrictions were still on.

India's lockdown decision is a quick and warranted response to global guidelines and directions issued by the World Health Organisation with a view to minimise spread of novel Coronavirus and thereby reduce anticipated pressure on the current healthcare system so as to save life's of infected patients. Initially focus was on tracing contacts, testing and isolating them so as to reduce spread of novel Coronavirus. It forced the public at large to maintain social distance, avoid contacts and thereby affected mobility and economic activity. The Government of India preferred to value life above commodities.

The initial phase of 21 day of lockdown created widespread fear among casual workers and workers in the informal sector as well as the formal sector. Workers in the informal sector and migrant workers found themselves in very adverse situations as there is no earning and also risk of life to them and their family members. Hence they preferred to go back to their place of origin rather than waiting for a job in metro cities. The halting of production services along with business activities throughout India, badly resulted in cutting off the earning source for many of these casual and informal workers, and forced them to return to their home town by any available means.

Novel Coronavirus (COVID-19) pandemic has badly affected the supply and demand causing labour markets to contract. The interruption in production/manufacturing crafted shivers in the bottom of the chain and thereby affected labour and resulted in deeper shocks and vulnerability. All commercial/social enterprises irrespective of the size, volume, and turnover were strained.

In India 85% of the workforce is in the informal sector and most of them do not have legal eligibility for availing certain social benefits, welfare measures and benefits of relevant legislation and policies declared by the Government. Most developing countries have not yet ratified ILO Convention no. 102 [Social Security (Minimum Standards) Convention, 1952], which provides for social security coverage to all workers, including informal workers. India is a founding member of ILO, however, India has not ratified ILO Convention no. 102 [Social Security (Minimum Standards) Convention, 1952]. Though India is not signatory to ILO Convention no. 102, India has enacted certain social legislations such as the Unorganised Workers' Social Security Act and the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act (1996), Domestic Workers (Registration, Social Security and Welfare) Act, 2008 so as to provide certain social security, welfare schemes to concern workers in informal sector (Rajan, Sivakumar & Srinivasan 2020). The efficiency and effectiveness of those social legislations is always doubted in terms of its benefit to the concerned workers. Various welfare boards are established under various social legislations but its benefits are not ripped to the majority of informal workers and yet they are deprived

from their basic human right to social security, decent work and welfare measures.

It is crystal clear that the current social and labour legislations and regulators therein have failed to provide social security, welfare measures for many workers engaged in the informal sector. The informal sector in India includes various industries/establishments such as garment, building and construction, manufacturing, service industry etc.

Srivastava (2020) records that the internal migrants in India mainly suffer from the various vulnerabilities which are as under:

- Want for /of public identity and civil citizenship in the areas i.e. work destination
- Favouritism for local workers
- Weaker social networks as compared to local workers
- Severe technical hitches/complications in establishing claims and entitlements

Vulnerability to a lockdown is emphasized in India by three precise structural characters of the population which are as under:

- Widespread presence of casual labour, about 20% of all Indian households
- Predominance of casual production
- Low median household savings and inadequate income

Informal sector is a major contributor of Indian GDP and workers in the informal sector amount to 20% of Indian households. These individuals low inadequate earnings and are prone to vulnerability. Activities in the informal sector cannot be easily managed through

virtual or online systems of work as most of these activities require physical presence and group activities.

During the lockdown, the Government of India announced certain measures to assist the casual and migrant workers with a view to reduce their pain and difficulties. These measures include:

- Government ensured availability of food grains to the migrants /casual workers who are not covered under the Public Distribution System (PDS system).
- Government declared affordable rental housing schemes under the Pradhan Mantri Awas Yojana
- Government announced financial backing (Interest Subvention) for one year (12 months) for Shishu MUDRA loans—Relief of Rupees 150 billion
- Government announced provision of Rupees 500 billion for facilitating street vendors
- Government announced One Nation One Ration Card to enable access of PDS across the country
- The Government had released Rupees 1100 billion to enhance states in their State
- Disaster Response Fund for setting up shelter homes for migrants (Press Bureau)
- Government announced Rs.500 per month, for 3 months, to an estimated 200 million Jan Dhan Yojana (JDY) female account holders
- Enhanced "rural employment guarantee" daily wages, from Rs. 182 to Rs. 202, presumably available for job card holders on the NREGA list
- A cash transfer of Rs. 2000 to 87 million farmers under the PM Kisan scheme

