



**The Africa Research and Impact Network International Conference**  
**on**  
**Africa in the Post-Covid-19 World: Lessons for Research**  
**and Policy**

**18th - 20th November 2020**  
**1400 - 1700 Hours EAT**



Tomorrow's Cities is the UKRI GCRF Urban Disaster Risk Hub

## FOREWORD

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**Dr Joanes Atela**  
**ARIN Convener**



**Kennedy Mbeva**  
**ARIN CO-Convener**

Not since a century ago did a pandemic of global proportions wreak havoc on humanity. The Spanish Flu of 1919 has long been recognized as the most lethal global pandemic. Nevertheless, at the onset of this year, the COVID-19 outbreak and its aftermath has ground the world to a halt. Today's world is much more globalized than that of 1919, hence the severe consequences of the COVID-19 pandemic.

The COVID-19 pandemic has unfolded in a world struggling to cope with major global challenges. From global climate change to social unrest, global challenges have been mounting since concurrent efforts to address them have fallen short. Thus, when the pandemic struck, it exacerbated many of these challenges.

Due to its several vulnerabilities, Africa has been exposed to ravages of the COVID-19 pandemic. While the continent has been spared the worst in terms of loss of life, cognate challenges have been made worse. Communities that did not have access to adequate sanitation services, for instance, have been most disadvantaged when responding to the pandemic, especially in the adherence to public health guidelines. Moreover, livelihoods for those who depend on daily wages have disappeared, as a result of mandated lockdowns with no social support for such vulnerable groups. Additionally,

heavily indebted African countries are struggling to pay their debts, with most of them at the risk of default.

The world is now on the verge of developing a vaccine, and African countries once again find themselves at a disadvantage since they must rely on other regions for the vaccine. These inadequacies also expose important challenges that characterize public policy in Africa. Limited technical and resource capacity have hampered effective responses to the pandemic. Uncertainty or even the absence of social safety nets has exposed vulnerable groups to the pandemic.

In response, various actors have begun examining the impacts of the COVID-19 pandemic. Of focus have been the challenges of responding to the pandemic, as well as opportunities to strengthen the capacity of African countries to effectively address future pandemics. It is within this context that the African Research & Impact Network (ARIN) is convening the 'Africa in the Post Covid-19 World: Lessons for Research and Policy' international conference to be held on 18-20 November 2020.

ARIN is an impact platform that brings together a network of scholars and policymakers across Africa. Modeled as a network, ARIN seeks to leverage on the capabilities of African talented scholars in a flexible manner. ARIN's core focus is to engage in peer learning and sharing transformative research and impact practices. Areas of focus include natural resource

management, climate change, agriculture, forestry, energy, water, and cities to leverage their knowledge and experiences in promoting research excellence and impact pathways.

Drawing on cutting-edge research that will comprise an edited book volume, eminent panel sessions and thematic side events, the conference will explore the impacts and lessons of COVID-19 in Africa. The conference is organized around three sessions: i) the Climate and Natural Resource Dependent Societies and COVID-19; ii) Cities and COVID-19; and iii) Science Technology Policy and COVID-19. By examining these three themes, the conference will place COVID-19 and pandemic response within a richer context; one that appreciates the complex and interconnected nature of global challenges.

In a broader context, the conference underscores the essence of timely engagement on the most pressing public challenges in the world, and the African context. The global scope of participants also underscores the importance of engaging within and beyond Africa. After all, global challenges are shared but differentiated.

We warmly welcome you to the conference and look forward to fruitful engagement.

Karibuni!

## ABOUT THE CONFERENCE

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### Background

The COVID-19 pandemic has led to devastating outcomes across the world. Currently, more than 1,300,000 people have succumbed to the virus, [with over 50 million infections recorded globally](#)<sup>1</sup>. The African continent accounts for about 1 percent and 3 percent of these deaths and infections, respectively. Although the death toll across the continent is still below the previously predicted levels by the WHO and [other sources](#), the unraveling socioeconomic disruptions are enormous. These are characterized by domestic and continental supply shocks with adverse impacts on local and international trade: reduced foreign driven investments; weak external demand associated with lockdowns in major export markets like Europe and USA; and disruptions in key service sectors such as tourism, transport, and communication that have led to massive layoffs.

[Recent estimates by the World Bank](#) show that COVID-19 could push 40 to 60 million people globally into extreme poverty, 27 million of whom live in Sub-Saharan Africa. The impact will continue to be felt the hardest in urban areas and in the informal sector, which employs around 80% of the population in low-income countries. Despite these statistics, the overall and actual COVID-19 impact on the African continent remains speculative.

A clear understanding of the pandemic in terms of its triggers, spread, health impacts, socioeconomic implications, and the effectiveness of current responses is crucial if countries are to adequately harness lessons to inform a response to future pandemics. This is particularly important for the African continent: despite the continent being the least developed and with limited capacity to handle the pandemic, it is also extremely exposed and vulnerable to other disaster risks, both natural and anthropogenic. Evidence shows that the outbreak and spread of the COVID-19 into Africa has exacerbated existing disaster risks of both climatic and anthropogenic nature. The pandemic is also shaping and reshaping various segments of the society including knowledge systems, disaster risk management and preparedness, community response, behaviors, and cultures. The impacts on the economy, governance, and social norms of the society cannot be underestimated.

