

05 DEC / DAY 0

09:00 - 11:00 / Side event: SCIENCE FOR INCLUSIVITY, INNOVATION, FOOD SECURITY, NUTRITION AND SOCIAL JUSTICE

Venue: Meeting Rooms 1.43-1.44

Abstract:

Background & Context: An integrated approach to addressing climate change (Goal 13: Climate Action - United Nations Sustainable Development Goals, SDGs 2030), and triple-burden of malnutrition (SDG Goal 2: Zero Hunger) were exacerbated further by the Covid-19 pandemic. As echoed by the OECD, food security is not about availability of food, but it includes better accessibility, stability, agency and sustainability. That is, when all people, at all times, have physical and economic access to sufficient, safe, nutritious food to meet their dietary needs and food preferences for an active life. That said, there are couple of factors that are inherent to a functional food system. For example, better access to land and production resources, stakeholders support, conducive policy environment, innovation and knowledge; which contribute to a systems critical for enhancing favorable socio-economic conditions. Policy choices matter as food security and nutrition as a nexus issue that directly and indirectly intertwined with e.g. health, natural resources, climate; so policy and economic environment becomes crucial in conceptualizing solution and probability of success. In low-resource settings, science and innovation adoption is necessary. However, without targeted key actors and integrated stakeholder approach, application of knowledge and promotion of science and innovation-led interventions informed by local context and conditions is a challenge.

The basis of the session is to identify existing and emerging intervention models that are embedded in system designs towards an integrated application of science and practice innovations and policy for enhanced socio-economic conditions. Amongst the objectives is to identify policy support gaps within Africa Region and impact of international cooperation frameworks i.e. funded programs/projects. Secondly, links to agricultural innovations and investments plays an important role in change of outcomes, behavior, culture and possibly communication; thus enabling a bridging environment between organizations, stakeholders and sectors is an important success factor. Promoting and supporting inclusion of marginalized communities such as women, children and rural populations or those on the margins of economic and policy benefits requires coordinated inter-governmental efforts, strengthened networks and partnerships that supports inclusivity.

Target audience & Panel: Session will have three areas targeted to and for policy makers, scientists, industry, actors and implementers; Institutional leaders driving the arrangements for supporting policy & research implementation including M&E through partnership arrangements such as NGO, government and private sector; as well as social innovators, entrepreneurs collaborating with communities and multi-sectoral stakeholders/funders.

Speakers: HE Ambassador Hakan Juholt, Mmampei Chaba, Peter Jacobs, Tshilidzi Madzivhandila, Mulalo Nengwenani, Nompumelelo Obokoh, Simphiwe Ngqangweni, Fhumulani Ratshitanga, Ishmael Sunga, Joseph Francis, Harry May, Kudakwashe Koke

09:00 - 11:00 / Side event: SPANNING THE BOUNDARIES BETWEEN POLICYMAKERS AND RESEARCHERS: A TRANSFORMATIVE INNOVATION POLICY APPROACH

Venue: Meeting Rooms 2.44-2.46

Abstract:

This session brings together policymakers, project implementers and practitioners and academics to grapple jointly on the value and use of a new way of thinking about and supporting innovation in the South African context over the past four years - Transformative Innovation Policy (TIP). TIP proposes an approach to support innovation that addresses our complex societal and environmental challenges. It presents possible policy solutions that are guided by experimentation, and more participatory, bottom-up approaches to policy making. At the core of TIP are processes of co-learning and co-creation between teams of academics, policy makers and practitioners. The session aims to not only present these ideas but also to enact the process of spanning the boundaries between policy practitioners and researchers. Therefore, this session will unpack the complexities and practicalities of the policy-research nexus from the lens of the application and value of TIP ideas in the South African policy space.

The session will consist of the following four segments:

- Critical appropriating transformative innovation policy (TIP) in South Africa
- Spanning the boundaries between policy actors and researchers
- Spanning the boundaries between researchers and policy actors
- Spanning the policy-research nexus: how can transformative innovation policy models contribute to more effective policy making?

Registration link:

<https://tinyurl.com/2u2unfj9>

Speakers: Erika Kraemer-Mbula, Glenda Esther Kruss, Imraan Patel, Tshepang Mosiea, Mapula Tshangela, Ezra Clark, Shamila Nair-Bedouelle, Marule Pearl Nontombi

Organizer: Wandile Kelly Mlilo

09:00 - 11:00 / Side event: THE ETHICS OF INTERVENING IN THE LIVES OF OTHERS, THE EXAMPLE OF DRUG, ALCOHOL AND TOBACCO USE IN AFRICA.

Venue: Meeting Rooms 2.41-2.43

Abstract:

This session unites leading medical, policy and civil society experts to examine the late Kofi Annan's statement that "*drugs have harmed many people, but bad government policies have harmed many more*". Its focus is to weigh-up the ethics of intervening in the lives of addicted and non-addicted users of licit and illicit drugs, brought sharply into focus during Covid19.

Out of the 49 Sub-Saharan African countries, only 16 have data on injecting drug use. The most recent estimates show that there are over 52 million cannabis, 6 million amphetamine-type stimulant (ATS), 3 million cocaine, 2 million opioid and 1.5 million ecstasy (MDMA) users in Africa today. Yet, strict drug laws have escalated public health crises including HIV, hepatitis C and tuberculosis epidemics, while contributing to the drug-related deaths of 585,000 worldwide. For example, among the 2.3 million People Who Inject Drugs identified in Sub-Saharan Africa, 564,000 are living with HIV.

While illicit drugs grab the headlines, not all drugs are treated equally. Legal drugs such as tobacco kills half its users, potentially 1 billion people alive today, while alcohol is predicted to kill half a billion. Policies on advertising, taxation, jobs, sectoral interests, culture and civil liberties all come into play. The panel will examine if the views of African scientists are taken seriously by policymakers inside Africa, let alone in most places of the world.

Lessons learned from the pro and anti-arguments made during South Africa's 2020/21 prohibition of nicotine and alcohol sales will also be spotlighted. The country stood largely alone in its blanket ban logic with considerable media attention. Yet, health officials versus struggling retailers worldwide brings into sharp focus how societies both professes intolerance for the use of 'drugs', while providing and cherishing the social settings that enable and make legitimate their use. The panel will critique different approaches.

An important part of the discussion will be weighing-up how lawmakers must navigate between the rights and responsibilities of individuals to look after themselves and the rights and responsibilities of States to look after their citizens, provide security and a milieu in which to live a satisfying life. A key assessment will be to evaluate if robust ethical advice is being adequately considered to counter-balance public health imperatives. Have fundamental principles of autonomy, human dignity, freedom, equality and solidarity been forced to give way? Further issues to be debated include concepts of democracy and the rule of law, the influence of religion and the urgent need for harm reduction science to be universally applied.

The collective aim is to boost understanding of how power operates in African science and policymaking, as we explore why evidence plus dialogue rarely equals good decisions and laws. Recommendations will be given on what can be done better to get the intervention balance right.

Moderator: Mandi Smallhorne

Speakers: David Budtz Pedersen, Thomas Hartung, Shaun Shelly, Julian Kinderlerer, Lena Smirnova, Morgan Chetty

Discussant: Mbulaheni Simon Nemutandani

11:30 - 13:00 / Side event: PROMOTING SOCIAL JUSTICE THROUGH ACCESSIBILITY OF LANGUAGE IN SCIENCE

Venue: Meeting Rooms 1.41-1.42

Abstract:

The COVID-19 pandemic is a quintessential example of the need for science to be accessible to all – irrespective of occupation (non-scientists, policymakers, the public), geographical location or resources.

Accessibility is measured not only by physical access to information – that is, internet access or open access, but by the readability of the language used and the understandability of the science. Even the most complex science can be understood by a very wide scope of readers if it is explained in an appropriate way.

The *South African Journal of Science* is a multidisciplinary journal published by the Academy of Science of South Africa. The mission of the Journal is to promote the visibility and impact of African research to readers in all scientific disciplines as well as to scholars, educators, the general public, and policymakers.

As a diamond open-access journal, there are no paywall barriers to submit to the Journal (no article processing charges) or to read the Journal (no subscriptions required). Unlike publications in most journals, authors are expected to write their articles in a style that will be understood by other scientists and non-specialists.

The objective of this session is to show why and how language could – and should – be used to make science more accessible. We shall describe the processes and activities through which the Journal's editorial team has been in order to make the Journal more accessible, and will outline debates we have had along the way.

Participants will gain an understanding of the importance of accessible language in promoting inclusion, diversity and equity in science.

Facilitator: Leslie Swartz

Panellists: Mehita Iqani, Nkosinathi Madondo, Kirstin Wilmot

11:30 - 13:00 / Side event: SCIENCE POLICY ADVICE TO TACKLE SOCIETAL CHALLENGES

Venue: Meeting Rooms 2.44-2.46

Abstract:

From the beginning of civilization, politics and science have shaped each other. But throughout history, scientific research has been impacted by policy decisions. If we look at past policy decision examples, a political win or loss dictated whether stem cell research would move forward or not. Certain topics of interest were never approved based on populism or suddenly stopped. On the other hand, Politics decided that there should be woman-friendly initiatives, anti-discrimination rules, bio-ethics for scientific experiments, fundings to support differently-abled or rare diseases which are not economically profitable, but definitely relevant for those affected. Policy decisions like these move us forward to a politically fair & inclusive, economically equitable, and socially just democracies that we aspire to create. But to create a future as a collective, a collaboration of billions of brilliant minds, the dynamics between research and technology needs to achieve a finer balance. In addition, science had major impacts on policy via disruptive technological innovation.

In today's world, Science policy decisions has become a vital strategy in tackling the trans-boundary environmental issues, global health challenges and building bridges between countries. This session will focus on how evidence-based policy-making can play a crucial role tackling societal challenges. To be more inclusive in policymaking, researchers from several organizations will share their perspective on policy-making. While the representatives from research funding and performing organizations and policymakers will reflect on how the policy advice from the young researchers can be implemented into the actions.

Moderator: Mostafa Moonir Shawrav

Speakers: Lidia Borrell-Damián, Julia MacKenzie, Claire M. Mays, Mammo Muchie

14:30 - 16:00 / Side event: SCIENTIFIC FREEDOM AND THE RRING COMMUNITY WORKING WITH UNESCO ON THE RECOMMENDATION ON SCIENCE AND SCIENTIFIC RESEARCHERS

Venue: Meeting Rooms 1.41-1.42

Abstract:

This session will explore current models and frameworks for scientific freedom. In particular, it will explore the H2020 project “RRING” work on the topic, via its work with UNESCO on the Recommendation for Science and Scientific Researchers (RSSR), which embodies the principles of Scientific Freedom.

The RSSR promotes a fair and appropriate status of scientific researchers and informs adequate national science, technology and innovation policies, and policies to ensure that societies use knowledge from all scientific fields in a responsible manner. Scientific freedom is at the core of the RSSR. RSSR promotes:

- the right of researchers “to work in a spirit of intellectual freedom to pursue, expound and defend the scientific truth as they see it, an intellectual freedom which should include protection from undue influences on their independent judgement;”
- “express themselves freely and openly on the ethical, human, scientific, social or ecological value of certain projects.
- “ensure the protection of the human rights, fundamental freedoms and dignity of the human person, and the confidentiality of personal data.”
- “scientific researchers’ right to publish or communicate results”
- “providing scientific researchers in their direct employment with adequate career development prospects and facilities” and “providing the necessary funds and mechanisms for, career development, and/or redeployment”.

The overall project aim of RRING is to bring Responsible Research and Innovation (RRI) into the linked up global world to promote mutual learning and collaboration in RRI. RRING will align RRI to the Sustainable Development Goals (SDGs) and the UNESCO RSSR as a global common denominator and global Framework.

Solutions that the session will explore are:

1. Barriers researchers experience in exercising freedom.
2. How can the RSSR be enabled as a practical instrument for:
 - researcher freedom?
 - researcher career security and reduced precarity?

How do funders and funding organisations influence Scientific Freedom?