- An ex gratia payment of Rs.1000 to poor senior citizens, widows and disabled persons.
- Medical insurance of Rs.50 Lakh for health workers fighting COVID-19.
- Collateral-free loan of up to Rs 20 Lakh for female self-help groups.
- Government of India announced another relief plan on 12th May 2020 which includes-

Collateral-free loans to Micro, Small and Medium-Scale Enterprises (MSMEs) up to Rs 3 trillion and an equity infusion of Rs. 0.5 trillion with an additional Rs. 0.20 trillion in loans to stressed MSMEs;

- Rs. 0.9 trillion for power distribution companies, Rs. 0.3 trillion of "special liquidity" for non-banking financial institutions (NBFCs) and Micro-Finance Institutions (MFIs) and a Rs. 0.45 trillion partial credit guarantee scheme for NBFCs, housing finance companies (HFCs), and MFIs with low credit rating.
- Concessional credit of Rs. 2 trillion for 25 million farmers, fishermen and animal husbandry farmers under PM-Kisan (Ray & Subramanian 2020)

Table 2: Unemployment Scenario during COVID-19 Pandemic in India

Month / 2020	Unemployment Rate		
	India	Rural	Urban
February	7.76%	7.34%	8.65%
March	8.75%	8.44%	9.41%
April	23.52%	22.89%	24.95%
May	21.73%	21.11%	23.14%
June	10.18%	9.49%	11.68%
July	7.40%	6.51%	9.37%
August	8.35%	7.65%	9.83%
September	6.68%	5.88%	8.45%
October	7.02%	6.95%	7.18%
November	6.50%	6.24%	7.07%
December	9.06%	9.15%	8.84%

Source: Centre for Monitoring Indian Economy (CMIE) 2020
<https://unemploymentinindia.cmie.com/>

Centre for Monitoring Indian Economy (CMIE) is publishing and monitoring all records of Indian employment scenario and economic development. CMIE prime research institute in India focused on labour and employment in India. CMIE has conducted

various surveys during the lockdown period and thereafter to understand the economy and employment scenario in India.

Figure 1: Migrant workers during COVID-19 in India



Source: Brookings 2020 <https://www.brookings.edu/blog/future-development/2020/07/13/the-impact-of-COVID-19-and-the-policy-response-in-india/>

In February 2020 when there were very few or negligent COVID-19 cases particularly in one or two states in India, unemployment rate was 7.76%. Urban unemployment rate was 8.65% and rural unemployment rate was 7.34%. In the month of March 2020 or in the last week of March 2020, the Government of India declared national lockdown for 21 days from 25th March 2020. The month of March 2020 witnessed a rise in unemployment and the unemployment rate of India stood at 8.75%. In the month of March 2020 urban unemployment was 9.41% and rural unemployment was 8.44%. The months of April and May witnessed high

unemployment rates due to strict lockdown conditions. Unemployment rate in India was very high and rose to 23.52% and 21.4% in April and May 2020.

Unlocking started in June 2020 and workers resumed their jobs slowly and steadily which resulted in unemployment rates falling from 21 % to 10.33% in India. Unemployment rate in India varied between 10% to 8% between June 2020 to December 2020. Urban unemployment rate was between 11% to 8.5% and rural unemployment rate was between 9.50% to 9.15% between June 2020 to December 2020.

According to the CMIE report, total employment was 403.9 million in the month of November 2019 and it dropped to 393.6 million in the month of November 2020. Decreased employment is the result of COVID-19 Pandemic and lockdown strategy to combat COVID-19 Pandemic.

Survey conducted by CMIE also found that the index of consumer sentiment has dropped to 51.8% in the month of November from 52.5% in the month of October 2020. Household income also decreased in the month of November 2020. 2-3 million jobs were lost in the formal sector since April 2020. Women employment has also significantly decreased. Women witnessed nearly 14% job loss in the month of April 2020 and did not recover at an equivalent rate as men during the unlock period. Nearly 15 million jobs are missing from April 2020. Young population and women have lost their jobs more predominantly than the older and male population. Most of the jobs in the private sector/organised sector which are being lost are highly paid jobs.

Initially due to strict lockdown conditions there were no jobs or very less jobs available particularly in essential services. This had an adverse impact on workers in the informal sector who work on daily wages. This affected small enterprises and self employed entrepreneurs very badly. However, after the opening of the economy, workers in the informal sector were successful in getting some jobs. However, working hours and quality of work life was compromised. Though employment is back there is a serious

question on the nature of employment in the highlight of suspended labour laws.

