

An analysis of Public Private Partnership (PPP) Infrastructure Projects as a resilient strategy for responding to the impact of Covid-19 pandemic in Africa

Innocent Nuwagaba¹, Peter Kiuluku², David Kalaba³, Joseph Mumba⁴, Henry Waruhiu⁵, Lucky Yona⁶ & Leorne Malisa⁷

¹The Business School, Eastern and Southern Africa Management Institute.

^{2,3}Office of the Director General, Eastern and Southern Africa Management Institute.

⁴Directorate of the Business School, Eastern and Southern Africa Management Institute.

⁵Directorate of Research and Consultancy, Eastern and Southern Africa Management Institute.

⁶FOSTER Project coordination unit, Eastern and Southern Africa Management Institute.

⁷Directorate of Executive Training, Eastern and Southern Africa Management Institute.

*Corresponding Author: Innocent Nuwagaba

DOI: <https://doi.org/10.5281/zenodo.21977453>

Article History	Abstract
Original Research Article	<i>Public Private Partnership (PPP) Projects are now being considered as a resilient approach for developing core infrastructure across Africa in post COVID 19 era. Governments all over Africa are now resorting to several PPP Projects to develop physical and social infrastructure needed to respond to the impact of COVID-19 pandemic in Africa. The successful adoption of such PPPs is however being hindered by inadequate agile and resilient public administrative mechanisms to deal with the slowdown of impact of COVID 19 in Africa. The main objective of the study was to analyse the use of PPPs in dealing with the impact of COVID 19 in Africa. Data collected through review of scholarly literature was analysed using narratives. The study findings revealed that Africa is now using PPPs as a resilient measure to manage the impact of COVID 19. It was recommended that Governments all over Africa need to use PPP Projects as a resilient mechanism to effectively address the social economic challenges caused by COVID 19 pandemic.</i> Keywords: <i>Public Private Partnership, Project, Resilience, Infrastructure, COVID 19, Pandemic.</i>
Received: 15-06-2026	
Accepted: 20-07-2026	
Published: 17-08-2026	
Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.	
Citation: Nuwagaba, I., Kiuluku, P., Kalaba, D., Mumba, J., Waruhiu, H., Yona, L., & Malisa, L. (2026). An analysis of public private partnership (PPP) infrastructure projects as a resilient strategy for responding to the impact of COVID-19 pandemic in Africa. <i>UKR Journal of Multidisciplinary Studies</i>, 2(8), 142-155.	

1.0 Introduction

The study analysed the use of PPP Projects as a resilient approach to respond to the impact of COVID 19 in Africa (Pumelela, Mandla & Khaya, 2020). This paper therefore discusses key operational considerations when trying to deal with the impact of the COVID-19 crisis and recalibrating the PPP projects in the short term (World Bank, 2024).

1.1 The concept of PPPs

PPPs are frequently utilised to supply public assets and associated services. A well-developed business case is a key to the implementation of PPP projects (Tingting, Liu & Patrick, 2025). In barely 20 years, PPPs have emerged as a robust approach to global governance by uniting public and private stakeholders in shared decision-making to address global challenges (Antoine, 2024). The PPPs have the

legitimacy and the support of the State, enabling the private sector to inject its market logic in the operation of public services (Souza, Cabral & Jezine, 2026). Recently worldwide PPPs have been a key player in the covid pandemic via a new global project called the Access to Covid-19 Tools Accelerator (ACT-A) which was designed “to bring covid-19 vaccines, tests and treatments to everyone, everywhere (ACT-A, 2023).

PPPs helped to establish the agenda, develop policy recommendations, advance norms around vaccine equality, build policy coalitions, fundraise, and implement initiatives affecting millions of lives and worth USD 25 billion (Storeng & de Bengy Puyvallée, 2021). Thus, global PPPs are implementers of global governance, which is understood here as “authoritative actors” (Betsill, Benney

& Gerlak, 2020) that can use their authority to deliberately impact policy processes, i.e. to exert urgency (Hofferberth, 2019). Currently, African countries are struggling to acquire crucial healthcare infrastructure to deal with the effects of COVID-19 (Casady & Baxter, 2021). The COVID-19 is a window of opportunity for many African countries to come up with resilient strategies to mitigate its impact (Hunt & Noble, 2020). With the first case being recorded on 14th of February 2020 in Egypt, the rest of the countries have subsequently shown issues related with the virus (Abdul Azeez, 2020). The poor development implications remain in spite of the control strategies of the condition.

1.2 An overview of resilient infrastructure to deal with COVID 19 impact

Africa remains significantly under-financed in relation to the Sustainable Development Goals (SDGs), with financing needs estimated at over USD 3 trillion, particularly in the areas of infrastructure, economic transformation, and strategic development partnerships (United Nations Economic Commission for Africa, 2024). “Despite these economic constraints, the continent has significant opportunities to build resilient and sustainable economies that can stand up to emerging global challenges such as climate change and public health emergencies. The rise in the frequency of catastrophic weather events and the economic and social disruptions created by the COVID-19 epidemic have made the need for novel funding structures and collaborative governance approaches more urgent (African Development Bank Group, 2024). Therefore, PPPs are increasingly being recognised as a viable means to construct robust infrastructure and improve the delivery of public services across Africa. Akalewold, Akaninyene, Seye, and Sanni (2021) claim that PPPs have become the core of attempts to improve infrastructure resilience to the problems presented by the pandemic. Similarly, Joudyian, Doshmangir, Mahdavi, Tabrizi, and Gordeev (2021) argue that African countries should use PPP agreements to improve the efficiency, access, and sustainability of key public services during crises.

The expanding use of PPPs in Africa demonstrates their ability to combine public sector oversight with private sector innovation, technical know-how and financial resources to address difficult development concerns. In addition to using investment, PPPs also permit the transfer of some project risks from governments to private sector partners while fostering better quality of service, operational efficiency, and technological innovation (Nuwagaba, 2021). Resilience, in this sense, is the capacity of systems and organisations to predict, cope with, adapt to and effectively recover from unfavourable occurrences and unanticipated disruptions (Baxter, 2021). This perspective has led to governments in Northern, Western, Eastern,

Central, Southern and the Horn of Africa including PPPs in their national recovery and resilience strategies to bolster healthcare systems, to expand critical infrastructure and to respond to the long-term socio-economic effects of the COVID-19 pandemic (UNECA, 2020). The growing dependence on PPPs thus reflects a broader policy trend towards adopting collaborative governance as a way to build institutional resilience and foster sustainable development.

Lack of infrastructure remains a significant barrier to sustainable development in Africa and other developing nations and these barriers existed pre-COVID-19. For example, chronic under-investment has long been a problem for North African countries and access to basic infrastructure and public services remains a major shortfall in many developing economies. The United Nations Economic Commission for Africa (2024) estimates that there are still almost one billion people globally who lack access to electricity, some 2.4 billion use unsafe sanitation facilities and almost 660 million do not have better sources of safe drinking water. To fill the infrastructure financing gaps, PPPs have been increasingly promoted as an effective alternative to mobilise private investment, accelerate infrastructure development and support long-term economic growth. Similar experiences have been observed in Southeast Asia where governments have extensively used PPPs to finance large infrastructure projects and promote economic development. However, Trissia and Henrico (2024) note that changed geopolitical realities and development priorities after the COVID-19 outbreak have made PPP implementation more difficult in some countries like Indonesia, leaving projects vulnerable to domestic political and institutional issues. Prior to the pandemic, a number of Southeast Asian governments had prioritised infrastructure development (such as in transport and energy) via PPP arrangements to allocate project risks and to tap private-sector participation in the pursuit of national development goals, within the framework of the Belt and Road Initiative (BRI) and other development initiatives.