The unfolding of the COVID-19 episodes and the efforts by African governments and stakeholders to save lives, secure livelihoods, and prepare for the future can be harnessed as lessons to help build resilience in Africa beyond the pandemic. The response to the pandemic at the continental level gives valuable lessons that can benefit Africa not only in terms of risk preparedness, but also in terms of continental research focus, knowledge management, policy, and practice. This is crucial to achieving the continent's development goals and aspirations as envisioned in Agenda 2063 and the global SDGs. The Africa Research and Impact Network (ARIN) conference provides a platform for stakeholders to share lessons learned and best practices from the COVID-19 pandemic.

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<sup>1</sup> This is as at 15th of November 2020 as reported by the John Hopkins University <https://coronavirus.jhu.edu/map.html>

## Conference Objective and Themes

The conference will mainly focus on lessons learned from the COVID-19 pandemic that could inform practice, policy, and research to help the African continent build resilience towards its Agenda 2063 aspirations and sustainable development. The conference will explore the following themes:

**Theme 1:** Climate and Natural Resource Dependent Societies and COVID-19

**Theme 2:** Cities and COVID-19

**Theme 3:** Science Technology Policy and COVID-19

## Registration

Please [Register here](#) for the conference

## Envisaged Conference Outcomes

The conference will culminate in a [book](#) whose content is informed by the conference theme and subthemes. Some of the book chapters will be presented at the conference. Further, a diversity of knowledge outputs will be developed including policy briefs, reports and working papers.

## Side Events Sessions

**Day 1:** Gender Lens in Disaster Risk Reduction in the context of COVID-19.

[Register here](#)

**Day 2:** The status of research collaborations and partnerships beyond COVID-19.

[Register here](#)

**Day 3:** Impact of STI Indicators in Policymaking and Uptake.

[Register here](#)

## CONFERENCE PROGRAM

Day 1: 18 <sup>th</sup> November, 2020		
Time	Activity	Speaker/Facilitator
<b>Side Event</b>		
11:30-13:00	Gender Lens in Disaster Risk Reduction in the context of COVID-19	Dr. Asenath Maobe
<b>Main Event: Climate and Natural Resource Dependent Societies and COVID-19</b>		
Chaired by Victoria Chengo Rapporteurs: Michael Boulle and Kennedy Mbeva		
14:00-14:20	Opening session	Prof. Hamadi Iddi Boga, Principal Secretary of the State Department for Agricultural Research in the Ministry of Agriculture, Livestock and Fisheries
14:20-14:30		Prof. Cosmas Ochieng, Director, African Natural Resources Centre (ANRC) African Development Bank Group Immeuble du Centre de commerce International d'Abidjan CCIA Abidjan 01, Côte d'Ivoire
14:30-14:40	Keynote Address	Dr. Richard Munang, Regional Climate Change Coordinator, UNEP
14:40-15:10	Book Chapter Presentations	
	1. Building Community resilience through Climate Communication: Lessons from COVID-19	Dr. Michaelina Almaz Yohannis (University of Nairobi)
	2. Climate Change Action during Post-COVID19 Era	Charles Tonui (ARIN/ACTS)
	3. Responses to COVID-19 and climate action in the East African community: key lessons from the case of Kenya	Dr. Shazia Chaudhry (University of Nairobi)
15:10-15:30	Book Chapter Discussions	<ul style="list-style-type: none"> <li>• Dr. Pieter Pauw (Frankfurt School of Management, Germany)</li> <li>• Prof. Felix Kalaba (Copperbelt University, Zambia)</li> <li>• Dr. Moussa Na Abou Mamouda (ENDA Energie Niger)</li> </ul>
15:30-15:35	Break	Music
15:35-16:20	Panel Discussion Panelists:	Prof. Thomas Hale (Oxford University, UK)

	<ul style="list-style-type: none"> <li>• Prof. Saleemul Huq (ICCAD, Bangladesh)</li> <li>• Dr. Funzo Somorin (AFDB)</li> <li>• Kennedy Oyier (Homabay County Government, Kenya)</li> <li>• Prof. Wilkister Moturi (Egerton University, Kenya)</li> </ul>	
16:20-16:40	Q&A	
16:40-16:55	Synthesis of Key Insights	Rapporteurs
16:55-17:00	Wrap up	Session Chair

