

WAITRO



WORLD  
ASSOCIATION OF  
INDUSTRIAL &  
TECHNOLOGICAL  
RESEARCH  
ORGANIZATIONS

# WAITRO ANNUAL REPORT 2022





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# Executive Summary

Welcome to the WAITRO Annual Report 2022, the annual summary of the WAITRO Global Innovation Family assembled for you by the WAITRO Secretariat. The format remains largely unchanged from 2021, with input from both the Germany Office and the China Office of the Secretariat as well as our much-valued Regional Focal Points and some of the newly-formed WAITRO Working Groups. Final production was done in Nanjing, China.

We start off with letters from the WAITRO leadership, both the Secretary General and the President, followed by an updated “WAITRO at a Glance” section that highlights new members, the evolving geographical distribution of WAITRO, and the composition of the Executive Board and the two Secretariat Offices. There follows an update on the services offered by WAITRO, both the constantly developing SAIRA platform and the communications products that we offer for members.

The major event of 2022 was the WAITRO Summit and 26th General Assembly, which served to mark the world’s emergence from almost three years of travel restrictions. You will find reports about two days of keynotes, panel discussions, capacity development, and workshops designed to nucleate WAITRO Working Groups around particular sustainable development goals (SDGs). You will also find a report summarizing the General Assembly, which resulted in the election of a new Executive Board for the 2023 – 2024 period and also approved JITRI to continue as host of the Secretariat for 2023 – 2026. We have every intention of maintaining the knowledge base, experience, and close cooperation between both Offices of the Secretariat as we go forward.

The WAITRO Summit was built around networking and, as part of that concept, members were invited to contribute posters promoting their expertise and availability for research partnerships. These are reproduced in miniature as a tribute to the members who worked with us to generate the content. The full-size versions are in the permanent WAITRO exhibition at the Secretariat Headquarters in Jiangbei New Development Area, Nanjing. JITRI often receives visits from multi-national companies, consulates and embassies from all over the globe and it is valuable for them to see their regions represented in WAITRO. If you don't see your organization there, it is either because we did not receive a poster or the design was not appropriate for the format. Contact the Secretariat and we will work with you to add you to the exhibition.

Finally, Chapter 4 gives a summary of the events, partnerships and projects that took root in 2022, with thanks to the Regional Focal Points for their tireless efforts to keep the Secretariat well-connected with their regions.

We hope you will find the Annual Report 2022 to be a valuable record of WAITRO's successful emergence from the challenges of Covid. Most of all, we hope to hear your comments on what was interesting, what was frustrating, and what you would like to hear more about in future Annual Reports. If you don't like the format, let us know. The power to change things is in your hands!

# FOREWORD BY THE SECRETARY GENERAL

Dear members and friends of WAITRO,

In 2022, the global health emergency posed by COVID-19 began to gradually recede. While the virus remains a persistent presence, continuing to claim lives and evolve, it no longer maintains pandemic status. But, as stated by the Director General of the World Health Organization (WHO), our ability to effectively tackle shared threats relies upon a unified and collaborative response.

In a similar vein, the United Nations' Sustainable Development Goals (SDGs) present a comprehensive framework that outlines crucial global challenges and priorities. These goals encompass interconnected issues such as climate change, health, and poverty, necessitating collective action on a global scale for successful resolution. In order to make substantial progress towards achieving the SDGs by the target date of 2030, it is imperative that we foster coordination, collaboration, and accountability among diverse stakeholders. This collaborative approach is vital in working towards a future that is both prosperous and equitable, while also ensuring environmental sustainability. Research and innovation, therefore, plays a pivotal role in this endeavor. By uniting under the umbrella of WAITRO, we can each contribute our share towards these goals.

With this objective in mind, in 2022, WAITRO made a strategic decision to concentrate on SDG 17, which focuses on Partnerships for the Goals. This theme was chosen as the focal point for our eagerly anticipated Summit, held in November 2022 in Cape Town, South Africa. The Summit featured enlightening keynotes, a thought-provoking roundtable discussion, and an exhibition showcasing SDG Impact Posters created by our members. It served as a catalyst, invigorating WAITRO's efforts to collaborate closely on SDG-related topics through dedicated working groups. Additionally, the program encompassed a range of capacity development workshops, a poster exhibition representing almost all our members, as well as booths showcasing partner organizations and sponsors.



The Summit stood as the highlight of WAITRO's activities in 2022. It provided a great opportunity for our members, the Global Innovation Family, to gather in person once again. It became evident that certain occasions, like the Summit, cannot be adequately replaced by virtual meetings. While we discovered the convenience and environmental benefits of conducting meetings online, which saved time, energy, and reduced our individual CO2 footprints, we recognized the significance of occasionally convening in person for special events like the Summit.

Furthermore, with the conclusion of 2022, my tenure as Secretary General of WAITRO came to an end. Although I had ambitious aspirations for my four-year term, the pandemic presented numerous obstacles that hindered the implementation of our plans. Nevertheless, we adapted to the challenging circumstances, discovering new and innovative ways to carry out our work for WAITRO. I extend my heartfelt appreciation to my team at the WAITRO Secretariat, whose unwavering support made many accomplishments possible despite the difficult circumstances.

By handing over the job to Paul Burrows, I am confident that he will do a great job as new Secretary General. However, my departure does not mark the end of my involvement with WAITRO. Since 2004, I have been actively engaged with WAITRO in various capacities, and for the foreseeable future, I will continue to serve as the Chief of Staff at the WAITRO Secretariat. I eagerly anticipate the opportunity to persistently collaborate with and support all of you in this new role.

Thank you all for your continued support of and dedication to WAITRO!

*Dr. Eckart Bierdümpel*

# LETTER FROM THE PRESIDENT

## President's Message

A year of in-person re-engagement and collegiate renewal has shown that our wonderful fellowship of industrial and technological research organisations has not just weathered the storms of recent years but has emerged into the post-covid calm both stronger and more resilient. We have shown that through the course of those testing times our resolve became greater and our focus more acute.

I feel immensely honoured to have served as President of WAITRO during those difficult times. Together, we showed the world that we are a diverse family of organisations with a global reach. We have worked in unison to refine our goals and to reaffirm our mission. As my tenure as WAITRO President drew to a close on 31st December 2022, I reflected with great humility on the preceding four years during which time I was proud to be a torchbearer for our organisation in times that were so dark for many.

The WAITRO Summit 2022 held in Cape Town last November marked a glorious return to in-person meeting and collaborative ideation. Some 140 delegates, representing more than 35 countries, made for a vibrant gathering that reignited our collective efforts to forge new research partnerships. It was clear from contributions by speakers and conversations among participants that the need for new partnerships and novel working groups to respond even more deftly and innovatively to global challenges and to further hone our contributions to help achieve the Sustainable Development Goals is ever to the forefront of research minds throughout our network.



It was clear that our periods of lockdown were certainly not periods of seclusion. Lines of communication had remained well-and-truly open, and channels of inspiration continued to flow. In recent years we have seen challenges converge, combine and overlap. We are clearly focused on devising solutions that match.

My dear fellow members of the WAITRO family, I shall always be one of you, and my organisation, the Royal Scientific Society, shall continue to be a core and committed WAITRO member. I feel honoured indeed to be succeeded by so a distinguished an individual as Professor Dr Hassan Mandal, President of the Scientific and Technical Research Council of Turkey. I wish him every success as President of WAITRO and I have no doubt that he will be as proud a holder of the office as was I.

*HRH Princess Sumaya bint El Hassan*



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# WAITRO AT A GLANCE

# WAITRO NEW members in 2022

**WAITRO was founded in 1970 under the auspices of the United Nations.**

As of December 2022, WAITRO has 151 member organizations from 66 countries.

44

members  
in Africa

New members 2022:

FMSTI, Nigeria

JU, Ethiopia

AFR, Zimbabwe

ONG AMEDD, Mali

AV, Nigeria

UCU, Uganda

CCCEM, Malawi

NARDI, Botswana

UNAM, Namibia

BU, Uganda

KIBU, Kenya

TUM, Kenya

AfriAH, South Africa

UNIZULU, South Africa

34

members  
in Asia & the Pacific

New members 2022:

NJTECH, China

MONASH, Australia

SSL, India

Jiangsu Forceset Vibration Control Technology Co.Ltd, China

26

members  
in Latin America  
& the Caribbean

New members 2022:

Laboratorios Técnicos - MEM, Guatemala

SENAI, Brazil

UNIDAVI, Brazil

EPM, Colombia

29

members  
in Europe

New members 2022:

TECNALIA, Spain

MT, Germany

Green A, Netherlands

FORTH, Greece

Atlantis, England

KIT, Germany

15

members  
in Middle East  
& North Africa

New member 2022:

BGU, Israel

3

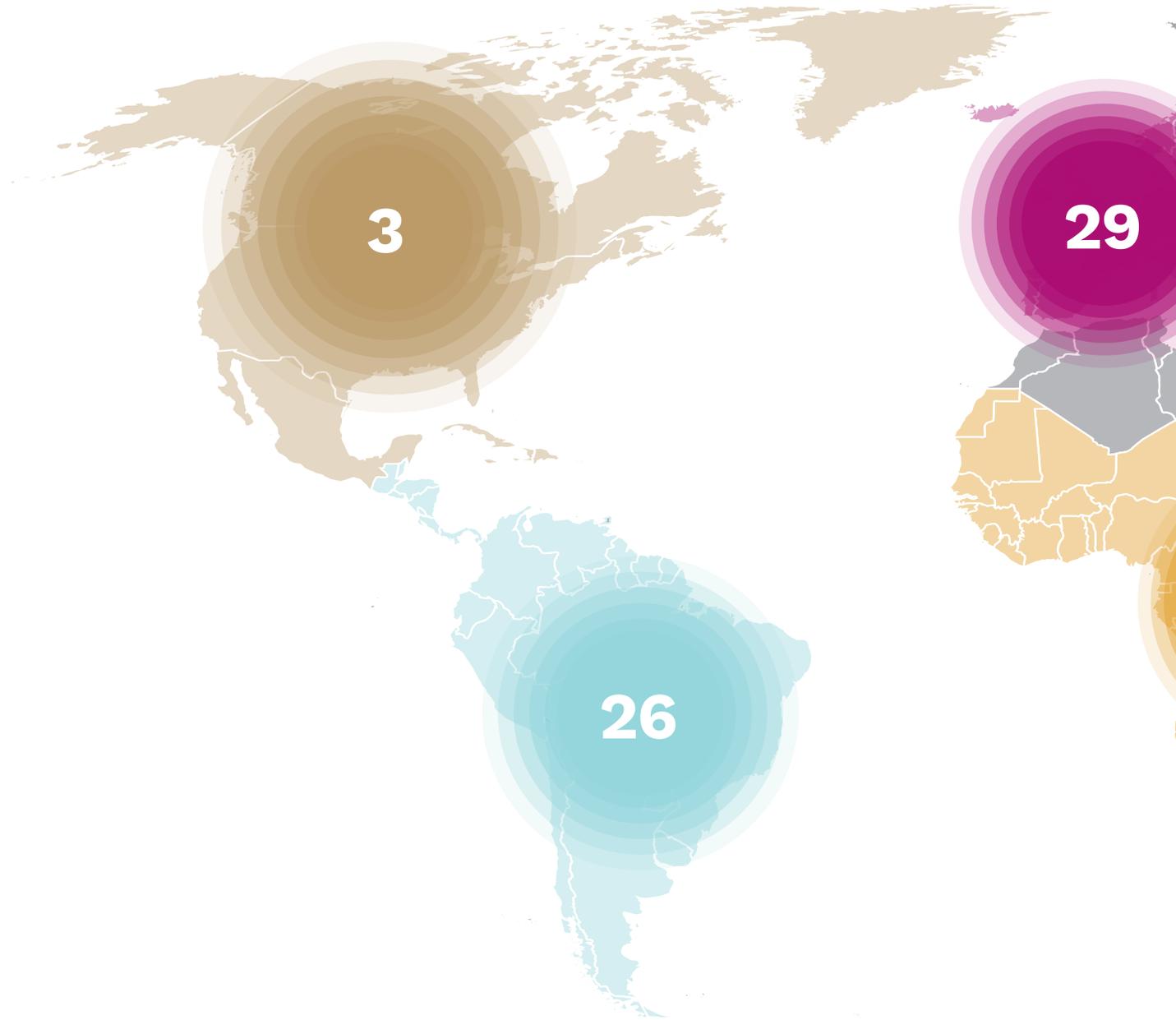
members  
in North America

New members 2022:

TTC, USA

Headway, USA

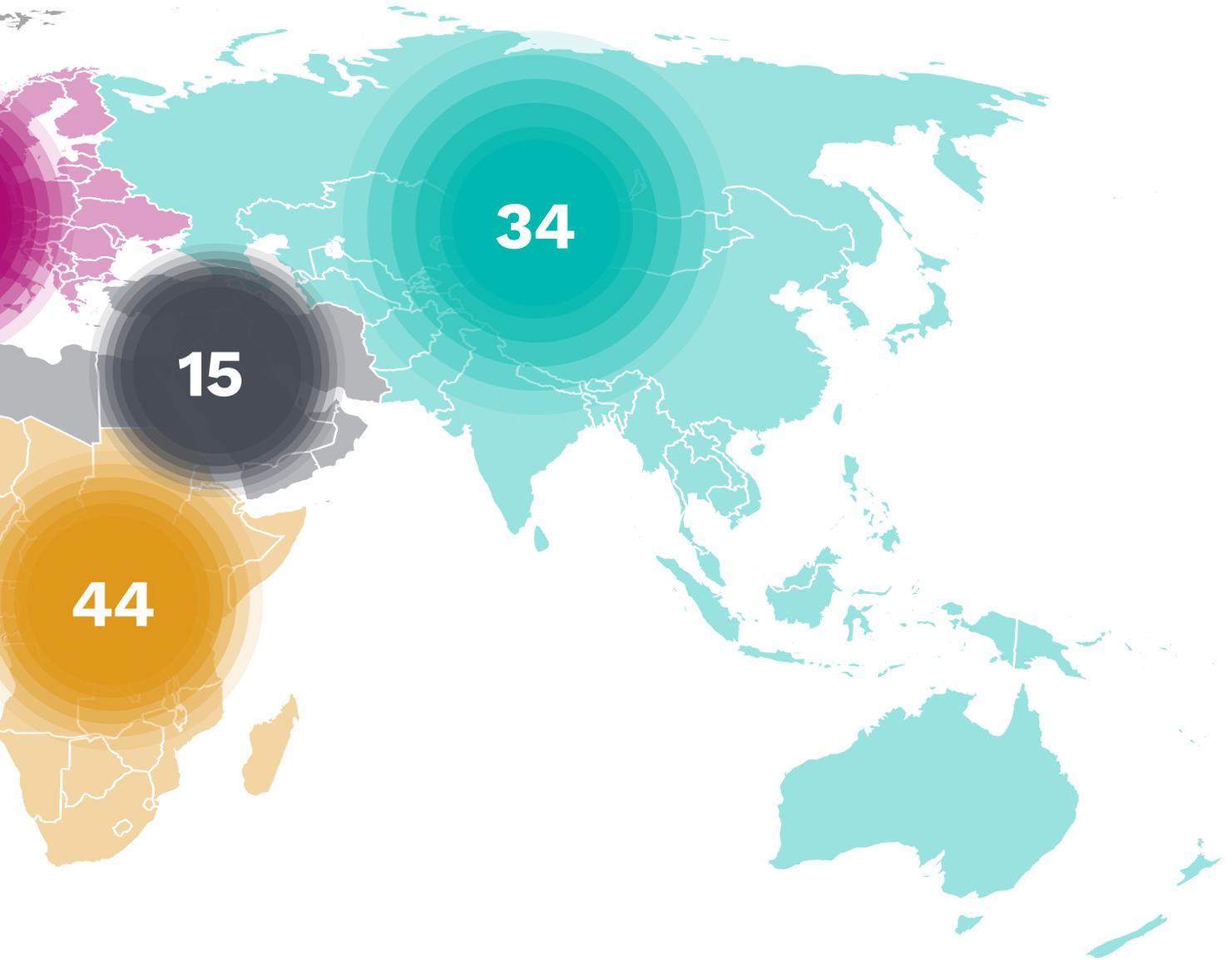
For more Info. about the full membership list, please refer to the official website <https://waitro.org/>



**44**  
members  
in Africa

**34**  
members  
in Asia & the Pacific

**29**  
members  
in Europe



**26**  
members  
in Latin America  
& the Caribbean

**15**  
members  
in Middle East  
& North Africa

**3**  
members  
in North America

# WAITRO INNOVATION ECOSYSTEM

## WAITRO Programs & Services

- Open Innovation Platform - SAIRA®
- Capacity Development Program
- Innovation Award
- WAITRO Summit
- Fellowship Program

More at: [waitro.org/programs-services](https://waitro.org/programs-services)

# WAITRO-UNITED NATIONS RELATIONS

- Special Consultative Status with the United Nations Economic and Social Council (ECOSOC)
- Consultative Status with the United Nations Department of Economic and Social Affairs (UN DESA)

# MISSION

To foster innovation and drive sustainable development by empowering member organizations and facilitating collaboration across borders and boundaries.