1.3 African experience of using PPPs as a resilient strategy to deal with the impact of COVID-19

At present, Egypt is employing PPPs to prove her resilience to the significant social economic consequences of COVID-19 on the human life in Northern Africa (Breisinger et al., 2020). Ethiopia’s adoption of PPPs as a resilient approach in response to COVID 19 is being benchmarked globally in the horn of Africa (WB, 2021). Nigeria is collaborating with the private health service providers in West Africa using PPPs to provide resilient health care services to her inhabitants during this COVID 19 (Proshare, 2021b).

South Africa’s existing PPPs are deployed in Southern Africa to provide resilient healthcare service delivery to the

consequences of COVID 19 pandemic in the country (Banderker, 2020). In East and Central Africa, the governments of Uganda, Kenya and DRC are employing PPPs to construct resilient infrastructure to address the effects of COVID 19 pandemic (NCTTCA, 2021). This is because the impacts of COVID 19 on human life are terrible and have a severe influence on economies (Decerfa, Ferreira, Mahlera, & Sterck, 2021).

As of 29th August 2021, Covid-19 had infected 7,111,780 people causing 179,801 fatalities (ACDC, 2021). Africa is therefore utilising PPPs as a resilient alternative to address the impact of the COVID 19 pandemic (Hartigan, Mendoza & Ong, 2020). Thus, it is important to look at the usage of PPPs as a resilient approach to Covid-19. The study seeks to explore the idea of resilience in infrastructure development and to analyse the usage of PPPs to create infrastructure necessary to adapt to the impacts of COVID 19 in Africa. Therefore, the main objectives of the study were to explore the idea of resilience in infrastructure development and to analyse the use of PPPs in dealing with the impact of COVID 19 in Africa.

2.0 Literature review

PPP infrastructure projects have become an increasingly popular tool for both established and emerging economies, as governments seek creative ways to finance, build and manage public infrastructure. (PPPs are now an important governance mechanism that allows the collaboration of public authorities and private-sector organisations to meet a variety of infrastructure and service delivery needs while balancing the expectations of multiple stakeholders (Gabriel, Jose, & Alberto, 2024). As Khallaf, Guevara, Mendez-Gonzalez, and Castelblanco (2024) state, “PPP arrangements are an effective framework for accommodating the diverse interests of internal and external stakeholders throughout the project lifecycle.” Nevertheless, the sustainability and long-term success of PPP projects is sensitive to recurrent global crises that cause economic, environmental and institutional disturbances. Thus, PPP projects are expected to secure adequate financial resources and maintain service continuity and at the same time mitigate environmental impacts such as degradation of ecosystems, pollution of water bodies and depletion of resources, while ensuring that investments in infrastructure continue to deliver satisfactory social and economic outcomes (Gabriel, Jose, & Alberto, 2024).

The global crises, including financial crisis and the COVID-19 pandemic, have increased the unpredictability in the macroeconomic climate and the dangers of long-term PPP infrastructure projects. Such crises generate structural and financial pressures that need PPP arrangements to put into place robust management solutions that can maintain project implementation even under adverse economic

situations. The resultant economic instability is often reflected in terms of rising inflation, rising unemployment, declining consumer demand, and increased fiscal pressure on governments. Private concessionaires also face increased uncertainty regarding project demand, returns on investment, and market performance (Akomea, Jin, & Osei, 2020). These disruptions, along with national economies, undermine financial markets, diminish the availability of private sector credit, reduce the demand for user-funded PPP projects, increase the risk aversion of policy makers and investors, and disturb the global supply chains needed for infrastructure development (Gabriel, Jose, & Alberto, 2024). These problems together underline the requirement of robust PPP frameworks that are able to adapt to changing economic situations, while also maintaining the continuity, financial sustainability, and long-term efficacy of infrastructure projects.

2.1 COVID 19 and PPPs

The COVID-19 pandemic showed out many flaws in health systems globally, with African countries suffering particularly harsh challenges because of poor health infrastructure and lack of emergency planning. The first case of COVID-19 in the continent was confirmed in Egypt on 14 February, 2020 and quickly the virus spread across the continent leading to massive disruption to public health, economic and social sectors thereby testing the durability of national healthcare systems (Mattes, Logan, Gyimah, & Ellison, 2020; Abdul Azeez, 2020; Mwai, 2021). Such conditions demonstrated the urgent demand for creative, collective measures to enhance the capacity for pandemic response and boost health service provision. Kasenje (2020) contends that the poor state of health care infrastructure in many African nations calls for the deployment of more robust solutions to deal with large scale public health catastrophes. One approach is the development of PPPs that have been found to be very effective in mobilising financial resources, technological know-how and institutional capacity during health emergencies. The use of Ebola vaccines through a partnership between Gavi, the US pharmaceutical company MSD and the Government of the Democratic Republic of Congo exemplifies the importance of PPPs in responding to infectious disease emergencies and provides a useful template for tackling the challenges of COVID-19 (Pallares, 2018). The pandemic has thus provided African governments with an opportunity to improve healthcare resilience by investing in critical infrastructure through PPPs, such as intensive care units (ICUs), ventilators, disease surveillance systems, COVID-19 tracking technologies and telemedicine platforms (Amonya, 2020; UNICEF, 2020). Nuwagaba (2021) states that PPPs allow the government to outsource some of the project risks to

private sector partners, while benefiting from sophisticated technology, specialised knowledge and administrative efficiency. Moreover, Hertel, Elouafi, Ewert, and Tanticharoen (2021) emphasise the necessity of continuous collaboration between public health institutions and private healthcare organisations through well-structured PPP arrangements for the development of resilient healthcare infrastructure that can respond effectively to future public health emergencies.

2.2 Global experience of PPPs

PPPs have become an increasingly essential vehicle of finance and governance in the development of large infrastructure projects in both developed and developing economies. This rising use underlines the need to mobilise private-sector capital, technical experience and administrative efficiency to complement limited governmental resources in addressing infrastructure shortfalls and fostering sustainable economic development. These advantages notwithstanding, PPP projects are by nature vulnerable to large financial, operational and institutional risks, which are further aggravated in periods of global uncertainty such as the COVID-19 pandemic (Gabriel, Timur, Osei & Diana, 2024). In many developing nations, including North Africa, infrastructure investment gaps pre-dated the epidemic and have long been a chronic constraint on economic growth and the delivery of public services. The magnitude of global infrastructure challenges is reflected in the fact that, worldwide, approximately one billion people lack access to electricity, 2.4 billion people still use inadequate sanitation facilities, and nearly 660 million people do not have access to improved sources of safe drinking water (United Nations Economic Commission for Africa, 2024). PPPs have been recognised as a possible solution to infrastructure development finance in this context, especially in Southeast Asia where governments have been increasingly adopting collaborative investment models to fill infrastructure deficits and promote economic development. However, the changing geopolitical dynamics and development aspirations post-COVID-19 pandemic has made the PPP implementation more complex in some countries such as Indonesia, whose project implementation has been swayed by domestic political and institutional interests (Trissia & Henrico, 2024). Infrastructure investment had already become a key part of national development strategies across Southeast Asia, even before the pandemic, partly driven by China's Belt and Road Initiative (BRI) with its focus on the strategic importance of investments in transport networks, ports, power generation and other critical infrastructure. Therefore, governments throughout the region have continued to push PPPs as a strategic financing tool that can diffuse project risks, attract private investment and

accelerate long-term economic growth (Trissia & Henrico, 2024).