Day 2: 19 <sup>th</sup> November, 2020		
Time	Activity	Speaker/Facilitator
Side Event		
12:00-13:30	The status of research collaborations and partnerships beyond COVID-19.	Dr. Joel Onyango (ARIN/ACTS)
Main Event: Cities and COVID-19		
Chaired by: Dr. Musyimi Mbathi (UON); Penninah Ndegwa (ARIN Fellow) Rapporteurs: Dr. Keziah Mwanga (ARIN focal point); Tom Randa (ARIN Fellow)		
14:00-14:10	Introductions and Welcome Remarks	Session Chair
14:10-14:25	Keynote Address	Prof Jason Corburn the Director, Institute of Urban and Regional Development, Professor of City & Regional Planning
14:30-15:10	Book Chapter Presentations	
	1. Nigeria water challenges in the context of COVID-19	Dr. Vincent Ojeh (University of Ibadan, Nigeria)
	2. Building a Mural of an African City beyond COVID-19	Dr. Joel Onyango (ARIN/ACTS)
	3. Multi-hazard system Approach and Risk modelling for Resilient cities	Victoria Chengo (Nairobi Risk Hub)
	4. Sanitation: A Key Consideration in Ghana's COVID-19 Response	Dr. Regina Edziyie
15:10-15:40	Book Chapter Discussions	<ul style="list-style-type: none"> <li>• Dr. Robert Ochieng (RDGE)</li> <li>• Dr. Albert Arhin (ARIN Focal Point)</li> <li>• Dr. Diana Ngui (ARIN Fellow)</li> <li>• Dr. Benjamin Gyampoh (ARIN Fellow)</li> </ul>

15:40-15:45	Break	Music
15:45-16:15	Panel Discussion Panelists: <ul style="list-style-type: none"> <li>• Dr. Gilbert Siame (University of Zambia)</li> <li>• Mr. Alex Nthiwa (Makueni County Government)</li> <li>• Leo Saldanha (GoST) Dorcas Nthoki (Tu Dortmund University)</li> <li>• Prof. Alfred Omenya (Eco-Build)</li> <li>• Dr. George Mwaniki (Lead UNFCCC Consultant)</li> </ul>	<ul style="list-style-type: none"> <li>• Prof. Mark Pelling (Kings College London, Co-Director Tomorrows Cities Hub)</li> </ul>
16:15-16:40	Q&A	
16:40-16:55	Synthesis of Key Insights	Rapporteurs
16:55-17:00	Wrap up	Session Chair

Day 3: 20th November 2020		
Time	Activity	Speaker/Facilitator
	<b>Side Event</b>	
11:30-13:00	Impacts of STI Indicators in Policymaking and Uptake.	Nora Ndege and Dr. Joanes Atela
	<b>Main Conference: Science Technology Policy and COVID-19</b>	
	Chaired by Prof. Nelson Ijumba (University of Rwanda)	
	Rapporteur : Dr. Joel Onyango (ARIN/ACTS)	
14:00-14:10	Introductions and Welcome Remarks	Session Chair
14:10-14:25	Keynote Address	Prof Joana Chataway the Head of Department of the Science, Technology, Engineering and Public Policy (STeAPP) in the Faculty of Engineering Sciences at University College London (UCL).
14:25-15:10	Book Chapter Presentations	
	1. The Designing of synthetic drug scaffolds from existing libraries	Dr. Andrew Mtewa (Malawi University of Science and Technology)
	2. Ethical concerns around COVID-19 response: The Case of Malawi	Francis Masiye (Malawi University of Science and Technology)
	3. Examining the Pitfalls and Lessons from Ghana's Strategies for Containing and Managing the ramifications of COVID-19	Matthew Mabefam (The University of Melbourne)



	4. Harnessing the potentials of Africa's traditional medicine in managing the COVID-19 Pandemic	Samuel Olajuyigbe (University of Ibadan, Ibadan, Nigeria)
	5. 'Border Politics and Pandemic Responses in Africa'	Kennedy Mbeva (ARIN)
	6. The role of Science Technology and Innovation in supporting emergency response solutions in Africa. Lessons from COVID-19 for science policy	Nora Ndege (ARIN/ACTS)
15:10-15:40	Book Chapter Discussions	<ul style="list-style-type: none"> <li>• Prof. Mammo Muchie (Tshwane University of Technology)</li> <li>• Dr. Leah Mwai (FCDO, East Africa Research and Innovation Hub)</li> <li>• Dr. Elsie Onsongo (Nuvoni Research)</li> </ul>
15:40-15:45	Break	Music
15:45-16:15	Panel Discussion Panelists:	Dr. Joanes Atela (ARIN Convener)
	<ul style="list-style-type: none"> <li>• Prof. Susan Hartley (University of Sheffield, UK)</li> <li>• Prof. Geoffrey Banda (University of Edinburgh, UK)</li> <li>• Prof. John Ouma Mugabe (ITI, University of Pretoria)</li> <li>• Prof. Erika Kraemer-Mbula University of Johannesburg, South Africa.</li> </ul>	
16:15-16:40	Q&A	
16:40-16:55	Synthesis of Key Insights	Rapporteurs
16:55-17:00	Wrap up	Session Chair

## SPEAKERS & PRESENTERS

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### Opening Remarks



**Prof. Hamadi Iddi Boga,**  
Principal Secretary of the State Department for Agricultural  
Research in the Ministry of Agriculture, Livestock and Fisheries.

Prof. Hamadi Iddi Boga is the former founding Principal of Taita Taveta University College and was later its Vice Chancellor between 2007 and 2017. He is a Professor in the Department of Botany at the Jomo Kenyatta University of Agriculture and Technology. His skills and interests are in biology, agricultural science, microbiology, and molecular biology. He specializes in microbial ecology of insects' guts, soils and soda lakes and has worked with termites, the soda lakes of Kenya, mangrove swamps, agricultural and forest soils and on Mount Kenya glacier. He has a PhD in Biology from Universität Konstanz in Germany and had a Post-doctoral stint at the Max Planck Institute for Terrestrial Microbiology in Marburg, Germany.