Speakers: Gordon Dalton, Reda Cimperman, Pedro Monreal Gonzalez, Dobrivoje Lale Eric

Moderator: Rosarii Catherine Griffin

14:30 - 16:00 / Side event: THE POLITICAL ECONOMY OF INNOVATION IN AFRICA: IMPLICATIONS FOR CAPACITY BUILDING

Venue: Meeting Rooms 1.43-1.44

Abstract:

STI policy frameworks across Africa largely leave unquestioned the underlying theoretical framework of the national system of innovation (NSI) and their related canonical policies as developed to depict advanced industrial/post-industrial economies. In case of developed economies, the institutional underpinning of systems of innovation, both formal and informal, can generally be assumed as well established and reasonably effective. In the case of developing economies, the institutional underpinnings of the NSI can never be assumed as suited to the socio-economic development requirements of the national economy. In fact, the shifting to a sustained development trajectory usually requires a radical change in most of the aspects of the national institutional framework. In the case of STI, as in other areas of the economy, this implies that there is a greater requirement for an understanding and questioning of the theoretical framework of the system of innovation approach.

A political economy approach to the understanding of systems of innovation considers history, governance systems, and the cultural underpinnings of systems of innovation. It would be founded on the understanding of the various theoretical foundations of different versions of the system of innovation construct and the different, often contradictory, policy implications flowing from them. This approach would significantly blur the lines between the accepted categories of policy domains, such as economic and social policies among others and raise to the fore the close interactivities between the various spheres. It also requires an expansion of the concept of innovation considerably beyond technology. The main concern of this session is to raise awareness of the need for civil servants in ministries and departments engaged in STI across the African continent to be conversant with a political economy approach to the understanding of systems of innovation.

The following broad issues will be discussed:

1. An appropriate NSI conceptual framework for Africa
2. Human capabilities and the evolution of systems of innovation
3. Organised labour and the NSI
4. Governance of the NSI
5. Monitoring and evaluation of NSIs in Africa

Speakers: Jeel Ezzine , Fred Gault, Martin Kaggwa, Rasigan Maharajh, Mario Scerri (Xerri)

14:30 - 16:00 / Side event: SCIENCE, TECHNOLOGY AND INNOVATION MEASUREMENT IN AFRICA AND SDG 9.5

Venue: Meeting Rooms 2.41-2.43

Abstract:

The launch of the African Science, Technology and Innovation Indicators (ASTII) Programme in 2007 enhanced the measurement of R&D and Innovation based on key concepts that were already discussed before year 2000 with the UNESCO Institute for Statistics (UIS) in tracking the level of R&D spending. The process being institutionalized and sustained with the establishment of national focal points, both R&D and Innovation data collection and analysis are endorsed by national statistics offices with core indicators published in the African Innovation Outlook (AIO) series. AUDA-NEPAD, the African Union Commission (AUC), and the AU Observatory for STI (AOSTI), play key roles in making sure that member States and regional economic communities adopt internationally comparable indicators to assess the status of STI frameworks (STISA-2024 and RECs).

The tracking of Gross Domestic Expenditure on R&D (GERD, SDG9.5) is complex as it starts with personnel through headcount and full-time equivalent before ending with current costs and capital expenditures. Any error in overestimating R&D salaries will affect the true GERD. The assumption is that countries cover all traditional sectors of R&D performance. While a census is the way to go in tracking the R&D expenditures in the government and higher education sectors, and possibly the non-profit organizations sector, knowledge in sampling approach is vital for data collection and analysis in the business sector with its burden on low response rate on financial information. For an inclusive GERD, more attention shall be paid to the informal sector, the role of indigenous knowledge system, the demographic dividend in energizing Africa and radical technological innovations seen as emerging technologies. Finally, with its very young population, Africa needs to move very rapidly to advance its demographic dividend and invest in appropriate skills for the 4IR to advance Africa's demographic dividend on the continent's long-term development prospects.

Facilitators: Olalekan Akinbo, Kgomotso Matjila

Speakers: Lukovi Seke, Michael Kahn, Philippe Mawoko, Tichaona Mangwende, Victor Konde, Aggrey Ambali, Erech Chakaunya, Anneline Morgan

14:30 - 16:00 / Side event: DECARBONIZING TRANSPORTATION IN EUROPE AND AFRICA: PRIORITIES FOR ADDRESSING SOCIAL JUSTICE ISSUES AND LESSONS LEARNED

Venue: Meeting Rooms 2.44-2.46

This side-event will explore social justice issues related to decarbonization of transportation in Europe and Africa. In Europe, electric vehicles are relatively low-cost to operate but require up front investments in infrastructure and the vehicles themselves can often be afforded only by middle- and high-income households. Low-income households often operate old and inefficient internal combustion engine vehicles that are high-cost to run and may be excluded from circulation in urban areas because they cause air pollution. Africa has low motorization rates compared to Europe but has a key role in the decarbonization of transportation. Africa's renewable energy resources, favourable climate, short daily commutes, and young workforce make electrification of transport a priority for African policy makers. While some governments have taken laudable steps to reduce fossil fuel use for transport, these efforts must be further coordinated and scaled up to secure Africa's energy future. Socially-just policies and legislation are needed to provide affordable and sustainable transport solutions for all households irrespective of income. Public transport offers lower emissions per passenger-km and per tonne-km, but it often does not appeal to middle-and high-income households. In addition, typically trains and trams offer fast and efficient transport solutions between busy nodes, but need to be complemented by local solutions such as buses, minibuses, and bicycles for travelling "the last mile." Panelists will share recent success stories involving improvements to public transport solutions in Europe and in Africa and will discuss recent research on social justice issues relating to sustainable informal transport solutions and improved accessibility for informal settlements in Africa.

Registration:

[Decarbonizing Transportation in Europe and Africa: Priorities for addressing social justice issues and lessons learned \(google.com\)](https://www.google.com)

Speakers: Mahouton Norbert Hounkonnou, Christina Moberg, MJ Booysen, YORGOS Stephanedes, Saliem Fakir

17:00 - 19:30 / Side event: ETHICAL ENGINEERING FOR SOCIAL JUSTICE

Venue: Meeting Rooms 1.43-1.44

Abstract:

This session will address current concerns of Social Justice and ethical challenges arising from the rapid advances in technology. Reporting on major initiatives taken by the IEEE, leading engineers from the IEEE will share their views on fostering Social Justice and seeking answers to current issues related to ethical assurance and problems ranging from the rise of artificial intelligence to emerging issues in the development of standards supporting Ethical Design. These will be augmented by presentations by young South Africans on contemporary problems, social justices and ethical challenges being faced in the development and implementation of technologies and their embedding in social moirés.

The session will consist of the following four presentations, followed by a panel discussion. The presentations will cover the following topics:

1. The latest advances on technology ethics and two IEEE initiatives namely: IEEE 7000 Standard, and the Ethics Certification Programme for Autonomous Intelligent Systems (ECPAIS).
2. The Competency Framework for practitioners in the Ethics Certification Programme for Autonomous Intelligent Systems (ECPAIS), reflecting good Social Justice practice.
3. The results of research work for the creation of an inclusive, diverse, and values- and ethics-driven framework for adopting, developing, using or operating, and managing Autonomous Intelligent Systems (AIS) in organizations and settings of all sizes.

Technology is used to support and empower communities with the skills and insights to fully participate in effecting Social Justice, and thus stabilizing and growing their communities. Communities, once empowered, can use data to drive social changes directly, and as a resource that can be used to collaborate with government, local NGOs, and global partners to effect Social Justice.

Speaker: Alireza Ghazi Hessami, Zviko Murahwi, Daniel Mashao, Reolyn Heymann

06 DEC / DAY 1

09:00 - 11:00 / Side event: YOUTH AT THE WSF - YOUTH, SOCIAL TRANSFORMATION AND SCIENCE

Venue: Meeting Rooms 1.41-1.42

Abstract:

Youth from UNESCO World Heritage and Biosphere sites are inviting the WSF participants to join them and discuss their topics in a fast rotating format.

The venue will be set up in a café format with guests joining a table/topic for 15 or 20 minutes. Each table will have a banner explaining the theme and questions for the conference participants. The host will recapitulate what previous guests have mentioned and invite further comments.

Each table will have a question displayed on a poster and posters capturing what previous guests have brought in. Tentative questions are

- How can young people in rural areas be involved in 'science'?
- Does science only offer opportunities for employment in cities?
- Does equal access to science just globalise so all societies become the same?
- To make us resilient against events like Covid, should science focus on making us less dependent on products from far away?
- Does digitalisation destroy local entrepreneurship?

UNESCO will support the youth group to produce a video and report with the outcomes; a young communication expert will be part of the event to produce social media content.

Speakers: Shamila Nair-Bedouelle

09:00 - 11:00 / Side event: RENEWED HOPE IN A SHARED FUTURE FOR THE PLANET – MAPPING WESTERN SCIENCE WITH AN INDIGENOUS KNOWLEDGE SYSTEM

Venue: Meeting Rooms 2.41-2.43

Abstract:

This interactive session emerges from a two year learning journey with individuals from the United States and Canada, exploring new ways of training scientists. This work led us to recognize a gap between paradigms of Western Scientific approaches and Indigenous Knowledge Systems. We will first share key insights from the learning journey itself. Then participants will embark with us on an experiential exploration of the systems of science and their focus on logic and 'doing,' missing fundamental principles of connection, ethics and courage.

We believe in co-creation between those within the system and the scientists that aspire to serve that system, be it health, environment, energy, agriculture or any number of things. This co-creation approach aligns with an Indigenous Knowledge system.

An Indigenous model of knowledge based on the four directions posits North as Mind, East as Spirit, South as Heart, and West as Body – embodying the Mental, Spiritual, Emotional and Physical aspects of a conscious, sentient world. The 'Four Directions' model has been used extensively by Ken Paul, who will lead the session. North, or Mind, represents Knowledge Systems; East, or Spiritual, embodies the Environment; South, or Emotional, represents Biodiversity; and West, or Physical, represents Technology. We propose that balance across these four domains (and the four quadrants created between them) leads to actions that are sustainable, equitable, and nourishing.

Western Science is firmly rooted in technology and knowledge domains (Mind and Body), which deeply affects the resulting applications for our human and natural systems. We will map the four directions of the Indigenous Knowledge model and the Western Scientific paradigm familiar to most of the participants in the room, and will collectively explore where each of us sits in the circle, in relation to others. We expect a more holistic vision of

science to emerge.

09:00 - 11:00 / Side event: A GLOBAL APPROACH TO ENDING SEXUAL HARASSMENT IN STEMM

Venue: Meeting Rooms 2.44-2.46

Abstract:

In 2018, the U.S. National Academies of Sciences, Engineering, and Medicine released a report that concluded that the diversity of STEMM fields had improved, but sexual harassment of women was widespread and remained a serious barrier to full inclusion. According to the report, academic science, engineering, and medicine exhibit at least four characteristics that lead to higher levels of risk for sexual harassment to occur: (1) male-dominated fields, especially in positions of power and authority; (2) an organizational tolerance for sexually harassing behavior; (3) the power dynamics in the hierarchical and dependent relationships between faculty and trainees; and (4) the isolating environments, such as field sites, in which research is often conducted. Several promising efforts have emerged that aim to combat the prevalence of sexual harassment of women. In 1999, women leaders in the United Kingdom developed a systemic initiative for gender equity called the Athena Project, and similar efforts have been established in the United States (SEA Change), Australia (SAGE), and Canada (Dimensions). In response to the 2018 report, several U.S.-based efforts have emerged, including a Societies Consortium on Sexual Harassment in STEMM, an initiative founded and led by AAAS, the Association of American Medical Colleges, and the American Geophysical Union. This event will facilitate interactive discussion on the prevalence of sexual harassment of women in STEM fields globally, and action steps needed to combat the problem—from systemic changes to supporting individual scientists and engineers – as well as highlight the need for a more coordinated international effort.

Registration link:

[Registration to WSF side event on ending sexual harassment \(airtable.com\)](https://airtable.com/...)

Speakers: Encieh Erfani, Andrew Black, Roseanne Denise Diab, Shirley Mahaley Malcom, Mareli Claassens

09:30 - 11:15 / Side event: BASIC SCIENCE FOR SUSTAINABLE DEVELOPMENT: FROM A PERSPECTIVE OF LEVERAGING GLOBAL LARGE RESEARCH INFRASTRUCTURE

Venue: Meeting Rooms 1.43-1.44

Abstract:

Major revolutionary innovation in science and technology often brings huge changes and upgrades to human lives, which is always rooted in breakthroughs in basic sciences, such as mathematics, theoretical physics, chemistry and life sciences. The importance of basic science research cannot be over-stated, which creates urgent need for advanced research facilities. Large research infrastructures offer faster, farther-reaching solutions to extremely challenging problems. Many believe that the next revolutionary scientific discoveries rely heavily on the utilization of such facilities. They can help us deepen our understanding of the universe, the micro world, and ourselves. Moreover, large research infrastructures can also assist us in exploring sustainable development strategies. The continuous global research on nuclear fusion aims ambitiously at providing alternate for the current unsustainable energy sources. Such research cannot be conducted without giant Tokamak facilities.