2.3 PPPs and resilient infrastructure

Resilience refers to the ability of an entity such as an organization, community or region to anticipate, resist, absorb, respond to, adapt to, and recover from a crisis (Amado & Karlyn, 2021). Yue and Chenba (2021) defines this concept as “the capacity of different stakeholders to have enough preparedness in responding to a crisis in the most effective manner; continue to maintain key functions of the community when a disaster arises. Ideally, the term resilience implies the capacity to experience, respond, and recover from a particular crisis (Hertel, Elouafi, Ewert, Tanticharoen, 2021). Looking at the perspective of the health aspect, resilience can provide one an opportunity to be availed with the necessary medical care so that he or she is capable of responding to and recover from a dangerous ill health (Pumelela, Mandla & Khaya, 2020). In the context of COVID-19, people in Africa are likely to be more resilient to the COVID 19 if they are provided with better-quality medical care services (Hertel, Elouafi, Ewert, Tanticharoen, 2021). To strengthen such healthcare systems through use of resilient infrastructure, the private healthcare industries and the public health sector need to collaborate through PPP arrangements (Hertel, Elouafi, Ewert, Tanticharoen, 2021). So, PPP projects need to be used to channel greater investment towards economic and social infrastructure, as the saying “when the teeth jointly work together, they break the bone”, if countries in Africa are to develop better resilience (Arimoro, 2021). Even though the number of cases of COVID-19 fatalities are still low in a number of countries in Africa compared to the rest of the world, the COVID-19 pandemic may lead to a disastrous situation in such countries with already dilapidated health care infrastructure which can subsequently lead to social and economic emergencies (OECD, 2020).

2.3 PPPs as a resilient approach to responding to the impact of COVID 19 in Africa

There is therefore a need for African nations to adopt PPPs that can be used to develop strong, innovative, sustainable and resilient infrastructure during and after COVID-19 pandemic (UNECA, 2020). That is why in the Maghreb region of Northern Africa, the economic recovery of Morocco needs to be hinged on building a resilient domestic industry alongside PPP-driven foreign investment (Nazaruk, 2020). Although the global economy was forecasted to shrink by 4.4 percent in 2020 (IMF, 2020), the Egyptian economy proved resilient to the immense human and financial costs caused by the global COVID-19 pandemic (Breisinger, Raouf, Wiebelt, Kamaly & Karara, 2020; Diwan, Houry & Sayigh, 2020). In the horn of Africa, Ethiopia's COVID-19 response based on PPP arrangements

has provided optimism to other African countries on how best to lower fatality rates than in any other part of the world (WB, 2020). In West Africa, Nigeria is using PPP projects to provide resilient health care infrastructure since her health services are still primarily private sector driven (Proshare, 2021b). In Ghana, there is collaboration between the private sector and GIZ health programs with the public health care sector through PPPs to deal with the COVID 19 pandemic (Evans, 2020). As COVID-19 continues to spread in South Africa, the government is taking resilient steps at both national and international platforms to reduce the spread of the corona virus (PSC, 2020; Banderker, 2020). In Botswana, PPPs are a resilient way to make progress in rolling out of the COVID-19 tracker system in an efficient and effective manner (UNICEF, 2020). In central Africa, GIZ has got a rich experience in working with public health sector in undertaking effective contacts tracing for the COVID 19 victims as a catalyst for PPPs in DR Congo (Evans, 2020; Mercy Corps, 2021). In East Africa, the countries of Uganda and Kenya are using PPPs to develop aspects of resilient infrastructure to tackle the effects of COVID 19 pandemic (NCTTCA, 2021). With the demand for these PPPs increasing in Africa to deal with the effects of COVID-19, it is an appropriate time to consider how the private sector can participate in the development of resilient infrastructure to curb the effects of the pandemic (Buisson & Kiwelu, 2021).

3.0 Methodology

In this study, this paper was developed with an exploratory technique. A theoretical evaluation was conducted to gather data to gain insights into what has been achieved so far in terms of impact of Covid-19 in Africa. Data was analysed and used to evaluate the utilisation of PPPs as a resilient way to adapt to the impact of COVID 19 in Africa. Steward (1984) argues that a theoretical method can be applied in the absence of actual study. Data for this study were drawn from reliable reports from public, commercial, and third sector entities, peer

reviewed scholarly journal articles, bibliographies, conference papers, published market reports, national government publications, and local government publications to assure reliability. The study concentrated on reviewing data from other additional respectable sources of bi-lateral and multi-lateral agencies such as United nations, WHO, World Bank and Africa Center for Disease Control, because the COVID 19 pandemic is relatively young about six years. Additional articles and documents from first contact documents were located and evaluated.

4.0 Results and Discussion

4.1 Developing resilient infrastructure in response to COVID 19

4.1.1 The concept of resilience

According to Supardi, Kudus, Hadi and Indonesia (2020), different scholars, researchers and practitioners look at resilience for infrastructure as a strategy for managing crisis to ensure stability in existing and prospective infrastructure through adapting to all kinds of risks associated with natural disasters and emergencies. According to Lak, Hasan khan and Garakani (2020), health infrastructure resilience can be looked at from the angle of the ability of different stakeholders such as health actors, institutions and populations to have enough preparedness in responding to a crisis in the most effective manner and continuing to maintain key functions of the community when a disaster strikes. Resilience to the COVID 19 pandemic can be possible with the capacity of African countries to absorb a shock without a significant alteration in their function (Zhou et al., 2020).

4.1.2 The process of developing resilient infrastructure

The essence of resilience is to prevent, protect, prepare and adapt to the new COVID 19 situation (Sadia, Farhat, & Mostafizur, 2021). Ideally, the term resilience implies the capacity to prevent, protect, prepare and adapt to a particular crisis such as that caused by COVID 19 pandemic (Fekete, 2018) as indicated on figure 1.

Figure 1: Resilient infrastructure development process



Source; Fekete (2018)

Figure 1 above shows that resilient infrastructure development process focuses on the capacity to come up with a particular approach to prevent against COVID 19 in terms of maintaining and promoting safe and open spaces for low transmission rate, protecting against COVID 19 in terms of putting in place adequate measures to protect individuals from transmission, preparing and adapting to a particular crisis caused by COVID 19 pandemic in terms of improving health care systems.

4.1.3 Components of resilient infrastructure

COVID 19 pandemic has provided a springboard for developing resilient social and physical infrastructure especially for health care systems in Africa. This has called

for building a bed rock for resilience plans to the effects of COVID 19 pandemic through two scenarios of positive and negative impacts which has made African countries to adopt PPP projects so as to develop such resilient infrastructure that can be used to deal with the corona virus related effects (Hasan, Elwakil, Hegab, 2021). In Africa, both private and public sector health actors are working together through PPP arrangements to provide resilient infrastructure such as hospitals that have been at the forefront of providing quick response to the COVID 19 pandemic since elements of resilient health infrastructure play a crucial role in pandemic preparedness and response (Zhebin, Yuqi, Yinzi & Zhi, 2020) as indicated on table 1 below.

Table 1: Elements of infrastructure resilience

Physical aspects	Operations, data protection, safety	Governance	Financial	Service continuity, accessibility
Resilience against physical stresses, natural hazards, deterioration, obsolescence	Access to labour, supply chains, working capital	Risk allocation and responsibility; contractual models; transparency and trust	Strong balance sheets, adequate liquidity, financial covenants	Public service role of infrastructure during crises; reliability of services
Robustness and redundancies in design; location	Cyber threats, data security, privacy and protection	Resilience and business continuity plans, decision making capabilities	Effective funding models	Vulnerable populations, inclusiveness
	Safety protocols and standards	Asset interdependencies		

Source; OECD (2021).