# VISION

A global innovation ecosystem, in which research and technology organizations (incl. universities) collaborate, share knowledge, develop, and disseminate innovative technologies in partnership with the private and public sector to deliver sustainable impact to societies and economies.

# OBJECTIVES

Facilitate the participation of member organizations in publicly-funded collaborations and public-private partnerships.

Facilitate collaboration between member organizations and the private sector.

Foster collaborations between member organizations towards the development and deployment of innovative technologies that impact sustainable development.

Improve operational practices and business performance of member organizations and enhance scientific research and technological capacities of their individuals.

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**WAITRO'S  
GOVERNING  
BODIES**

## General Assembly

WAITRO full member organizations are represented in the General Assembly. Delegates of member organizations meet every two years to discuss the future of the association and work together on new collaboration forms to create lasting ties between members and partners.



**Next Meeting : 2024**

**Main Functions:**

- Election of the Executive Board
- Review and approval of the strategic plan and work program
- Review and approval of activities
- Adoption of amendments to the Constitution, By-Laws of the Association and the Rules of Procedure of the General Assembly

## Executive Board

The WAITRO Executive Board constitutes the President, two Vice-Presidents, and five Regional Representatives:

- **Africa**
- **Asia & the Pacific**
- **Europe**
- **Latin America & the Caribbean**
- **Middle East & North Africa**

### WAITRO Board members 2022



**PRESIDENT**

Her Royal Highness Princess  
Sumaya bint El Hassan



**FIRST VICE-PRESIDENT**

Dr. Rubén Dario Cruz Rodríguez



**SECOND VICE-PRESIDENT**

David Tveit



**REGIONAL REPRESENTATIVE**

**FOR AFRICA**

Dr. Mapitso Molefe



**REGIONAL REPRESENTATIVE**  
**ASIA AND THE PACIFIC**

Theresia Ningsi Astuti



**REGIONAL REPRESENTATIVE**  
**FOR EUROPE**

Dirk Saseta Krieg



**REGIONAL REPRESENTATIVE FOR**  
**LATIN AMERICA AND THE CARIBBEAN**

Dr. Randall Loaiza



**REGIONAL REPRESENTATIVE FOR**  
**MIDDLE EAST AND NORTH AFRICA**

Dr. Emad Mohamed M. Ewais

The Executive Board Meetings are held twice a year.

# Secretariat

The WAITRO Secretariat employs 16 staff members in two offices. One office is located in Fraunhofer-Gesellschaft, Sankt Augustin, Germany; and the other office is located in Jiangsu Industrial Technology Research Institute (JITRI), Nanjing, China.



**Dr. Eckart Bierdümpel**  
Secretary General  
WAITRO Office Germany



**Dr. Paul Burrows**  
Director  
WAITRO Office China



**Dominik Reinertz**  
Director  
WAITRO Office Germany



**Andrea Santos**  
Head of Marketing &  
Communication  
WAITRO Office Germany



**Julia Wiethüchter**  
Program Manager  
WAITRO Office Germany



**Dr. Sira Engelbertz**  
Project Manager,  
WAITRO Summit  
WAITRO Office Germany



**Ran Duan**  
Program Coordinator  
WAITRO Office China



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**Damalie Nabukalu**  
Program Support  
WAITRO Office Germany



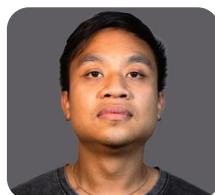
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WAITRO Office Germany



**Luna Guevara**  
Communications Assistant  
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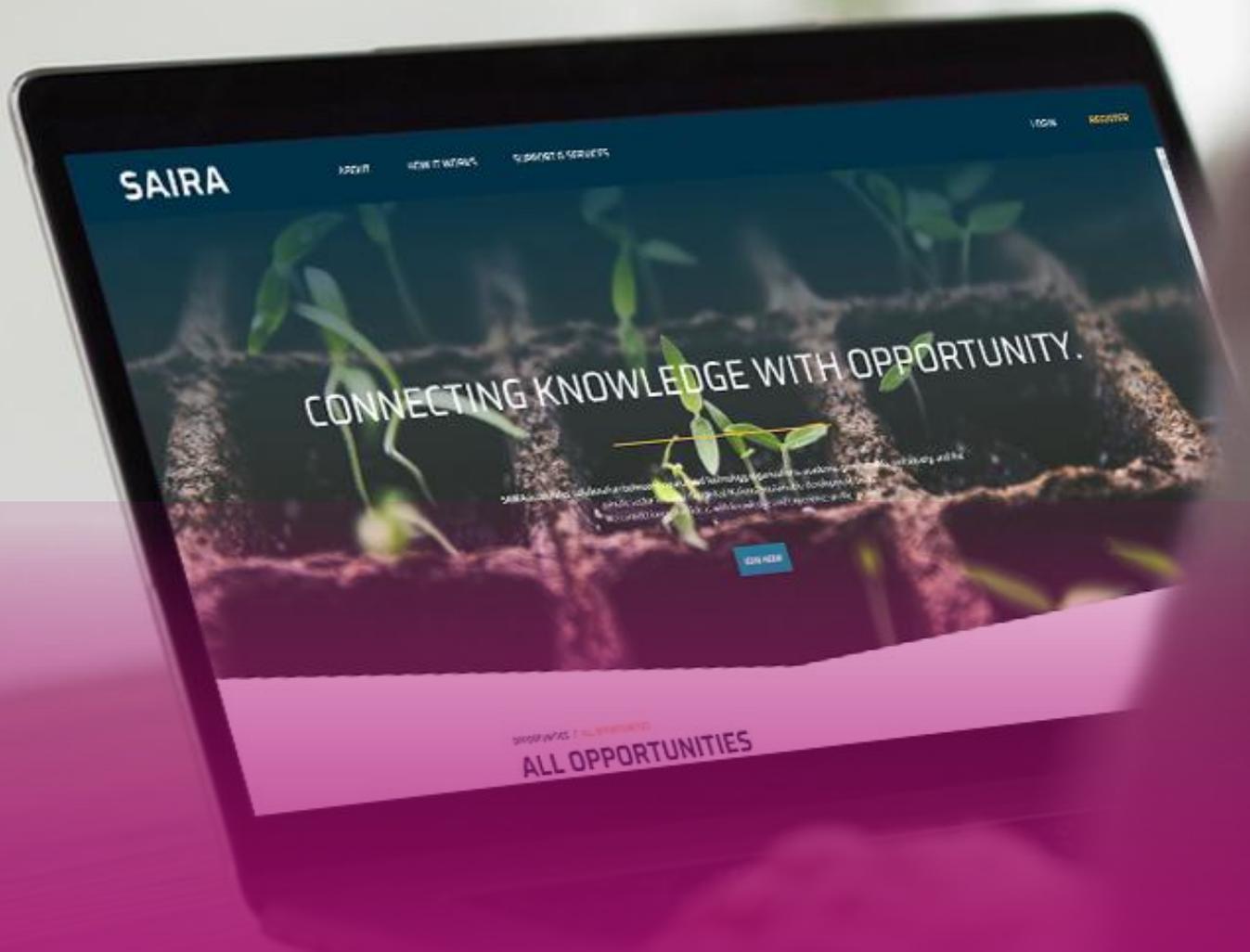
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WAITRO Office Germany



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# CHAPTER 1

## Online Services & Communication

# Innovation platform- SAIRA®

## Matchmaking and Innovation Platform powered by WAITRO

SAIRA enables and accelerates collaboration between research organizations, academia, governments, civil society, and the private sector across geographical and disciplinary boundaries by offering an easy, accessible, and sensible data protected way to share collaboration needs, innovative project ideas, or developed technology, thereby enabling connections to potential partners. Finding the right partner isn't easy. Using SAIRA is.

Two test versions of SAIRA were created by Fraunhofer-Gesellschaft (WAITRO Office Germany) as part of a project funded by the German Federal Ministry of Education and Research (BMBF) primarily to connect researchers of WAITRO member organizations. Success cases prove that the SAIRA approach works, and that the digital platform enables collaboration between different stakeholders. To address even more complex challenges in the context of international cooperation in research and innovation, the WAITRO is currently working on a concept for a third version.

## Our Vision

Be the world's best platform at matching researchers and innovators and enabling collaborations for the SDGs.

## What is SAIRA for?

SAIRA is designed for people with collaboration needs, innovative ideas, with developed technology, or with a desire to build project teams and consortia to respond to funding opportunities and call for proposals.

- It's designed to share your idea – no matter if it's at an embryonic or more advanced stage.
- It's designed to share your project – no matter if it's related to implementation, production, or deployment of technological solutions.
- It's designed to share your collaboration needs – no matter if you are working for a research organization, NGO, company, or a start-up with the desire to scale.

SAIRA is designed to share your partner search and get connected to potential collaborators for research and innovation. It is made for you to find the right partners across disciplines or national borders.

## Facts & Figures (as of December 2022)

**22** Matches  
(User found potential partner via SAIRA® in 2022)



Users  
**1021**



Organizations  
**411**



Countries  
**103**

**SAIRA**  
[www.saira.eco](http://www.saira.eco)

## Communication

### WAITRO Digital Marketing Plan 2022

The Digital Marketing Plan implemented by the WAITRO Communications Team in 2022 was designed to achieve communication goals, which focused on increasing brand awareness, community engagement, brand audience, and generating leads. Key performance indicators (KPIs) were set to measure success in meeting the communication goals.

#### Communication Goals:



##### Increase brand awareness

KPIs:

Increase number of social media impressions by 15%

Increase organic website traffic by 5%



##### Increase community engagement

KPIs:

Increase social media engagement by 15%

Increase email click rate by 5%



##### Grow brand audience

KPIs:

Increase social media audience by 10%

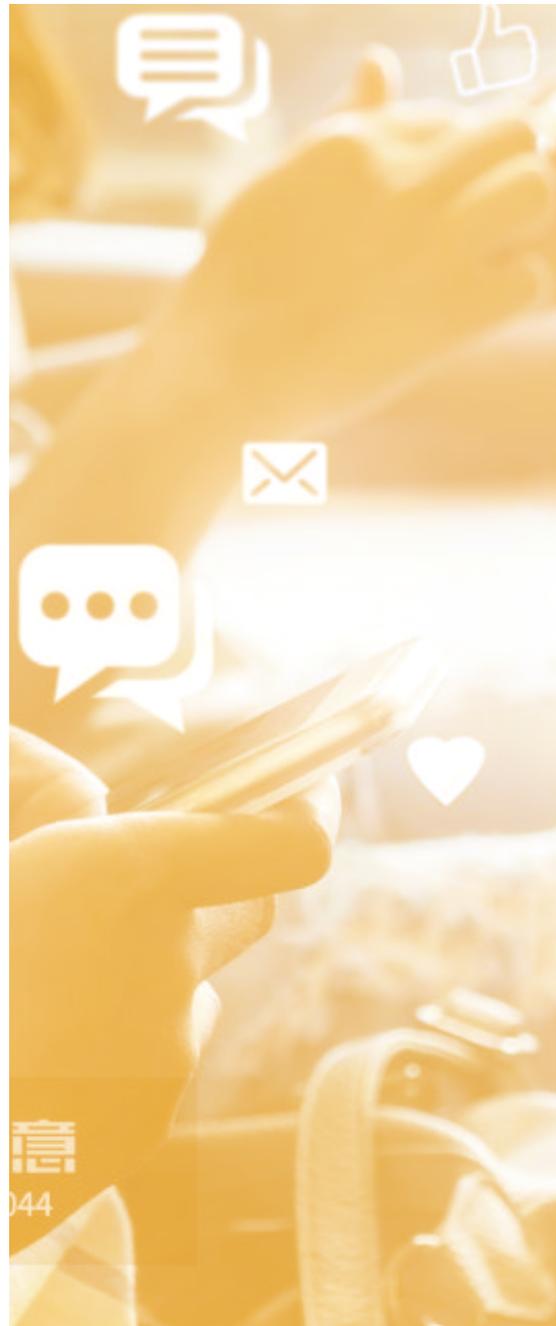
Increase newsletter sign-ups by 5%



##### Generate leads

KPI:

Increase number of views of "Become a member" page by 5%



## Marketing Strategy (Implementation)

### Website Plan

The website plan was conducted in three parts. In the first part, a website analysis was carried out to determine what visitors wanted to do and what we wanted them to do. A list of things that visitors would be expected to do on the WAITRO website and a list of their needs were created. The website usability was analyzed to enhance navigation, layout, and content, and a website design analysis was made aimed on creating more mobile-friendly pages that load quickly.

In the second part of the website plan, an SEO plan was developed to help the website appear in organic search results. The website's performance in search results was monitored using Google Search Console, and keywords that potential visitors were searching for were identified. Web pages were made search-friendly by optimizing meta tags and titles, improving headings, and enhancing page copy. Additionally, off-site optimization strategies such as backlinks and content marketing were listed to increase search engine rankings.

In the third part of the website plan, audience segmentation was carried out to define who the audience is and what they need and like. The current audience was analyzed and divided into groups based on their interests and needs. An audience segmentation survey was also created to gather more details about the audience.

### Social Media Plan

In the social media plan, audience and their needs and interests were defined. The current audience on LinkedIn and Meta Business Suite were analyzed, and a social media calendar was developed, outlining when, what, where and which content would be published on social media. A series of social media posts focusing on WAITRO's programs and services were also developed.