Since such infrastructures are difficult to construct and highly costly, they are typically funded by national governments, various governmental agencies or international entities, while create natural platforms for global cooperation. For example, ITER project is being co-constructed by several major science communities in European Union, China, United States, Russia, Japan, India, South Korea and so on. All contribute to the project and hope to achieve breakthroughs in fusion research that may benefit the humanity. Meanwhile, many big facilities held by single countries also welcome researchers from the whole world to visit and use.

In short, basic sciences are fundamental to the sustainable development. Large research infrastructures are essential to the advancement in basic sciences and international cooperation lies in the core of the success of such facilities. Therefore, conversation and communication among experts related to this topic from different parts of the world is necessary.

Moderator: Zsolt Fülöp

Opening Address: Jinghua Cao

Keynote Speaker: Catherine Cesarsky, Di Li, Jiansheng Hu, Andrew Harrison, Yuao Chen

11:30 - 13:00 / Side event: ADVANCING AFRICA'S ASTRONOMY AGENDA

Venue: Meeting Rooms 1.41-1.42

Abstract:

The African continent has always suffered the effects of a negative global perception – so-called “Afro-pessimism” – not only economically and politically but especially in science and technology. The rapid growth of astronomy in Africa over the past two decades, led by world-class initiatives such as the Southern African Large Telescope (SALT), the MeerKAT Radio Telescope, MeerLICHT, the Oukaïmeden observatory, the Entoto observatory, and High Energy Stereoscopic System (H.E.S.S) have served to change the narrative about what Africa is capable of. In astronomy, Africa currently claims its place among international peers in one of the most technically challenging fields imaginable. In line with the WSF theme of Science for Social Justice, this session will delve into how the science of astronomy is being used not only to grow skills and opportunities on the continent but also to stimulate development through all aspects of astronomy. Importantly, the session will address how the opportunities created by astronomy, such as the 2024 International Astronomical Union's General Assembly, could potentially change global perspectives about Africa. The hosts of the session, the African Astronomical Society and the International Astronomical Union's Office of Astronomy for Development have significant experience and networks across Africa to lead a discussion on how the various initiatives are facilitating the development of astronomy in Africa as well as plans to ensure that Africa becomes one of the leaders in astronomy internationally. This session presents an opportunity for major role players to highlight how various activities on the continent enable the advancement of astronomy in Africa and plans to ensure that Africa becomes one of the world's leaders in the field. Furthermore, discussions aim to encourage collaborative research and innovation in astronomy and related sciences as well as address topics such as astronomy for development and outreach and education programs, promoting interdisciplinary approaches on how science can contribute to society and address global challenges and how these collaborations can help us achieve the Sustainable Development Goals.

Speakers: Takalani Nemaungani, Thebe Medupe, Vanessa McBride, Rob Adam, Mirjana Povi?

11:30 - 13:00 / Side event: MAINSTREAMING AFRICAN INDIGENOUS CROP FOR SUSTAINABLE FOOD SYSTEM

Venue: Meeting Rooms 1.43-1.44

Abstract:

The introduction of major commercial crops saw South Africa slowly tilting away from its own ancient food wealth and embracing the newly found crops. Research shows that there are between 300,000 to 500,000 existing plant species, about 30,000 are thought to be edible while only 7, 000 have been cultivated or collected as food and yet only 20 species provide 90% of the world's food requirements with wheat, maize and rice contributing 60% of man's diet. South Africa boasts a rich tapestry of agro-biodiversity of which underutilised fruits and crops form part. Indigenous fruit and crops are regarded as ‘future food’ as they are earmarked to sustainably address topical challenges like food and water insecurity under climate change. There is a growing need to accord indigenous crops due attention owing to their genetic diversity, nutrient density, and their adaptation to ecological niches. Compared to staple crops which are increasingly becoming less resilient to worsening climatic conditions, traditional crops are often well adapted to local growing conditions. As such, over the last decade, the Water Research Commission (WRC) and its strategic partners have carried out research on indigenous crops. Results show that indigenous food species are resilient and adapted to the needs of farmers in marginal agricultural environments. Evidence also suggests that including indigenous fruit and crops in cropping systems could contribute to agro-ecosystem and dietary diversity to improve nutrition. In this regards, this workshop aims highlight the potential of underutilised fruit trees and crops under water scarcity, determine their potential to contribute to a water-food-nutrition-health nexus, and identify challenges that exist for their promotion.

Speakers: Tafadzwanashe Mabhaudhi, Kingsley Ayisi, Samkelisiwe Hlophe-Ginindza, Ndivhudzannyi Sylvester Mpandeli, Luxon Nhamo

11:30 - 13:00 / Side event: SOCIAL INNOVATION FOR SUSTAINABLE DEVELOPMENT: EXCHANGE OF GOOD PRACTICES FROM THE LOCAL LEVEL

Venue: Meeting Rooms 2.41-2.43

Abstract:

The government of the state of Guanajuato, in Mexico, has a public policy of "mentefactura" (mindfacture), which consists of promoting innovation by applying knowledge derived from science and experience to improve value-added products and services.

This perspective is cross-cutting and inclusive. An important part of this public policy is the "Mindfacture Nodes" program. The Nodes put the people of Guanajuato, who live in disadvantaged situations, at the center of innovation, empowering them with technologies, products and a business model to integrate them into a triple impact social economy: circular economy, family economy and local or regional economic regeneration.

The Nodes have a transformative purpose: citizens, mainly women, who through knowledge transfer processes discover new capabilities by acquiring technical skills and technical-scientific language. The Nodes are cooperative spaces oriented to social and community development, where knowledge is acquired and put into practice in semi-industrial production units and materialized through social enterprises, which offer value-added products to the market.

The side event is the occasion to exchange experiences on social innovation with other good practices of other regions in the world. The program of "Mindfacture Nodes" could be shared to students, policy-makers, innovators, researchers, interested in to apply knowledge for social development

Speaker: DIEGO SINHUE Juan Antonio RODRÍGUEZ VALLEJO , Lidia Brito, Henry Roman

11:30 - 13:00 / Side event: INTEGRITY AND SECURITY IN THE GLOBAL RESEARCH ECOSYSTEM

Venue: Meeting Rooms 2.44-2.46

Abstract:

Responsibilities for research integrity and security are distributed across multiple actors in the international research ecosystem. These include, national governments, research funding agencies, research institutions, universities, academic associations, and intergovernmental organisations. The OECD project on "Integrity and security in the Global Research Ecosystem" describes policy initiatives and actions from these different actors to safeguard national and economic security whilst protecting freedom of enquiry, promoting international research cooperation, and ensuring openness and non-discrimination. It includes examples of actions that are being taking to prevent foreign interference, manage risks, and help ensure trust in science in the future, and offers recommendations to help countries develop effective policies to strengthen research security as part of a broader framework of research integrity. South Africa was represented by two experts in this OECD project.

The objective of this side event is to provide a platform for the OECD to present the report and for the South Africa Experts who participated in the project on Integrity and Security in the Global Research Ecosystem to share the lessons learnt. It is expected that the discussions will trigger a national debate on the recommendations that came out of the report and its relevance to the South African situation. International speakers will be invited to share their experiences. The session will also provide an opportunity to disseminate information on the "Cape Town Statement on diversity, equity and fairness in research contexts". The statement is an outcome of the International Conference on Research Integrity that was hosted in Cape Town in June 2022.

The session is expected to provide a national dialogue on how the recommendations that came out of the report can be translated into the South African context. The session will share the plan to implement the Cape Town Statement on diversity, equity and fairness in research contexts".

Registration link:

[Webinar Registration - Zoom](#)

Moderator: Pradish Rampersadh

Speakers: Carthage Smith, Lyn Horn, Liapeng Matsau, Felix Dapare Dakora, Valanathan Munsami, Lex Bouter, Inkyoung Sun

14:00 - 16:00 / Side event: EU-AFRICA PERMED CONSORTIUM: BUILDING LINKS BETWEEN EUROPE AND AFRICA IN PERSONALISED MEDICINE.

Venue: Meeting Rooms 1.41-1.42

Abstract:

Personalised medicine (PM) addresses the challenges of i) common medicines not being effective in treating large numbers of patients and ii) rising healthcare costs due to more prevalent chronic diseases and an ageing population, through dedicated diagnostics, tailor-made prevention and treatment strategies for individuals or groups, so patients receive the specific therapies that work best for them, and no money is lost on trial-and-error treatments. African countries are undergoing a demographic transition leading to increasing prevalence of non-communicable diseases (NCDs,) that together with the infectious diseases burden represent a big challenge for the near future. Incorporating African topics in the global PM research agenda can contribute to shortening the existing health disparities between developed and developing countries, as well as facilitating the access of African countries to new tools and technologies that have the potential to make healthcare more efficient and equitable. This session is convened by The South African Medical Research Council as an active partner of the Europe Africa Personalised Medicine consortium (EU-Africa PerMed) an ongoing coordinating and support action funded by the European Commission H2020 programme, that seeks to facilitate and strengthen collaboration between Europe and Africa in PM at both scientific and policy level. The final aim is to facilitate the participation of African countries in the global Personalised Medicine (PM) research agenda. The project is identifying and engaging African stakeholders across the continent to understand the gaps and needs to develop PM to improve the health of the population. The preliminary outcomes of some of the analysis thus far includes an in-depth analysis of the research and innovation landscape of personalized medicine in Africa, and understanding of key research collaboration areas.

Registration:

[World Science Forum Side Event – EU-Africa PerMed \(euafrica-permed.eu\)](http://euafrica-permed.eu)

Moderator: Fareed Abdullah

Speakers: Monika Frenzel, Erika Sela, Rizwana Mia, Paul Tanui

14:30 - 16:00 / Side event: BIOSPHERE RESERVES: SHINING GEMS OF NATURAL ECOSYSTEMS

Venue: Meeting Rooms 1.43-1.44

Abstract:

Many of the risks threatening humankind, apart from anthropogenic factors (e.g. global war, rogue artificial intelligence, cyberterrorism and pandemics) are in the domain of earth system governance. One example is the degradation of natural ecosystems and the associated decline in biodiversity. UNESCO, with the aim of improving the relationship between people and their environment, launched its Man and the Biosphere Programme. Today, 51 years later, more than 700 biosphere reserves exist in ca. 130 countries, including several transboundary sites. Almost half of them are under UNESCO patronage. Africa, due to its high biodiversity is a perfect location for Biosphere Reserves.

Biosphere reserves are a unique endeavour to integrate research, nature conservation and sustainable development. They play a key role in protecting and presenting ecosystems that are endangered by industrialization and agricultural intensification. It is important to point out that besides provisioning services the ecosystem provides other important services such as supporting, regulating and cultural ones. Protected areas can also preserve indigenous knowledge thus providing societal benefits.

Any effort to move towards sustainability requires a forward-looking stewardship that is committed to increase the resilience of the natural ecosystems by the recent developments in circular bioeconomy. Furthermore, soil and water resources must also be protected.

A wide-ranging international cooperation is needed to promote the responsible and sustainable use of ecosystem resources. Scientific evidence should be the basis of dialogues between the stakeholders, such as governments, regulators and NGOs.

In this session outstanding experts of the field will deliver thought-provoking presentations that would be followed by a lively discussion of the topic. Experts will be invited to shed light on various aspects of the Regional Biosphere Reserves. The prevention of this unique network of UNESCO-recognized biological

resources will also be discussed. An interactive roundtable event will conclude the session with different stakeholders.