The major concern is the collapse of good jobs and working conditions. Suspensions of labour laws by few states are also a major concern and main factors of worry in workers. If management attempts to exploit workers and working conditions with the help of suspended labour laws, it may result in unrest after a particular period of time. The process of structural shift has begun. Persons who have lost their jobs in the organised sector and are looking for other jobs or self employment face various problems. COVID-19 Pandemic has brought unwarranted challenges to growth of Indian economy and employment. However, India has succeeded in managing the unemployment rate below 10% in such extreme adverse conditions. India has about 405 million people in the age group (15+ to 64). 15 million jobs are missing, amounting to 5% job loss. Number of working forces is going to increase. Hence urgent efforts are required from the state and central government to create new job opportunities so as to cut down unemployment and adverse impact on GDP growth.

3. South Africa

South Africa is an upper-middle-income country and the most industrialised country in the African continent. Failure to create jobs and increasing unemployment is a major concern for South Africa since the last few years. The economic growth in South Africa is stagnant and has witnessed extreme pressure since the last few years. In the year 2016 GDP growth rate real was 0.399 % and in the year 2019 it was 0.15%. GDP was 0.8% in the year 2018 and 0.7 % in the year 2019. It was expected to go to 1.1% in the year 2020 (World Bank National Account data 2020). Unemployment has been a major concern for South Africa since the last few years. Unemployment rate is very high in South Africa. Unemployment rate was 26.5% in 2016 and rose to 28% by 2019. In such circumstances COVID-19 pandemic posed very severe challenges to economic growth and employment of South Africa.

3.1 Measures to Control Spread of COVID-19 Pandemic

South Africa declared a lockdown at the end of March 2020. The lockdown strategy forced by the South African government to control COVID-19 was divided into 5 levels. Level 5 was most stringent and restrictive whereas level 1 is economically friendly and least restrictive. Schedule of lockdown was as under:

- From 27th March 2020 to 30th April 2020 Government of South Africa declared Full lockdown - level 5 :

During this period there were strict preventative directives declared by the South African government. It resulted in closure of commercial activities in various economic sectors except for essential services. All other workers were instructed to stay at home and work if possible. During this period nearly 3 million jobs have been lost.

- From 1st May 2020 to 30th May 2020 there were high restrictions - level 4: During this period commercial activities in certain economic sectors were allowed. Directions /guidelines in this phase of lockdown enabled employees to work from home and also enabled workers in the informal sector to do work and earn.
- From 1st June 2020 to 17th August 2020 there were moderate restrictions - level 3: This phase allowed more workers to work away from home. Restrictions on movement curtailed. Workplaces/factories/service centres were instructed to implement COVID-19 protocols. However, work restrictions were still imposed on workers in public utilities.
- From onward 18th August 2020 there was less moderate restrictions - level 2
- From onward 21st September 2020. Removed many restrictions on commercial activities in economic sectors.

Figure 2: South African workers protest about unemployment during lockdown



Source: BBC News 2020 <<https://www.bbc.com/news/world-africa-54343598>>

Phase of reopening of the economy began from 1st May 2020. The Government of South Africa preferred to open the economy and commercial sector slowly and sturdily. This allowed the government to put workers on the recovery path by allowing individuals to work (Viljoen 2020).

The Government of South Africa announced a stimulus package of \$26 billion, (R500 billion) which amounts to 10 % of the GDP of South Africa on 21st April 2020. 90 % of the stimulus package was reserved to additional health support, assistance to municipalities for the provision of basic services, wage protection through the Unemployment Insurance Fund (UIF), further income support through the tax system, financial support for small and informal businesses, and—the largest component—the credit guarantee scheme while 10% of stimulus package was dedicated to social assistance, including an expansion of cash transfers or social grants at both the intensive (the amount of every existing social grant was increased) and extensive (a new, special COVID-19 Social Relief of Distress grant was introduced) margins, for six months from May to October 2020 (Bhorat & Kohler 2020).

The South African Government declared additional social assistance measures i.e. in the form of social grant expansions at the end of April 2020 that was 30 days after the declaration of complete lockdown in South Africa. The special COVID-19 Social Relief of Distress (SRD) Grant declared by the South African Government successfully reached millions of previously unreached individuals. Survey conducted by NIDS & CRAM states that two in every five applicants successfully received benefits under this scheme.

