



**VIRTUAL EVENT**  
held on 14 June 2022

# HIGHLIGHTS

## DEBATE ON SUSTAINABILITY SCIENCE

### Topic

The world has embarked on a decisive decade for the 2030 Agenda and its 17 Sustainable Development Goals (SDGs), aimed at making progress on human development within planetary boundaries. The window to secure a livable future for all is narrowing, and despite the urgency of the SDGs, the world is off-track to meet them.

Science can play a crucial role in accelerating the implementation of the SDGs, by providing knowledge-based evidence for decision making, creating actionable knowledge, filling in data gaps and finding innovative solutions to interconnected and complex global challenges (climate change, pandemics, biodiversity loss, etc.). But this requires a radical change in the way science is done, harnessed, assessed and funded.

The interactive discussion held on 14 June 2022 offered an introduction in sustainability science. What does this terminology cover? What are the key features of this standalone discipline, born only two decades ago and on the rise, boosted by the urgency of the current situation ? What is going on in this domain? What are the obstacles encountered in the field to its full and effective implementation?

This highly relevant topic deserves to be explored further.

### Speaker



Connie Nshemereirwe

Connie Nshemereirwe is an independent science and policy facilitator from Uganda. Currently the director of the Africa Science Leadership Programme at the University of Pretoria in South Africa, she is also member of the Technical Advisory Group supporting the Global Commission on Science Missions for Sustainability set up by the International Science Council (ISC) to accelerate progress towards achieving the SDGs and deliver results in the critical areas of food, energy and climate, health and wellbeing, water, and urban areas. She contributed to another ISC project on Rethinking Human Development (full publication [here](#)). She was a Co-Chair of the Global Young Academy and is currently the Secretary-General of the Uganda National Young Academy and a member of the Kenya based pan-African Partnership of African Social and Governance Research.

### Participants



Around 40 participants from ACP and European countries

**Organised by the OACPS Research and Innovation Programme**

# SUSTAINABILITY SCIENCE IN BRIEF

This evolving, inter-and transdisciplinary research field aims to find knowledge-based solutions to global sustainability challenges, through a better understanding of the complex interactions and feedback between natural and social systems, and how these interactions affect, over time and space, the planet's life support systems, socioeconomic development and human well-being.

"The Brundland Report- "Our Common Future"- expressed strong concerns about the health of the environment and the development gap between countries around the world back in 1983. The last 40 years have shown us that we are not doing enough and that we are far from being on the path to sustainability. This debate on Sustainability Science comes at the right time to better understand how this new approach could help us achieve the United Nations Sustainability Development Goals."

**Dr. Norbert Richard Ibrahim**  
Assistant Secretary-General  
OACPS Secretariat

## KEY FEATURES

- Provides a new approach in the way of (co)producing, mobilising and applying knowledge.
- Promotes a systemic perspective through transdisciplinary collaborations between academia, researchers, innovators, policymakers, civil society, funders, etc.
- Mobilises a diversity of points of view, approaches, skills, knowledge and know-how (whether empirical, experiential/tacit or disciplinary).
- Bridges a wide range of disciplines (natural sciences, social sciences and humanities, economic sciences, business sciences, communication sciences, etc.).
- Provides a field of experimentation to better respond to the needs of society, in relation with planetary systems and to link knowledge and action.



## Entry poll of participants

What are the key words you associate with Sustainability Science?



## A VIBRANT FIELD OF RESEARCH AND INNOVATION

- Many publications explicitly cite Sustainability Science.
- Numerous university programmes focus on sustainability.
- The [Sustainability Science Journal](#) (launched in 2006).
- UNESCO's engagement in multiple programmes on Sustainability Science.
- + 126 environmental research institutes in 35 different countries (Wikipedia).
- A UN Global Sustainable Development Report ([last report in 2019](#)).
- An International [Sustainability Research and Innovation Congress](#) (2nd edition 2022)
- New concepts (e.g. nature's contributions to people).
- New funding opportunities: e.g. the [Belmont Forum](#) provided + \$200 million over the past 10 years to research consortia that utilise principles of transdisciplinarity and co-production while including meaningful participation of researchers from the Global South.
- Global networks of leading scientists and innovators in sustainability (e.g. [Future Earth](#)).