Social Media Series:

- *International Days #InternationalDay*
- *WAITRO New Member #WAITRONewMember*
- *WAITRO Funding Series #WAITROFundingSeries*
- *WAITRO Member Outreach #WAITROMemberOutreach*
- *SDG Series #SDGSeries*
- *SAIRA Series #SAIRASeries*
- *WAITRO Guest Articles #WAITROGuestArticle*
- *WAITRO Events #WAITROEvent*
- *WAITRO Summit 2022 #WAITROSummit2022*

A Social Media Audit was conducted to evaluate the social media presence and performance across various platforms. Profile information, profile pictures, bios, and contact information were analyzed to ensure consistency and completeness. The quality and relevance of the content across all platforms were evaluated, and engagement metrics, including likes, shares, comments, and follower growth, were analyzed to measure the effectiveness of the social media strategy. Opportunities for improvement were identified based on the findings, and recommendations for enhancing the social media strategy were developed.

Quarterly online marketing reports were also prepared to track progress and inform the social media strategy going forward.

## Email Marketing Plan

An email marketing plan was developed that involved audience segmentation and aimed to define the audience, their needs and preferences, and identify the groups most interested in WAITRO's programs and services. The insights and demographics from Sendinblue (email marketing management tool) and WAITRO Survey 2022 Report were analyzed to collect information about the audience based on age, country, position, organization type, membership type, research interests, digital platforms, topics of interest, and social media channels. Furthermore, an email marketing calendar was developed for the newsletter subscribers.

## Results



### Website

Increased organic website traffic by **14.83%**  
Increased number of views of "Become a member" page by **19.32%**



### Social Media

Increased number of social media impressions by **55.73%**  
Increased social media engagement by **52.71%**  
Increased social media audience by **67.60%**



### Email Marketing

Increased email click rate by **22.52%**  
Increased newsletter sign-ups by **31.67%**

## WAITRO Summit 2022 Marketing Campaign

A marketing campaign was designed to promote the WAITRO Summit 2022, with a call for registrations between August 1st and November 11<sup>th</sup>. The Communication Plan aimed to achieve the following communication goals:



### Increase community engagement

KPI: Increase social media engagement by **10%**



### Increase brand awareness

KPI: Increase social media impressions by **10%**



### Grow brand audience

KPI: Increase social media audience by **5%**



### Generate leads

KPI: Attract **3,000** event website visits

The target audience for the campaign was managers and researchers of research and technology organizations, representatives of multilateral institutions, governments, civil society, non-profit organizations, and the private sector, including start-ups and philanthropic organizations. The key message conveyed was that the WAITRO Summit 2022 was the ideal event to learn, network, create new partnerships, and kick-start projects with global impact.

The campaign's deliverables included an event logo, event website, registration portal, speaker & partner briefs, promotional video, press release, media kit, event brochure, website news posts, website articles, social media banners, social media posts, social media paid ads, and email marketing campaigns. These deliverables were distributed through various channels, including the event website, owned channels (WAITRO website, social networks, newsletter), earned channels (members and partners), and paid channels (social media). The outreach team included the WAITRO Secretariat, WAITRO Regional Focal Points, WAITRO Executive Board, WAITRO Partners, WAITRO Members, event speakers, and event attendees.

The campaign's email marketing strategy involved creating a 'Dissemination Team'. Members with relevant online audience were identified to support in publicizing the event. Universities and research and technology organizations located in South Africa and surroundings were also contacted. Over 150 emails were sent, including the Media Kit and Event Brochure.

**The results showed that the communication goals were successfully achieved:**

increased social media engagement by 102,28%

increased social media impressions by 593,08%

increased social media audience by 8,74%

+5000 event website visits



The insights from the campaign included the importance of using KPIs to measure performance, LinkedIn's paid campaign effectiveness in increasing brand awareness, the value of the support of WAITRO members in publicizing the event, and the importance of integrating international marketing actions into WAITRO's communication campaigns.

## Communication Strategy with WAITRO RFPs

In 2022, the WAITRO Communications Team developed a communication strategy aimed at enhancing the communication between Secretariat, Regional Focal Points (RFPs) and members. The communication strategy was designed to identify problems, challenges, and possible solutions through a systematic approach consisting of seven steps.

The first step was to identify the issues and challenges in the communication process, followed by getting feedback from the RFPs. The feedback received from the RFPs was analyzed in the third step, and the one-on-one meetings were held with the RFPs and their respective communication persons as the fourth step. Based on the feedback and meetings, the communication strategy was updated in step five, which was followed by the development of regional action plans for each RFP in step six. The final step of the communication strategy was the implementation of the action plans.

The implementation of the communication strategy is an ongoing process, and the WAITRO Communications Team will continue to evaluate its effectiveness and make improvements where necessary to ensure that the communication process remains efficient and effective.



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# CHAPTER 2 WAITRO SUMMIT 2022

# The WAITRO Summit 2022

The capital of South Africa was the stage of WAITRO's flagship event on the 14th and 15th of November 2022, as research and innovation stakeholders from over 35 countries gathered in Cape Town, South Africa for the WAITRO Summit 2022. With the aim of building new partnerships and initiating working groups to face global challenges and contribute to the Sustainable Development Goals (SDGs), more than 140 delegates had the opportunity to learn and hear from renowned speakers, exchange experiences, network and collaborate during the two days of face-to-face event.



## The Summit was focused on SDG17:

Networking for the Goals, and was designed around key spaces and times for networking with like-minded research professionals. The centerpiece of the summit was a poster exhibition that was divided into Member posters to introduce the capabilities and needs of organizations and SDG impact posters to highlight impactful research projects or results that advance one or more SDGs. The latter posters were eligible for the WAITRO Impact Award, which took the form of a \$3000 cash prize. All Summit registrants were given four voting stickers to place on the posters that they considered most impactful and this process both determined the finalists and required attendees to spend time in the display areas, where conversations around mutual interests were most likely to develop. A panel of VIP invited speakers then voted for two winners based on a common set of metrics.

Key themes of the Summit were innovative mechanisms and partnerships for the SDGs, catalyzing finance for innovative, high-impact projects, bridging the gaps between the private sector and innovative and high impact groups, maximizing the impact of applied research on the SDGs, commercializing research results and benchmarking to identify best practices in RTO management



## Day 1

**Keynotes, Roundtable and Capacity Development Workshops**

**WAITRO  
SUMMIT 2022**

Innovative Partnerships. Global Impact.

The Summit kicked off with an opening address from the WAITRO President, HRH Princess Sumaya bint El Hassan (see box) followed by formal welcomes from the Summit co-host, Stellenbosch University, represented by Prof. Eugene Cloete, Deputy Vice Chancellor for Research, Innovation and Postgraduate Studies and the Regional Focal Point host, North-West University, represented by Dr Bismark Tyobeka, Vice-Chancellor. Introductory comments in the context of South Africa were delivered by Feizal Toefy, Chief Director University Planning & Institutional Planning at the Ministry for Higher Education, Science and Innovation.



### **Speech of HRH Princess Sumaya bint El Hassan, President of WAITRO**

Dear Members of the WAITRO Family, It is a pleasure to welcome you all to the WAITRO Summit 2022. I am particularly happy that so many of you will meet in person in Cape Town after such a long period of virtual engagement. We must of course celebrate the possibilities for partnership that virtual technology has unleashed in challenged times, but we are human after all, and there is nothing like face-to-face networking to cement relationships and to ignite ideas.

Our 2022 summit will re-unite those who have worked apart for so long and will introduce many of you to a world of creative possibilities. It is certainly time to reboot our collaborative capital and to make sure that we are investing it wisely and widely. In our challenged world, the importance of partnerships cannot be overstated, and those partnerships must be real, resourceful, and multilateral.

For there is no doubt that Sustainable Development Goal 17 is central to everything we are trying to achieve through WAITRO and within each of our 130+ member organizations. The urgency and utility of partnerships becomes ever more vital the further from centers of development and influence that we travel, and our core mission is to ensure that no potential partner is left behind – We each have something to offer. The fact is that solid, communicative, receptive, and adaptive partnerships are crucial to those who have less, and who are heard less.

We learnt many years ago, from the Millennium Development Goal process, that the urgent challenges we all face are cross-cutting. The Addis Ababa Conference of 2015 recognized that financing was vital to any plan of action, but that it would amount to nothing without true partnerships – ones that recognize the weaknesses and strengths of all parties. I believe that our experiences through the pandemic have certainly confirmed that.

But we must also recognize that partnerships between developed and developing nations are not uneven in the way many might believe. These collaborations are certainly not gifts from the great and the good. Partnerships across borders and stretched over cultural divides are investments by all of us in all of us. We need to push home this message clearly and consistently. We each have much to learn from the other, regardless of background or context. Indeed, diversity empowers research and leads to better results for all of us.

The global research community has struggled to live up to the promise of Goal 17, and the strain is showing. In so many contexts, partnerships are neither engaging nor functioning. The fault lines are starkly visible. The COVID-19 pandemic has taught us that we are no longer safe if we work alone. So how can we better work together collaboratively and practice what we preach?

As we explore the potential of Innovative Partnerships at the WAITRO Summit 2022 and imagine the truly Global Impact that we might have, I know that answers will be found by you through novel collaborations. I wish you all well and I very much look forward to sharing the next stage of our journey with you.



Next, came welcome speeches by Prof. Eugene Cloete, Dep. VC Research, Innovation and Postgraduate Studies at Stellenbosch University; and **Prof. Nnnesi Kgabi**, Director Research Support at North-West University. The opening ceremony also featured addresses from the Chief Director for University Planning & Institutional Planning, **Feizal Toefy**; who pointed out that there is less than a decade left to achieve the SDGs and that the effects of Covid-19 has made doing so even harder than before. On the other hand, the pandemic has brought about greater awareness of our vulnerability, the urgency of advancing sustainable development with multi-disciplinary solutions and the importance of using partnerships and collaborations to do so. He described South Africa's priority investments to build resilient infrastructure, support research and innovation, and ensure domestic technology development in an inclusive and sustainable manner.





The Commissioner for Agriculture, Rural Development, Blue Economy, and Sustainable Environment (ARBE) of the African Union, **H.E. Josefa Sacko** then addressed the theme of the “Contribution of Youths in Accelerating the Transformation Process of African Agriculture.” She pointed out that the African continent has the youngest population in the world with over 750 million people under 35 years old. This is one of Africa’s greatest assets, but most of them are either unemployed or working in the informal economy, putting them in a very vulnerable situation. One of the flagship programs on accelerated agricultural growth for shared prosperity of the African Union defined specific youth commitments, including creating job opportunities in the agriculture value chain and improving the opportunities for women. Africa is a net importer of food and becoming more so and this needs to change. The Commissioner issued a call to action to establish a food system strong enough to withstand future shocks like the recent pandemic and the conflict in Ukraine. Africa especially needs to increase food production, especially staples, including addressing higher yielding crops and water scarcity. Post-harvest loss, which can reach 30% for maize, must also be reduced. Investment is needed in affordable post-harvest management and cold storage and inter-African trade in goods and services needs to be promoted. Action is needed, not just meetings!



In conclusion, **Dr. Raghunath Mashelkar**, Former President of the Global Research Alliance and Former Director General of Council of Scientific and Industrial Research, closed the ceremony with a keynote on “Innovation, Inclusion & Resilience – Cornerstones of Post-pandemic SDG 17.” Among other valuable insights, Dr. Mashelkar shared key lessons learned from the COVID-19 pandemic, and how to find opportunity in adversity.



Dr. Mashelkar described Cape Town as heaven on earth, having first visited in 1998 as part of a CSIR review panel. He spoke about the SDGs in a post-pandemic world, which he compared to previous global watersheds such as the second World War. He picked three keywords on which to focus: innovation, inclusion and resilience. The major setbacks created by the pandemic included the biggest global job crisis in recent memory, with 400 million jobs lost in just Q2 of 2020. The healthcare system collapsed in many countries and 1.6 billion children were thrown out of school, all of which impeded progress towards the SDGs.

He recommended that we should learn from the mistakes made during Covid. We learned firstly that the poor get affected the most. Secondly, that partnerships have to be based on innovation, compassion and passion ... empathy

matters. Thirdly, in terms of supply chain disruption, it was a demonstration that may pre-empt the full-fledged effects of climate change. Fourthly, designing for resilience is important. Finally, there is indeed opportunity in adversity, for example the development of vaccines in record time. We can do exceptional things quickly, given the motivation and investment.

The key concepts are adaptability, agility, resilient thinking, purpose-driven alignment, and autonomous innovation. In vaccine development, partnerships were critical both in research, development and management. Dr. Mashelkar gave several examples of how cooperation, repurposing and sharing made significant impact into the pandemic response in India and elsewhere.

In the economy, new public-private partnerships have benefited consumers in e-commerce, essentially developing new platforms on which innovation can be built. The developing world can benefit from Google and Microsoft through their investments to develop affordable access to bandwidth. Open innovation platforms based on next-generation innovation partnerships (like SAIRA) will increase the opportunity to bring innovation to the developing world. He introduced the concept of open-source drug discovery, including participation by students, which led to clinical trials for a novel tuberculosis cure.

Finally, he touched on climate concerns, where big multi-nation partnerships are necessary. The critical challenge is in finance. Net zero by 2050 will require investment on the scale of 7.5% of global GDP, a particular challenge for the developing world. Only a very small fraction of this is committed today, and very little of that is in the form of grants rather than debt or equity.

Our greatest challenge is building SDG17 in the VUCA world (volatile, uncertain, complex, and ambiguous). In this new normal, partnerships have to be resilient. Working together to correct the legacy of past injustice is the key concept to remember.

“Building resilient global partnerships is the need of the hour to solve global challenges.”

(Dr. Raghunath Mashelkar, Former President of the Global Research Alliance)



*The highlight of the morning of the first day of the event was the Roundtable on SDG 17. This comprised two contrasting keynote speakers followed by a panel discussion*



**Dr. Victor Konde**, Scientific Affairs Officer at United Nations Economic Commission for Africa, opened the discussion with a keynote address on how to strengthen the means of implementation and revitalize the global partnership. For Dr. Konde, WAITRO should identify key issues that attract the interest of partners and member states and encourage its members to activate formal and informal partnerships along the innovation chain. How do partnerships achieve impact and why do we partner in the first place? By reducing risk of market access is one reason. Accessing equipment or talent that we may not have is another.

Not enough global investment for climate (3.8%) is going into Africa. There is a need to build more capacity, and also to build trust, in order to enable intra-African partnerships. The number of African universities in the Times ranking is going up but too many partnerships are around distribution rather than development and manufacturing. Few technology agreements exist with developing countries. Scientific partnerships are growing but innovation and entrepreneurial partnerships remain weak.

UNECA has had some success with biomedical engineering curriculum development in universities to teach technology and entrepreneurship and has noticed a resulting increase in capabilities across the continent. What WAITRO can do is to identify key issues that attract the interest of partners in member states. Stimulate our members to act to institute both formal and informal partnerships.

**Mamati Tembe**, Head of Public Affairs Science and Sustainability at Bayer AG.

Dr. Tembe opened with Bayer's motto: health for all and hunger for none. One size for all does not work so innovation in different countries has to have flexibility. How to make sure that technology is available in different countries? This requires partnering, not just in science but at all levels of the commercialization process including capacity building, entrepreneurship, and digital means to improve productivity at the level of individual farmers. The focus of partnerships should be to ensure that whatever innovation is generated reaches the intended beneficiary, by collaborating and building capacity to create impact.