Table 1 above Shows the key elements of infrastructure resilience which include physical aspects of resilience in terms of developing resilience against physical stresses, operations, data protection and safety in terms of access to labour, cyber threats and safety protocols, governance in terms of risk allocation, business continuity plans and asset interdependence, financial aspects in terms of adequate funds and effective funding models, service continuity and accessibility in terms of the role of public services during the crisis and inclusiveness of vulnerable people.

4.1.4 A framework for building resilience in response to COVID 19

According to OECD (2020a), resilient infrastructure can be built from the angles of agility, flexibility and scalability so that it can be used to respond to and mitigate a particular crisis in addition to adapting to the associated risks during the current COVID 19 pandemic. Therefore, a resilient health infrastructure enables African Countries to provide high-quality health care services to effectively and efficiently respond to the vagaries of COVID 19 pandemic in order to

meet high extra demand for such health services by increasing number of COVID 19 infections (OECD, 2020a). There is therefore need for African Countries to come up with strong innovative, sustainable and resilient solutions such as at-home hospitalisation and telehealth through adopting different PPP project infrastructure arrangements (WBG, 2020c). Actually, most African cities such as Kampala of Uganda in East Africa, Johannesburg in South Africa, Lagos of Nigeria in West Africa, Cairo of Egypt in Northern Africa and Addis Ababa of Ethiopia in Horn of Africa have used a number of PPP projects to develop resilient infrastructure for responding to COVID 19 pandemic by adjusting service schedules, operating hours, routes, and service frequency to maintain an adequate level service while minimising overcrowding. In fact, COVID 19 has largely affected the tourism industry in Africa where her segments such as restaurants, airlines, sports events, hospitality and cruises have been negatively impacted by the corona virus pandemic. Therefore, African countries can use PPP projects to come up with a resilience-based framework to aid them improve the tourism industry during and post COVID-19 crisis (Gagan, Asha & Justin, 2021), as indicated on figure 2 below.

Figure 2: Resilience framework for COVID19 challenges of tourism industry



Source: Gagan, Asha and Justin (2021)

Figure 2 above shows that COVID 19 has caused several challenges to the tourism industry all over the world, Africa inclusive. As a result, African countries have come up with resilient measures such as technological innovations, local belongingness, creating consumer and employee confidence to respond to the crisis caused by the pandemic. All these have led to sustainable tourism, wellbeing of society, mitigating climate change and engaging local communities.

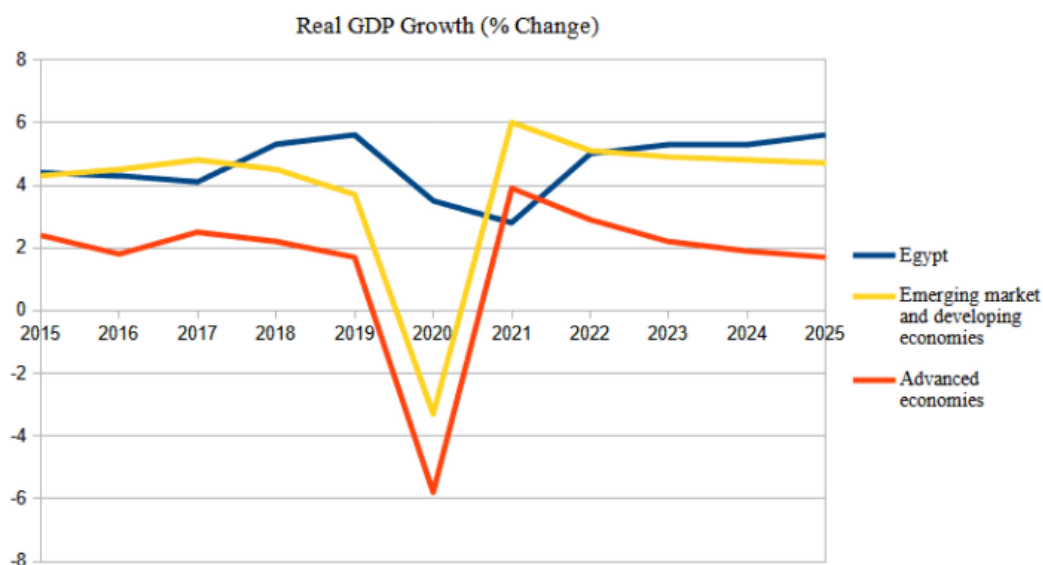
4.2 The use of PPPs to develop resilient infrastructure for responding to COVID 19 in Africa

4.2.1 PPPs as a resilient measure against COVID 19 in Northern Africa

According to Nazaruk (2020), in northern Africa, Morocco has initiated the “Land Productivity” project to develop and manage industrial zones using a new model based on a PPP structure. The launch of this PPP is intended to attract investment to Morocco’s industrial sector and create employment opportunities for Morocco’s highly skilled workforce affected by the COVID-19 pandemic.

Breisinger, Raouf, Wiebelt, Kamaly and Karara (2020) contend that the COVID-19 crisis has provided opportunities for fostering stronger innovative PPP projects to deal with the impact of the COVID 19 pandemic. Egypt has so far done better than other countries in northern Africa because of promoting macroeconomic resilience against COVID 19 based on several reforms among which was use of PPPs (Omar, 2021). In Egypt, the resilient infrastructure using PPPs, needed to deal with COVID 19 has now become the new priority to revamp the damaged economy (Ramadan, Piccinetti, Radwan, Nahed, Sakr and Khasawneh, 2020). One of the key resilient economic reforms that Egypt used to deal with COVID 19 was initiation of a slow privatization program using divestiture PPP model (Omar, 2021). Egypt has used these PPPs to provide proactive actions, as governments try their efforts to mobilise resources to mitigate the impacts of the COVID-19 pandemic on the economy in 2020 (Breisinger, Raouf, Wiebelt, Kamaly & Karara, 2020) as indicated on figure 3 below.

Figure 3: GDP growth of Egypt compared to advanced and developing economies.



Source: Omar (2021).