# SUSTAINABILITY SCIENCE FROM THE FIELD

Excerpts from the off-the-cuff interview with Connie Nshemereirwe by the moderator and participants. She has been involved in science and education for 15 years and then, for six years since, she has been acting on the science and policy interface.

## Sustainability Science and Education

**How ideas emerging from Sustainability Science can reach both the people working in the education sector as well as those who are receiving the services it?**

Sustainability Science offers the best possibilities for attacking education, that looks very simple, but is actually extremely complex. We must address it at a systemic wide level and take care of issues that occur at home or in the way to school, such as health, nutrition, safe water, gender relations, etc.

We must also think about how we can communicate better the science that we produce. There are some initiatives in South Africa where we are creating more understanding by using local languages. More social media, too. TikTok is showing a lot of promise, especially for a continent like Africa, where half the population is under the age of 20. We must also communicate in a way that shows them what the solutions can do, once they are applied.



## Sustainability Science and Communication

**You spoke about TikTok. Are there other innovative approaches in communicating science and transferring knowledge?**

When I was a member of the Global Youth Academy, one of the initiatives that we had there was to see how we can combine science and art, engage communities to express their understanding of their own issues through art or drama. We, as humans, told stories and made drawings long before we wrote words. Therefore, in generating an understanding of what the problem is through a medium like art or drama, we are able to more emotionally touch those who are listening and create a higher awareness of the issue. People really connect to stories, remember them, and can feel a drive to participate in solving them.

Those are some possibilities, but we are not innovating that much. And I think it's partly because we do not involve non-scientists enough in the production of science.

**How African scientists can communicate easily on what they are doing? Are there communication channels or platforms?**

We are most experienced in communicating science to our fellow scientists. Sometimes even the scientists in another discipline cannot understand the science in our discipline. So for many of us, first and foremost, we need skilling. We need to learn how to simplify our message while keeping the essence of it. And as for platforms, I know of a couple of them across the continent. [The Conversation Africa](#), a very good platform that provides you with editorial support when you give something for publication. They help you make it simpler for people to read. And the other one, launched recently, is [Nature Africa](#). It's also always looking for opinion pieces from leading African scientists on the issues that are on around the continent.



Source: Quadruple Helix (Carayannis and Campbell, 2009)

## Sustainability Science and 'The golden square'

**How we can bridge the collaboration gap between the scientists, the policy-makers, the private sector and the civil society ?**

We really have to become more humble as scientists and accept that the knowledge we generate is not the only one. There are many other ways of knowing (local and indigenous knowledge, tacit knowledge, etc.) that should be integrated with scientific knowledge to give a better picture of reality. We are often not able to pick up the cultural, social, political nuances to the reality that we study.

We must frame the problem from the point of view of those who experience it. For lack of time and patience, we often don't do it, and in the end, we may never really arrive at the pertinent issues that we should be asking questions about.

We need to be more open to even other solutions that have already been tried and may look unscientific to us. We always want to start from scratch. I think that's a waste of time and efficiency. In truly partnering with the people for whom the science is being done, it gives us a much higher chance of arriving at the solution that can really work for everyone and can be implemented by those who have to implement it.

The beauty of including the affected people or policy implementers from the very inception is that it also actually equips them later on to own the benefits of the outcomes of their research. I also find that they become themselves more scientifically minded. They really do see that taking a scientific approach to a social and environmental issue really gives solutions that can truly touch that problem and that without science, unfortunately, policymakers will just respond to the loudest complaints.

## Sustainability Science and Funding

**People are always crying for funds to do something. How could we overcome this funding problem?**

Some countries have as much as 3% of their GDP allocated to science, while others have only 0.1% of their GDP allocated to science, with GDP already very small. So the gap is very large. That is why the work of the Global Commission on science missions for sustainability, for which I work, is so important. All the sustainability issues have a pipeline or a life cycle. When you look at an issue like plastics, plastics generate from somewhere, do a job somewhere else, and end up in the oceans. So you have to look at the entire pipeline. The International Science Council is moving the needle on these sustainability goals by seeing how we can rearrange science funding to fund longer-term scientific research that looks at these issues at a wider level.