Convener: Ervin Balázs

Speakers: Nox Makunga, József Popp, Judit Oláh, Michael Wolday Bairu, Topher White

14:30 - 16:00 / Side event: ARTISTIC RESEARCH AND HUMANITIES FOR CONFLICT TRANSFORMATION AND SOCIAL JUSTICE, A CASE STUDY: UNESCO'S ART-LAB FOR HUMAN RIGHTS AND DIALOGUE

Venue: Meeting Rooms 2.41-2.43

Abstract:

What is the impact of artistic research and the transformative power of the arts and culture when they intervene ethically for human rights, i.e.: involving the people whose rights have been (or are being) violated?

To this end, the "artists" participating in the side event will react to the following questions: • What is the actual space left to artistic research in the scientific world? • When will the decisive role of the artists in social justice finally be recognized in conflict transformation and social inclusion processes? • What is the actual contribution of artistic research to human well-being and social healing through the practice of the arts, to a sustaining peace and sustainable development? • What are the prerequisites to facilitate artistic research in line with fundamental human rights and conversely, what is the impact of the arts on the advancement of human rights?

The event has been organized by UNESCO, which launched "Art-Lab for Human Rights and Dialogue" on the 70th anniversary of the Universal Declaration of Human Rights, 10 December 2018. "Art-Lab" invests in powerful cathartic modes of expression, such as the arts practice and culture; which are also vehicles for the expression of fundamental human rights.

It includes four pillars: 1) Art-Lab's Observatory documents and analyses the impact of arts-based practices on human rights and peacebuilding, giving the floor to alternative voices to the dominant cultural narrative; 2) Its international "Art-Lab" Platform of "artists", i.e. artists who are experienced trainers in the conduct of artistic interventions in fragile contexts; culture professionals and practitioners; journalists and researchers; 3) Its Fabrique accompanies national authorities in the design and conduct of inclusive policies engaging marginalized populations in artistic interventions; 4) Its Framework for Ethical Artistic Practices in Support of Human Rights and Dignity for development and humanitarian operators will be co-published jointly with the OHCHR in 2023.

Panelists: Lidia Brito, Barakat Rana, RAPHAEL CHIKUKWA, Price Ayesha, Sanger Mandy

Moderator: Amina Hamshari

14:30 - 16:00 / Side event: INSPIRING A NATION THROUGH SPACE WEATHER

Venue: Meeting Rooms 2.44-2.46

Abstract:

The South African National Space Agency (SANSA) recently launched a 24/7 operational Space Weather capability that was built on a strong research and development legacy, provides a domestic capability to enable risk mitigation and empowered decision-making, and contributes towards the development of a national capability in critical skills that improves domestic and regional know-how while enabling mitigation against a natural risk. The capability has positioned SANSA to participate in the Global Challenge of Space Weather, and through this positioning Space Weather has been used as a driver to inspire and drive awareness, advocacy, skills development and the knowledge economy. This panel discussion will ignite a conversation around how a space science subject has made a difference in the lives of real South Africans.

Chair of the Panel: Lee-Anne McKinnell

Speakers: Andiswa Mlisa, Daleen Fouche, Rendani Rejoyce Nndanganeni, Mpho Tshisaphungo, Boitumelo Makobe

17:00 - 17:30 / Opening Ceremony: WELCOME REMARKS

Venue: Ballroom

Programme director: Phil Mjwara

Welcome remarks by the host and co-chair of WSF: Hon Bonginkosi Emmanuel "Blade" Nzimande

Messages from the WSF founding organisations: Tamás Freund, Shamila Nair-Bedouelle, Peter Gluckman, Sudip Parikh

17:30 - 17:40 / Opening Ceremony: “SOUTH AFRICAN SCIENCE – SCIENCE AT THE SERVICE OF SOCIETY – IT IS POSSIBLE” - VIDEO

Venue: Ballroom

17:40 - 17:55 / Opening Ceremony: ADDRESS BY THE PATRON OF WSF2022, THE PRESIDENT OF HUNGARY, H.E. MS. KATALIN NOVÁK

Venue: Ballroom

Address delivered by: H.E. Attila György György Horváth

17:55 - 18:15 / Opening Ceremony: PRESIDENTIAL KEYNOTE ADDRESS

Venue: Ballroom

Keynote address: H.E. Cyril Ramaphosa

18:15 - 18:30 / Opening Ceremony: “CELEBRATING THE START OF CONSTRUCTION OF THE GLOBAL SQUARE KILOMETER ARRAY RADIO TELESCOPE” – VIDEO

Venue: Ballroom

Introduced by: Catherine Cesarsky

18:30 - 18:45 / Opening Ceremony: STATEMENTS OF SUPPORT FOR THE “AFRICAN AGENDA FOR SCIENCE FOR SOCIAL JUSTICE”

Venue: Ballroom

Statements by: Hon Maria do Rosário Bragança, H.E. Maître José Mpanda Kabangu, Felix Dapare Dakora

18:45 - 19:00 / Break: BREAK

19:00 - 19:15 / Opening Ceremony: MESSAGES FROM WORLD SCIENCE FORUM PARTNER ORGANISATIONS

Venue: Ballroom

Messages by: Romain Murenzi, Christina Moberg, Masresha Fetene Workneh, Prosper Ngabonziza

19:15 - 19:20 / Opening Ceremony: CELEBRATION OF THE INTERNATIONAL YEAR OF BASIC SCIENCES FOR SUSTAINABLE DEVELOPMENT (IYBSSD) - VIDEO

Venue: Ballroom

Introduced by: Himla Soodyall

19:20 - 19:50 / Opening Ceremony: INTRODUCTION OF THE CAPE TOWN DECLARATION ON SCIENCE FOR SOCIAL JUSTICE: PANEL DISCUSSION ON “SCIENCE FOR SOCIAL JUSTICE: PARTNERSHIPS TO MAKE IT WORK”

Venue: Ballroom

Moderators: Quarraisha Abdool Karim, Sarah Mosoetsa

Speakers: Gabriela Ramos, Michel Kazatchkine, Ibbo Mandaza, Jinghua Cao, Dustin van der Haar

19:50 - 20:00 / Opening Ceremony: HIGHLIGHTS OF THE WORLD SCIENCE FORUM 2022 PROGRAMME

Venue: Ballroom

Presented by: Mmampei Chaba

20:00 - 22:00 / Social event: OPENING RECEPTION

Venue: Exhibition Hall 3

07 DEC / DAY 2

09:00 - 09:30 / Keynote lecture: KEYNOTE LECTURE I. - SCIENCE FOR HUMAN DIGNITY - WHAT ROLE FOR SCIENCE IN FIGHTING POVERTY, UNEMPLOYMENT, INEQUALITY AND EXCLUSION?

: Gabriela Ramos

09:30 - 11:00 / Plenary session: PLENARY SESSION I. - SCIENCE FOR HUMAN DIGNITY - WHAT ROLE FOR SCIENCE IN FIGHTING POVERTY, UNEMPLOYMENT, INEQUALITY AND EXCLUSION?

Venue: Ballroom

Speakers: Rémi Quirion, Roula Inglesi-Lotz, Olive Shisana, Her Royal Highness Sumaya bint El Hassan, Michel Kazatchkine

Moderator: Sarah Mosoetsa

11:00 - 11:30 / Break: COFFEE BREAK

11:30 - 13:00 / Thematic session: THEMATIC SESSION I/C BUILDING BRIDGES FOR EARLY CAREER SCIENTISTS: GLOBAL EXPERIENCES ON IMPACTFUL LEADERSHIP TRAINING AND NETWORKING

Venue: Meeting Rooms 1.41-1.42

Science for Social Change worldwide requires a strong focus on developing science capacity not only to *do* science but to *lead* this change. The Africa Science Leadership Programme (ASLP) serves to skill in- and provide tools for creative problem solving and personal development as a science leader on the African continent. At the same time, it embodies a deep underlying philosophy of collective leadership, as well as a personal Identity and growth mindset.

Now in its 8th year, the ASLP has connected more than 150 fellows from 27 countries in Africa through its flagship programme at the Future Africa campus of the University of Preoria, and also impacted more than 100 additional scientists through satellite SLP training led by the fellows themselves, with a further 250 scientists targeted to undergo the same training over the next two years.

Over that same period, the ASLP has also inspired the establishment of similar science leadership programmes (SLPs) in the ASEAN, LAC, & MENA regions, in addition to pre-conference SLPs at the last two World Science Forum meetings. A two-day Mini-SLP is now also a standard part of the inauguration process of the members of the Global Young Academy.

In the session at the World Science Forum we will discuss the elements that make the ASLP such an impactful programme, as well as its potential to raise a whole generation of scientists equipped for and focused on collectively lead global efforts towards Science for Social Change. We present examples of the ways in which the SLP approach is enabling scientists to use their scientific knowledge to impact policy and their communities to effect social change. This session will also include a practical session where attendees will experience some of the tools employed within the SLP training, through which we will reflect on how the presented frameworks and programs can enable scientists to lead efforts to achieve social justice for all.

Moderator: Connie Vivien Nshemereirwe

Panelists: Paulina Carmona Mora, Maggie Dugan, Encieh Erfani, Priscilla Kolibea Mante

**11:30 - 13:00 / Thematic session: THEMATIC SESSION I/D CLIMATE JUSTICE:
SEEKING EQUITABLE SOLUTIONS TO ADVERSE EFFECTS OF CLIMATE CHANGE
ON HEALTH**

Venue: Ballroom

1. Welcome to the session
2. Introduction to the climate change and health project by EASAC and IAP
3. Climate change and health - regional and global challenges and solutions
4. Climate change in Africa - issues for equity and climate justice
5. Climate change in Africa - developing equitable adaptation strategies
6. Policy priorities for addressing vulnerabilities and inequities in responding to climate change
7. Key messages from the global project on climate change and health
8. General discussion

Abstract:

9. Closing remarks

Moderators: Christina Moberg, Roseanne Denise Diab

Speakers: Caradee Wright, Shabana Khan, Andrew Haines

**11:30 - 13:00 / Thematic session: THEMATIC SESSION I/E ESTABLISHING AN
AFRICAN KNOWLEDGE DEMOCRACY FOR INCREASED SOCIAL JUSTICE AND
DEVELOPMENT**

Venue: Meeting Rooms 1.43-1.44

This session comprises of two parts, both addressing alternative ways to fund research and acknowledge researchers. Part 1 calls for doing away with traditional rankings and metrics, while Part 2 proposes equitable and sustainable approaches for science funding in Africa.

Part 1

The current methods for the assessment of science, scientists and journals lean heavily on ranking and citation metrics. Many research-intensive institutions also from the South still use the journal impact factor to influence the promotion and tenure process, regardless of it being widely criticised as a crude and misleading proxy for the quality of scientists' work. The ranking and metrics methods have given rise to a knowledge economy based on competition and profit driven research as opposed to a knowledge democracy aimed at social justice.

In order to achieve a knowledge democracy, researchers need to be assessed for the quality and social relevance of their research and not for the number of publications in prestigious journals. In the current system huge amounts of money are spent on publishing in highly ranked international journals. Digital publishing can and should be much cheaper. By funding diamond open access journals, funders can create equal opportunities for all researchers to share their work and increase the chance that it will be used where it matters in their local societies. The quality of these journals can be confirmed by their inclusion in the DOAJ, an open access journal index, officially acknowledged as the global quality index for open access journals.

The aim of this session will be to explore how funders can make new research assessment processes clear and transparent at all stages, for all involved. How new responsible research assessment can be developed based on the relevance of research. How funders can save money by promoting and funding diamond open access journals, with no fees for authors nor readers, in their respective countries. And last but not least student and researcher engagement can bring more social justice to the scientific enterprise.

Part 2

Growing inequality, glaring wealth disparities, and societal divides, which have been exacerbated by the worldwide pandemics, are fundamental trends that we have seen over the past year or two in middle and least-developed African Countries. We continue to see inequality manifesting in many ways across Africa including in science funding. Some nations and institutions continue to receive most of the financing from donors, leaving other, smaller nations behind. This is because some institutions and countries are given preference as beneficiaries due to their strong infrastructure and capabilities. Consequently, widening the knowledge and skills differences across global regions. This session's goal is to start a conversation about the value of open agenda-setting and transparency among grantees and funders. Ideas such as ensuring funding alliances between large institutions and smaller ones, developing solid financial grant management skills and culture. As a result, the session will propose equitable and sustainable approaches for science funding in Africa.