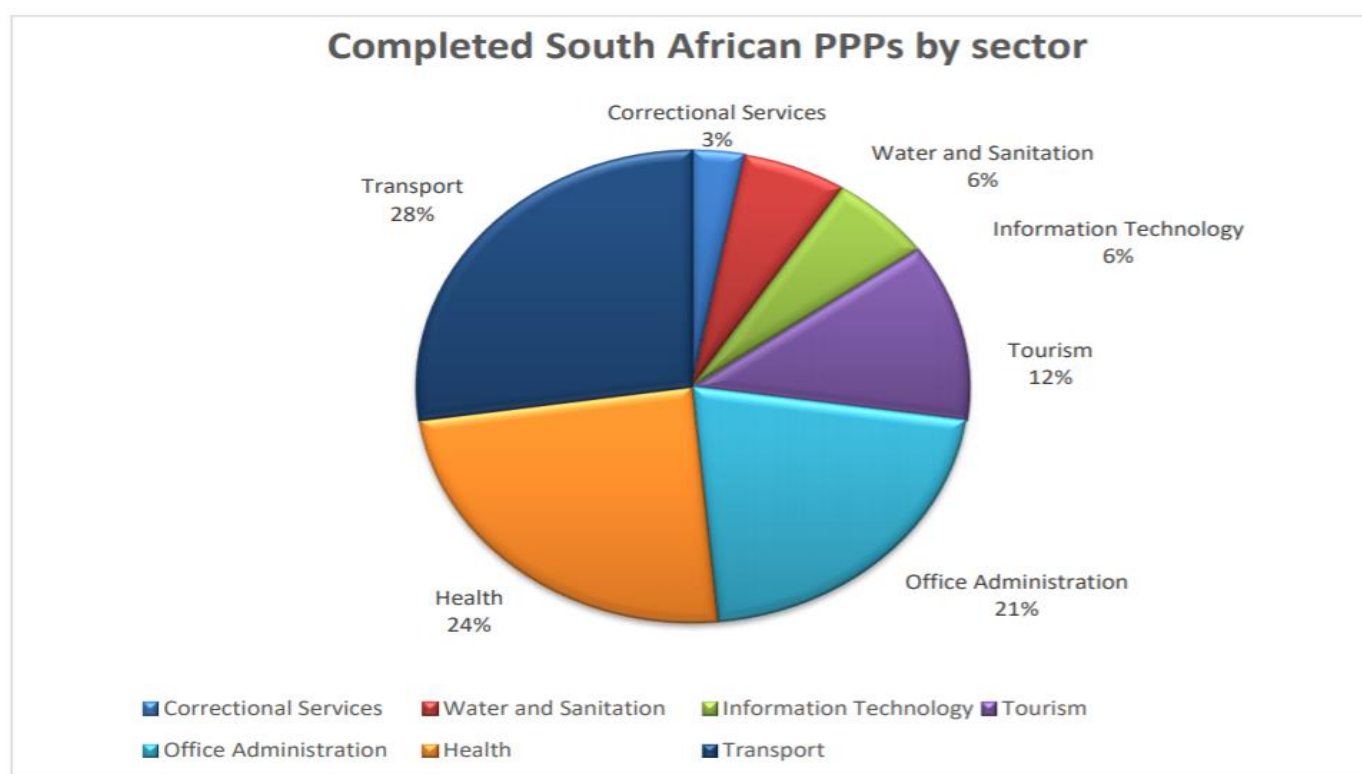
As seen in figure 3 above, Egypt recorded 3.8 percent GDP growth in 2020, ahead of the average for both advanced and emerging economies, where both groups recorded a contraction in real GDP. However, according to IMF projections, both country groups will exhibit a stronger recovery in 2021, with advanced economies achieving a 4 percent real GDP growth and emerging markets 6 percent. While Egypt is still above average in projections for the medium term, concerns remain over longstanding issues in the Egyptian economy.

4.2.2 PPPs as a resilient measure against COVID 19 in Southern Africa

In Southern Africa, Botswana, has used PPPs to provide a resilient approach by working with a private firm of

Mascom which is a mobile network provider that UNICEF negotiated a zero-rating internet access for the COVID-19 tracker system and provision of android tablets. Mascom further provided 260 sim cards to be used on the android tablets. This COVID-19 tracker system has been functional in Botswana since 27 March 2020 (UNICEF, 2020). Mwangi (2020) contends that in South Africa, government is using her already established PPP projects in national roads, prisons, water and waste distribution within the country's provinces to deal with the existing COVID 19 crisis. According to National Treasury (2018), South Africa's government has developed hospital infrastructure to deal with COVID 19 through use of already existing PPP projects (National Treasury, 2018) as indicated on figure 4.

Figure 4: Already established PPPs being used by South Africa to deal with the COVID 19.



Source: National Treasury (2018)

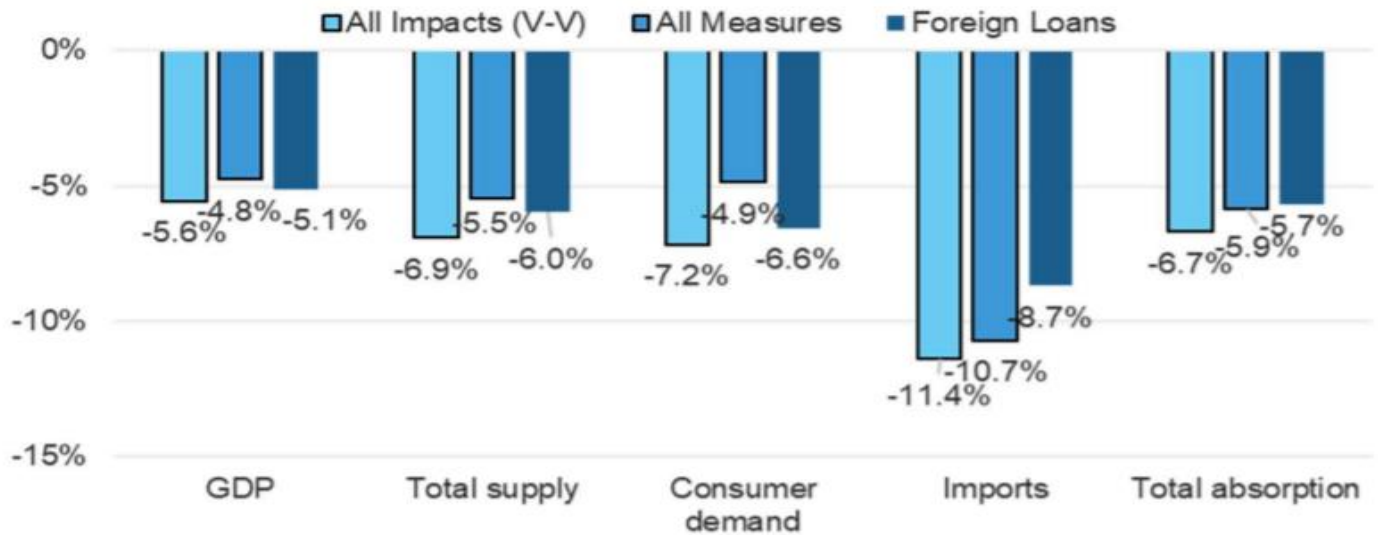
Figure 4 above indicates that South Africa has got already existing PPPs in her various sectors of Transport with the highest percentage of 28%, followed by health with 24%, office transport with 21% and tourism with 12% etc. being used to respond to COVID 19 pandemic in the country.

4.2.3 PPPs as a resilient measure against COVID 19 in East Africa

In East Africa, According to Maratho (2021), Covid-19 is one of those health issues that low-income countries like Uganda is using PPP projects to critically address. The adoption of such PPP projects in the delivery of health care is a clear demonstration that public service is not enough, that partnership is important. In Kenya, the government is

using PPP projects to make good progress in the fight against COVID-19 (Xin, 2021). Polman, Sidibe and Chatterjee (2021) suggest that Kenya has led the charge in fighting Covid-19 using PPP projects by rapidly scaling up a large array of public health interventions. According to Kimathi (2021), among on-going PPP projects to deal with the effects of COVID 19 is the Konza Techno City. The Kenyan government is also using PPPs as a resilient measure to ensure fiscal reduction, changes to public spending and an increase in foreign lending so as to have a clear positive impact over GDP, activity levels and consumer demand as indicated on figure 5 below (Nechifor, Ferrari, Kihui, Laichena, Omany, Musamali & Kiriga, 2020).

Figure 5: Macroeconomic effects of Kenya's resilient measures against COVID 19.



Source: Nechifor, Ferrari, Kihui, Laichena, Omany, Musamali and Kiriga (2020).