After the keynotes, high-level guests addressed the question “How can WAITRO contribute to revitalizing the global partnership for sustainable development?”. The roundtable was moderated by Dirk Saseta, Director General, Area of Promotion & Management at LEITAT, and included guests who commented as follows:

**David Tveit**, EVP, Energy and Climate Division, DTI; Partnerships in WAITRO are a win-win cooperation. The purpose of DTI is to take technology from universities and make it work in real life. Was involved in WAITRO since 1968, when it was first conceived. Successful initiatives have included fermented foods, which has been an impactful area for 30 years. Want to continue partnerships, benchmarking, and opportunities for Europe to work with Africa in partnerships within WAITRO in food, nutrition, energy, innovation management.

**Prof. Nnnesi Kgabi**, Director Research Support, NWU; Try to address the issues that lead to having partnership strategies on paper but no impact with partners. Several issues need to be considered in partnership strategy- one is what type of partnership do you want? Too many signed agreements are never implemented. Research at NWU is goal-oriented, different Centers partner at different levels. For example, niche level research partnerships are at the incubation stage and one partner may be learning and following, but at the Center of Excellence level, each partner would be expected to bring something to the table. Understanding cultural difference is critical.



**Dr. Paul Burrows**, Vice President Overseas Cooperation, JITRI; WAITRO is the string that connects pearls of research around the world into something far more valuable and beautiful. Impactful research starts with market need, which the JITRI ecosystem connects with research capacity and WAITRO can access on a global level. Cross-cultural partnerships, however, are often challenging and this is, at its core, the irreplaceable value of WAITRO as a nexus for both technical and cultural exchange.



**Dr. Hussam Hussein**, Executive Director Partnerships, RSS; RSS was founded to produce and promote science to inform the development of the country. Partnerships mean sharing information to avoid reinventing the wheel as well as increasing impact through implementing technology which means partnering with industry, farmers and the local community. WAITRO enhances the ability to work together and achieve impact on all 17 SDGs.

**Jaime Arboleda Palacio**, Deputy Director, CTA WAITRO is an excellent platform, for example not easy to partner in networks in Latin America, learning how to be part of broader groups is valuable. Building trust is critically important

In conclusion the panel talked about the challenges of cross-cultural cooperation and the crucial role that WAITRO serves, both in increasing cross-cultural understanding and by providing opportunity and a venue for organizations from large and small countries, as well as

more and less developed countries, to sit at the same table to discuss how to achieve impact on the SDGs. Cooperation outside the WAITRO Global Innovation Family is also effective, but the barriers to membership are low and research organizations should strive to be part of it!

Also, in a parallel morning session, there was a presentation of The Network Pitch Workshop by Pitch Coach and Innovation Advisor, Dirk Lehmann. In this workshop, Dirk shared tips on how to create an impactful pitch, design powerful visuals, and perform a confident presence on-stage.

The first day of the summit ended with a reception including entertainment from a local dance troupe and the award ceremony of the German-African Innovation Incentive Award (GAIIA) by the German Federal Ministry of Education and Research (BMBF).



## Day 2

**Panel Discussion, Workshops and  
WAITRO SDG Impact Award**

A panel discussion on Financing Innovative Solutions for the SDGs opened the second day of the WAITRO Summit. The discussion was introduced with a keynote by Keiron Brand, Bankable Nature Solutions Advisor at WWF-Netherlands, on Catalyzing Finance for Innovative Impact Solutions. In the context of Green Finance, he highlighted the importance of building partnerships with companies to ensure that they understand their pressures on nature and their nature-related risks, as well as to deploy resilience activities collaboratively. He pointed out that, whereas the World Wildlife Fund estimates that \$3.3 – 4.5 trillion annually is needed to achieve the SDGs, only about \$1.4 trillion is actually being funded at present. The gap can only be filled using blended finance models and public – private partnerships such as the model followed by the Dutch Fund for Climate Development (DFCD) and the WWF Bankable Nature Solutions blueprint.

*“Encourage a meaningful shift in finance by integrating nature (and climate) into all financial decision making to support a shift in global financial flows away from climate and nature-negative outcomes and towards climate and nature-positive ones.”*

(Keiron Brand, Bankable Nature Solutions Advisor at WWF-Netherlands)



After the keynote, renowned speakers discussed the theme Bridging the Gaps between the Private Sector and Innovative and High Impact Groups. Jean-Marc Champagne, Founder and Director of Seneca Impact Advisors, moderated the discussion with the panelists: Wesley Okeke, CEO at CUBIO Innovation Center; Laura Eck, Consultant at WWF; and Fungai Musana, Corporate Engagement Manager at WWF.

In parallel, the participants were again able to benefit from various capacity development events listed separately.





The closing ceremony featured speeches by M.Sc. Nienke Buisman, Head of Unit for International Cooperation, European Commission; and Raymond Tavares, Representative in Cameroon & Central Africa at UNIDO. While Buisman addressed the topic “The Africa Union-European Union Innovation Agenda as a contribution to reinforcing partnerships for sustainable development in Africa,” Tavares focused on “Digital Transformation and The Sustainability Imperative.” According to him, WAITRO members must play a vital role in sustainable development, moving from their advisory roles to becoming development actors. For Tavares, WAITRO members must work side by side with Conformity Assessment Bodies to accelerate the use of new technologies, collaborating beyond national borders with the private sector and increasingly exploring nature-based solutions.

Next, participants and guests were able to hear from Yenny Meliana from BRIN, Julienne Nguetack from Université de Yaoundé, James Devitt from University of Huddersfield, and Marcelo Prim from SENAI about their successful collaboration stories initiated through the WAITRO’ s Open Innovation Platform, SAIRA.

The highlight of the closing ceremony was the WAITRO SDG Impact Award for the most impactful research poster presented at the Summit. A short list of finalists was selected by the attendees themselves by placing stickers on their favorite posters, a process that also encouraged delegates to physically show up in the poster area that consequently served as a networking nexus. Winners were then selected by a panel of experts drawn from the invited VIP speakers. At the conclusion, Carolina María R. Ortiz (represented by Jaime Arboleda Palacio) from CTA, and Dr. Joshua O. Abuya from Kibabii University received a cash prize in the amount of US\$3,000 each from the WAITRO Secretariat in recognition of their projects and their impact on the Sustainable Development Goals.





The last day of the WAITRO Summit 2022 ended with a special dinner held at Lourensford Wine State, where delegates were able to celebrate not only the successful event, but above all, the fact that they were once again gathered together as partners, friends and members of the Global Innovation Family.

In both days, delegates had the opportunity to participate in different capacity development workshops, and kick-off sessions – for the initiation of working groups focused on specific SDGs. Despite the diverse topics addressed in the workshops, such as R&D to Commercialization and 4.0 Industry, a common theme permeated the discussions: the importance of including communities in the search for solutions, listening to those who deal with the problem, and making them part of the problem-solving process. With over 170 registrants from more than 40 countries, the first post-pandemic WAITRO Summit was a resounding success.



## Capacity Development Workshops at the Summit

### From R&D to Commercialization – A Focus on Entering International Markets

*Organized by Nermin Siam, from the Karlsruhe Institute of Technology, presented by Andreas Kleinn M.Sc.*

Technology Entrepreneurship, Technology application selection (TAS) process, Opportunity recognition, ideation, business modeling. The session introduced how a technology is turned into an idea and ultimately into an international business model: The approaches for technology entrepreneurship researched at KIT were presented and shown with examples: technology ideation, application and selection. Subsequently, approaches were presented to systematically identify customer benefits and to incorporate them into a business model.



### SDG 3: Good Health and Wellbeing – a convenient motivation or a neglected outcome assessment?

*Organized and presented by Dr. Jo Barnes, Senior Lecturer Emeritus, Department of Global Health, Stellenbosch University.*

Good health and wellbeing are cross-cutting conditions underlying almost all improvements in living conditions for communities. Many project proposals or preambles to laws or statutes on water, sanitation, energy, etc. contain statements on improving the health and wellbeing of people. This phrase is used as a motivation for the action proposed in the text that follows. Unfortunately, that is also sometimes the last that health and wellbeing are considered in any real or practical way.

Changes in, for instance, water and sanitation services result in complex changes in the health and wellbeing of the people residing in that area, not all of them necessarily positive. Some of those changes are only visible over the long term and some have knock-on effects that were not foreseen at the time of planning and executing the project. Unfortunately, many civil engineering projects and other actions intending to improve the health and wellbeing of communities are assessed very soon after the project is completed and the project then declared a “success”. Follow-up assessments over time are almost never carried out and the local officials in the area are then left with coping as best they can in those cases where not all the predicted positive spinoffs actually materialized. Valuable lessons are thus lost, and the same mistakes tend to occur over and over again. Ways need to be found to improve on this state of affairs and that is what the capacity building workshop hopes to discuss.

Participants were shown actual examples where determining good health and wellbeing turned out to be more complex than originally envisaged in the project or program. After this orientation there was ample opportunity for the participants to engage in discussion on what specific essential points the meeting wants to carry forward to the Working Group on SDG 3 session, together with any recommendations to improve the disconnect between planning and outcome determination in this field.

### **Traditional and Innovative Government Funding for Sustainable International Cooperation – Potential, Pitfalls and Strategies**

*Organized by Joy Owango, TCC Training Centre in Communication, Kenya, International Science Council, Joseph Njogu, Chief Executive Officer, Research Beeline, Kenya and Julia Wiethüchter, Program Manager, WAITRO Office Germany, Fraunhofer Gesellschaft.*

This session started from SDG17, which emphasizes the importance of partnerships for sustainable development, but asked how can these be successfully funded in the context of international research collaboration?

Access to funding and funding regulations play a significant role in international cooperation. In this interactive workshop we want to discuss how access to information, finding partners to apply for grants and the funding regulations that the researchers need to follow impact international collaboration. While the session looks at traditional funding in the form of grants, awards and calls it will also highlight innovative ways to acquire resources by working with industry or forming innovation hubs. The workshop looked at every step of the process of a project:

- Applying for funding: Who has access to information? Who can apply? Which types of funding are there?
- Once funding is acquired: How do funding regulations affect the partnership?
- After the funding ends: What are the results not just on the scientific level, but for the researchers and their careers? How sustainable are the partnerships and can they create long-term collaborative structures?

Participants of this workshop heard from three experts that shared their practical experience, empirical findings and theoretical knowledge on the matter. Participants played an active role in the workshop and were invited to engage in discussion, reflect on their own experiences and ideas and take away tips and strategies for everything that comes with acquiring resources for international collaboration.

### **Industry 4.0 Technologies as a Lever for Fostering Competitiveness in Industry**

*Organized by Sergio Ibañez Perez, Leitat Technological Center and Paul Burrows, JITRI, WAITRO Office China.*

part of Industry 4.0, to show success stories of companies that have adopted or are key players in these technologies (external speaker), as well as to inform about new business models generated to promote the adoption of these technologies. We hope that participants will understand that 4.0 technologies are an essential asset to be competitive today and that there are facilitating agents that can help them to adopt these technologies.

At the end of the presentation there was a discussion between the speakers and the audience to discuss how WAITRO should encourage the promotion of these technologies and generate international cooperation aimed at the development of cross-border projects.

### **Enabling Small-Scale Spare-Parts Production in Developing Countries**

*Organized by Prof. Dr. Emad Ewais of the Central Metallurgical Research and Development Institute (CMRDI)*

A poster for the Central Metallurgical Research and Development Institute in the Members' Poster Session included various activities starting from enhancing the value of local ores and processing them to manufacture of spare parts using traditional technologies, up to precise digital manufacturing and 3D printing of various materials. CMRDI also organized this unique workshop that included four talks.

Dr. Emad opened the session with the importance of scientific research for the advancement of industry, especially in developing countries. Prof. Ewais shared a talk relating to the huge facilities existing at CMRDI in the field of metallurgical aspects that can be very useful in developing the African countries. He gave many examples of industrial research projects that have already been applied and achieved an economic return for the beneficiaries, including the production of high-manganese slag from low-value local manganese ores for the benefit of the Sinai Manganese Company. As well as the Centre's contributions in manufacturing emergency spare parts for various sectors, rehabilitating boilers, dilapidated equipment, and others.

The Egyptian experience was narrated by taking advantage of the ongoing research at the Central Metallurgical Research and Development Institute (CMRDI) and converting it into an industrial product, for example the body of a 4-cylinder diesel car engine, which is the first engine that was manufactured locally in Egypt as a result of scientific research and experiments that were carried out at the centre to reach the zero sample and then mass production of this product.

The president of CMRDI also referred to the long and continuous history up to the present time in enhancing the capabilities of African countries by holding constant training courses for engineers and technicians in the field of raw materials technology, welding, plumbing, and others.

Prof. Khaled M. Ibrahim, head of casting technology Dept. at CMRDI, presented two talks about helping the African countries in producing spare parts for the mining, cement industries as well as military sector.

Prof. Dr. Shaima Al-Haddad, a member in casting Dept. gave a talk on transferring cathodic protection anodes manufacturing technology from (CMRDI) as one of the important examples of spare parts to other African countries. The Metal casting department is currently considered the main source to which the various authorities in general and the electricity sector in particular resort to supplying them with cathodic protection anodes of aluminum, zinc and magnesium ores that conform to international standards. The Metal Casting department also succeeded in changing the damaged anodes of the buried lines in the power stations and replacing them with new magnesium anodes entirely manufactured at CMRDI. This is because CMRDI is the only entity locally that owns the technology of melting and casting magnesium alloys. It is worth noting that CMRDI has a corrosion and surface protection department, which is concerned with designing various cathodic protection systems and evaluating their performance..as well.

CMRDI also greatly appreciated the support of WAITRO during the summit as well as advertising and promoting to the summit through many channels, which in turn increased the number of participants in the session. Therefore, a large number of participants from different countries participated in this session. There were also intensive discussions after finishing the talks in the session which were related to the sustainable development in mineral resources and advanced manufacturing involving; casting technology, laser welding technology, digital manufacturing and manufacturing of spare parts. Also, advanced materials including recent trends in magnesium, aluminum, ultrahigh steel and titanium alloys was included.

Attendees praised the CMRDI achievements in the field of deepening local industrialization. Others suggested strengthening cooperation between the CMRDI and other African countries in the field of metallurgical industries in light of the economic crises that many of these countries are going through at the present time. This is in addition to the agreement with some of the workshop attendees from African countries to make a cooperation protocol aimed at benefiting from the center's expertise in spare parts manufacturing by conducting joint industrial research projects that benefit all concerned parties.

## **Project Cycle Management/Results Based Management- A focus on Monitoring and Evaluation in the context of the Inter-Connectivity of the Sustainable Development Goals and the Rights Based Approach. A South African Case Study.**

*Organized by Roger Short, Former WAITRO Secretary-General.*

Although there is a universal approach to PCM-LFA-RBM methodologies there are subtle differences between international agencies and the types of project/programs. The UN 2030 Development Agenda and the associated Sustainable Development Goals are applicable globally and are to be implemented adhering to the Rights Based Approach. These concepts may be alien to technically oriented staff, but the principles will have an impact on their work, in particular how to design, monitor and evaluate projects and how to appreciate the inter-connectivity within and between SDGs and their targets. Concrete examples of approaches and methods will be drawn from the Danida supported Integrated Water Resources Management (IWRM) program in South Africa.