Speakers: Tom Olyhoek, Joy Owango, Felix Dapare Dakora, Thuli Thuli Madonsela, Magdalena Skipper

Moderators: Caroline Ncube, M. Iqbal Parker

11:30 - 13:00 / Thematic session: THEMATIC SESSION I/F PROTECTING FRESHWATER THROUGH INCLUSIVE COLLABORATION TO ACHIEVE SOCIAL JUSTICE

Venue: Meeting Rooms 1.61-1.62

Protecting large freshwater resources, on which millions of people rely to live, is a key driver to achieve social justice. The African Great Lakes and the North American Great Lakes alone represent 45% of the world's freshwater and support over 97 million people.

Globally, freshwater resources are increasingly threatened by a growing number of stressors requiring integrated and inclusive management approaches to address issues on water quantity and quality, food, livelihoods and in turn social justice issues including hunger and poverty alleviation, equity, and job creation – all for human wellbeing. Inclusive collaborations and gender equity are critical requirements in freshwater sciences towards achieving these outcomes, and yet much more work remains to be done.

This session focuses on ways to:

- Protect freshwater resources through strong partnerships, education, including marginalized voices, and advancing women in science.
- Share knowledge that leads to policies promoting better outcomes that are meaningful, supported and lasting.
- Support planning for more inclusion of women, Indigenous Peoples and other voices in science, and address critical environmental social justice and equity related issues.

Achieve the goals of protecting freshwater to continually allow the citizens in these regions to be self-reliant societies, realizing their own visions of livelihoods, justice, equity, democracy, and peace.

Moderator: Stephanie Lianne Smith

Panelists: Lulu Tunu Kaaya, Joyce Ikwaput Nyeko, Jérôme Marty, Jessica Ives

11:30 - 13:00 / Thematic session: THEMATIC SESSION I/G GEOSCIENCE FOR SUSTAINABLE HUMAN PROGRESS

Venue: Meeting Rooms 1.63-1.64

Geoscience – the science of understanding planet Earth – has been a key driver for the economic development and wealth creation over the last century, not least by finding and exploiting the planet's fossil fuel energy sources and the metal and mineral deposits that have built our modern world. This consumption of the planet's 'natural capital', however, has brought our society to the brink of a social and ecological crisis.

So, what now is the role and responsibility of geoscience in addressing the wider social concerns of global sustainability?

This provocative session aims to introduce science policy makers to a new agenda for global geoscience around the broad conference theme of 'social justice'. They will hear from leading practitioners in diverse Earth science fields – health, resources, energy, water and culture – about how geoscientists in academia, industry, government and civil society can address the broader challenges of social and environmental equity and best help to deliver the sustainable development goals and improve human wellbeing?

Moderators: Iain Stewart, Kombada Mhopjeni

Speakers: Hassina Mouri, Rokhaya Samba Diene, Maria Angela Capello, Munira Raji

11:30 - 13:00 / Thematic session: THEMATIC SESSION I/A GRASSROOTS COMMUNITIES, SCIENCE AND SOCIAL JUSTICE: SCIENCE FOR MORE EFFECTIVE AND HUMANE DRUG POLICIES

Venue: Meeting Rooms 2.41-2.43

This panel assesses how the goal of a 'drug-free world' backed by a 'war on drugs' anchored in 'science' and enshrined in international drug control treaties is naïve and dangerous. Naïve, in that prohibition has little impact on drug use, up 45% in twenty years. Dangerous, in that prohibition fuels coerced drug treatments, incarcerations, extrajudicial killings, the death penalty, drives human rights abusers for profit, and contributes to record drug-related deaths. Strict drug laws stoke blood-borne viruses and escalate health epidemics such as HIV, hepatitis C and tuberculosis, or the overdose crisis. Prohibition also limits access to life-saving harm reduction treatments, limits research on medical uses of illicit substances and blocks the prescription of pain relief and palliative medication.

Abstract:

This panel examines why, notwithstanding the clear evidence, science is not being systematically considered in highly politicised drugs policy discussions and decision-making processes. The focus will be on recognising the ever-increasing domino effect of countries now taking the lead in national or local reforms to chip away at the rigidity of the current international drug control framework. They are successfully championing an open, evidence-based dialogue that prioritises a public health and human rights-based approach, essentially helping communities achieve social justice for themselves.

Speakers will provide insights into how they are actively engaging national, regional and international parties including the African Union, the Economic Community of West African States and the United Nations Office on Drugs and Crime. Their follow-up advocacy campaigns with governments, regional and international bodies, civil society and the media, will be detailed. How the *Global Commission on Drug Policy* builds expert groups to provide often novel data, papers and recommendations, plus insights into the latest reports, will be given.

Of particular WSF significance will be how numerous distinguished Africans from the worlds of politics, civil society, health, security and the judiciary are leading policy reform across the continent. For example, former South African President, Kgalema Motlanthé, Chairman of the newly created *Eastern & Southern African Commission on Drugs*, will issue a call for action via video. How these and other groups are providing knowledge-based support and direct-action lobbying demanding greater empathy for people injecting drugs and greater understanding of the science, will be highlighted. Representatives of partner organisations such as the *Global Initiative against Transnational Organised Crime* who are going to talk about ESACD, why is it important and how it's going to function as well as its aims and TBHIVCARE will be on-hand to argue for greater take-up by African nations of compelling harm reduction science, non-existent in some countries. The panel's overriding aim is to challenge the way societies view drugs and those who use them.

Moderator: Michel Kazatchkine

Speakers: Monique Michal Marks, Adeolu Adebisi, Shaun Shelly, Gunasekaran Rengaswamy, Elsadig Mohamedahmed, Chwayita Thobela

11:30 - 13:00 / Thematic session: THEMATIC SESSION I/B RESPONDING TO PANDEMICS: SCIENCE AND HUMAN RIGHTS

Venue: Meeting Rooms 2.44-2.46

The COVID-19 pandemic has put to the fore the multiple threats and challenges deriving from the unequal access to scientific benefits and its applications, and also from unequal opportunities to participate in science. Addressing these challenges will require that science, technology and innovation ecosystems prioritize human wellbeing and equality over productivity and growth. Human rights standards and principles are a powerful leverage to achieve this profound transformation, with the right to share in scientific advancement and its benefits playing a central role.

How can UNESCO's normative arsenal in the field of science (notably the recommendations on science and scientific researchers (2017), the ethics of artificial intelligence (2021) and open science (2021)) and recent normative guidance by the UN Committee on Economic, Social and Cultural Rights (General Comment 25 of 2020) help strengthen the human rights entrenchment of the science process? How can a renewed commitment to attain the goals of the Agenda 2030 contribute to this effort? What difficulties and challenges are encountered by scientific researchers and related institutions and what could be their role? These are some of the questions that this panel will explore with the aim of bringing to the fore concrete ideas and recommendations for future action.

Moderator: Ângela Melo

Panelists: Gabriela Ramos, Peter Gluckman, Siyabulela Christopher Fobosi, Daya Reddy, Julia MacKenzie

13:00 - 14:30 / Break: LUNCH BREAK

14:30 - 15:00 / Keynote lecture: KEYNOTE LECTURE II. - SCIENCE FOR CLIMATE JUSTICE - HOW CAN SCIENCE WORKING WITH CIVIL SOCIETY LEAD THE WAY IN CORRECTING THE FAILURE OF CLIMATE POLICY?

: Dhesigen Naidoo

15:00 - 16:30 / Plenary session: PLENARY SESSION II. - SCIENCE FOR CLIMATE JUSTICE - HOW CAN SCIENCE WORKING WITH CIVIL SOCIETY LEAD THE WAY IN CORRECTING THE FAILURE OF CLIMATE POLICY?

Venue: Ballroom

Speakers: Felix Dapare Dakora, Ramia Al Bakain, Roger Pielke Jr., Magdalena Skipper, Azeeza Rangunwala

Moderator: Nicole Arbour

16:30 - 17:00 / Break: COFFEE BREAK

17:00 - 18:30 / Thematic session: THEMATIC SESSION II./C FOSTERING STI SYSTEMS IN AFRICA AND EQUITABLE INTERNATIONAL PARTNERSHIPS FOR ENVIRONMENTAL SUSTAINABILITY AND SOCIAL INCLUSION

Venue: Meeting Rooms 1.41-1.42

The session will bring together experts and policymakers from across Africa and from international organizations that are working using different approaches and modalities to strengthen capacity as well as strategic international partnerships in national science, technology and innovation (STI) systems. These systems continue to play a key role in national development priorities and in countries' ability to contribute to addressing sustainable development goals (SDGs). More generally, there is an increasing push to ensure that STI benefits from activities and results are widespread and include vulnerable or traditionally excluded members of society.

States are indeed increasingly interested in strengthening their STI systems with a clear view to not only enhancing their impact and competitiveness, but also ensuring that they are more inclusive in terms of who is involved and who benefits from the work. International scientific cooperation can also play a role – beyond its own scientific interest – in this strengthening of STI systems by including new forms of equitable collaboration, favoring capacity building, limiting brain drain and fostering impact-oriented approaches. There is an opportunity to draw lessons from these various ways of collaboration and to expand them in the future, focusing on the challenges, best practices and lessons learned that can contribute to the development of STI systems across the continent, and beyond, having a greater impact on the lives of all citizens.

Speakers: Hambani Masheleni, Valérie Verdier, Alfred van Kent, Lidia Brito
Moderator: Himla Soodyall

17:00 - 18:30 / Thematic session: THEMATIC SESSION II./D AT-RISK, DISPLACED, AND REFUGEE SCHOLARS: GLOBAL DYNAMICS AND BEST PRACTICES

Venue: Meeting Rooms 1.43-1.44

Authoritarian regimes as well as military and ethnic/religious conflicts across the world render scholars particularly vulnerable to persecution as well as diverse forms of violence. This panel, organized through the collaboration of the At-Risk Scholars Initiative of the Global Young Academy and the [Science in Exile initiative](#) led by The World Academy of Sciences (UNESCO-TWAS), in collaboration with the InterAcademy Partnership (IAP) and the International Science Council (ISC), brings together displaced and refugee scholars, researchers working on the subject, and organizations active in the field. The panel will discuss the global dynamics that put scholars at risk, examine the factors that shape the experiences of at-risk, displaced, and refugee scholars, and discuss best practices for supporting at-risk scholars through different organizations.

The panel combines empirical research with specific case studies in order to provide a comprehensive perspective on the subject. In view of the fact that the World Science Forum will be hosted on the African continent for the first time, the panel will take an African perspective, both by discussing the ramifications of global dynamics on the continent and by featuring speakers working *in* and *on* Africa. In addition to Global North's institutions, it will particularly focus on African institutions as potential hosts for at-risk scholars, and the opportunities and challenges involved.

The experiences of at-risk scholars and different types of scientific institutions and non-governmental organizations working with them are of crucial importance for the social and economic relevance, influence and responsibilities of science. Hence the panel will address the primary goals of the World Science Forum as well as the specific context of the 2022 event and its focus on 'Science for Social Justice'. Building on the work of one of the speakers, a Turkish scholar at-risk, who published a book on this subject - contextualizing the situation of at-risk scholars within the global socioeconomic and political dynamics which, in turn, define scientific practice and the local ramifications of these dynamics - the panel will ensure relevance for the broader scientific community.

In order to encourage interaction, presentations will be relatively short (10-12 minutes), leaving time for discussion among the presenters and with the audience. Highlights from the panel will be featured on the websites and social media accounts of the GYA, TWAS, IAP and ISC. To create an impact and interaction beyond the duration of the panel, the presenters will also introduce the participants to the different ways they can support at-risk scholars.

Moderator: Peter McGrath

Speakers: Jean-Pierre Mfuamba Mulumba, Saja Al Zoubi, Anna Helena Plater-Zyberk

17:00 - 18:30 / Thematic session: THEMATIC SESSION II./E NO JUSTICE WITHOUT KNOWLEDGE – LEVELLING THE PLAYING FIELD FOR SCIENCE JOURNALISM

Venue: Ballroom

Covid revealed gaps in the science pipeline in vivid technicolour. Over the course of the pandemic, it became clear that how science is communicated makes an enormous difference to outcomes. As a result, alongside the COVID-19 pandemic was an infodemic of disinformation and misinformation, with dangerous myths impacting on behaviour and ultimately costing lives.

This session will look at how new technologies can be used to enhance social justice by giving people the knowledge they need to make informed, science-based decisions, especially in relation to health. It will result in a series of recommendations that will form the basis of a report to present to the World Science Forum, which could, with delegates' agreement, be used as a basis for a report to UNESCO, WHO and other parties.