National income dynamic study (NIDS) & Corona Virus Rapid Mobile Survey (CRAM) conducted various survey in South Africa and reported that:

- 3 million jobs have been lost between February 2020 to April 2020, from February to June 2020 workers who were poor, rural, female, unskilled and less educated have experienced the largest declines in employment. Rural areas have been more affected by job losses than urban areas.
- Only one in 4 workers (24%) was working from home in the month of June 2020.
- During April and June 2020, there was a decline in wages in the formal as well as informal sector. However, the informal sector witnessed high decline in wages i.e. 120% and formal sector witnessed decline in wages i.e. 68% wages of women engaged in formal employment also reduced by 59% whereas wages of women engaged in the informal sector were reduced by 93%. Overall, formal and informal workers incurred a wage decrease from April to June.
- Overall, both formal and informal workers suffered equivalent decreases in working hours per week.
- Rate of job loss was higher in the informal sector than the formal sector.

Table 3: Labour Market in South Africa during COVID-19 Pandemic

(In thousand)	July -Sept 2019	April-June 2020	July -Sept 2020
Population 15-64	38 582	39 021	39 167
Labour force	23 109	18 443	21 224
Employed	16 375	14 148	14 691
Formal sector (non-agricultural)	11 214	10 064	10 306
Informal sector (non-agricultural)	2 995	2 280	2 456
Agriculture	880	799	808
Private Households	1 286	1 005	1 121
Unemployed	6 734	4 295	6 533
Not economically active	15 474	20 578	17 944
Discouraged work-seekers	2 793	2 471	2 696
Other (not economically active)	12 681	18 107	15 248
Rate %			
Unemployment rate	29.10%	23.30%	30.80%
Employed/population ratio (absorption)	42.40%	36.30%	37.50%
Labour force participation rate	59.90%	47.30%	54.20%

Quarterly Labour Force Survey, Quarter 3: 2020

Source: Stats SA 2020

<http://www.statssa.gov.za/publications/P0211/P02113rdQuarter2020.pdf>

Stats SA conducts various surveys for the Government of South Africa. It conducts employment statistics surveys: namely the QES (establishment based) and the QLFS (household-based). This is the official important source of labour and employment data in South Africa. According to the definition adopted by Stats SA, the labour

force includes all persons employed and unemployed. Labour force participation rate is the proportion of the working-age population that is either employed or unemployed. Unemployed persons include all persons between 15-64 years who are not employed and seeking jobs. These are definitions accepted and adopted by ILO, and most of the nations including India.

Working age population in South Africa is increasing daily. In the 3rd quarter (July –Sept 2019) of 2019 the working age population was 38 582 thousand (38.582 million) and it increased to 39 167 thousand (39.16 million) by the 3rd quarter (July –Sept 2020) of 2020. In the 3rd quarter (July –Sept 2019) of 2019 the labour force count was 23109 thousand (23.10 million) and it has been decreased to 21224 thousand (21.22 million) by 3rd quarter (July –Sept 2020) of 2020. In the 3rd quarter (July –Sept 2019) of 2019, the Employed count was 16 375 thousand (16.137 million) and it has been decreased to 14691 thousand (14.69 million) by 3rd quarter (July –Sept 2020) of 2020.

Unemployment rate increased to 30.8% by the end of 3rd quarter (July –Sept 2020) of 2020; it was 29.1 % in the 3rd quarter (July –Sept 2019) of 2019. This is the highest unemployment rate recorded since 2008.

Employed/population ratio (absorption rate) also decreased to 37.5 % by the end of 3rd quarter (July –Sept 2020) of 2020; it was 42.2% in the 3rd quarter (July –Sept 2019) of 2019. Thus labour indicators are not lucrative and badly affected by COVID-19 pandemic.

According to Stats SA, the largest employment increase has been reported in the formal sector (242 000). The informal sector has also witnessed increased employment (176 000) in the 3rd quarter of (July –Sept 2020.) 2020. The largest increase in employment has been recorded in the Elementary occupations (up by 194 000), and thereafter by Domestic workers (up by 119 000). Number of employees having permanent employment contracts has been reduced by 235 000, and the number of employees having contracts of unspecified duration or contracts of limited duration has been reduced by 942 000 and 239 000, respectively in the year 2020.