## Sustainability Science and Leadership

Can you tell us what we really should do next?

Another engagement that I have is with the Africa Science Leadership Programme, which identifies excellent young scientists from across the continent and equips them in leadership. Leadership is of two kinds. One is about high-level science. But the second kind of leadership is to understand that they have a responsibility to engage their communities, engage policymakers, communicate science and mobilise national or regional interest in using science to solve sustainability problems. Without that kind of outreach, I think that science is always one of the options, seen as something that costs too much and takes too long.

Therefore, a major step that we can take is to become more visible and take more leadership within our communities so that science can have a better chance of being funded and of making the impact within society that it can.

### Connie's final message to the audience

'I feel like if we do these two things, be more open to what others have to say, and reach out and take leadership in engaging with people outside our scientific community, we will enhance our ability to really have an impact on the world.'

## Sustainability Science and Covid-19



What opportunities do you think that the COVID pandemic has offered us in reaching those who need education and/or in rethinking about how to focus science on sustainability?

In the absence of an understanding of the systems that interact in a health crisis like this one, we saw a plethora of ill-fitting solutions applied, borrowed from other places. In Uganda, we shut down the economy. We hold the unfortunate distinction of having the longest school shutdown globally, 83 weeks! We were very successful in containing the COVID-19 infection and death rates, but we've created other problems. Thousands of teenage girls fell pregnant. Hundreds of schools failed to reopen. There has been a lot of mental stress, increased domestic violence and even re-emergence of some diseases that we had a hand on, such as TB.

The COVID 19 pandemic has taught us that 'one size does not fit all'. We cannot import the conclusions that have been arrived at from science done on different populations, with different genetic makeup, different health or economic systems. We must generate knowledge within our own context, and involve all those about whom and for whom science is being done, to find better solutions for our whole

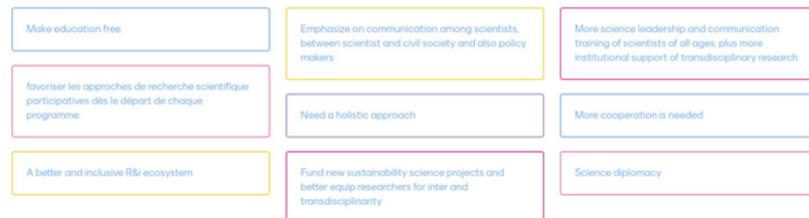
## SUGGESTIONS FROM ONLINE PARTICIPANTS

How would you rank these priorities to make Sustainability Science more impactful towards achieving the SDGs?

More:



### What could be done?



## USEFUL LINKS TO DEEP DELVE INTO THE TOPIC

- [Unleashing Science- Delivering Missions for Sustainability- International Science Council \(2021\)](#)
- [The future is now- Science for achieving sustainable development \(2019\)](#)
- [Sustainability Science: Toward a Synthesis Clark and Harley \(2020\)](#)
- [Sustainability science: a review, an analysis and some empirical lessons Spangenberg \(2021\)](#)
- [From planetary to societal boundaries Brand et al. \(2021\)](#)
- [Transforming Sustainability Science to Generate Positive Social and Environmental Change Globally P. Shrivastava et al.\(2020\)](#)
- [Science-Based Pathways for Sustainability](#)
- [Eleven success factors for transdisciplinary real-world labs N. Schöpke et al. \(2022\)](#)
- [Pathways to sustainability, a free online course from the STEPS Centre](#)
- [The undisciplinatory journey: early-career perspectives in sustainability science Haider et al. \(2018\)](#)

## JOIN OUR INNOVATIONXCHANGE PLATFORM!

It's important to learn from each other and use fora, such as the OACPS R&I [InnovationXChange platform](#). Join us for further discussion on the topic!

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