Many countries in the Global North have science communicators and science journalists who are highly skilled and connected; in the Global South, this is not true for all countries. There is a dearth of funding for such skills; there are language deserts where the language of science is streets away from the language spoken by citizens; there is a lack of familiarity with the science world, especially in places where little research is happening.

The session will look at ways to reduce inequalities in science communication, with a particular focus on the role new technologies are playing in countering disinformation and misinformation, and communication methods that speak to people horizontally rather than top down. The panel will explore the new ways in which credible science news is reaching people across Africa and beyond, such as YouTube vlogs, podcasts and new forms of social media.

Speakers: Milica Momcilovic, Mandi Smallhorne, Ogechi Ekeanyanwu, Lee Mwiti

Moderator: Michael Kaloki

17:00 - 18:30 / Thematic session: THEMATIC SESSION II./F HEALTH, CLIMATE AND SOCIAL JUSTICE IN AFRICAN CITIES

Venue: Meeting Rooms 1.61-1.62

The 90-minute session will discuss how cities can contribute to social justice and the development of healthy urban environments that respond to concerns for climate action. It will focus on ways the changing climate is affecting food and built environments while considering measures for climate change adaptation, mitigation, and resilience-building. The session will include a brief introduction to the Global Diet and Activity Research (GDAR) Network including the GDAR Spaces project at the intersection of health, urbanisation and climate change in seven urban sites across Africa, Latin America and the Caribbean. The keynote presentation will provide an overview of how the work of GDAR Network members has contributed to social justice and climate action/awareness, including through research, policy and intervention, and elaborate on how such initiatives might be scaled up. The panel discussion will convene a diverse group of experts and practitioners involved in city action to share practical and innovative experiences and brainstorm on how to rethink and reshape the way food and built environment systems are organised for more equitable and sustainable development in cities, including in the context of the COVID-19 pandemic.

Moderator: Tolu Oni

Panelists: Feyi Wayas, Felix Kembe Assah, Meelan Thondoo, Meelan Thondoo

17:00 - 18:30 / Thematic session: THEMATIC SESSION II./G GLOBAL SCIENTIFIC RESEARCH AS A TOOL TO UNLOCK TALENT AND EXPAND THE GEOGRAPHICAL CONFINES OF KNOWLEDGE CREATION

Venue: Meeting Rooms 1.63-1.64

‘Science for social justice’ may only be achieved when politicians, decision-makers and science-policymakers set a considered and thoughtful agenda to utilize science, in reasoned and innovative ways, as a driving force for positive societal change to promote equity through innovation. However, to date, tangible results in many contexts have been mixed at best, especially in delivering a reliable mechanism for, or a path to, sustainable social equity and justice for all. As global inequality increases and much political decision-making remains myopic and contingent, the emotive and essential power of ‘science for social justice’ can be lost as scientists and decision-makers struggle to actualize meaningful change. We, as scientists, in collaboration with our decision-making peers, have a golden opportunity to correct this through clear and novel proposals for meaningful projects based on advanced research opportunities. In this regard, we contend that ‘science for social justice’ can only be fully realized if it is symbiotically connected to providing scientific opportunity, where no such opportunity previously existed. This inevitably foment and sustains prosperity, an essential factor for social justice to grow. Therefore, the goal must be to establish opportunity that serves as the bridge to prosperity. How can we accomplish this when most of the world relies on relatively few countries for new scientific advances and technologies?

This session will bring together public science figures, senior and junior academics, industry scientists, and government officials to outline how we got to the current state of science (research-rich and -poor countries) and the immense need to change the dynamic. The session will witness how scientists from research-strong countries have a responsibility to engage research-weak countries to provide opportunities for emerging scholars to perform impactful, internationally competitive science in their home countries. It is only when this happens, that we, as a science community, can ensure active participation by all in addressing critical scientific challenges and enriching local science communities around the world.

Moderators: Kimberly Montgomery, Kyle E. Cordova

Panelists: Her Royal Highness Sumaya bint El Hassan, Sudip Parikh, Dr Tyrone W A Grandison, Khuloud Taysir Yousef Al-Jamal, Jayshree Seth

17:00 - 18:30 / Thematic session: THEMATIC SESSION II./A BIOTECHNOLOGY FOR SOCIAL JUSTICE: DISCOVERY, INNOVATION AND IMPACT

Venue: Meeting Rooms 2.41-2.43

Biotechnology is an invaluable means of achieving the Sustainable Development Goals (SDGs). Humankind is confronted with unprecedented challenges: food security, security of energy supply, a growing burden of disease, and climate change, to name a few.

Modern biotechnology and scientific developments provide breakthrough products and methodologies to address those challenges: to combat non-communicable diseases and neurodegeneration, to stop the outbreak of infectious diseases, to reduce pollution, to relieve poverty, to feed the hungry, to use less and cleaner energy, to protect biological diversity, and to develop safer, cleaner and more efficient industrial manufacturing processes.

Key to the rapid advancements in modern biotechnology is that no one is left behind. This session will bring together experts and researchers from across the globe who are working in various capacities to ensure that the fruits of molecular biology and biotechnology are available to all. We will review different aspects of how this is being achieved through discovery, innovation and impact.

The panel will start with discussions around discovery and innovation - ensuring that all nations have local sustainable capacity to fully benefit from the new technologies, which requires education and investment in local production capabilities. With this, we will discuss the importance of global, regional, and local efforts, and initiatives made to ensure that products can reach the people who need them most and, most importantly, at prices that they can afford. Finally, the panel will discuss how this, in turn, leads to the basis of social justice - equal access and opportunities for all - across all countries, ethnic groups and incorporating gender equality throughout, thus having a greater impact on the lives of all global citizens, and indeed leaving no one behind.

Speakers: Lawrence Banks, Petro Terblanche, Thomas Hartung, Charles Gore

Moderator: Mosa Moshabela

17:00 - 18:30 / Thematic session: THEMATIC SESSION II/B THE PATHS TO FULLY OPEN ACCESS SCIENCE ACROSS THE GLOBAL SOUTH

Venue: Meeting Rooms 2.44-2.46

We face global, existential threats. From health emergencies to climate change, we see and feel them now. Managing and reversing these threats will require political will, global collaboration, and scientific breakthrough at a scale not yet seen.

Abstract:

On all those counts, success will depend on the widespread sharing of all the latest scientific knowledge. As the Covid emergency taught us, when we trust, open, and share scientific research globally, we can mobilise, innovate, and save lives.

But now we need to do more. Open access science – the publication of research that is globally shared, free to read and open to all, without restrictions or paywalls – will be key to success.

This panel discussion will offer insight into the challenges and opportunities that mark the transition to fully open access science – for scientists, institutions, and policymakers across the Global South.

Can lessons be learnt from the growing public and policy support for open access science in Europe and the US? How can scientific and civic communities across the Global South unlock the benefits of greater access to scientific research and the breakthroughs that flow from them?

Speakers: Jean-Claude Burgelman, Tshiamo Motshegwa, Ellen R. Tise

Moderator: Heide Hackmann

19:00 - 22:00 / Social event: DELEGATES' PARTY HOSTED BY FRONTIERS

Venue: Exhibition Hall 5

Abstract:

After a full day of rich discussions all World Science Forum participants are kindly invited to the WSF Delegates Party hosted by Frontiers tonight at 7pm in Hall 5.

Join us for drinks, food, music and more great networking.

08 DEC / DAY 3

09:00 - 09:30 / Keynote lecture: KEYNOTE LECTURE III. - SCIENCE FOR AFRICA AND THE WORLD - HOW TO UNLEASH THE POTENTIAL OF AFRICAN SCIENCE IN GLOBAL COOPERATION?

: Tshilidzi N/A Marwala

09:30 - 11:00 / Plenary session: PLENARY SESSION III. - SCIENCE FOR AFRICA AND THE WORLD - HOW TO UNLEASH THE POTENTIAL OF AFRICAN SCIENCE IN GLOBAL COOPERATION?

Venue: Ballroom

Speakers: Sudip Parikh, Angela Tabiri, Lidia Brito, Michael Backes, Jinghua Cao

Moderator: Pfungwa Nyamukachi

11:00 - 11:30 / Break: COFFEE BREAK

11:30 - 13:00 / Thematic session: THEMATIC SESSION III/A ECOSYSTEM TO ENHANCE GLOBAL PUBLIC GOOD WITH SCIENCE: DISTRIBUTIVE JUSTICE AND WELL-BEING AS KEY CONCEPTS

Venue: Meeting Rooms 2.44-2.46

Abstract:

In the 2019 World Science Forum's Declaration called for concerted action on 'science for global well-being'. In the context of longstanding social inequalities tackled by the Sustainable Development Goals, addressing challenges to humankind's basic existence under COP26, or the world-shattering impacts of the Covid-19 pandemic, few in 2019 could have foreseen how meaningful their call to arms has now become. Under the current situation, "well-being" has been an essential perspective to understand the role of scientific knowledge and its impact on society.

To consider the relationship between well-being and advanced knowledge, we need to focus on another key concept "distributive justice". Distributive justice is a key concept for current scientific systems to overcome inequality of accessibility, benefits, and risks of scientific results in international policies and scientific communities. What role can science play in the current emerging issue of inequalities in the distribution of knowledge resulting in social injustice?

The objective of the panel is to explore deep understanding of multi-layered gaps on knowledge production and impacts of concepts of "well-being" and "distributive justice". To tackle this theme, we will focus on the lessons learned from our research and practices. And then, we will discuss questions on "What kinds of policies, activities, and communications can solve those gaps and bring an inclusive ecosystem of science?" Furthermore, speakers will assess the role of STI and international diplomacy in both creating and tackling the very conditions that have made our science for social justice problems so manifest.

Following an interactive debate with delegates, recommendations will be made to inform the 2022 World Science Forum's Declaration. These will target how diverse stakeholders across sectors and importantly, national borders, from top scientists and policymakers to youth and the aged, can be better engaged to drive meaningful change and bring distributive justice and well-being one step closer.

Moderator: Mabuza Eudy

Speakers: Ryuma Shineha, Mareli Claassens, Yasuhisa Kondo, Romyen Kosaikanont, Mayumi Ishizuka

Commentator: Derrick Swartz

11:30 - 13:00 / Thematic session: THEMATIC SESSION III/B EQUITY AND DIVERSITY IN SCIENTIFIC POLICY ADVICE – ENHANCING THE SOCIAL VALUE OF RESEARCH AND THE IMPACT OF EVIDENCE-BASED POLICYMAKING

Venue: Meeting Rooms 1.41-1.42

Abstract:

For science to inform policymaking a culture of engagement between researchers and decision-makers as well as recognition needs to be established. In order for a meaningful dialogue between science and policy, the work dedicated by researchers need to be recognized, incentivized, and rewarded.

Crucially, providing evidence and advice to policy must not be a privilege of a few established researchers in secure positions. Equity and diversity are crucial factors in guaranteeing balanced and context-appropriate science advice.

Following the call by the World Economic Forum's Young Scientists Network on the Frontiers Policy Labs in February 2022 to address the missing link between science and policy this session proposes to examine the role of equitable working conditions for researchers in improving the processes by which scientists can engage and provide evidence to policymakers. It will take a particular look at the role of underrepresented groups such as early career researchers, women in science, and scientific voices from the global south.

Moderator: Mamokgethi Phakeng

Speakers: Jean-Claude Burgelman, Daan du Toit, Connie Vivien Nshemereirwe, Nzweundji Justine Germo

11:30 - 13:00 / Thematic session: THEMATIC SESSION III/C LOCALIZED SCIENCE, TECHNOLOGY AND INNOVATION ROADMAPS FOR THE ACHIEVEMENT OF THE SUSTAINABLE DEVELOPMENT GOALS IN AFRICA

Venue: Meeting Rooms 1.43-1.44

Africa's great potential for growth and development risks to be undermined by long-standing development challenges in many sectors, including education, energy, agriculture, and healthcare. While Science, Technology and Innovation (STI) are recognized as catalyzers for sustainable development, harnessing their potential implies having sound and well-established STI systems. STI for the Sustainable Development Goals (SDGs) roadmaps are found to be valuable instruments to mobilize national STI potentials to address specific sustainability challenges.