According to Stats SA, male workforce has been working more predominantly than the female workforce during COVID-19 Pandemic in South Africa. In the Construction industry 9 out of 10 male have worked during COVID-19 Pandemic. Women have preferred to work in community and social services, household works. Their presence in this sector is more prominent than male during COVID-19 Pandemic in South Africa.

According to Stats SA survey, nearly 70% responded that national lockdown prevented them from doing jobs.

COVID-19 pandemic has paralysed the South African economy which was struggling to recover from recession before COVID-19 pandemic. South Africa's recovery in the short and medium term seems uncertain and susceptible to the immediate and long-term consequences of the COVID-19 pandemic. The COVID-19 pandemic may affect the labour market badly by three means i.e. unemployment, quality of job and access to social protection and fair wages. Inequality is an important issue that pre-existed and pandemic may worsen badly. (Labour force participation in Africa - See Appendix V and VI).

4. Conclusion

The study conducted on primary and secondary data reveals that developing countries such as South Africa and India have not been exempted from adverse socio-economic effects of the pandemic. Both countries have a large proportion of informal or unorganised workers in respective countries and suffered a lot during the lockdown period. Social security measures and programs adopted by concerned Governments were not sufficient to protect and provide minimum living and health standards for unprotected workers. Economic growth of both the countries has been declining due to stringent lockdown during COVID-19 Pandemic. The effect is clearly reflected in available/published data by the concern department of both the countries. Both the countries had adopted stringent lockdown measures during the initial phase of COVID-19 pandemic transmission in their respective countries and also

declared a stimulus package near about 10% of GDP to provide reliefs to needy peoples, workers, migrant workers and industries. However, stringent lockdown conditions resulted in job losses and created panic in the minds of many informal workers.

South Africa was struggling to come out of recession before entering into COVID-19 pandemic. The country's economic growth was not in good condition since 2008. South Africa was facing problems in creating new jobs and employment since the last few years. COVID-19 pandemic has worsened unemployment and South Africa witnessed an all time high unemployment rate i.e. 30.8% in the third quarter of 2020. Lower GDP and low job creation has resulted in increased unemployment and poverty in South Africa. Workers in the Informal sector are more prone to vulnerability and suffer difficulties in terms of job loss and income loss in this COVID 19 pandemic. The South African Government needs to implement strategies/plans which will enhance productivity and wages of the workers.

COVID-19 pandemic has also impacted the Indian economy. The blow of COVID-19 pandemic to jobs is very harsh, and the most unpleasant at the subordinate ends of the employment structure. It is going to affect a number of people. Commercial establishments under economic force may perhaps be forced to fall into the informal sector which may result in lowering working conditions and minimising workers' protection. Informal and migrant workers being the backbone of the Indian economy need to be protected in terms of social security and good working conditions.

Both- South Africa and India and other developing countries have been badly affected by COVID-19 Pandemic. Both the countries are getting more informal jobs and good quality jobs are compromised. Most concerning part is to ensure decent work conditions, quality of job which is declining and at the same time the number of jobs which is also not increasing and resulting in a rising unemployment rate.

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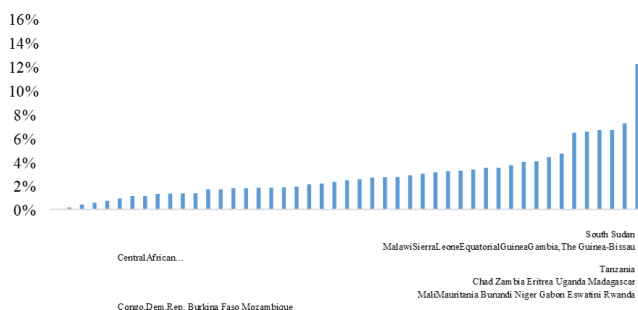
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Appendices

Appendix I

Percent of Tertiary Education Students out of Total Enrolled Students



Source: World Bank 2020
<https://documents1.worldbank.org/curated/en/109901592405885723/COVID-19-Impact-on-Tertiary-Education-in-Sub-Saharan-Africa.pdf>