Participants to this workshop were able to interact with stakeholders and principal actors of the Integrated Water Resources Management (IWRM) program that ran from 2000-2010 which, in addition to water conservation and ground water policies, implemented over 100 community driven projects utilizing the principles of the rights-based approach.

## **Benchmarking to Identify Best RTO Management Practices**

*Organized by Knud Erik Hilding-Hamann, Senior Specialist of DTI, David Grier, Chief Strategist (Retired), Innovation Saskatchewan, and Chuqiao Dong, Project Support, WAITRO office China, JITRI.*

Since the start of 2022, the WAITRO team has been working on an online benchmarking system to enable WAITRO members to improve their RTO management processes and performance.

The Summit workshop was the first of several knowledge exchange events to build on data submitted from RTOs with the aim of helping members to improve their practices and performance.

Why is this important? RTOs (Research and Technology Organizations) are special in their construction and often it is not relevant to compare their processes and performance with private businesses, universities, or public institutions. WAITRO members benefit more from a comparison with similar RTOs in their region and/or in other countries. This is what the WAITRO Benchmarking Project supports.

The project builds on the work conducted by David Grier, Chief Strategist (Retired), Innovation Saskatchewan and colleagues between 1994 and 1998, with subsequent updates in 2003 and 2008, and is an upgraded online version of the paper-based version used then. David has played a vital role in the updating of the RTO management structure, process, and practice descriptions as well as performance indicator descriptions and instructions for RTOs.



The workshop covered the eight main process areas that are benchmarked: RTO Governance, Financial Management, RTO Service, Business Development, Organizational Management, Project Management, Capacity Building, and Personnel Management. New elements have been introduced, however, to mirror technological developments, and current realities and requirements for RTOs, a total of 13 performance indicators have been developed, many of which carry over from the original model.

It is the combination of performance indicator data and process practice selections that will allow us to compare practices across participating RTOs. This allows us to indicate for individual processes which practices deliver the best performance, and to consequently recommend to participating RTOs which processes they should consider adjusting their practices to achieve better performance.

JITRI and a software development team built an online version with all the necessary logic and integrated calculations required for a coherent, well-performing benchmarking system that will deliver clear but anonymous comparisons of RTO data according to types. Preliminary testing of the new online version of the benchmarking system before the workshop led to valuable feedback from the WAITRO Regional Focal Points (RFPs) and members including LEITAT, TISTR, CTA, DTI, RSS and SIRDC. This feedback led to significant adjustments and improvements to the online benchmarking system which is now being implemented.

The value of the benchmarking system is directly correlated to the number of RTOs that participate. The higher the number of participating RTOs, the better the practice and performance comparisons available to all RTOs will become. With good performance comparisons, RTOs will receive vital process and practice improvement recommendations covering those process areas with the most potential to improve their own management.

The workshop, therefore, was planned to introduce and motivate as many RTOs as possible to grab the opportunity to use the online benchmarking system as an important tool in their process improvement plans.

## Working Group on SDG2 “Zero Hunger” Kickoff Session

*Moderators: Dr Sandi Darniadi and Theresia Ningsi Astuti.*

The moderators started off by reviewing the SDG 2 targets. BRIN suggested a list of sub-topic (20 items). One participant suggested to pick ‘low hanging fruit’ to start. Others suggested to vote for 3 topics or agree on criteria first. Participants discussed the relevance of topics to them and picked the following:

- **Modern agriculture:** urban farming, smart farming
- **Novel Food:** new resource of protein, low GI, fiber
- Food/agriculture waste
- **Post harvesting:** food technology and processing

- **Soil science:** eco-friendly biofertilizer | Plant protection: Biopesticides -> can both be put under Biorefineries and circular bioeconomy
- Traditional/Ethnic Food

The group started merging, summarizing and re-structuring the sub-topics. It was noted that the SDG Working Group should address cross-cutting issues.

One participant proposed the following 3 main categories for food:

- Processing
- Production Technology
- Loss and Waste

The group was split into three sub-groups to identify SMART objectives for each category that can be achieved in the next 2 years. The following objectives were proposed by the sub-groups:

#### 1. Food Processing

- Identify the best procedure to food processing (new technologies) to prevent the loss of nutrition.
- To obtain food products include high nutritional level.

#### 2. Food lost and waste

- To utilize waste products from food processing (Scalable)
- Maximization of the usage (develop new value- added) product with waste
- Increase shelf life by using smart packaging
- Messaging/ influence perception of processing of waste as hi-tech
- Consumer education

#### 3. Food production technology

- Prepare a systematic review of food production technologies in WAITRO Member Countries (through questionnaires, data collection, baseline study)
- Formulate recommendations, policy brief, white paper on sustainable food production and smart.

## Working Group on SDG6, “ Clean Water and Sanitation” Kickoff Session

*Moderators: Ursula Schließmann and Almoayied Assayed*

Among the items collected from the introduction round, common overarching topics for the working group were identified:

- WEF (Water-Energy-Food)-Nexus including the impacts of climate change, transparency and a circular water economy. During discussion, it was noted that economy might (in practice) conflict with the concept of nexus. Also, it was argued that the often-used silo-based approach needed to be replaced with an integrated approach. 'Water re-use' seemed to be a more appropriate term in this context.
- Digital Water
- Water Quality & treatment. During discussion, it was highlighted that technology was not the issue. The real issue was that 'water is too cheap' leading to a problem of more social and behavioural nature
- Circular Water Economy/Water use, including social aspects and behavioural change
- Water supply and transboundary water management. Discussion focused on what are the drivers to make the how happen? Water is political, which quickly turns into human rights discussion.

In the next step, the group was tasked to agree on one objective for each topic that the working group can achieve in the next 2 years. One participant suggested to use the WG to share their experience working in this sector and focus on how to make water more valuable.

The group was broken into 3 smaller groups to each focus on one of the first 3 topics and discuss for 5 min specific, SMART objectives.



- **The first group proposed 3 objectives for topic (1):**

- a. at least one workshop to get the issue to policy makers,
- b. position paper about our experiences,
- c. becoming active in a relevant forum

- **The second group identified 3 foci for topic (2):**

- a. sensors,
- b. digitalization needs,
- c. AI. They asked the group what objective could be expected from them in these areas.

- **The third group suggested 2 objectives for topic (3):**

- a. assessments,
- b. review paper

The group agreed to use MS Teams (for meetings and sharing files) and WhatsApp (for quick communication) in future work.

## Working Group on SDG7, “Affordable and Clean Energy” Kickoff Session

*Moderators: Prof Ashmore Mawire, Prof Daniel A.M. Egbe*

The moderators opened the session with an introduction and suggestion to use the working group to develop research proposals. To this end, Prof Egbe presented two ideas.

- **Idea 1:** Video presentation from Peter Schubert – Self-stoking energy development for rural remote communities
- **Idea 2:** Video presentation from Stefan Peter – Nathal Energy multipurpose supply container

Following the presentations, the moderators opened the group discussion. One participant shared the observation that nobody is interested in energy despite the crisis and emphasized the need to understand what to do with the solution, start with the social side of things, match demand and supply, identify what problems need to be solved as a first step. Another participant added that a lot of projects are struggling with who is going to pay for them; what is the business case behind the project?

The approach to go out to the community first and find out what they need, find out how to finance and only then develop technology was advocated. Many argued that technology is not the real problem. The bigger challenge lies in finance and social services (uptake by the community). The question of whether there are any social scientists in the room came up. Three put up their hands. The crucial role of community engagement was highlighted.

There was a discussion on why the group should focus on Africa. The difficulties with ‘imported solutions’ were noted. One argued that a business model for the maintenance was also needed.

RTOs can stimulate change but need investment and the importance of advocacy was stated by others. The moderators reiterated the question whether there was interest in partnering in a research proposal? The Horizon Europe was discussed. It was noted that the US would need to find their own funding. One participant suggested that instead of off-grid vs on-grid, a hybrid incl. all key factors (such as policy, funding, social & community, energy solutions) was needed.

Other suggestions included a feasibility study towards the accessibility of learning material or the focus on umbrella systems, e.g. developing a generic framework.

## Working Group on SDG17, “Partnerships for the Goals” Kickoff Session

*Moderators: James Devitt and John Allport*

Organized and presented by James Devitt (University of Huddersfield, UK); Dr Colin Venters (University of Huddersfield, UK); and Dr Marcelo Prim (SENAI, Brazil)

'Problems cannot be solved with the same mindset that created them.' Albert Einstein

There is a paradox at the heart of many traditional research and innovation partnerships which claim to have sustainable development outcomes, and that is they are intrinsically unsustainable in design and execution. Unequal relationships, badly conceived placing individual interest before shared outcomes, a focus on technological solutions over lack of holistic thinking and good design, means that inevitably most partnerships fail to achieve their full potential.

A well-attended and interactive workshop was held during the WAITRO Annual Conference in South Africa. This was an opportunity for WAITRO members to explore core concepts of systems thinking and discuss the adoption of innovative approaches to partnership building using systems thinking techniques. This workshop introduced the core concepts of systems thinking to explore the adoption of innovative approaches to partnership building using systems thinking techniques.

The workshop explored the nature of research partnership working and the complexity of attempting to do this in a sustainable manner. This concept of interdependence and complexity was explored through practical exercises and discussion. The group learnt that to address complex problems, it is important to have tools and a framework that help make sense of this complexity. Systems thinking takes a holistic approach to understand how systems influence one another, it enables the practitioner to deal with this complexity.

It was agreed to take forward these concepts by forming a working group for WAITRO members who wish to look at sustainable ways to build better and more long-lasting partnerships to advance the SDGs, especially between partners in industrialised and developing countries and between industry and research organisations.

The mission of the SDG17 working group is to explore new ways to address this paradox and to place WAITRO at the centre of innovative thinking in relation to good practice in building truly sustainable partnerships for SDGs with an aim to help generate and lay the foundations for new models for SDG partnerships which will in turn attract new RTO and industrial members to join the network and to establish a path forward for funded research and maximum impact.

The working group will develop a Position Paper and action plan which will provide a roadmap that identifies the challenges and open research issues for WAITRO members to address.



# Members posters

The WAITRO Summit 2022 was built around the theme of “SDG17: Partnerships for the Goals.” To maximize the partnership potential, members were invited to contribute posters promoting their expertise and the areas in which they would like to collaborate. These are reproduced in miniature here as a tribute to the members who worked with us to generate the content. The full-size versions are in the permanent WAITRO exhibition at the Secretariat Headquarters in Jiangbei New Development Area, Nanjing. Why exhibit there? Well, JITRI often receives visits from multi-national companies, consulates and embassies from all over the globe and it is valuable for them to see their regions represented in WAITRO. If you don't see your organization in the following pages, it is either because we did not receive a poster or it was missing details such as sufficient graphics resolution. Contact the Secretariat and we will work with you to add you to both the permanent exhibition and future Annual Reports so that you can take your place in the Global Innovation Family.

**AFR**  
African Food Revolution

**FACTS**  
HEADQUARTERS: Zimbabwe  
OPERATING IN: Cameroon, South Africa, Italy  
NUMBER OF EMPLOYEES: 12  
ANNUAL BUDGET: \$1,000  
SPECIALIZED RESEARCH IN: Agriculture, Development Research, Food and Nutrition, Life Science and Biotechnology, Production, Value Chain Management, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
Having grown vegetable tables on a sunny rooftop terrace directly from the irrigation schemes in the village.

**ABOUT AFR**  
African Food Revolution is a Non-Governmental Organization based in Africa. The African Food Revolution (AFR) provides expertise and support of the technical field across which the focus is directed in four African regions.

**SDGs IN FOCUS**

www.waitro.org

**ainia**

**FACTS**  
HEADQUARTERS: Spain  
OPERATING IN: Worldwide  
NUMBER OF EMPLOYEES: 50  
ANNUAL BUDGET: \$16,000,000  
SPECIALIZED RESEARCH IN: Agriculture, Development Research, Food and Nutrition, Health and Medicine, Future Food, Knowledge and Technology Transfer, Life Science and Biotechnology, Production, Security and Protection, Waste Management and Environment, Water, Packaging, Consumer analysis, Legislation, Hygienic Design, Microencapsulation, Training, Supercritical Fluid Extraction, Hyperspectral Vision

**RESEARCH EXAMPLES**  
Identify new aspects of potential interest for creating and improved sustainable systems and ingredients. Market-oriented. Launching innovative, safe products commercialized in more than 20 countries. Consumer validation trained panel of tasters.

**ABOUT ainia**  
Ainia is a non-profit association, and an growing business has high representation of the food industry. Research with more than 100 associated, and one of the 1,000 start-ups per year.

**SDGs IN FOCUS**

www.waitro.org

**BCSIR**  
Bangladesh Council of Scientific and Industrial Research

**FACTS**  
HEADQUARTERS: Bangladesh  
OPERATING IN: -  
NUMBER OF EMPLOYEES: 1600  
ANNUAL BUDGET: \$148,27,550  
SPECIALIZED RESEARCH IN: Agriculture, Covid-19, Development Research, Food and Nutrition, Health and Medicine, Life Science and Biotechnology, Materials and Surface, Water

**RESEARCH EXAMPLES**  
Scientists are doing their experiments with an instrument 800,587

**ABOUT BCSIR**  
The genesis journey of Bangladesh Council of Scientific and Industrial Research (BCSIR) commenced in 1959 as a multi-disciplinary research unit. The original laboratory of BCSIR, since then the organization is based in research and development activities in various fields of scientific and industrial research.

**SDGs IN FOCUS**

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**BITRI**  
BOTSWANA INSTITUTE FOR TECHNOLOGY RESEARCH AND INNOVATION

**FACTS**  
HEADQUARTERS: Botswana  
OPERATING IN: -  
NUMBER OF EMPLOYEES: 189  
ANNUAL BUDGET: \$12,000,000  
SPECIALIZED RESEARCH IN: Building Materials Science, Climate Change, Electronics & Communications, Energy, Information Systems & Technologies, and Nanomaterials.

**RESEARCH EXAMPLES**  
Thermal Character and Performance Testing of the Solar Thermal Testing Facility (STTF)

**ABOUT BITRI**  
Innovation Institute for Technology Research and Innovation (BITRI) was established in 2012. The institute's primary focus is to develop and to disseminate into national and international levels in the form of research, technology transfer and innovation.

**SDGs IN FOCUS**

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**BNARI-GAEC**  
Biotechnology and Nuclear Agriculture Research Institute, Ghana Atomic Energy Commission

**FACTS**  
HEADQUARTERS: Ghana  
OPERATING IN: -  
NUMBER OF EMPLOYEES: 120  
ANNUAL BUDGET: \$200,000  
SPECIALIZED RESEARCH IN: Agriculture, Life Science and Biotechnology, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
Research into soil moisture and nutrient management

**ABOUT BNARI-GAEC**  
The Biotechnology and Nuclear Agriculture Research Institute (BNARI-GAEC) is a research and development organization based on the transfer of the scientific knowledge to the agricultural sector. The institute is engaged in research and development activities in the fields of biotechnology, nuclear agriculture, and nuclear energy.