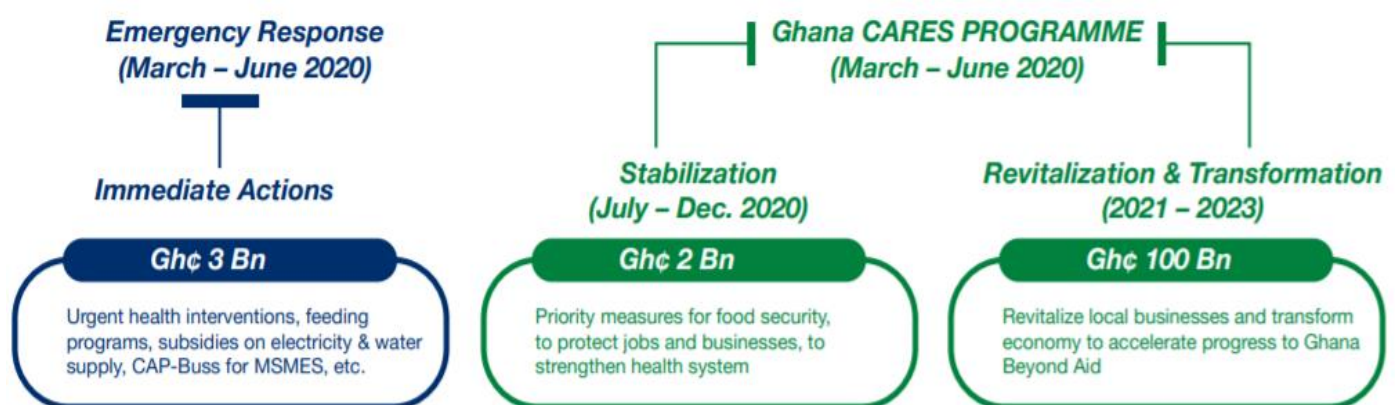
Figure 5 above shows that with all resilient measures against COVID 19 that the Kenyan government has put in place, the GDP impacts of the April-June, 2020 have led to a decrease in lockdown by 4.8% which implies that it has led to an economic growth rate of about 0.9% for 2020, where total supply reduced from 6.9-5.5% and consumer demand reduced from 7.2-4.9 %.

4.2.4 PPPs as a resilient measure against COVID 19 in West Africa

In West Africa, Edobor (2020) contends that Nigeria has opted the use of PPP projects to provide resilient healthcare infrastructure. Such PPP projects are being used by the

public health sector in Nigeria to avail the required funds, technical support and effective management of the health care infrastructural systems and facilities being used to treat the COVID 19 in the country. According to Evans (2020), in Ghana, the health care service for the COVID 19 response is using PPPs as a resilient approach to develop a health information app called BISA by working with a private sector partner called Oasis company. Evans (2020) opines that this collaboration between the private sector and with public health care in Ghana has been successful through use of PPP projects that aim at providing health care program and emergency responses to COVID 19 as indicated on figure 6 below.

Figure 6: Ghana's health care program and emergency responses to COVID 19



Evans (2020)

From figure 6 above, the government of Ghana has so far spent 3 billion of her local currency to provide resilient measures of immediate actions such as urgent health interventions, feeding programs, subsidies on electricity and water supply. Secondly the government has spent 2 billion of her local currency to provide stabilization

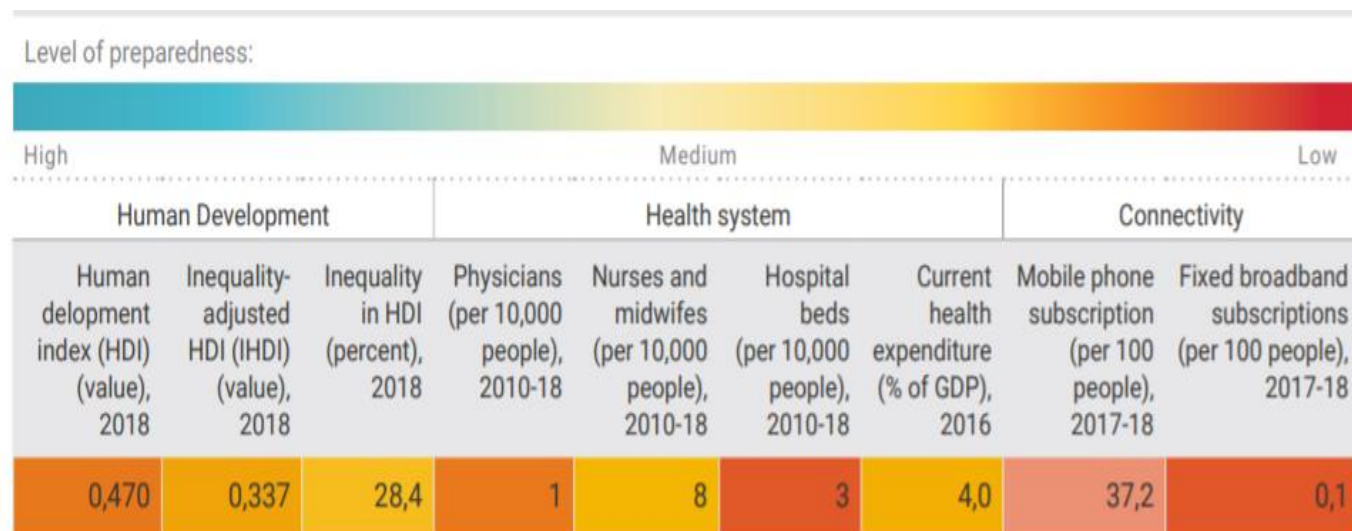
strategies such as priority measures for food security, job and business protection and strengthening the health system. Finally, the government of Ghana has spent 100 billion of her local currency to revitalize and transform her economy in order to accelerate the progress of the country beyond Aid.

4.2.5 PPPs as a resilient measure against COVID 19 in Horn of Africa

In horn of Africa, a UN report (2020b) indicate that Ethiopia is working with private and third sector agencies to implement a PPP project code named "Tenachin Bejachin" at a total cost of US\$6 million so as to provide the essential services needed by about 1.2 million people that are prone vulnerable to the crisis caused by COVID-19 especially in her capital of Addis Ababa. Ethiopia has

finalized preparations to commence the first phase of the PPP by launching the construction of two solar projects. COVID-19 has, however, negatively affected the international companies selected to engage in the PPP process (UN, 2020a). The success of such PPP Projects to respond to COVID 19 has been a result of the level of the country's preparedness in terms of human development, health systems and connectivity as indicated on figure 7 below.

Figure 7: Ethiopia preparedness to respond to covid-19



Source: United Nations (UN) (2020b)

Figure 7 above shows that the success of such PPP Projects to respond to COVID 19 has been a result of the level of the country's preparedness in aspects of human development in terms of human development index value and inequality adjusted human development value and percentage, health systems in terms of health workers such as available doctors, nurses and midwives, hospital beds and current health expenditure, then connectivity in terms of mobile phone subscriptions and fixed broadband subscription.

4.2.6 PPPs as a resilient measure against COVID 19 in Central Africa

In Central Africa, Data Pop Alliance (2020) shows that the Government of the DR Congo has used PPPs to put in place a national health emergency response, plan de réponse humanitaire (PRH), as a resilient measure to respond to COVID-19. Since the health system in the DR Congo is one of the weakest in Africa, to respond to the crisis caused by the virus, the Government has used PPP projects to put in place a number of resilient measures such as suspending Value Added Tax among the business community for 3 months and coming up with a national fund to provide essential services badly needed by the local people. PPPs have also been used to put in place several other resilient measures such as enabling hospitals to access free electricity and water and constructing more tents to enable

more people easily to access the urgently needed health care services in the country (Ipsos, 2020).

5.0 Conclusion and recommendations

The study was successful in investigating the use of PPP as a resilient mechanism for developing infrastructure during COVID 19 Pandemic. The concept of resilience in line with developing health care infrastructure to deal with COVID 19 was discussed. The use of PPPs in developing resilient infrastructure against COVID 19 was also discussed. PPPs can be used to build resilient infrastructure to respond to COVID 19. Therefore, PPP infrastructure can be used to adapt to the new COVID 19 crisis in terms of meeting capacity needs, implementing new infection control plans, anticipating the additional staffing needs. There is therefore need for African governments to work with the private sector in developing policies for responding to COVID 19. It is recommended that PPP contracts used should always include contract clauses for meeting operation costs during COVID 19. The uncertainty nature of COVID 19 should inform managers of health systems to design facilities that can adapt to COVID 19 emergencies. PPPs need to be used to develop mobile clinic facilities for such COVID 19 emergencies. Using PPPs to improve resilience of health infrastructure can help African governments to effectively prepare for COVID 19 emergencies. PPPs can be used to

expand health infrastructure to meet the current high demand for health care services by Covid 19 patients. PPPs can also be used to build the capacity of the health staff that are at the fore front of fighting the COVID 19.