**Prof. Cosmas Ochieng,**  
Director, African Natural Resources Centre (ANRC) African  
Development Bank Group Immeuble du Centre de commerce  
International d'Abidjan CCIA Abidjan 01, Côte d'Ivoire.

Cosmas Milton Ochieng, an expert in natural resource governance and economic development in Africa, is the Director of the African Natural Resource Centre at the African Development Bank. He has served as an Associate Professor of the Practice of Global Development Policy at the Pardee School of Global Studies, Boston University. His research and teaching interests focus on the theory, policy and practice of development; global climate change and environmental policy; science, technology and innovation policy; and the political economy of African development. Prof. Ochieng served as Executive Director of the African Centre for Technology Studies (ACTS). He has also served as the Technical Coordinator for the Business, Economics and Biodiversity Program of the International Union for Conservation of Nature (IUCN), Eastern and Southern Africa Regional Office in Pretoria; Climate Change Expert at the UNEP Risoe Centre (Technical University of Denmark); Lecturer in Sustainable Agriculture, Land and Water at Lancaster University in the UK; and Research Fellow, with the International Food Policy Research Institute (IFPRI).

## THEME 1: CLIMATE & NATURAL RESOURCE DEPENDENT SOCIETIES & COVID-19

### Overview of the session

As the world is planning to cope with the aftermath of the COVID-19 pandemic, discussions on how to link economic recovery with climate action have been vibrant. At the centre of the debates is the argument on the need to ensure that post-pandemic economy recovery supports climate action and natural resource resilience. Broader discussions have suggested the need to explore the lessons for climate action from the pandemic recovery. It is within this context that this session seeks to stimulate and facilitate these discussions.

The Africa Research and Impact Network has supported such engagement processes through monthly seminar series, one of which explored how best to heighten climate action towards low-carbon development and climate-resilient pathways. To this session of the conference, we bring together a diverse set of stakeholders from cross Africa and various other partners, and 3 book chapter presentations under the Climate Action thematic area. A guided panel session will also broadly discuss the approaches for strengthening the resilience of societies to the impacts of climate change and COVID-19.

### Keynote Speaker



**Dr. Richard Munang**  
Regional Climate Change Coordinator, UNEP.

Dr. Richard Munang is currently the United Nations Environment (UNEP) Africa Regional Climate Change Programme Coordinator. He is also the UNEP Ecosystem Based Adaptation (EbA) for Food Security Focal Person currently coordinating and guiding the roll-out of the UNEP-Africa Ecosystems Based Adaptation for Food Security Assembly in over 40 countries. Previously he was the Policy & Programme Coordinator for the

UNEP/UNDP Africa Climate Change Adaptation Development programme.

### Book Chapter Discussants



**Dr. Pieter Pauw**  
(Senior Researcher  
FS-UNEP Frankfurt  
School of Finance and  
Management,  
Germany)



**Prof. Felix Kalaba**  
(Associate Professor of  
Environment and  
Development at the  
Copperbelt University  
in Zambia)



**Dr. MOUSSA NAABOU Mamouda**  
(ENDA Energie,  
Niger)

## Moderator

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**Professor Thomas Hale**  
(Oxford University, UK)

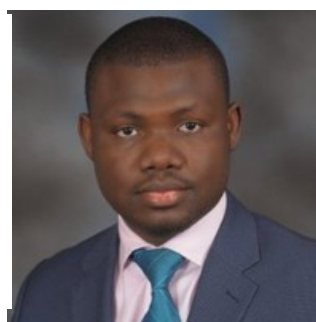
Associate Professor in Global Public Policy, Blavatnik School of Government; Fellow of St Antony's College. Hale is interested in problems that span national boundaries and the political institutions that seek to solve those problems. He seeks to explain how political institutions evolve-or not-to face the challenges raised by globalisation and interdependence, with a particular emphasis on environmental and economic issues

## Panelists

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**Prof. Saleemul Huq**  
(ICCAD, Bangladesh)



**Dr. Funzo Somorin**  
(AFDB)



**Kennedy Oyier**  
(Homabay County  
Government, Kenya)



**Prof. Wilkister  
Moturi** (Egerton  
University, Kenya)

## THEME 2: CITIES AND COVID-19

### Overview of the session

Globally, cities remain the epicentres of COVID-19 with over 95% of the reported cases. The pandemic has had adverse impacts on the socio-political, the economic status and the ecological environment of urban societies. Consequently, there are conversations and calls for cities to build resilience for future shocks and stresses. The nature of what might emerge in terms of city resilience particularly in the African context is speculative at best, but one that requires an understanding of what has been (based on current evidence), what is desired (resilient city imaginaries), and the necessary pathways towards resilient African cities (beyond the pandemic). The Cities and COVID-19 session provides a forum for these deliberations to take place. The session is organized into three areas: a keynote speech, book chapter presentations and a panel discussion.