**SDGs IN FOCUS**

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**BRIN**  
National Research and Innovation Agency

**FACTS**  
HEADQUARTERS: Indonesia  
OPERATING IN: Indonesia  
NUMBER OF EMPLOYEES: 14000  
ANNUAL BUDGET: \$40,000,000  
SPECIALIZED RESEARCH IN: Agriculture, Covid-19, Development Research, Education, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Infrastructure and Cities, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Other STI Related Areas, Standardization, Value Chain Management, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
BRIN develops and operates Indonesia's first 500 MW solar power plant, BRN provides digital solutions for agricultural applications, healthy nutrition, and marine. BRN provides general services for public sector organizations. BRN also provides services for TRC and data monitoring services for public sector organizations.

**ABOUT BRIN**  
The National Research and Innovation Agency (BRIN) is a government institution under the President of the Republic of Indonesia to coordinate research, development, innovation, and application, as well as training and innovation, implementation of science and technology, and management of intellectual property rights. BRIN is the national research and innovation agency, established by Law No. 12 of 2018 on the National Research and Innovation Agency. BRIN is the national research and innovation agency, established by Law No. 12 of 2018 on the National Research and Innovation Agency. BRIN is the national research and innovation agency, established by Law No. 12 of 2018 on the National Research and Innovation Agency.

**SDGs IN FOCUS**

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**BU**  
Bustan University

**FACTS**  
HEADQUARTERS: Uganda  
OPERATING IN: Uganda  
NUMBER OF EMPLOYEES: 400  
ANNUAL BUDGET: \$3,578,873  
SPECIALIZED RESEARCH IN: Agriculture, Covid-19, Energy, Health and Medicine, Information and Communication Technologies, Materials and Surfaces, Other STI Related Areas

**RESEARCH EXAMPLES**  
The first 100% water crop dryer and water machine of West Uganda's first crop dryer.

**ABOUT BU**  
Bustan University was established in 2012. It is a public university that provides higher education, professional education and research and innovation. Bustan University is a public university that provides higher education, professional education and research and innovation. Bustan University is a public university that provides higher education, professional education and research and innovation.

**SDGs IN FOCUS**

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**CARI RI**  
Caribbean Industrial Research Institute

**FACTS**  
HEADQUARTERS: Trinidad and Tobago  
OPERATING IN: Trinidad and Tobago  
NUMBER OF EMPLOYEES: 163  
ANNUAL BUDGET: \$7,000,000  
SPECIALIZED RESEARCH IN: Agriculture, Corporate Development, Education, Energy, Food and Nutrition, Information and Communication Technologies, Knowledge and Technology Transfer, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
Preparation work being performed on sample for project work.

**ABOUT CARI RI**  
Established in 1975, the Caribbean Industrial Research Institute (CARI RI) has been a valuable asset to the region. CARI RI is a research and innovation organization that provides higher education, professional education and research and innovation. CARI RI is a research and innovation organization that provides higher education, professional education and research and innovation.

**SDGs IN FOCUS**

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**CIDET**  
Center for Innovation and Technology of the Colombian Power Industry

**FACTS**  
HEADQUARTERS: Colombia  
OPERATING IN: Colombia and neighboring countries  
NUMBER OF EMPLOYEES: 120  
ANNUAL BUDGET: \$4,000,000  
SPECIALIZED RESEARCH IN: Agriculture, Energy, Knowledge and Technology Transfer, Conformity Assessment

**RESEARCH EXAMPLES**  
Wastewater Lab, Environmental Lab

**ABOUT CIDET**  
CIDET Center for Innovation and Technology of the Colombian Power Industry. CIDET is a research and innovation organization that provides higher education, professional education and research and innovation. CIDET is a research and innovation organization that provides higher education, professional education and research and innovation.

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**CMRDI**  
Central Metallurgical Research and Development Institute

**FACTS**  
HEADQUARTERS: Egypt  
OPERATING IN: Egypt  
NUMBER OF EMPLOYEES: 270  
ANNUAL BUDGET: \$20,000,000  
SPECIALIZED RESEARCH IN: Energy, Health and Medicine, Materials and Surfaces, Production, Waste Management and Environment and Water

**RESEARCH EXAMPLES**  
Manufacturing, Additive Manufacturing, Laser and Digital Manufacturing and Industrial Automation

**ABOUT CMRDI**  
The Central Metallurgical Research and Development Institute (CMRDI) is a R&D organization that provides higher education, professional education and research and innovation. CMRDI is a research and innovation organization that provides higher education, professional education and research and innovation.

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**CSIR**  
Council of Scientific and Industrial Research

**FACTS**  
HEADQUARTERS: India  
OPERATING IN: India  
NUMBER OF EMPLOYEES: 10337  
ANNUAL BUDGET: \$26,632,500  
SPECIALIZED RESEARCH IN: Covid-19, Development Research, Energy, Food and Nutrition, Health and Medicine, Infrastructure and Cities, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Other STI Related Areas, Standardization, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
Hydrogen Production, Water Desalination, Biotechnology, Waste Management and Environment, Water

**ABOUT CSIR**  
Council of Scientific and Industrial Research (CSIR) is a research and innovation organization that provides higher education, professional education and research and innovation. CSIR is a research and innovation organization that provides higher education, professional education and research and innovation.

**SDGs IN FOCUS**

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**CSIR**  
Council for Scientific and Industrial Research

**FACTS**  
HEADQUARTERS: South Africa  
OPERATING IN: South Africa  
NUMBER OF EMPLOYEES: 2140  
ANNUAL BUDGET: \$146,000,000  
SPECIALIZED RESEARCH IN: Agriculture, Covid-19, Development Research, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Infrastructure and Cities, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Other STI Related Areas, Production, Security and Protection, Waste Management and Environment, Water, Mining, Chemicals, Built Environment, Natural Environment

**RESEARCH EXAMPLES**  
Wastewater Lab, Environmental Lab

**ABOUT CSIR**  
The Council for Scientific and Industrial Research (CSIR) is a research and innovation organization that provides higher education, professional education and research and innovation. CSIR is a research and innovation organization that provides higher education, professional education and research and innovation.

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**CSIR**  
Council for Scientific and Industrial Research

**FACTS**  
HEADQUARTERS: Ghana  
OPERATING IN: Ghana  
NUMBER OF EMPLOYEES: 3000  
ANNUAL BUDGET: \$29,800,000  
SPECIALIZED RESEARCH IN: Agriculture, Covid-19, Development Research, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Infrastructure and Cities, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Production, Sanitation, Value Chain Management, Waste Management and Environment, Water, Knowledge & STI Policy Management

**RESEARCH EXAMPLES**  
CSIR - Health and Food Research Institute (HFI) is a research and innovation organization that provides higher education, professional education and research and innovation. HFI is a research and innovation organization that provides higher education, professional education and research and innovation.

**ABOUT CSIR**  
The CSIR currently operates in 16 of the 16 regions of Ghana. CSIR is a research and innovation organization that provides higher education, professional education and research and innovation. CSIR is a research and innovation organization that provides higher education, professional education and research and innovation.

**SDGs IN FOCUS**

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**CSIRO**  
Commonwealth Scientific and Industrial Research Organisation

**FACTS**  
HEADQUARTERS: Australia  
OPERATING IN: USA, France, Chile  
NUMBER OF EMPLOYEES: 1672  
ANNUAL BUDGET: \$875,000  
SPECIALIZED RESEARCH IN: Food security and quality, sustainable energy, resources, health and wellbeing, resilient and valuable environments, future industries, and a secure Australia and region

**RESEARCH EXAMPLES**  
CSIRO's Australia-First precision technology, WaterSense, and other research and innovation projects.

**ABOUT CSIRO**  
The CSIRO Commonwealth Scientific and Industrial Research Organisation is a research and innovation organization that provides higher education, professional education and research and innovation. CSIRO is a research and innovation organization that provides higher education, professional education and research and innovation.

**SDGs IN FOCUS**

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**cto** Centro de Ciencia y Tecnología de Antioquia

**CTA** CENTRO DE CIENCIA Y TECNOLOGÍA DE ANTOQUIA

**FACTS**  
 HEADQUARTERS: Colombia  
 OPERATING IN: Colombia  
 NUMBER OF EMPLOYEES: 83  
 ANNUAL BUDGET: \$3,000,000  
 SPECIALIZED RESEARCH IN: Agriculture, Corporate Development, Research and Development, Education, Energy, Transfer of Knowledge and Technology, Production, Value Chain Management, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
 The CTA is the institution in charge of promoting the "CINCA" program in the Antioquia region. CINCA provides research to farmers and young people in this phase some of them show their research project at the national fair.

**ABOUT CTA**  
 We are the Center of Science and Technology of Antioquia, a corporation created to promote science, technology and innovation as instruments to transform economic, social and territorial development.

**SDGs IN FOCUS**

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**CTET** Center for Transformational Environmental Technologies

**FACTS**  
 HEADQUARTERS: China  
 OPERATING IN: Ningbo, Jiangsu Province  
 NUMBER OF EMPLOYEES: 20  
 ANNUAL BUDGET: \$1,500,000  
 SPECIALIZED RESEARCH IN: Development, Research, Knowledge and Technology Transfer, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
 Digital Water  
 Reductive microsites containing migration and remediation  
 Identifying microplastic particles transmitted from plastic pipes

**ABOUT CTET**  
 The Center for Transformational Environmental Technologies (CTET) is a R&D center established in October 2017, focusing on the development and commercialization of innovative environmental technologies. Co-funded by Ningbo City and the Ningbo Institute of Technology, CTET is supported by the National Natural Science Foundation of China, Zhejiang Province, China.

**SDGs IN FOCUS**

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**DeFuTech** Deutsche Fuertechnik

**FACTS**  
 HEADQUARTERS: Germany  
 OPERATING IN: Germany  
 NUMBER OF EMPLOYEES: 7  
 ANNUAL BUDGET: \$1,000,000  
 SPECIALIZED RESEARCH IN: Information and Communication Technology, Knowledge and Technology Transfer

**RESEARCH EXAMPLES**  
 Assembly Process and Turnover aimed at Technology Transfer  
 Heat Exchanger Plug & Play  
 Heat Exchanger System

**ABOUT DeFuTech**  
 In Germany, we help design an equipment for Europe. Since we have extensive experience in the design and development of industrial equipment, we can help you to transfer the technology to your country.

**SDGs IN FOCUS**

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**DTI** Danish Technological Institute

**FACTS**  
 HEADQUARTERS: Denmark  
 OPERATING IN: Spain  
 NUMBER OF EMPLOYEES: 1000  
 ANNUAL BUDGET: \$15,000,000  
 SPECIALIZED RESEARCH IN: Agriculture, Corporate Development, Energy, Food and Nutrition, Health and Medicine, Infrastructure and Cities, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surface, Mobility and Transport, Other STI Related Areas, Production, Sanitation, Security and Protection, Standardization, Value Chain Management, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
 An innovation, climate test facility at DTI Energy and Environment

**ABOUT DTI**  
 DTI, one of the leading research institutes in Denmark, is a public corporation established to support the development of business and industry through research and innovation.

**SDGs IN FOCUS**

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**EAFIT** Universidad EAFIT

**FACTS**  
 HEADQUARTERS: Colombia, Medellín  
 OPERATING IN: Colombia, Mexico  
 NUMBER OF EMPLOYEES: 2310  
 ANNUAL BUDGET: \$90,000,000  
 SPECIALIZED RESEARCH IN: Agriculture, Education, Energy, Health and Medicine, Infrastructure and Cities, Life Science and Biotechnology, Security and Protection, Management and SOC.

**RESEARCH EXAMPLES**  
 School of Urban Energy, a 1000-ton solar thermal system installed in the school's swimming pool, designed to reduce the school's energy consumption and the carbon footprint of the school.

**ABOUT EAFIT**  
 Founded in 1960, EAFIT is a private university committed to high-quality education and research. It is a member of the Association of American Universities (AAU) and the Association of Universities in Latin America (AULA).

**SDGs IN FOCUS**

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**EPM** Empresas Públicas de Medellín E.S.P.

**FACTS**  
 HEADQUARTERS: Colombia  
 OPERATING IN: Chile, Panama, El Salvador,  
 NUMBER OF EMPLOYEES: 16498  
 ANNUAL BUDGET: \$4,500,000,000  
 SPECIALIZED RESEARCH IN: Energy, Information and Communication Technology, Infrastructure and Cities, Knowledge and Technology Transfer, Mobility and Transport, Waste Management and Environment, Water, Gas Distribution, Utilities

**RESEARCH EXAMPLES**  
 Innovation in the distribution energy sector for the implementation and optimization of smart meters in the system network implemented through Flow Control (FC) Distributed Control of Power Generation (DCPG) System

**ABOUT EPM**  
 Empresas Públicas de Medellín E.S.P. (EPM) is a public company of the city of Medellín, Colombia, under the property of the Municipality of Medellín.

**SDGs IN FOCUS**

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**eurecat** Eurecat Tecnològic Centre

**FACTS**  
 HEADQUARTERS: Spain  
 OPERATING IN: China  
 NUMBER OF EMPLOYEES: 700  
 ANNUAL BUDGET: \$5,735,440  
 SPECIALIZED RESEARCH IN: Covid-19, Development Research, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technology, Infrastructure and Cities, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surface, Mobility and Transport, Other STI Related Areas, Production, Security and Protection, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
 Plasterboard Plant  
 CIP water filter for oil processing

**ABOUT Eurecat**  
 Eurecat is the main Research and Technological Center in Catalonia, Spain. It is a public corporation created in 2008 to support the development of business and industry through research and innovation.

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**FIRDI** Food Industry Research and Development Institute

**FACTS**  
 HEADQUARTERS: Taiwan  
 OPERATING IN: Taiwan  
 NUMBER OF EMPLOYEES: 400  
 ANNUAL BUDGET: \$1,000,000  
 SPECIALIZED RESEARCH IN: Agriculture, Development Research, Education, Food and Nutrition, Health and Medicine, Knowledge and Technology Transfer, Life Science and Biotechnology, Production, Sanitation

**RESEARCH EXAMPLES**  
 Hormone Collector and Research Center  
 Product and Process Research Center

**ABOUT FIRDI**  
 Food Industry Research and Development Institute (FIRDI) is a non-profit organization established in 1982 with financial support from the Government of Taiwan. Its mission is to promote the development of the food industry through research and innovation.

**SDGs IN FOCUS**

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**Forcejet Vibration Control**

**FACTS**  
 HEADQUARTERS: China  
 OPERATING IN: China  
 NUMBER OF EMPLOYEES: 66  
 ANNUAL BUDGET: \$1,280,000  
 SPECIALIZED RESEARCH IN: Infrastructure and Cities, Materials and Surface, Security and Protection

**RESEARCH EXAMPLES**  
 VFF Designed to reduce vibration with suspension of Axles and Springs during tests - Passes and meets the requirements of the ISO 2631-1 standard.

**ABOUT Forcejet Vibration Control**  
 Forcejet Vibration Control is a company specializing in the design and development of vibration control systems for industrial and commercial applications.

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**KEMRI**  
Kenya Medical Research Institute

**FACTS**  
HEADQUARTERS: Kenya  
OPERATING IN: 100+ Countries  
NUMBER OF EMPLOYEES: 897  
ANNUAL BUDGET: \$20,000,000  
SPECIALIZED RESEARCH IN: Covid-19, Development Research, Health and Medicine, Knowledge and Technology Transfer, Life Science and Biotechnology, Production

**RESEARCH EXAMPLES**  
KEMRI leads in-use Culture Media are produced under WHO Quality Certified conditions. The facility is certified against internationally agreed standards of micro-manufacturing. The manufacturing is done under ISO 9001 and ISO 13485:2015 conditions. Delivery under strict cold-chain.