References

1. AbdulAzeez, A. A. (2020). The coronavirus disease 2019 (COVID-19) pandemic: A review and an update on cases in Africa: 2020: Asian Pacific Journal of Tropical Medicine, Volume: 13, Page: 199-200, 1-April-2020.
2. ACT-A. (2023). The access to COVID-19 tools accelerator. <https://www.act-a.org/>
3. Africa Center for Disease Control (ACDC) (2021). COVID-19 Scientific and Public Health Policy Update. <https://africacdc.org/document-tag/covid-19/>
4. African Development Bank Group (2024). Annual Meetings 2024: Confident Financiers say public-private partnerships are key for Africa's transformation
5. Akalewold, T. G., Akaninyene, O., Seye, A., Sanni, Y. (2021). Building resilient health systems in Africa beyond the COVID-19 pandemic response. BMJ Publishing Group Ltd.
6. Akomea-Frimpong, I., Jin, X. and Osei-Kyei, R. (2022), "A critical review of public-private partnerships in the COVID-19 pandemic: key themes and future research agenda", Smart and Sustainable Built Environment, doi: 10.1108/SASBE-01-2022-0009.
7. Amado, C. & Karlyn, D.S. (2020). Public-private partnership for building a resilient broadband infrastructure in Puerto Rico. Journal Telecommunications Policy (ScienceDirect), Volume 45, Issue 4, May 2021, 102106.
8. Amonya, F. (2020) Post-Covid Africa: The Agency of Policy Control, December 3, 2020:
9. Antoine, B. P. (2024). The rising authority and agency of public-private partnerships in global health governance, Policy and Society, Volume 43, Issue 1, January 2024, Pages 25–40, 19 January 2024.
10. Arimoro, A. (2021). The Corona Virus (COVID-19) Pandemic and the Challenge of Healthcare Infrastructure in Nigeria: what Role for Public-Private Partnerships? Theoretical and Applied Law, 2020. No. 3(5). Pp. 18-33, Nottingham Trent University, 28 March 2021.
11. Banderker, A. (2020). Covid-19 a good test for public-private partnerships and the future of NHI? 29 April, 2020.
12. Baxter, D. (2021). Five Pillars for Public-Private Partnership (PPP) Resilience. World Assoc. of PPP Units & Professionals, the International Sustainable Resilience Center (ISRC), January 17, 2021.
13. Betsill, M. M., Benney T. M. & Gerlak, A. K. (2020). Agency in earth system governance. Cambridge University Press.
14. Breisinger, C., Raouf, M., Wiebelt, M. Kamaly, A. & Karara, M. (2020). Impact of COVID-19 on the Egyptian economy: Economic sectors, jobs, and households. MENA Policy Note 6.
15. Buisson, A. & Kiwelu, L. (2021). Connecting the dots – the case for transmission PPPs in Africa March 08, 202.
16. Chiara, A. Paolo, B. & Mario, V. (2021). Resilient companies in the time of Covid-19 pandemic: a case study approach. Journal of Entrepreneurship and Public Policy, 29 June 2021,
17. Cilliers, J., Oosthuizen, M., Kwasi, S., Alexander, K., Poee, T.K., Yeboua, K. & Moyer, D. J. 2020. Exploring the impact of COVID-19 in Africa: a scenario analysis to 2030, 25 June 2020.
18. Data Pop Alliance (2020). Democratic republic of congoThe COVID-19 Global South Observatory is a collaboration between Data Pop Alliance and ADE.
19. Decerfa, B., Ferreira, F. H.G., Mahlera, D. G. & Sterckc, O (2021). Lives and livelihoods: Estimates of the global mortality and poverty effects of the Covid-19 pandemic. Journal of World Development, Volume 146, October 2021.
20. Diwan, I., Houry, N.& Sayigh, Y. (2020). Egypt after the Coronavirus: Back to Square One: Arab RefoamInitiative.
21. Evans, R. (2020). Public-private synergies for health in times of Covid-19: How Germany's bilateral health programmes forge public-private partnership for more resilient health systems, July 23, 2020.
22. Fekete, A. (2018). Societal resilience indicator assessment using demographic and infrastructure data at the case of Germany in context to multiple disaster risks. International Journal of Disaster Risk Reduction, Volume 31, October 2018, Pages 203-211.

23. Gabriel, C., Timur, N., Osei, K. R., Diana, S. (2024). Pandemic risks in PPPs: comparative analysis within developing countries; Taylor & Francis, International Journal of Construction Management, April 2024.
24. Gabriel, C., Jose, G. & Alberto, M. (2024). Crisis management in public-private partnerships: lessons from the global crises in the XXI century
25. Gagan, D. S., Asha, T. & Justin, P. (2021). Reviving tourism industry post-COVID-19: A resilience-based framework, Journal of Tourism Management Perspectives, Volume 37, January 2021, 100786.
26. Hasan, S., Elwakil, E., Hegab, M. (2021). Opportunities for Infrastructure PPP Projects in Time of COVID-19 - as a Resilience Strategy. Conference on Technologies for Sustainability, Institute of Electrical and Electronics Engineers, California state university, Northridge, USA, 22-24 April 2021.
27. Hartigan, G.K., Mendoza, R. U., M.U. & Ong, M. (2020). Financing Public-Private Partnership in Health for Inclusive Recovery from COVID-19 and Stronger Resilience to future Health Shocks, 11 May 2020.
28. Hertel, T. W., Elouafi, I., Ewert, F. Tanticharoen, M. (2021). Building Resilience to Vulnerabilities, Shocks and Stresses: A paper on Action Track 5. Bonn: Center for Development Research (ZEF) in cooperation with the Scientific Group for the UN Food System Summit 2021.
29. Hunt, C. H. & Noble, G. (2020). Reconsidering PPPs in Developing Countries; How governments can use PPP renegotiations to adapt infrastructure. International Institute for Sustainable Development (IISD), November 23, 2020.
30. IMF (2020), "Well Spent: How Strong Infrastructure Governance Can End Waste in Public Investment", <http://dx.doi.org/10.5089/9781513511818.071>
31. Ipsos (2020). Responding to COVID-19: Highlights of a Survey in The Democratic Republic of The Congo (DRC)
32. Joudyian, N., Doshmangir, L., Mahdavi, M., Tabrizi, J. S. & Gordeev, V. S. (2021). Public-private partnerships in primary health care: a scoping review: BMC Health Services Research volume 21, Article number: 04 January 2021.
33. Kaseje, N. (2020). Why Sub-Saharan Africa needs a unique response to COVID-19. Published by World Economic Forum on (Vol. 30).
34. Khallaf, R., Guevara, J., Mendez-Gonzalez, P. and Castelblanco, G. (2024), "A system dynamics model for a national PPP program: the Egyptian project portfolio", Constr. Res. Congr. 2024.
35. Kloppmann, E (2021). A Gender Perspective on the use of Public-Private Partnerships in Transnational Development Cooperation: Master Thesis, Aalborg University, Faculty of Humanities.
36. Lak, A., Hasankhan, F., & Garakani, S. A. (2020). Principles in practice: toward a conceptual framework for resilient urban design. J. Environ. Plan. Manag. 1, 1–33.
37. Mattes, R. Logan, C. Gyimah, B. E. & Ellison, G. (2020). COVID-19 in Africa: Vulnerabilities and assets Afrobarometer Policy Paper No. 67, August 2020
38. Mercy Corps (2021). IMAGINE: Improving Access to Safe Water in DR Congo Through Public-Private Partnerships. <https://www.mercycorps.org/research-resources/imagine-DRC>
39. Mwai, P. (2021). Coronavirus in Africa: Concern grows over third wave of infections. <https://www.bbc.com/news/world-africa-53181555>
40. Mwangi, G. (2020). Public Private Partnerships Needed in Fighting Coronavirus; Common Market for Eastern and Southern Africa (COMESA) Secretariat, 30/05/2020.
41. National Treasury (2018). Public-Private Partnerships Budget Review 2018. <http://www.treasury.gov.za/documents/national%20budget/2018/review/Annexure%20E.pdf>
42. Nazaruk, Z. (2020). Economist: PPPs, Foreign Investment to Push Morocco's Post-COVID Economy, May 09, 2020.
43. Nechifor, V., Ferrari, E. Kihui, E., Laichena, J., Omany, D., Musamali, R. & Kiriga, B. (2020). COVID-19 impacts and short-term economic recovery in Kenya; Technical report by the Joint Research Centre (JRC).
44. Nuwagaba, I. (2021). Principal-Agency Relationship in the Road Transport Sector: Implication of Public Private Partnership Project adoption for Uganda National Roads Authority",