### Keynote Address



#### Prof. Jason Corburn

Director, Institute of Urban and Regional Development,  
Professor of City & Regional Planning

Jason Corburn is a Professor in the Department of City and Regional Planning and School of Public Health. He directs the Institute of Urban and Regional Development and the Center for Global Healthy Cities at UC Berkeley. He also coordinates the joint Master of City Planning (MCP) and Master of Public Health (MPH) degree program at UC Berkeley. His research focuses on the links between environmental health and social justice in cities, notions of expertise in science-based policy making, and the role of local knowledge in addressing environmental and public health problems. Professor Corburn's research and practice works to build partnerships between urban residents, professional scientists and decision-makers in order to collaboratively generate policy and planning solutions that improve the qualities of cities and the well-being of residents, particularly the poor and people of color.

### Book Chapter Discussants

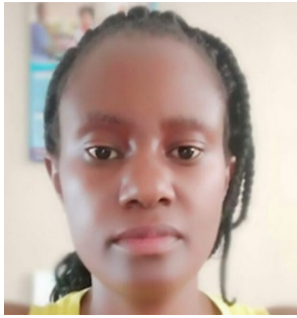


**Dr. Robert Ochieng** (RDGE, ARIN Focal Point)



**Dr. Albert Arhin**  
(Kwame Nkurumah University, Ghana, ARIN Focal Point)





**Dr. Diana Ngui**  
(Kenyatta  
University, ARIN  
Fellow)



**Dr. Benjamin  
Apraku Gyampoh.**  
Kwame Nkrumah  
University of Science  
and Technology  
(KNUST), Ghana,  
Fellow at ARIN.

## Moderator

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**Prof. Mark Pelling**

**(Kings College London, Co-Director Tomorrows Cities Hub)**

Professor of Geography King's College London Strand Campus Bush House (North East Wing) 30 Aldwych London WC2B 4BG UK And Challenge Leader, Resilience to Environmental Shocks and Change Portfolio Global Challenges Research Fund (GCRF). He has served as a coordinating lead author for the Intergovernmental Panel on Climate Change Sixth Assessment Report and Special Report on Managing the Risks of Extreme

Events and Disasters to Advance Climate Change Adaptation (SREX) and as lead author on its Fifth Assessment Report.

## Panelists

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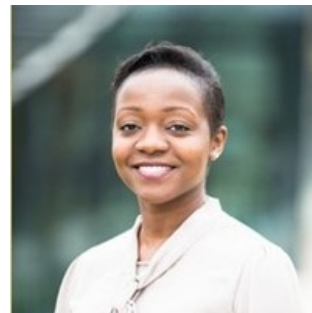
**Prof. Alfred  
Omenya** (Eco-  
Build Africa)



**Dr. Gilbert Siame**  
(University of Zambia)



**Leo Saldanha**  
(GoST)



**Dorcas Nthoki**  
(Tu Dortmund  
University)



**Dr. George Mwaniki** (Lead UNFCCC Consultant)

## THEME 3: SCIENCE TECHNOLOGY POLICY AND COVID-19

### Overview

Science, Technology and Innovation holistically have proven to be powerful weapons that can support productivity and economic growth of the African countries. During this pandemic period, advancements in STI including new policies through inter-African research collaboration have seen new research schemes in medicine, epidemiology, clinical treatment, drug screening and vaccine development. Innovations locally, nationally and regionally have proliferated. At the Africa Research and Impact Network we have engaged in monthly seminar series to discuss this broad topic including how best to harness the applications of STI and draw lessons for science policy. We bring together a diverse set of African stakeholders and other partners to this session, including 6 book chapter presentations under the STI thematic area, and a panel session to discuss broad STI thematic areas. The chapters to be presented broadly cover issues around STI and COVID-19 response and recovery.

### Keynote Address



**Prof Joanna Chataway**  
Head of Department of the Science, Technology, Engineering and Public Policy (STePP) in the Faculty of Engineering Sciences at University College London (UCL).

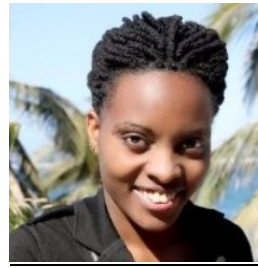
Prof. Joanna Chataway leads the Science, Technology, Engineering and Public Policy (STePP) Department at University College London (London) in the UK. She has worked for many years in public policy and has particular interests in science and innovation policy and health research and innovation policy.

## Book Chapter Discussants

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**Prof. Mammo Muchie** (Tshwane University of Technology)



**Dr. Leah Mwai** (FCDO, East Africa Research and Innovation Hub)



**Dr. Elsie Onsongo** (Nuvoni Research)

## Moderator

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**Dr. Joanes Atela**  
**Convener, Africa Research & Impact Network**

Senior Research Fellow and Climate Resilient Economies Programme Director at ACTS, the Nairobi City Lead under the [Tomorrows Cities](#) programme, and the Lead of the Africa Union's High Level Panel on Green Innovation Framework. He is passionate about Africa's transformation through research excellence, talent nurturing and evidence-based people centered policy support.