**ABOUT KEMRI**  
The Kenya Medical Research Institute (KEMRI) is a State Corporation established in 1969 to bring together Science and Technology Research for the benefit of the people of Kenya. KEMRI is a leading research institution in Kenya and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG). KEMRI has been recognized as a leading research institution in Kenya and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG).

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**LEITAT**  
managing technologies. Accommodating Tomorrow

**FACTS**  
HEADQUARTERS: Spain  
OPERATING IN: Europe and Latin America  
NUMBER OF EMPLOYEES: 500  
ANNUAL BUDGET: €47,000,000  
SPECIALIZED RESEARCH IN: Agriculture, Corporate Development, Covid-19, Development Research, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Value Chain Management and Environment, Water.

**RESEARCH EXAMPLES**  
Innovated with a smart technology using from the very beginning, Leitat researches, develops and manufactures smart materials, 3D printing, and the generation of artificial intelligence from wastewater and the conversion of organic waste into energy, 3D printing, and the generation of artificial intelligence from wastewater and the conversion of organic waste into energy.

**ABOUT LEITAT**  
Founded in 1968, Leitat is a private public entity, Technological Center registered by the Spanish Government, with the objective of research in technological fields related to companies and entities, with a clear orientation towards the development of a sustainable future. Leitat is a multidisciplinary team of 500 employees, with extensive and specialized experience in research, development and innovation. Through its research and development activities, Leitat has developed a wide range of products and services, such as: smart materials, 3D printing, and the generation of artificial intelligence from wastewater and the conversion of organic waste into energy.

**SDGs IN FOCUS**

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**Monash**  
University

**FACTS**  
HEADQUARTERS: Australia  
OPERATING IN: Malaysia, Indonesia, China, India, Italy  
ANNUAL BUDGET: \$100,000,000  
NUMBER OF EMPLOYEES: 17,000  
SPECIALIZED RESEARCH IN: Agriculture, Corporate Development, Covid-19, Development Research, Education, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Infrastructure and Cities, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Other STI Related Areas, Production, Sanitation, Security and Protection, Standardization, Value Chain Management, Waste Management and Environment, Water.

**RESEARCH EXAMPLES**  
Monash University researchers produced a medical grade polymer for use in the manufacture of three-dimensional models of a brain, or the cellular structure that receives and processes information.

**ABOUT Monash**  
An Australia based research institution, Monash is a leading research institution in Australia and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG). Monash has been recognized as a leading research institution in Australia and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG).

**SDGs IN FOCUS**

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**MUST**  
Mau University of Science and Technology

**FACTS**  
HEADQUARTERS: Kenya  
OPERATING IN: 100+ Countries  
NUMBER OF EMPLOYEES: 407  
ANNUAL BUDGET: \$9,894,400  
SPECIALIZED RESEARCH IN: Agriculture, Corporate Development, Covid-19, Development Research, Education, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Infrastructure and Cities, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Other STI Related Areas, Production, Sanitation, Security and Protection, Standardization, Value Chain Management, Waste Management and Environment, Water.

**RESEARCH EXAMPLES**  
MUST through COVID-19 Project, has implemented scientific technology at various levels. MUST has implemented scientific technology at various levels. MUST has implemented scientific technology at various levels.

**ABOUT MUST**  
Mau University of Science and Technology (MUST) is a leading research institution in Kenya and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG). MUST has been recognized as a leading research institution in Kenya and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG).

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**MWA**  
Metropolitan Waterworks Authority

**FACTS**  
HEADQUARTERS: Thailand  
OPERATING IN: Thailand  
NUMBER OF EMPLOYEES: 4,250  
ANNUAL BUDGET: \$187,567,630  
SPECIALIZED RESEARCH IN: Water

**RESEARCH EXAMPLES**  
Water treatment plant

**ABOUT MWA**  
The Metropolitan Waterworks Authority (MWA) is a leading research institution in Thailand and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG). MWA has been recognized as a leading research institution in Thailand and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG).

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**Nanjing Tech**  
Nanjing Tech University

**FACTS**  
HEADQUARTERS: China  
OPERATING IN: Spain, South Africa  
NUMBER OF EMPLOYEES: 118  
ANNUAL BUDGET: \$390,000,000  
SPECIALIZED RESEARCH IN: Agriculture, Education, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Infrastructure and Cities, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Production, Sanitation, Security and Protection, Standardization, Value Chain Management and Environment, Water.

**RESEARCH EXAMPLES**  
Nanjing Tech University researchers produced a medical grade polymer for use in the manufacture of three-dimensional models of a brain, or the cellular structure that receives and processes information.

**ABOUT NanjingTech**  
Nanjing Tech University is a leading research institution in China and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG). Nanjing Tech has been recognized as a leading research institution in China and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG).

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**NIPRD**  
National Institute for Pharmaceutical Research and Development

**FACTS**  
HEADQUARTERS: Nigeria  
OPERATING IN: 100+ Countries  
NUMBER OF EMPLOYEES: 800  
ANNUAL BUDGET: \$10,000,000  
SPECIALIZED RESEARCH IN: Life Science and Biotechnology

**RESEARCH EXAMPLES**  
Pharmaceutical formulation testing

**ABOUT NIPRD**  
The National Institute for Pharmaceutical Research and Development (NIPRD) is a leading research institution in Nigeria and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG). NIPRD has been recognized as a leading research institution in Nigeria and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG).

**SDGs IN FOCUS**

www.waitro.org

**RANS**  
Russian Academy of Natural Sciences

**FACTS**  
HEADQUARTERS: Russian Federation  
OPERATING IN: USA, Greece, Mongolia, China, Czech, Rep., Belarus, Kyrgyzstan, Azerbaijan, Armenia, Serbia, Brazil  
NUMBER OF EMPLOYEES: 10  
ANNUAL BUDGET: \$100,000  
SPECIALIZED RESEARCH IN: Development Research, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Knowledge and Technology Transfer, Materials and Surfaces, Mobility and Transport, Water, Philosophy and Humanities Science, Alternative Physics, Space Research

**RESEARCH EXAMPLES**  
Research in natural sciences

**ABOUT RANS**  
The Russian Academy of Natural Sciences (RANS) is a leading research institution in the Russian Federation and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG). RANS has been recognized as a leading research institution in the Russian Federation and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG).

**SDGs IN FOCUS**

www.waitro.org

**RMRDC**  
Raw Materials Research and Development Council

**FACTS**  
HEADQUARTERS: Nigeria  
OPERATING IN: 100+ Countries  
NUMBER OF EMPLOYEES: 1548  
ANNUAL BUDGET: \$275,298,006  
SPECIALIZED RESEARCH IN: Agriculture, Corporate Development, Covid-19, Development Research, Energy, Food and Nutrition, Information and Communication Technologies, Infrastructure and Cities, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Other STI Related Areas, Production, Sanitation, Security and Protection, Standardization, Value Chain Management, Waste Management and Environment, Water.

**RESEARCH EXAMPLES**  
Raw materials research and development

**ABOUT RMRDC**  
The Raw Materials Research and Development Council (RMRDC) is a leading research institution in Nigeria and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG). RMRDC has been recognized as a leading research institution in Nigeria and the East African region. It is a member of the International Health Research Group (IHRG) and the International Health Research Group (IHRG).

**SDGs IN FOCUS**

www.waitro.org

**RSS**  
Royal Scientific Society

**FACTS**  
HEADQUARTERS: The Hashemite Kingdom of Jordan  
OPERATING IN: United Arab Emirates  
NUMBER OF EMPLOYEES: 613  
ANNUAL BUDGET: \$28,300,000

**SPECIALIZED RESEARCH IN:** Covid-19, Development Research, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Sanitation, Security and Protection, Standardization, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
RSS develops innovative solutions for water protection and management. RSS works closely with the government, private sector and local communities to implement effective water projects that are driven by research results. Projects include: technological innovation in wastewater management, water quality and related health, community level water education, reservoir, water, energy and food, behavior change and environmental education.

**ABOUT RSS**  
The Royal Scientific Society is a non-profit research, scientific and technical organization. It was established in 1975 as a national organization to study, develop and support the development of Jordan and the Arab world in science, technology, and innovation. The society's main objective is to promote and support the development of science and technology in Jordan and the Arab world. The society's activities are organized into several research areas: Basic Sciences, Applied Sciences, and Interdisciplinary Research. The society also provides training and professional development for its members and the public. The society's research and development activities are supported by the government and the private sector. The society's research and development activities are aimed at addressing the challenges of the Arab world and the world in general. The society's research and development activities are aimed at addressing the challenges of the Arab world and the world in general.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**SAN**  
Sustainable Actions for Nature

**FACTS**  
HEADQUARTERS: Nigeria  
OPERATING IN: -  
NUMBER OF EMPLOYEES: 10  
ANNUAL BUDGET: \$100,000

**SPECIALIZED RESEARCH IN:** Agriculture, Education, Energy, Information and Communication Technologies, Knowledge and Technology Transfer, Life Science and Biotechnology, Other STI Related Areas, Value Chain Management, Waste Management and Environment

**RESEARCH EXAMPLES**  
Wild species of fish have been hunted to the point of extinction. SAN is working to conserve the species and restore their populations. SAN is working to conserve the species and restore their populations. SAN is working to conserve the species and restore their populations.

**ABOUT SAN**  
Sustainable Actions for Nature (SAN) is a non-profit organization that is dedicated to the conservation of the world's natural resources. SAN is working to conserve the species and restore their populations. SAN is working to conserve the species and restore their populations. SAN is working to conserve the species and restore their populations.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**SENAI**  
Brazilian National Service for Industrial Training

**FACTS**  
HEADQUARTERS: Brazil  
OPERATING IN: USA, Germany  
NUMBER OF EMPLOYEES: 23000  
ANNUAL BUDGET: \$750,000,000

**SPECIALIZED RESEARCH IN:** Covid-19, Development Research, Education, Energy, Food and Nutrition, Information and Communication Technologies, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Production, Sanitation, Security and Protection, Standardization, Value Chain Management, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
SENAI is working to improve the quality of industrial training in Brazil. SENAI is working to improve the quality of industrial training in Brazil. SENAI is working to improve the quality of industrial training in Brazil.

**ABOUT SENAI**  
SENAI is a non-profit organization that is dedicated to the development of the Brazilian industrial sector. SENAI is working to improve the quality of industrial training in Brazil. SENAI is working to improve the quality of industrial training in Brazil. SENAI is working to improve the quality of industrial training in Brazil.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**SIRIM**  
SIRIM Berhad

**FACTS**  
HEADQUARTERS: Malaysia and Bahrain  
OPERATING IN: Malaysia and Bahrain  
NUMBER OF EMPLOYEES: 2000  
ANNUAL BUDGET: \$85,000,000

**SPECIALIZED RESEARCH IN:** Agriculture, Covid-19, Development Research, Education, Energy, Health and Medicine, Information and Communication Technologies, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Other STI Related Areas, Standardization, Waste Management and Environment

**RESEARCH EXAMPLES**  
Sirim is working to improve the quality of industrial products in Malaysia and Bahrain. Sirim is working to improve the quality of industrial products in Malaysia and Bahrain. Sirim is working to improve the quality of industrial products in Malaysia and Bahrain.

**ABOUT SIRIM**  
Sirim is a non-profit organization that is dedicated to the improvement of the quality of industrial products in Malaysia and Bahrain. Sirim is working to improve the quality of industrial products in Malaysia and Bahrain. Sirim is working to improve the quality of industrial products in Malaysia and Bahrain.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**SU**  
Stellenbosch University

**FACTS**  
HEADQUARTERS: South Africa  
OPERATING IN: -  
NUMBER OF EMPLOYEES: 3400  
ANNUAL BUDGET: \$385,587,000

**SPECIALIZED RESEARCH IN:** Agriculture, Covid-19, Development Research, Education, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Production, Sanitation, Security and Protection, Value Chain Management, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
SU is working to improve the quality of industrial products in South Africa. SU is working to improve the quality of industrial products in South Africa. SU is working to improve the quality of industrial products in South Africa.

**ABOUT SU**  
Stellenbosch University is a non-profit organization that is dedicated to the improvement of the quality of industrial products in South Africa. SU is working to improve the quality of industrial products in South Africa. SU is working to improve the quality of industrial products in South Africa.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**SUEN**  
Turkish Water Institute

**FACTS**  
HEADQUARTERS: Istanbul, Turkey  
OPERATING IN: Turkey  
NUMBER OF EMPLOYEES: 300  
ANNUAL BUDGET: \$1,000,000

**SPECIALIZED RESEARCH IN:** Covid-19, Education, Knowledge and Technology Transfer, Sanitation, Water

**RESEARCH EXAMPLES**  
SUEN is working to improve the quality of industrial products in Turkey. SUEN is working to improve the quality of industrial products in Turkey. SUEN is working to improve the quality of industrial products in Turkey.

**ABOUT SUEN**  
SUEN is a non-profit organization that is dedicated to the improvement of the quality of industrial products in Turkey. SUEN is working to improve the quality of industrial products in Turkey. SUEN is working to improve the quality of industrial products in Turkey.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**Techn-U**  
First Technical University, Russia

**FACTS**  
HEADQUARTERS: Nigeria  
OPERATING IN: -  
NUMBER OF EMPLOYEES: 108  
ANNUAL BUDGET: \$1,000,000

**SPECIALIZED RESEARCH IN:** Agriculture, Covid-19, Development Research, Education, Energy, Health and Medicine, Information and Communication Technologies, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Production, Sanitation, Security and Protection, Value Chain Management, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
Techn-U is working to improve the quality of industrial products in Russia. Techn-U is working to improve the quality of industrial products in Russia. Techn-U is working to improve the quality of industrial products in Russia.

**ABOUT Techn-U**  
Techn-U is a non-profit organization that is dedicated to the improvement of the quality of industrial products in Russia. Techn-U is working to improve the quality of industrial products in Russia. Techn-U is working to improve the quality of industrial products in Russia.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**tecnalia**  
FUNDAÇÃO TECNALIA RESEARCH & INNOVATION

**FACTS**  
HEADQUARTERS: Spain, China, Colombia, France, Italy, Mexico, Serbia  
OPERATING IN: -  
NUMBER OF EMPLOYEES: 1064  
ANNUAL BUDGET: \$325,000,000

**SPECIALIZED RESEARCH IN:** Agriculture, Covid-19, Development Research, Education, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Production, Sanitation, Security and Protection, Value Chain Management, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
tecnalia is working to improve the quality of industrial products in Spain, China, Colombia, France, Italy, Mexico, and Serbia. tecnalia is working to improve the quality of industrial products in Spain, China, Colombia, France, Italy, Mexico, and Serbia.

**ABOUT TECNALIA**  
tecnalia is a non-profit organization that is dedicated to the improvement of the quality of industrial products in Spain, China, Colombia, France, Italy, Mexico, and Serbia. tecnalia is working to improve the quality of industrial products in Spain, China, Colombia, France, Italy, Mexico, and Serbia.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**THGA**  
Technische Hochschule Georg Agricola

**FACTS**  
HEADQUARTERS: Germany  
OPERATING IN: -  
NUMBER OF EMPLOYEES: 200  
ANNUAL BUDGET: \$180,000,000

**SPECIALIZED RESEARCH IN:** Agriculture, Covid-19, Development Research, Education, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Production, Sanitation, Security and Protection, Value Chain Management, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
THGA is working to improve the quality of industrial products in Germany. THGA is working to improve the quality of industrial products in Germany. THGA is working to improve the quality of industrial products in Germany.