In 2022, the Joint Research Centre and the Directorate-General for International Partnerships (DG INTPA) of the European Commission launched a new project for Sub-Saharan Africa which aims at developing STI for SDGs roadmaps, as operational STI action plans and strategies to address localized sustainability challenges. The applied methodology identifies place-specific STI potentials and societal, environmental and economic challenges to be tackled through effective roadmaps for future investments.

Starting from preliminary findings described in the upcoming JRC report mapping STI systems in Sub-Saharan Africa, the session will aim at discussing the needs, challenges and way forward for the development and implementation of localized STI for SDGs roadmaps.

As expected result, the session will provide a deeper understanding of the STI systems in Sub-Saharan Africa, as well as on available approaches and recent developments for the design of roadmaps. The session is expected to raise awareness on the relevance of STI for SDGs roadmaps as a key tool to leverage place-based STI potential for more sustainable, inclusive and just societies.

The session will benefit from the participation of country representatives, as well as STI experts and scientists who will share their experiences and perspectives for the development of STI for SDGs roadmaps.

Moderator: Chux Daniels

Speakers: Stephen James Paul Quest, Angela Sarcina, Wei Liu, Lukovi Seke, Daan du Toit, Mucktarr M.Y Darboe, Louis Sibomana, Erika Kraemer-Mbula, Sabine Henzler

11:30 - 13:00 / Thematic session: THEMATIC SESSION III/D PHYSICS AND ACCELERATORS FOR SCIENCE AND SOCIAL JUSTICE

Venue: Meeting Rooms 1.61-1.62

This panel will address how networks of researchers and multi-disciplinary scientific facilities can bring together global scientific communities, where the mission of advancing science intermixes finely with a firm societal commitment. These facilities must be accessible to all nations in order for them to benefit from the vast social and economic impacts, the local knowledge and technology transfer, and finally address challenges to achieve the Sustainable Development Goals (SDGs).

In particular Synchrotron Radiation laboratories such as the Synchrotron Light for Experimental Science and Application in the Middle East (SESAME) will be highlighted, as will research centres that provide facilities and training to create a substantial and technically advanced scientific community in the Global South such as The International Centre for Theoretical Physics (ICTP) and The East African Institute for Research (EAIFR).

Multidisciplinary light source facilities are attractive role models for similar projects such as the African Light source in Africa, the Mexican Synchrotron, and the Great Caribbean-Central American Synchrotron

in Central America. Such new large scale research facilities will address important multidisciplinary challenges from physics to infectious diseases, and can lead to massive capacity building, to foster scientific and technological excellence, build scientific and cultural bridges between diverse societies, develop local innovative competitive industry and help to prevent and reverse the scientific brain drain.

Access to training and education for students and researchers on all continents is a vital pathway towards sustainable development. The panellists will explore the impact and outcomes from ICTP's flagship training outreach programme Physics Without Frontiers (PWF) which empowers international researchers to initiate motivational and research-led training activities for university students that lack access to cutting-edge research, and provide careers advice and mentoring, to help create the next generation of scientists.

Moderator: Kate Shaw

Speakers: Gihan Salah Kamel, Bobby Acharya, Sekazi Kauze Mtingwa, Galileo Violini

11:30 - 13:00 / Thematic session: THEMATIC SESSION III/E A GLOBAL STRATEGY TO COMBAT PREDATORY ACADEMIC JOURNALS AND CONFERENCES

Venue: Meeting Rooms 1.63-1.64

Abstract:

In March 2022, IAP published a major report - "Combatting predatory academic journals and conferences". It is the culmination of a two-year study of the same name, funded by the Gordon and Betty Moore Foundation, which has explored these practices more comprehensively and inclusively than any previous study.

Following extensive desk research, evidence from key stakeholders, and a unique global survey that engaged over 1,800 researchers around the world, the report provides a better understanding of what constitutes predatory academic practices, their prevalence and impact, tools and resources to avoid them, and the drivers or root causes enabling them to thrive. The report's message is stark: predatory academic practices are rising at a concerning rate and require urgent attention.

Such predatory practices not only divert precious resources – both financial and human – from the genuine scientific endeavour, but can also damage the careers of unwitting and unaware scientists and researchers.

The IAP report calls for urgent global and systemic cooperation to combat these pervasive and demanding practices, setting out recommendations for all stakeholders.

Session speakers will cover:

- An overview of predatory journals and conferences – what drives these practices, why addressing them is important, how to recognise them and tools to help minimise personal and institutional reputational risk;
- South Africa's experience in combatting them, and what other countries (especially in Africa) can learn from this;
- How the research funding community is endeavouring to tackle these practices, and address a key driver of them: quantity-over-quality research assessment;
- How IAP and its member academies have acted upon the report's recommendations, and the impact of this action;

- Present what scientists, especially early career researchers, can do to minimise their own risk and join the global effort to help curb these practices.

The full IAP report can be found at: <https://www.interacademies.org/publication/predatory-practices-report-English>

Moderator: Stephanie Burton

Speakers: Peter McGrath, Susan Veldsman, Sepo Hachigonta, Moses Samje, Mobolaji Oladoyin Odubanjo

11:30 - 13:00 / Thematic session: THEMATIC SESSION III/F GETTING WOMEN INTO ACADEMIES AND SCIENTIFIC LEADERSHIP: MENTORING WORKS

Venue: Ballroom

This session aims to inspire a new generation of women researchers and scientists to step up into leadership roles in their places of work and national and international scientific organisations, such as national academies, scientific unions and women scientists' associations (e.g. OWSD national chapters). The session will include engaging speakers and practical sessions.

A 2021 study reporting on the inclusion and participation of women in more than 120 science organizations finds that women are still under-represented, calling for the establishment of a coalition on gender equality in global science to ensure a transformative action agenda. The study, "Gender Equality in Science: Inclusion and Participation of Women in Global Science Organizations" shows the average share of women's representation in senior academies is 16% — while the average share in young academies is 42%.

The recommendations from this report have also been taken up in a follow-up study performed by OWSD and IAP in 2022 – and the findings and further recommendations will be presented here. What happens in the science system that starts off at close to gender parity for young academies but drops off so dramatically for senior counterparts? The share of women academy members ranges from as high as 28% (biological sciences) and 27% (social sciences, humanities and arts) to as low as 10% (engineering sciences) and 8% (mathematical sciences), but none of these figures are close to 50% and the ambitions of the Sustainable Development Goal 5 on Gender Equality.

The session aims to promote a discussion that identifies actionable solutions for the international scientific community in an African context, creating environments that embrace equality and operationalize the recommendations of the report, potentially through mentoring programmes that increase women's leadership, voices and representation in science systems.

This session will use the findings of the Gender Equality in Science report to frame a lively discussion around mentorship with practical exercises for women to start their mentorship journeys.

Moderator: Tonya Blowers

Speakers: Roseanne Denise Diab, Dorothy Ngila, Priscilla Kolibea Mante, Alison Meston, Elizabeth Bandason

Commentator: Lucia Fanicchi

11:30 - 13:00 / Thematic session: THEMATIC SESSION III/G WHAT IF? IS CURIOSITY STILL THE MAIN DRIVING FORCE BEHIND REVOLUTIONARY IDEAS IN SCIENCE?

Venue: Meeting Rooms 2.41-2.43

Abstract:

It is a well-known fact that many of the major scientific discoveries started out as experiments driven by sheer scientific interest and without any concern over their usefulness, societal or economic impact or practical application. Yet, that is exactly what they have achieved. How do we cherish this potential? How do we make sure that among the growing expectations over the accountability and societal benefits of science funding, we retain the driving force of curiosity and perseverance as a key factor in delivering revolutionary ideas in scientific research? How do we assess the performance, deal with the unpredictability and manage high expectations?

This session will portray scientist whose passion to pursuit their research is proof that the seemingly unproductive human instinct of curiosity is still the main driving force behind disrupting innovation.

The panel will provide an opportunity to discuss about the true value and the societal perception of basic research, the pitfalls of its funding mechanisms and offer an insight to inspiring stories behind great scientific discoveries.

Moderator: Stephan Kuster

Panelists: László Lovász, Nils Christian Stenseth, Éva Kondorosi, Antoine Petit, Himla Soodyall

13:00 - 14:30 / Break: LUNCH BREAK

14:30 - 15:00 / Keynote lecture: KEYNOTE LECTURE IV. - SCIENCE FOR DIPLOMACY - HOW CAN SCIENCE REBOOT MULTILATERALISM AND GLOBAL SOLIDARITY?

: Peter Gluckman

15:00 - 16:30 / Plenary session: PLENARY SESSION IV. - SCIENCE FOR DIPLOMACY - HOW CAN SCIENCE REBOOT MULTILATERALISM AND GLOBAL SOLIDARITY?

Venue: Ballroom

Speakers: Catherine Cesarsky, Motoko Kotani, Clarissa Rios Rojas, Naledi Grace Mandisa Pandor

Moderator: Heide Hackmann

16:30 - 17:00 / Break: COFFEE BREAK

17:00 - 18:30 / Thematic session: THEMATIC SESSION IV/A REPATRIATION OF UNETHICALLY OBTAINED HUMAN REMAINS: CAN POLICY AND SCIENCE CONVERGE TO ENSURE COMMUNITY JUSTICE?

Venue: Meeting Rooms 1.41-1.42

Abstract:

The historical unethical use and procurement of human skeletal remains haunts the discipline of bioarchaeology globally. In South Africa, as a result of its colonial and apartheid past, illegal procurement of human remains of indigenous communities, in particular of the Khoe and San was rife in the late 19th and early 20th centuries.

Several repatriation processes have taken place over the last few years. All of them in the absence of national legislation to direct a process of return, reburial and restitution. The complexity of these processes speaks to the lingering inter-generational trauma endured by affected communities. South Africa has now developed a National Policy on Repatriation and Restitution of Human Remains and Heritage Objects. The purpose of which is to provide an all-encompassing, inclusive framework for repatriation of human remains and restitution of heritage objects. As such it deals inter alia with the preservation of the dignity for human remains as individuals and addresses more challenging issues such as identification of human remains, consultation and communication with affected communities and families.

Drawing on the expertise of the panelists and examples such as the Sutherland 9 process, the session intends to show that complex challenges requires an integration of approaches, disciplines and knowledge systems. It will illustrate how this the newly adopted policy has benefited from such an approach, but that implementation of the policy will similarly need to draw on multiple perspectives to ensure social justice.

Moderator: Ciraj Rassool

Speakers: Loretta Annelise Feris, Victoria Gibbon, Robyn Humphreys, Reinette Stander

17:00 - 18:30 / Thematic session: THEMATIC SESSION IV/B DIFFERENT LENS, BETTER OUTCOMES? INTERSECTIONALITY AS A CRITICAL COMPONENT OF GENDER TRANSFORMATIVE RESEARCH

Venue: Meeting Rooms 1.43-1.44

This moderated panel unpacks intersectionality as an essential conceptual tool in gender transformative research, while providing practical examples of how researchers and grantmakers have adopted this framework to advance science in the service of social justice. Intersectionality deepens understanding of the interplay between people's diverse identities and experiences, to explore how this interplay shapes and mutually reinforces oppression and exclusion. It expands the focus on gender to also recognise overlapping inequalities related to other forms of diversity, such as age, race, class, (dis)ability and sexuality, amongst others, that create and perpetuate marginalisation. The framework has gained traction as a tool to support relevant, equitable and just science for the benefit of all.

Addressing gender disparities in science is not only a question of rights and justice, but helps to produce more inclusive teams in organisations, higher quality research, and greater relevance and impact of research and innovation. Further to this, gender-disaggregated data and robust indicators that reflect the diversity of people's experiences of inequality are imperative in meeting development goals. Quality data to monitor the attainment of gender-related Sustainable Development Goals is, however, frequently non-existent and data that attend to marginalisation based on diversity beyond gender even more scarce.

This session shares findings from a mixed-methods project exploring if, how and with what effects an intersectional framework has been adopted throughout the grant-making, human capital development and research cycles. The discussion is rooted in the socio-cultural and economic contexts in which knowledge production on the continent takes place, while extracting universal principles of global relevance. Respondents include researchers, Science Granting Councils and donors to offer a compelling case for the crucial role of intersectional gender transformation in advancing research quality and impact.