Appendix II

Currently Active World Bank Tertiary Education Lending Operations

Project ID	Project Name	Project Development Objective
P168551	Rwanda Quality Basic Education for Human Capital Development Project	To improve teacher competence and student retention and learning in primary education.
P165581	Africa Regional Scholarship and Innovation Fund for Applied Sciences, Engineering and Technology	To strengthen the institutional capacity for quality and sustainable doctoral training, research, and innovation in Sub-Saharan Africa's transformative technologies.
P151847	Eastern and Southern Africa Higher Education Centers of Excellence	To strengthen selected Eastern and Southern African higher education institutions to deliver quality postgraduate education and build collaborative research capacity in the regional priority areas.
P146602	Additional Financing for Mozambique Higher Education Science and Technology Project	To (a) increase the number and raise the quality of graduates at the undergraduate and graduate levels, (b) strengthen national research capacities to produce research outputs of relevance to the recipient's strategic economic sectors, and (c) strengthen the institutional framework for Technical and Vocational Education and Training.
P164293	Burkina Faso Higher Education Support Project	To strengthen higher education institutions to increase access and deliver quality education in priority subject areas.
P164546	Africa Higher Education Centers of Excellence for Development Impact	To improve quality, quantity, and development impact of postgraduate education in selected universities through regional specialisation and collaboration.
P160642	Côte d'Ivoire Higher Education Development Support Project	To (a) improve higher education management, (b) increase enrollment in professional programs, and (c) improve the quality and labour market relevance of degree programs of participating public tertiary institutions.
P151318	MALI - Higher Education Support Project	To improve the relevance of selected higher education programs and the stewardship of the higher education system in Mali.
P153111	Africa Higher Education Centers of Excellence Project Additional Financing	To support the recipients in promoting regional specialisation amongst participating universities in areas that address regional challenges by strengthening the capacities of these universities to deliver quality training and applied research.

Source: World Bank 2020

<https://documents1.worldbank.org/curated/en/109901592405885723/COVID-19-Impact-on-Tertiary-Education-in-Sub-Saharan-Africa.pdf>

Appendix III

India's Export of Drugs, Pharmaceuticals & Fine Chemicals to Africa

Sr. No.	Country	2018-19 (in \$ million)
1	South Africa	619.08
2	Nigeria	447.95
3	Kenya	261.01
4	Uganda	177.13
5	Tanzania	162.08
6	Egypt	145.25
7	Ethiopia	142.78
8	Ghana	115.67
9	Mozambique	115.12
10	Zambia	110.77
11	Zimbabwe	102.95
12	Algeria	102.27
13	Malawi	100.06
14	Congo D. Rep.	92.31
15	Sudan	67.61
16	Angola	51.56
17	Guinea	50.02
18	Cote D' Ivoire	46.21
19	Burkina Faso	40.04
20	Morocco	39.7
21	Cameroon	38.89
22	Mauritius	31.89
23	Botswana	27.51
24	Benin	25.62
25	Rwanda	23.94
26	Congo P Rep	22.67
27	Mali	21.7
28	Namibia	21.65
29	Madagascar	21.25
30	Chad	20.98
31	Burundi	20.19
32	Tunisia	19.56
33	Senegal	17.82
34	Togo	14.98
35	Sierra Leone	14.65
36	Somalia	14.44
37	Libya	13.79
38	Lesotho	13.64
39	Niger	13.32
40	Swaziland	12.53
41	Liberia	9.17
42	Djibouti	6.85
43	Eritrea	6.12
44	C Afri Rep	5.24
45	Gambia	5.11
46	Mauritania	4.78
47	Seychelles	2.7
48	Gabon	1.79
49	Equti Guinea	1.62
50	Guinea Bissau	1.46
51	South Sudan	0.85
52	Comoros	0.54
53	Cape Verde	0.38
54	Sao Tome	0.14

Source: Pharmexcil 2019
<https://pharmexcil.com/uploads/tradestatistics/Countrywiseexports201819.pdf>