## Panelists

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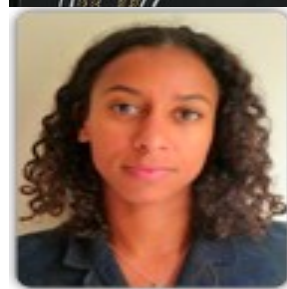
**Prof. Susan Hartley** (University of Sheffield, UK)



**Prof Geoffrey Boulton** (University of Edinburgh, UK)



**Prof. John Ouma Mugabe** (ITI, University of Pretoria)



**Prof. Erika Kraemer-Mbula** (University of Johannesburg, South Africa)



## BOOK CHAPTERS

### Theme 1: Climate and Natural Resource Dependent Societies and COVID-19

**Author:** Dr. Michaelina Almaz Yohannis (University of Nairobi)

**Title:** *Building Community resilience through Climate Communication: Lessons from COVID-19*

**Abstract**

Climate change has had both a direct impact on development of climate-dependent activities (such as infrastructure and agriculture) and indirect consequences for social systems (such as issues of poverty, conflict, health, and education). Mitigation and adaptation measures are being promoted at regional, national, and local level to curb the extent of impact on livelihood. The preparedness associated with climate change adaptation, have been 'shocked' by the COVID-19 pandemic, resulting to diversion of resources that were initially allocated for adaptation measures, especially for the local community. Climate change information is a major contributor to rural adaptation measures, which has been hampered by COVID-19. This chapter explores the current state of climate change information development in East Africa, including the key highlights at signals of transformation associated with utility of climate information. The chapter further details how the utility of climate information has contributed to local adaptation pre-COVID-19, and the implication of COVID-19 on the production, processing, dissemination and utility of climate change related information. The chapter makes two key conclusions: that despite the challenges brought about by COVID-19, the potential for local adaptation is encouraged since technological appreciation during the COVID-19 may encourage the utility of climate information.

**Author:** Charles Tonui (ARIN/ACTS)

**Title:** *Climate Change Action during Post-COVID-19 Era*

**Abstract**

This book chapter presents the analysis of the non-state climate actors (subnational governments and other non-state actors) at national and sub-national levels in accelerating decentralized climate actions in the face of the Covid-19 pandemic and post-COVID-19 in the developing countries. Climate risks and COVID-19 pandemic continue to impact socio-economic activities and accelerating environmental damage in developing countries, exposing the low level of preparedness at the national, subnational, and local community levels. There are knowns and unknowns about the interaction between climate change and public health including COVID-9. COVID-19 pandemic has exposed the poor and the most vulnerable who are already facing food and health insecurity and other socio-economic consequences due to climate change. The push for climate action was somewhat slowed down by the pandemic. The slowed global economic momentum has given the environment some time to refresh. This can be considered a win to the environment and can be used to create a baseline of establishing sustainable climate actions. The non-state climate actors have joined forces as the implementation champions of the climate actions at the subnational and local community level contributing significantly to the nationally determined contributions submitted by the developing countries to UNFCCC. As well they are not only the 'last mile' actors in climate actions but also in managing the COVID-19 pandemic at the subnational and local community level. Climate change impact compounded with COVID-19 pandemic and its many unknowns forced the national governments to call for joint efforts from the non-state actors for the management of COVID-19 and post-COVID-19 economic recovery. The post-COVID-19 state presents a great opportunity for the developing countries to leverage support from the non-state

actors to not only accelerate the implementation of climate actions and COVID-19 management but also build synergy towards building back better during the post-COVID-19 economy recovery.

**Co-Author:** Denis Ong'ech (University of Nairobi)

**Title:** *Responses to COVID-19 and climate action in the East African community: key lessons from the case of Kenya*

**Abstract**

Since January 2020, the world is in the throes of a unique health emergency brought on by the global spread of the novel pandemic. With the implementation of strict preventive measures, the East African Community (EAC) states have been able to handle the situation much efficiently. Scientific studies reveal that with multi-tiered Covid-19 precautionary measures air pollution and GHG emission levels have significantly improved and biodiversity is thriving in many national parks and wildlife reserves. Before the Covid-19 emergency, the EAC members have particularly been vulnerable to climate-related disasters such as persistent and prolonged droughts, desertification, and flash floods with far-reaching human security implications. Since 1992, a number of climate treaties have been signed and ratified, however, the majority of these agreements have been least effective. In the face of these two parallel emergencies, many questions remain especially for regional and national climate actions in the EAC states. Hence, this chapter seeks to address this fundamental issue and examines if the Covid-19 strategies will be sustainable and viable for climate action in the long term? And how best can the EAC members specifically implement similar measures to mitigate or adapt to climate change?