Ugandan journal of management and public policy studies.

45. Northern Corridor Transit Transport Coordination Authority (NCTTCA) (2021). News & Information Northern Corridor Region Member States to embrace PPPs to tap into new investment opportunities, 19 April, 2021. <http://www.ttcanc.org/news.php?newsid=140>
46. OECD (2020a), ““Beyond Containment: Health Systems Responses to COVID-19 in the OECD.
47. Omar, A. (2021). A Visualization of Egypt’s Economic Performance During COVID-19. <https://www.thecairoreview.com/midan/a-visualization-of-egypts-economic-performance-during-covid-19/>
48. Pallares, G. (2018). Can PPPs help ensure vaccine supplies for future global epidemics? 03 September 2018.
49. Proshare (2020a). Nigeria, South Africa and Ghana: Pre-COVID, COVID and Post-COVID: Proshare intelligent investing.
50. Proshare (2021b). COVID-19: Working the Private Sector Angle to Save Lives, Wednesday, July 07, 2021.
51. Public Service Commission (PSC) (2020). COVID-19: South Africa takes charge at home and on the continent, 22 April 2020.
52. Pumelela, L. Mandla, H. & Khaya, M. (2020). Investigating the resilience of Public Private Partnership Hospital infrastructure against the Covid-19 pandemic. The School of Construction Economics and Management University of Witwatersrand, Johannesburg November 2020
53. Ramadan, A. M. R., Piccinetti, L., Radwan, A., Nahed, M. S., Sakr, M.M., Khasawneh, A. (2020). Egypt beyond covid 19, the best and the worst-case scenarios. Academy of Scientific Research and Technology (ASRT), 101 Elkasr Alini St, 11516, Cairo, Egypt; Europe for Business Ltd, Warrington, United Kingdom.
54. Sadia, A. Farhat, J. C. & Mostafizur, R. M. (2021). COVID-19 Pandemic: Rethinking Strategies for Resilient Urban Design, Perceptions, and Planning. *Front. Sustain. Cities*, 14 June 2021. [<https://doi.org/10.3389/frsc.2021.668263>]
55. Steward, J. (1994) An Interpretive Approach to Validity. *Interpretive Approaches to Interpersonal Communication*, pp. 45–76, Seny Press
56. Souza, M. L. S. Cabral, N. A, Jezine. E. (2026). Public-Private Partnerships, Governance, and the Privatization of Brazilian Public Higher Education. *Práx. Educ.* [online]. 2026, vol.22, n.53, e18667.
57. Storeng K. T., & de Bengy Puyvallée A. (2018). Civil society participation in global public private partnerships for health. *Health Policy & Planning*, 33(8), 928–936. doi: <https://doi.org/10.1093/heapol/czy070>
58. Sundararaman, T. (2020). Health Systems Preparedness for Covid-19 Pandemic. *Indian Journal of Public Health*, volume 64(6), Page.91.
59. Supardi, S., Kudus, U.M., Hadi, S. & Indonesia U.I. (2020). New perspective on the resilience of SMEs proactive, adaptive, reactive from business turbulence: A systematic review. *Journal of Xi’an University of Architecture & Technology*, XII (V) (2020), 10.37896/jxa12.05/1524
60. Tingting, L. & Patrick S. W. F. (2025). Towards an Enhanced Business Case Development for Public–Private Partnership (PPP) Projects: A Comparative Study of China and New Zealand
61. Trissia, W. & Henrico, S. (2024). Post-COVID-19 Economy, Geopolitical Shifts, and the Distortion of PPPs in Southeast Asia, Oct 2024.
62. United Nations (UN) (2020a). Ethiopia: COVID-19 Humanitarian Impact, Situation Update No. 10, 17 August 2020.
63. <https://ethiopia.un.org/en/87713-ethiopia-covid-19-humanitarian-impact-situation-update-no-10>
64. United Nations (UN) (2020b). socio -economic impact of Ethiopia covid -19 in Ethiopia; One UN assessment.
65. United Nations. Economic Commission for Africa (2024). Understanding promises and main issues related to public-private partnerships (PPPs) in developing countries: companion report to “Leveraging PPPs to address the challenges of the Covid-19 crisis in North Africa
66. United Nations Economic Commission for Africa (UNECA) (2020). Experts push for strong public-private partnerships to build resilient post-COVID-19 economies, 10 December, 2020.
67. United Nations International Children's Emergency Fund (UNICEF) (2020). Follow-up of cases and their contacts using a COVID-19 Tracker in Botswana: UNICEF Botswana COVID-19 Tracker 19 June 2020

68. World Bank (2024). COVID-19 and Public-Private Partnerships Practice Notes <https://www.ppiaf.org/documents/6073>
69. World Bank (WB) (2021). The Curious Case of COVID-19: National Quality Infrastructure and its Role in Ethiopia's Pandemic Response: Results Briefs January 14, 2021.
70. World Bank Group (WBG) (2020c), "Protecting Public Transit from the Coronavirus...and From Financial Collapse", April, 2020,
71. World Health Organisation (WHO) (2021). COVID-19 cases in Africa much more than reported, <https://www.aa.com.tr/en/africa/covid-19-cases-in-africa-much-more-than-reported-un/2225000>
72. Xin, H. (2021). Kenyan president urges public-private partnerships to boost sports, March 22, 2021. <https://africa.cgtn.com/2021/03/22/kenyan-president-urges-public-private-partnerships-to-boost-sports/>
73. Yue, Z. K. & Chenba, Z. (2021). Building resilient food system amidst COVID-19: Responses and lessons from China. *Journal of Agricultural Systems*, Volume 190, May 2021, 103102.
74. Zhebin, W., Yuqi, D., Yinzi, J., Zhi, J. Z. (2020). Coronavirus disease 2019 (COVID-19) pandemic: how countries should build more resilient health systems for preparedness and response. *Global Health Journal*, Volume 4, Issue 4, December 2020, Pages 139-145.
75. Zhou, C., Su, F., Pei, T., Zhang, A., Du, Y., & Luo, B. (2020). COVID-19: challenges to GIS with big data, *Geogr Sustain.* 1, 77–87. doi: 10.1016/j.geosus.2020.03.005.