Moderator: Elizabeth Pollitzer

Speakers: Ingrid Lynch, Heidi van Rooyen, Dorothy Ngila, Isabella Schmidt, Thomas Thayer, Lilian Hunt

17:00 - 18:30 / Thematic session: THEMATIC SESSION IV/C INTERSECTIONS BETWEEN SOCIAL JUSTICE AND THE FREE AND RESPONSIBLE CONDUCT OF SCIENCE

Venue: Meeting Rooms 1.61-1.62

Abstract:

This thematic session will explore how the principles of scientific freedom and responsibility both compel and enable scientists to combat social justice issues facing the scientific community and contemporary society at-large.

The right to share in and to benefit from advances in science and technology is enshrined in the Universal Declaration of Human Rights, as is the right to engage in scientific enquiry, to pursue and communicate knowledge, and to associate freely in such activities. These rights go hand-in-hand with responsibilities in the practice, management and communication of scientific research. Thus, the concepts of scientific freedom and responsibility relate directly to human rights and social justice.

The International Science Council is committed to a vision of science as a global public good. This is a vision with profound implications for the ways in which science is conducted, how it is used, and the roles it plays in society. Broadly defined, the sciences have played vitally important roles in human history and will attain an even more important role in the 21st century. As such, researchers are key members of contemporary society. Their contribution to human wellbeing and to planetary health is maximised when they are allowed appropriate freedoms to meet their individual and collective responsibilities.

This interactive panel discussion will bring together five leading thinkers to elaborate on concepts of scientific freedom and responsibility and the human right to science, discuss the major barriers to access to science as illustrative of the wider social justice issues facing contemporary society, and consider the role of science in both generating and combating these barriers in society. Together with dynamic engagement from the audience, the group will debate the appropriate approaches to address social justice issues facing scientists and society at-large.

Moderator: Françoise Baylis

Speakers: Daya Reddy, Saths Cooper, Quarraisha Abdool Karim, Diyé Djibril Dia, George Owusu Essegbey

17:00 - 18:30 / Thematic session: THEMATIC SESSION IV/D MAKING THE MOST OF QUANTUM COMPUTERS, INCLUSIVELY AND OPENLY, TO REACH THE SDGS

Venue: Meeting Rooms 1.63-1.64

Abstract:

Quantum technologies have the potential to create profound changes to society, changing entire industries. The last decade has seen major breakthroughs, leading to an increase in investment from the private sector. The quantum pursuit is considerably fractured. Scattered technology and policy approaches tend to lead to a focus on a few technologies, in a few countries, in the hands of a few incumbents, all this among geopolitical tensions.

Despite technical progress and encouraging promises, real-world use cases for quantum computers are mostly aspirational, and will remain so if nothing is done to foster their development and use in a timely and open manner. Today, the experimented use cases are naturally those for which there is an immediate economic or geopolitical advantage, not those that will benefit the largest amount of people. There is little understanding of quantum computing impact on the UN's SDGs and consequent economic opportunities.

Now is the time to anticipate. We must use the upcoming 10 years (i.e. the timeframe by which quantum computers will mature for real-life applications) to prepare humanity for equal and inclusive use of this powerful technological capability. This is also where multilateral actors enter into play and can considerably contribute.

To evaluate the contours of a global governance solution to address that issue, the Geneva Science and Diplomacy Anticipator (GESDA) Foundation proposes an Open Quantum Institute, developed by leaders in science, diplomacy, business and civil society. Acting as an "honest broker" between the R&D, the quantum technology providers and the UN2030 Agenda, this initiative anticipates the readiness of all stakeholders to embrace the power of quantum computing once at full maturity. And to start mobilizing actors and stimulate an open "market" of users for quantum computers, GESDA together with the XPRIZE Foundation, have launched a "Quantum for the SDGs Contest".

Moderator: Daria Robinson

Speakers: Anousheh Ansari, Peter Brabeck-Letmathe, Matthias Troyer, Francesco Petruccione

17:00 - 18:30 / Thematic session: THEMATIC SESSION IV/E OPEN SCIENCE AND A JUST, EQUITABLE SCIENTIFIC ENTERPRISE: PROMISES AND PITFALLS

Venue: Meeting Rooms 2.41-2.43

Open science is an umbrella concept aimed at making science more inclusive, fair, equitable, and transparent. Open science policies focus on enabling replicability and reproducibility, and ensuring the fair access to scientific breakthroughs, such as medical treatments and vaccinations. They also can encompass access to scientific data and publications and participation in the scientific process itself. Open science, whether limited or expansion in concept, has significant implications. Its policies could alter the scientific process, change the recognition and reward system structure; create new systems for storing and sharing data; and shift financial models for accessing scientific information and publications. These would affect the scientific enterprise as well as individual scientists, which may have differing impacts based on their career stage and geographical location. The increasing adoption of open science strategies, along with their potential transformative effects calls for the need to reflect on possible implications of open science policies and how best to achieve the objectives of open science while ensuring open science policies are creating a more just and equitable scientific enterprise. Open science aims to guarantee that the benefits of science and scientific applications are accessible to all. To do so, the implementation of its policies and strategies must strengthen the scientific enterprise so that scientific benefits and applications will be developed for future generations to share. Only then will open science achieve its goals of being part of the solution to create a more equal, fair, and just world.

Panelists: Nicki Lisa Cole, Ezra Clark, Tshiamo Motshegwa, Nicola Mulder, Sudip Parikh

17:00 - 18:30 / Thematic session: THEMATIC SESSION IV/F SCIENCE DIPLOMACY FOR SOCIAL JUSTICE

Venue: Ballroom

Science for Social Justice – the theme for the World Science Forum (WSF) 2022 – is a call to action. A call for collaboration towards creating a more equal, fair, and just world.

The call embraces Science Diplomacy with special attention on the African agenda for science, technology and innovation, and the promotion of and commitment to greater participation in global science.

Building Science Diplomacy bridges on the continent of Africa and beyond through collaboration underpins the Science Diplomacy Capital for Africa (SDCfA) initiative – a strategic enabler for 'The Africa we want'.

In a collaborative partnership, the SDCfA, the Barcelona SciTech DiploHub, and the Geneva Science and Diplomacy Anticipator, are honoured to host this thematic session at the WSF under the theme Science Diplomacy for Social Justice. Other participants are the Academy of Science of South Africa, the African Academy of Sciences, and the European Union.

COVID-19 provided a blueprint for how ‘we are stronger together’. Resources were pooled, shared, and aligned to optimise synergies. Although there were challenges experienced like vaccine nationalism, the successes achieved need to be reinforced through global collaborative solidarity and leadership. Collaboration like that of the AAS with the European Union and the African Union in June

2022 – the ARISE Fellowships were awarded to 44 rising researchers in 38 African countries for a period of five years.

Anticipating the future includes ensuring that the cross-cutting emerging cohort is equipped to tackle the Societal Grand Challenges and Sustainable Development Goals. Doing so requires fostering Science for Diplomacy for Collaboration (S4D4C).

Sustainable collaboration for the successful evolution of Science Diplomacy cuts across all stakeholder landscapes – diplomatic missions, all tiers of governments, science and education bodies, regional and global agencies, the private sector, and civil society. All play a crucial role in responding to the WSF 2022 call to action.

Moderator: Himla Soodyall

Speakers: Felix Dapare Dakora, Alexis Roig, Marga Gual Soler, Jan Marco Müller

17:00 - 18:30 / Thematic session: THEMATIC SESSION IV/G CHALLENGES OF URBANIZATION: FOOD SECURITY IN AFRICA

Venue: Meeting Rooms 2.44-2.46

Abstract:

African cities have some of the greatest rates of population growth worldwide. According to the United Nations World Urbanization Prospects, the 1.1 billion people in Africa will double in number by 2050, with metropolitan areas seeing 80% of this development, with many living in informal settlements. Numerous issues will arise as a result of this degree of expansion, including urban overcrowding, growing poverty and decaying infrastructure. Most importantly the decline in rural population affects communities’ capacity to provide for urban populations’ basic food demands and nutritional requirements. Due to the aforementioned issues, it is necessary to discuss a new perspective on food security, one that emphasizes its availability, accessibility, utilization, stability, agency, and sustainability. This will enable it to make contributions to sustainable development at the local, national, regional, and international levels. This session presents a series of four talks and panel discussions on how urbanization influences food security in Africa. The presentation illustrates the current global challenges facing urbanization and stimulates discussion on the displacement crisis and climate change impact on food security. In addition, the discussion should move beyond highlighting the challenges of urbanization on food security, but also consider strategies to accommodate urbanization while ensuring food security.

Moderator: Frans Swanepoel

Speakers: Lise Korsten, Thomas Thomas Kivevele, Jessica Thorn, Mary Oyiela Abukutsa

19:00 - 21:00 / Social event: GALA DINNER

Venue: Exhibition Hall 3

09 DEC / DAY 4

09:00 - 09:30 / Keynote lecture: KEYNOTE LECTURE V. - JUSTICE IN SCIENCE - HOW TO ENSURE SCIENCE REFLECTS THE SOCIETY WE WANT?

: Alondra Nelson

09:30 - 11:00 / Plenary session: PLENARY SESSION V. - JUSTICE IN SCIENCE - HOW TO ENSURE SCIENCE REFLECTS THE SOCIETY WE WANT?

Venue: Ballroom

Speakers: Adebayo Olorunimbe Olukoshi, Lidia Borrell-Damián, Asma Ismail, Saja Al Zoubi
Moderator: Teboho Moja

11:30 - 11:45 / Closing Ceremony: KEY MESSAGES FROM WORLD SCIENCE FORUM 2022 – A REFLECTION

Venue: Ballroom

Perspective from a national research funder: Fulufhelo Nelwamondo

Perspective from a global partnership: Michael Musakiriza Makanga

Perspective from scientists: Clarissa Rios Rojas

11:45 - 12:05 / Closing Ceremony: WORLD SCIENCE FORUM 2022: ADVANCING THE AFRICAN AGENDA

Venue: Ballroom

Message from the African Union: Hambani Masheleni

Message from the S. African Development Community: Calicious Kapelezo Tatalife

Message from the African Academy of Sciences (AAS): Peggy Efua Oti-Boateng

Ministerial Message: Amon Murwira

12:05 - 12:25 / Closing Ceremony: WORLD SCIENCE FORUM 2022: INSPIRING THE FUTURE

Venue: Ballroom

Message on behalf of WSF 2022 Youth Volunteers: Mandy Rinkie Makhubela

Impressions from UNESCO SADC STEM Bootcamp partici: Unam Max, Caitlyn Baron

Citizen science at WSF: Cityzens 4 Clean Air Run: Lihle Sabisa

Celebrating the legacy of Prof Carolina Odman-Gove: Kevin Govender

12:25 - 12:30 / Closing Ceremony: ANNOUNCEMENT OF SOUTH AFRICA'S HOSTING OF THE INTERNATIONAL ASTRONOMICAL UNION (IAU) GENERAL ASSEMBLY IN 2024

Venue: Ballroom

12:30 - 12:45 / Closing Ceremony: MESSAGE FROM THE EUROPEAN COMMISSIONER FOR INNOVATION, RESEARCH, CULTURE, EDUCATION AND YOUTH, MS MARIYA GABRIEL

Venue: Ballroom

: Mariya Gabriel

12:45 - 13:00 / Closing Ceremony: PRESENTATION OF THE WORLD SCIENCE FORUM 2022 DECLARATION ON SCIENCE FOR SOCIAL JUSTICE

Venue: Ballroom

The declaration is read by: Palesa Motsoeneng, Thapelo Kepadisa

13:00 - 13:10 / Closing Ceremony: WORLD SCIENCE FORUM 2022 CLOSING ADDRESS AND ADOPTION OF THE WORLD SCIENCE FORUM 2022 DECLARATION ON SCIENCE FOR SOCIAL JUSTICE

Venue: Ballroom

Address by: Buti Manamela

13:10 - 13:15 / Closing Ceremony: ANNOUNCEMENT OF THE WORLD SCIENCE FORUM 2024 AND CONCLUSION OF THE WORLD SCIENCE FORUM 2022

Venue: Ballroom

Address by: Tamás Freund

13:15 - 15:00 / Social event: TRADITIONAL SOUTH AFRICAN “BRAAI” BARBECUE LUNCH

Venue: Exhibition Hall 1 & 2