Appendix IV

Made-in-India COVID19 Vaccine Supplies to the World

Sr. No.	Country	Grant	Commercial	COVAX	Total Supplies
		Quantity (in lakhs)			
1	Afghanistan	5		4.68	9.68
2	Albania	0.50			0.500
3	Algeria		0.5		0.5
4	Angola			6.24	6.24
5	Antigua & Barbuda	0.4			0.4
6	Argentina		5.8		5.8
7	Bahamas	0.20			0.20
8	Bahrain	1			1
9	Bangladesh	33	70		103
10	Barbados	1			1
11	Belize	0.25			0.25
12	Benin			1.44	1.44
13	Bhutan	5.5			5.5
14	Bolivia			2.28	2.28
15	Botswana	0.30			0.30
16	Brazil		40		40
17	Cambodia			3.24	3.24
18	Cameroon			3.912	3.912
19	Canada		5.00		5.00
20	Cape Verde			0.24	0.24
21	Comoros			0.120	0.120
22	Djibouti			0.24	0.24
23	Dominica	0.7			0.7
24	Dominican Republic	0.3	0.2		0.5
25	DR Congo	0.5		17.16	17.66
26	Egypt		0.5		0.5
27	El Salvador		0.2		0.2
28	Eswatini	0.20		0.12	0.32
29	Ethiopia			21.84	21.84
30	Fiji	1.00			1.00
31	Gambia			0.36	0.36
32	Ghana	0.5	0.02	6	6.52
33	Guatemala	2			2
34	Guinea			1.944	1.944
35	Guinea Bissau			0.288	0.288
36	Guyana	0.8			0.8
37	Iran		1.25		1.25
38	Ivory Coast	0.5		5.04	5.54
39	Jamaica	0.50			0.50
40	Kenya	1		10.20	11.20
41	Kuwait		2		2
42	Laos			1.32	1.32
43	Lesotho			0.36	0.36
44	Liberia			0.96	0.96
45	Malawi	0.5		3.60	4.1
46	Maldives	2	1	0.12	3.12
47	Mali			3.96	3.96
48	Mauritania			0.696	0.696
49	Mauritius	1	3		4
50	Mexico		8.7		8.7
51	Mongolia	1.5			1.5
52	Morocco		70		70
53	Mozambique	1.00		3.84	4.84
54	Myanmar	17	20		37
55	Namibia	0.30			0.30
56	Nauru	0.10			0.10

57	Nepal	11	10	3.48	24.48
58	Nicaragua	2.00		1.35	3.35
59	Niger	0.25		3.55	3.80
60	Nigeria	1		39.24	40.24
61	Oman	1			1
62	Palestine		0.25		0.25
63	Papua New Guinea			1.32	1.32
64	Paraguay	2.00			2.00
65	Rwanda	0.5		2.40	2.9
66	Sao Tome & Principe			0.24	0.24
67	Saudi Arabia		45		45
68	Seirra Leone			0.96	0.96
69	Senegal	0.25		3.24	3.49
70	Serbia		1.5		1.5
71	Seychelles	0.5			0.5
72	Solomon Islands			0.24	0.24
73	Somalia			3.00	3.00
74	South Africa		10		10
75	South Sudan			1.32	1.32
76	Sri Lanka	5	5	2.64	12.64
77	St. Kitts & Nevis	0.2			0.2
78	St. Lucia	0.25			0.25
79	St. Vincent & Grenadines	0.4			0.4
80	Sudan			8.28	8.28
81	Suriname	0.5			0.5
82	Syria			2.568	2.568
83	Tajikistan			1.92	1.92
84	Togo			1.56	1.56
85	Trinidad & Tobago	0.40			0.40
86	UAE		2		2
87	Uganda	1.00		8.64	9.64
88	UK		50		50.00
89	Ukraine		5		5
90	UN Health workers		1		1
91	UN Peacekeepers	2.00			2.00
92	Uzbekistan			6.60	6.60
93	Yemen			3.60	3.60
94	Zambia			2.280	2.280
95	Zimbabwe	0.35			0.35
Total		107.15	357.92	198.628	663.698

Source: Ministry of External Affairs (India) 2021
<https://www.mea.gov.in/vaccine-supply.htm>

Appendix V

Africa's Total Labour Force Participation, (2000-21)

Labour force participation rate (%)								Volume of Labour force participation (in million)							
Region	2000	2016	2017	2018	2019	2020	2021	2000	2016	2017	2018	2019	2020	2021	
Africa	65.1	63.2	63.1	63	63.1	63.1	63.1	302.1	451.3	463.2	476	489.7	503.8	518	
Central Africa	73.9	69.1	69.1	69	68.8	68.7	68.5	38.5	59.7	61.6	63.6	65.7	67.8	69.9	
East Africa	78.5	77.6	77.5	77.3	77.3	77.4	77.4	109	175.8	181.3	187	193.3	199.8	206.3	
Northern Africa	47.1	46.5	45.8	45.7	45.7	45.7	45.6	51.2	71.5	71.7	73	74.3	75.7	77	
Southern Africa	56	56.5	57.1	56.9	56.9	56.9	56.9	18.8	25.3	25.9	26.2	26.7	27.1	27.5	
Western Africa	64.5	58.7	58.7	58.7	58.5	58.4	58.3	84.5	119.1	122.6	126.2	129.8	133.5	137.2	