**Theme 2: Cities and COVID-19**

**Author:** Dr. Vincent Ojeh (University of Ibadan, Nigeria)

**Title:** *Nigeria water challenges in the context of COVID-19*

**Abstract**

The study was on Nigeria Water Challenges in the context of COVID-19 Pandemic. Data were collected across Nigerian's living in urban and suburban areas using google online form and 56 respondents out of the 90 responses given were used for analysis after data cleaning. The result shows 70% takes less than 1 hour to get water from their source when there is a shortage in your house while 10% takes up 2 hours during the COVID-19 Period. 70% had access to water 3 times a week and 11% had access to water once a week. In general, 64% agreed that water is available and accessible through 61% noticed changes in the accessibility of water during the COVID-19 period, 59% experienced decreased accessibility so they have to provide for the shortfall from alternative sources and sometimes people use pure water (sachet water) to cook and do other things. It is therefore recommended that the government has to improve on the water supply to households in cities and suburb to meet the water target as enshrined in the SDG 6 on water and sanitation which includes more expansive targets focusing on other dimensions of water such as management and governance, wastewater, and ecosystem resources.

**Author:** Dr. Joel Onyango (ARIN/ACTS)

**Title:** *Building a Mural of an African City beyond COVID-19*

**Abstract**

COVID-19 presents unprecedented challenges, and opportune moments for urban development. The pandemic has implications on the setting of urban societies, the economic

status, the ecological environment, and the policy and regulations scapes. The nature of what might emerge post-pandemic is speculative at best, but one which requires an understanding of what has been (based on current evidence), what is desired (as sociotechnical futures), and the necessary (disruptive) actions for resilient cities of the future (beyond the pandemic). This chapter is based on the three-horizon framework anchored on literature reviews, and qualitative stakeholder dialogues, and presents steps towards building a mural of an African city beyond COVID-19. The chapter documents the evidence on current state of cities in Africa, with special interest on the ecological status, the socio-technical capacity, and policy landscapes. This concludes with details of pathways towards African cities beyond the pandemic, targeted at actors in preparing for city development after COVID-19.

**Author:** Victoria Chengo (Nairobi Risk Hub)

**Title:** *Multi-hazard system Approach and Risk modelling for Resilient cities*

### **Abstract**

The COVID-19 pandemic has revealed the complexity of disaster risks while exposing the need to adequately plan and prepare for potential risks. Like many other disaster risks, COVID-19 has presented unfamiliar evolution characteristics that have made it difficult to contain. The magnitude of disasters often varies across economical and settlement scales. For instance, the impacts of COVID-19 have been felt more adversely within the informal settlements in Nairobi city as compared to other formal settlements – this is mainly due to the varying coping capacities and different vulnerability scales. The low level of preparedness within African cities towards the COVID-19 pandemic calls for a transition in risk preparedness that embraces a multi hazard system approach and risk modelling. Risk modeling involves building of scenarios to understand the dynamics of risks as they interact with populations and the environment, providing useful recommendations for planning and preparing for disasters with considerable levels of certainty. A multi-hazard system approach and risk modelling can thus be embraced for comprehensive risk assessment towards enhancing city resilience.

**Author:** Dr. Regina Edziyie (Kwame Nkurumah)

**Title:** *Sanitation: A Key Consideration in Ghana's COVID-19 Response*

### **Abstract**

Discovered in December 2019, the novel coronavirus induced disease COVID-19 was declared a pandemic on 11<sup>th</sup> March, 2020, by the World Health Organization. This pandemic has severely tested governance structures and services in various nations and laid bare weaknesses and strengths that exists. In assessing responses to the pandemic, context is important. In Ghana, there was a partial lockdown on 30<sup>th</sup> of March after recording 141 cases instituted in the two hotspots; Accra and Kumasi instead of a total lockdown due to a lack of accessibility to sanitation facilities; only 23 % of Ghanaians have improved household toilets in residences. This chapter reviews information drawn from online sources, relevant institutions and journal publications. Based on findings, authors propose research and development priorities, and discuss ways to consolidate resources to improve sanitation in Ghana as a means of building resilience for future pandemics.

### Theme 3: Science Technology Policy and COVID-19

**Author:** Dr. Andrew Mtewa (Malawi University of Science and Technology)

**Title:** *The Designing of synthetic drug scaffolds from existing libraries*

**Abstract**

COVID-19 has devastated Africa's health systems from whose response, lessons have been drawn towards capacity building in drug development for emerging pandemics. COVID-19 has also educated the African research community on the importance of having strong pharmaceutical research institutions. Africa is blessed with enormous biodiversity resources of natural products that can potentially be developed into reliable drugs for pandemics. Application of modern methods of drug discovery such as computer-aided drug design and synthetic medicinal chemistry have not been fully integrated into drug development research in Africa. In the race to find drugs against COVID-19, computer-aided drug designing has appealed as a technique that is fast and cheap in identifying drug leads and in repurposing existing drugs. Starting materials can be obtained from the diverse African botanical resource, locally synthesized scaffolds, and existing molecular libraries for further development. With proper education, practice on such methods, enhanced knowledge sharing and collaboration, Africa can join and contribute much to the global community of drug design and development in the future.

**Author:** Francis Masiye (Malawi University of Science and Technology)

**Title:** *Ethical concerns around COVID-19 response: The Case of Malawi*

**Abstract**

The Coronavirus disease (COVID-19) pandemic is spreading rapidly across Africa, causing havoc to economies and disruption to already fragile health care systems. It is becoming clear that despite standardised global health strategies, local government responses to the pandemic must be tailored to their settings. The Malawi government is leading the COVID 19 response by adopting stringent public health measures such as quarantine or isolation, in combination with good hand hygiene, mandatory wearing of masks and physical distancing to prevent an impending health care crisis. The impact of such stringent measures in low-to-middle income African countries has not been evaluated and it is plausible that lives lost due to these measures could exceed those saved from the COVID-19 pandemic. In this book chapter, we look at the Malawi government response to the pandemic and highlight some ethical and human rights concerns arising from the government's response to the pandemic. We also provide our views towards the ethical and human rights issues raised considering the Malawian setting. We also provide recommendations to the COVID-19 pandemic response in Malawi.

**Author:** Matthew Mabefam (The University of Melbourne)

**Title:** *Examining the Pitfalls and Lessons from Ghana's Strategies for Containing and Managing the ramifications of COVID-19*

**Abstract**

The outbreak of COVID-19 has disrupted and devastated socio-economic and public health systems globally, which resulted in the development of novel macro-level interventions. Leaders the world over have adopted different strategies to 'flatten the curve' and manage the spread of COVID-19, usually communicated through regular update addresses. As novel as the disease is, so also are the interventions; which have tended to be experimental

and thus their efficacies yet to be ascertained. In this study, we employed digital ethnography to collect and analyse Ghana's strategies of containing and managing COVID-19, by examining national presidential addresses between March and July 2020. Our study explores two propositions. First, that transparent national presidential addresses about the facts of COVID-19 are primarily informative, focusing on reducing risk of infection and mitigating transmission. Second, that the national presidential addresses engender an inherent risk of misinformation, hence the potential to derail the efforts in fighting against the disease, and increase risk of infection and transmission. This chapter invites scholars and stakeholders involved in the management of crisis for a discussion as the world grapples with yet another pandemic such as COVID-19.

**Author:** Samuel Olajuyigbe (University of Ibadan, Ibadan, Nigeria)

**Title:** *Harnessing the potentials of Africa's traditional medicine in managing the COVID-19 Pandemic*

**Abstract**

The COVID-19 pandemic has had serious socioeconomic and health implications; with increased demand for natural products from plants, as potential ingredients in herbal remedies that may be potent for managing the disease. For centuries, Africans have depended on alternative herbal therapeutic solutions to health problems. These traditional knowledge systems have been used to manage health crisis. Hence, the search for solutions to COVID-19, has opened opportunities for massive use of medicinal plants as traditional herbal remedies, but with minimal laboratory evidence. Furthermore, these plants are threatened by urbanization, over-exploitation and climate change. This chapter synthesized information on traditional and recent scientific knowledge of plants identified to be important in the management of COVID-19; their potentials for drug development and the current challenges faced by traditional medicine in Africa. Potential contributions of medicinal plants to future health-care and management of pandemics were discussed. Recommendations on how to safely integrate traditional medicine into health therapies for COVID-19 were provided. The importance of re-designing research, policy and practice in the emerging socio-cultural environment were also highlighted. The COVID-19 pandemic has created opportunities for the development of home-grown solutions through robust scientific and innovative discoveries among Africans, and traditional medicine offers great potentials for coping with future pandemics

**Author:** Kennedy Mbeva

**Title:** Border Politics and Pandemic Responses in Africa

**Abstract**

As the COVID-19 pandemic unfolded, governments scrambled to secure critical supplies of medical and related equipment. To ensure sufficiency, governments severely restricted exports of the equipment to safeguard anticipated domestic medical demands. Those that did not have adequate supplies were thus exposed to the shortage and uncertainty in managing the pandemic. This meant that African governments, which are primarily reliant on imports of medical supplies, have been adversely affected by these trade restrictions. Moreover, trade restrictions also included food supplies and movement of people. This trend raises the important policy challenge of trade dependence and vulnerability of African countries lacking adequate supplies to address pandemics. It is in this context that this chapter seeks to analyze the extent of dependence on, and vulnerability to, trade in critical medical and food supplies necessary to effectively address pandemics. Drawing on an analysis of various data sources, this chapter argues that border politics are central to pandemic response in Africa. Border restrictions are however a double-edged sword,

helping to contain the virus but also exacerbating challenges especially those faced by vulnerable and marginalized groups. Recommendations from this analysis will suggest ways of strengthening the regional and national capacity of African governments and cognate institutions to effectively respond to future pandemics.

**Author:** Nora Ndege (ARIN/ACTS)

**Title:** *The role of Science Technology and Innovation in supporting emergency response solutions in Africa. Lessons from COVID-19 for science policy*

**Abstract**

Science Technology and Innovation (ST&I) are important antecedents for sustainable development and economic growth. STI has been widely applied in the African context over the past years albeit in most cases, not clear the role of each domain area of STI. In the context of the current COVID-19 pandemic, STI has supported the translation of ideas, new products, and processes to provide medical solutions, create awareness, and disseminate information for behavior change. Recent anecdotal studies providing snapshots of the interactions of STI and COVID-19 including its management in Africa have highlighted the need to provide ground truth evidence and epistemological exploration of the various facets of STI in supporting the fight against the pandemic. The applications and evaluations of the various technological advancements and innovations in the fight against the pandemic are highlighted in this study and further, lessons for science policy proposed.



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