Source: ILO Stat 2020

https://www.ilo.org/wcmsp5/groups/public/---africa/---ro-abidjan/documents/publication/wcms_753300.pdf

Appendix VI

Gender Gap in Labour Force Participation Rate (Percentage Points)

	2000	2016	2017	2018	2019	2020	2021
Africa	21.3	18.5	18.1	17.8	17.7	17.6	17.5
Central Africa	5.5	7.2	7.1	6.9	6.9	6.9	6.9
Eastern Africa	11.1	10	9.6	9.2	9.2	9.2	9.1
Northern Africa	52.5	48	47.6	47.5	47.3	47.2	47
Southern Africa	20.6	13.8	13.3	13	12.9	12.7	12.5
Western Africa	13.3	12	11.8	11.6	11.7	11.8	11.9

Source: ILO Stat 2020

https://www.ilo.org/wcmsp5/groups/public/---africa/---ro-abidjan/documents/publication/wcms_753300.pdf

Appendix VII

India-Ethiopia Bilateral Relations

Historical linkages between India and Ethiopia go back about 2,000 years of recorded history. Soon after achieving independence, a goodwill mission led by Sardar Sant Singh was sent to Ethiopia. Diplomatic relations at the legation level were established in 1948. Full diplomatic relations were established in 1950 with Sardar Sant Singh as the first Ambassador.

Ethiopia is one of the largest recipients of long term concessional credit from India in Africa. The ongoing Gol assistance in developmental projects in Ethiopia has continued with sanctioned Lines of Credit worth more than USD1 billion to Ethiopia for sectors such as rural electrification, sugar industry and railways.

India is the fourth most important source of imports for Ethiopia, contributing 8% of all Ethiopian imports next to China, Kuwait and the USA. Indian imports constituted 1.6% of Ethiopian global exports. More than 586 Indian companies in Ethiopia employ more than 55000 people with a licensed investment of over USD 4 billion. About 58.7% of Indian investments are in the manufacturing sector, followed by agriculture (15.6%).

The Indian Technical and Economic Cooperation (ITEC) programme was started in Ethiopia in 1969. ITEC slots have increased over the years, reaching 400 (2018-19) and 406 (2019-20). In addition, the Indian Council of Cultural Relations (ICCR) offers scholarships to 55 students from Ethiopia for Undergraduate, Postgraduate and PhD courses.

The early settlers among the Indian community in Ethiopia came from Gujarat in the latter years of the 19th century. During imperial times, tens of thousands of Indian teachers in schools all over Ethiopia, even in the most remote parts. Today, the Indian community has a sizable presence in the educational sector of Ethiopia. There are an estimated 2000-2500 Indian

Lecturers/Professors in more than 40 public universities and higher educational institutions. The Indian Diaspora in Ethiopia is estimated to be between 5000-6000.

Source: Ministry of External Affairs 2020

https://mea.gov.in/Portal/ForeignRelation/Ethiopia_-_Nov_2020.pdf



Centre for African Studies, University of Mumbai

India pioneered the establishment of Area Studies Programmes (ASP) in the developing world since the mid-1950s, under the first Prime Minister of India, Pandit Jawaharlal Nehru, to understand and manage India's external relations. The first Centre for African Studies in India was established at Delhi University (1955) and at Mumbai University in 1971. The Centre is a teaching cum research department and generates knowledge on various facets of Africa, its history, culture, politics, geography, economic development, South-South Development Cooperation and Africa in global affairs. The current focus of the Centre has been on India- Africa contemporary and historical connections across the Indian Ocean world through trade, inter- alia, in the textiles, agriculture, engineering goods, energy and pharmaceutical sectors. It works closely with the private and government sector - the ministry of external affairs, the Exim Bank of India, NGO's and think tanks.

The Centre offers a certificate course in trade with Africa and degree courses at the Masters and Ph.D level. Its outreach activities are via seminars and publications. Students from the Centre (including from Africa) are engaged in administrative, diplomatic and defence services, in teaching and at research centres, globally.