**ABOUT THGA**  
THGA is a non-profit organization that is dedicated to the improvement of the quality of industrial products in Germany. THGA is working to improve the quality of industrial products in Germany. THGA is working to improve the quality of industrial products in Germany.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**TISTR**  
Thailand Institute of Scientific and Technological Research

**FACTS**  
HEADQUARTERS: Thailand  
OPERATING IN: Thailand  
NUMBER OF EMPLOYEES: 834  
ANNUAL BUDGET: \$16,000,000  
SPECIALIZED RESEARCH IN: Agriculture, Development Research, Energy, Food and Nutrition, Health and Medicine, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Other STI Related Areas, Value Chain Management and Environment, Metrology, Standard Testing, Calibration, Certification Body Services

**RESEARCH EXAMPLES**  
The utilization of a 3D printer to create a mold for the production of a new type of concrete. This mold can be used to produce a large number of concrete blocks, which can be used for construction purposes. The use of 3D printing technology in the construction industry is a promising area for research and development.

**ABOUT TISTR**  
The Thailand Institute of Scientific and Technological Research (TISTR) is a state enterprise under the administration of the Ministry of Higher Education, Science, Research and Innovation (MHECRI). TISTR was established in 1975 to support the national science and technological development of Thailand. The main objective of TISTR is to conduct research and development in the field of science and technology, and to transfer the results of such research and development to the industry and the public.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**TÜBİTAK**  
The Scientific and Technological Research Council of Turkey

**FACTS**  
HEADQUARTERS: Turkey  
OPERATING IN: Turkey  
NUMBER OF EMPLOYEES: 5,787  
ANNUAL BUDGET: \$72,548,878  
SPECIALIZED RESEARCH IN: Agriculture, Corporate Development, COVID-19, Development Research, Education, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Infrastructure and Cities, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Other STI Related Areas, Production, Sanitation, Security and Protection, Standardization, Value Chain Management, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
Development of a new type of concrete. This concrete is made from a mixture of cement, sand, and a special additive. The additive makes the concrete stronger and more durable. This new type of concrete can be used for a wide range of construction purposes.

**ABOUT TÜBİTAK**  
The Scientific and Technological Research Council of Turkey (TÜBİTAK) is a state enterprise under the administration of the Ministry of National Education. TÜBİTAK was established in 1972 to support the national science and technological development of Turkey. The main objective of TÜBİTAK is to conduct research and development in the field of science and technology, and to transfer the results of such research and development to the industry and the public.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**UNA**  
Universidad Nacional

**FACTS**  
HEADQUARTERS: Costa Rica  
OPERATING IN: Costa Rica  
NUMBER OF EMPLOYEES: 8643  
ANNUAL BUDGET: \$24,330,492  
SPECIALIZED RESEARCH IN: Agriculture, Corporate Development, Education, Health and Medicine, Information and Communication Technologies, Infrastructure and Cities, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Production, Water

**RESEARCH EXAMPLES**  
The design of a new type of concrete. This concrete is made from a mixture of cement, sand, and a special additive. The additive makes the concrete stronger and more durable. This new type of concrete can be used for a wide range of construction purposes.

**ABOUT UNA**  
The National University of Costa Rica (UNA) is a state enterprise under the administration of the Ministry of Education. UNA was established in 1960 to support the national education and research of Costa Rica. The main objective of UNA is to provide high-quality education and to conduct research and development in the field of science and technology.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**Universidad CES**  
Universidad CES

**FACTS**  
HEADQUARTERS: Colombia  
OPERATING IN: Colombia  
NUMBER OF EMPLOYEES: 1732  
ANNUAL BUDGET: \$4,000,000  
SPECIALIZED RESEARCH IN: Agriculture, Corporate Development, COVID-19, Development Research, Education, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Knowledge and Technology Transfer, Life Science and Biotechnology, Water

**RESEARCH EXAMPLES**  
The use of 3D printing technology to create a mold for the production of a new type of concrete. This mold can be used to produce a large number of concrete blocks, which can be used for construction purposes.

**ABOUT Universidad CES**  
Universidad CES was established in 1974 and is a private, non-profit higher education institution. The university is committed to providing high-quality education and to conducting research and development in the field of science and technology. The university's main objective is to provide a comprehensive education that prepares students for the challenges of the 21st century.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**UNSW Sydney**  
The University of New South Wales

**FACTS**  
HEADQUARTERS: Australia  
OPERATING IN: China, India, Malaysia, Ghana, Indonesia, Vietnam  
NUMBER OF EMPLOYEES: 6000  
ANNUAL BUDGET: \$2,000,000,000  
SPECIALIZED RESEARCH IN: Agriculture, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Infrastructure and Cities, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Metrology, Standard Testing, Calibration, Certification Body Services

**RESEARCH EXAMPLES**  
The development of a new type of concrete. This concrete is made from a mixture of cement, sand, and a special additive. The additive makes the concrete stronger and more durable. This new type of concrete can be used for a wide range of construction purposes.

**ABOUT UNSW Sydney**  
The University of New South Wales (UNSW Sydney) is a public research university. The university is committed to providing high-quality education and to conducting research and development in the field of science and technology. The university's main objective is to provide a comprehensive education that prepares students for the challenges of the 21st century.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**University of Huddersfield**  
University of Huddersfield

**FACTS**  
HEADQUARTERS: United Kingdom  
OPERATING IN: United Kingdom  
NUMBER OF EMPLOYEES: 2000  
ANNUAL BUDGET: \$20,000,000  
SPECIALIZED RESEARCH IN: Agriculture, Engineering, Metrology, COVID-19, Development Research, Education, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Infrastructure and Cities, Knowledge and Technology Transfer, Life Science and Biotechnology, Materials and Surfaces, Mobility and Transport, Other STI Related Areas, Production, Sanitation, Security and Protection, Standardization, Value Chain Management, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
The use of 3D printing technology to create a mold for the production of a new type of concrete. This mold can be used to produce a large number of concrete blocks, which can be used for construction purposes.

**ABOUT UoH**  
The University of Huddersfield is a public research university. The university is committed to providing high-quality education and to conducting research and development in the field of science and technology. The university's main objective is to provide a comprehensive education that prepares students for the challenges of the 21st century.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**UY1**  
University of Yaman

**FACTS**  
HEADQUARTERS: Cameroon  
OPERATING IN: Cameroon  
NUMBER OF EMPLOYEES: 5000  
ANNUAL BUDGET: \$10,000,000  
SPECIALIZED RESEARCH IN: Agriculture, Education, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Life Science and Biotechnology, Materials and Surfaces, Production, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
The use of 3D printing technology to create a mold for the production of a new type of concrete. This mold can be used to produce a large number of concrete blocks, which can be used for construction purposes.

**ABOUT UY1**  
The University of Yaman is a public university in Cameroon. The university is committed to providing high-quality education and to conducting research and development in the field of science and technology. The university's main objective is to provide a comprehensive education that prepares students for the challenges of the 21st century.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**VITO**  
Vlaamse instelling voor Technologietoetsen

**FACTS**  
HEADQUARTERS: Belgium  
OPERATING IN: China, India, UAE  
NUMBER OF EMPLOYEES: 846  
ANNUAL BUDGET: \$14,214,658.39  
SPECIALIZED RESEARCH IN: Energy, Health and Medicine, Infrastructure and Cities, Materials and Surfaces, Value Chain Management, Waste Management and Environment, Water, Sustainable Chemistry, Sustainable Land Use, Preventive Health

**RESEARCH EXAMPLES**  
The development of a new type of concrete. This concrete is made from a mixture of cement, sand, and a special additive. The additive makes the concrete stronger and more durable. This new type of concrete can be used for a wide range of construction purposes.

**ABOUT VITO**  
The Flemish Institute for Technological Research (VITO) is a state enterprise under the administration of the Flemish Government. VITO was established in 1974 to support the national science and technological development of Belgium. The main objective of VITO is to conduct research and development in the field of science and technology, and to transfer the results of such research and development to the industry and the public.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)

**UOP**  
UNIVERSITY OF PETRA

**FACTS**  
HEADQUARTERS: Jordan  
OPERATING IN: Jordan  
NUMBER OF EMPLOYEES: 650  
ANNUAL BUDGET: \$4,188,050  
SPECIALIZED RESEARCH IN: Agriculture, COVID-19, Education, Energy, Food and Nutrition, Health and Medicine, Information and Communication Technologies, Knowledge and Technology Transfer, Materials and Surfaces, Value Chain Management, Life Science and Biotechnology, Mobility and Transport, Waste Management and Environment, Water

**RESEARCH EXAMPLES**  
The use of 3D printing technology to create a mold for the production of a new type of concrete. This mold can be used to produce a large number of concrete blocks, which can be used for construction purposes.

**ABOUT UOP**  
The University of Petra is a public research university. The university is committed to providing high-quality education and to conducting research and development in the field of science and technology. The university's main objective is to provide a comprehensive education that prepares students for the challenges of the 21st century.

**SDGs IN FOCUS**

[www.waitro.org](http://www.waitro.org)



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# CHAPTER 3

# The 26<sup>th</sup> WAITRO

# GENERAL ASSEMBLY

**Date**16<sup>th</sup> of November 2022**Time**

9:00 – 12:30 h UTC+2

**Venue**Lord Charles Hotel, Somerset West,  
South Africa**Participants from the current WAITRO Board:**

Name	Position/role
HRH Princess Sumaya bint El Hassan (online)	President
Rubén Cruz (online)	First Vice-President
David Tveit	Second Vice-President (Chair)
Ndumiso Cingo	RR for Sub-Saharan Africa
Teresia Ningsi Astuti	RR for Asia and the Pacific
Emad Ewais	RR for MENA
Dirk Saseta	RR for Europe

**Participants from the offices of the Secretariat:**

Name	Position/role
Eckart Bierdümpel	Secretary-General
Paul Burrows	Head WAITRO Office China
Dominik Reinertz	Head WAITRO Office Germany
Sira Engelbertz	WAITRO Office Germany
Andrea Santos	WAITRO Office Germany
Julia Wiethüchter	WAITRO Office Germany
Jerome Harrison	WAITRO Office Germany
Dong Chuqiao	WAITRO Office China
Lilly Ye Liu	WAITRO Office China

**Returning Officer:** Berenice Lue Marais

**Official Delegates from WAITRO member organizations:**

All WAITRO members in good standing (as defined by having updated their organizational data on the WAITRO online database) were asked to nominate one delegate to vote at the General Assembly and to represent their organization. The following delegates joined the General Assembly:

Organization	Representative
AINIA (Spain)	Carlos Enguix Nicolás (online)
BITRI - Botswana Institute for Technology Research and Innovation (Botswana)	Kgomotso Radijeng
BNARI - Biotechnology and Nuclear Agriculture Research Institute (Ghana)	Michael Osae
BRIN - National Research and Innovation Agency/ Badan Riset dan Inovasis Nasional (Indonesia)	Theresia Ningsi Astuti
BU - Busitema University (Uganda)	Ndamanywa Kalisiti
CARIRI - Caribbean Industrial Research Institute (Trinidad and Tobago)	Dr. Hans-Erich Schulz
CCCEM - Centre for Climate Change and Environment Management (Malawi)	Martin Munkhondya
CeNAT - Centro Nacional de Alta Tecnología (Costa Rica)	Emanuel Araya Valverde
CMRDI - The Central Metallurgical Research and Development Institute (Egypt)	Prof. Dr. Emad Ewais
CIDET - Centro de Innovación y Desarrollo Tecnológico del Sector Eléctrico (Co-lombia)	Rubén Cruz (online)
CSIR - Council for Scientific and Industrial Research (India)	Yatendra Kr Satija
CSIR - Council for Scientific and Industrial Research (Ghana)	Moses Mengu
CSIR - Council for Scientific and Industrial Research (South Africa)	Ndumiso Cingo
CSIRO - Commonwealth Scientific and Industrial Research Organisations (Australia)	Patrick Dias
CTA - Centro de Ciencia y Tecnología de Antioquia (Colombia)	Jaime Arboleda
DTI - Danish Technological Institute (Denmark)	David Tveit
EAFIT - Universidad EAFIT (Colombia)	María Alejandra Saleme
FhG - Fraunhofer-Gesellschaft (Germany)	Johann Feckl
FORTH - Foundation for Research and Technology (Greece)	Panagiotis Karniouras
INTI - Instituto Nacional de Tecnología Industrial (Portugal)	Ana Luisa Jegundo
IranDoc - Iranian Research Institute for Information Science and Technology (Iran)	Azadeh Mohebi (online)
ITG - Galicia Institute of Technology (Spain)	Dr. Juan Luis Sobreira Seoane
ITI - Industrial Technology Institute (Sri Lanka)	Dr. Radhika Samarasekera
ITDI - DOST Industrial Technology Development Institute, Department of Science and Technology (Philippines)	Annabelle Flores

Organization	Representative
IVL – Swedish Environmental Research Institute (Sweden)	Mathias Gustavsson
IWRP – Institute of Water Resources Planning (Vietnam)	Lan Thanh Ha
JITRI – Jiangsu Industrial Technology Research Institute (China)	Liu Ye
KEMRI – Kenya Medical Research Institute (Kenya)	Dr. James Hungo Kimotho
KIBU – Kibabii University (Kenya)	Joshua Abuya
LEITAT – Leitat Technological Center (Spain)	Dirk Saseta
MUST – Meru University of Science and Technology (Kenya)	Dr. Amos Chege Kironko (online)
NARDI – National Agricultural Research and Development Institute (Botswana)	Dr. Martin Kebakile
NWU – North-West University (South Africa)	Prof. Nnenesi Kgabi
POLIMI – Politecnico di Milano (Italy)	Stefania Elisabeth Grotti
RMRDC – Raw Materials Research and Development Council (RMRDC)	Abubakar Shehu Kollere
RSS – Royal Scientific Society (Jordan)	Abeer Arafat
SENAI – National Service for Industrial Training (Brazil)	Dr. Marcelo Prim
SIRIM – SIRIM Berhad (Malaysia)	Ahmad Sabiri Arshad
SU – Stellenbosch University (South Africa)	Karin Krizinger
TECNALIA – Fundación TECNALIA Research and Innovation (Spain)	Dr. Elena Schaeidt
TTI – The Truth International (Pakistan)	Fahad Thaheem
TIMS – Tabbin Institute for Metallurgical Studies (Egypt)	Prof. Taha Mattar (online)
TISTR – Thailand Institute of Scientific and Technological Research (Thailand)	Dr. Chutima Eamchotchawalit
TÜBITAK – The Scientific and Technological Research Council of Turkey (Turkey)	Prof. Burcu Özsoy
UCU – Uganda Christian University (Uganda)	Prof. Elizabeth Balysejusa Kizito
UKM – Universiti Kebangsaan Malaysia (Malaysia)	Prof. Dr. Khairiah Haji Badri
UNA – Universidad Nacional (Costa Rica)	Ligia Bermudes Hidalgo
UNAM – University of Namibia (Namibia)	Prof. Nelago Indongo
UNIDAVI – Centro Universitario para o Desenvolvimento do Alto Vale do Itajaí (Brazil)	Dr. Lilian Adriana Borges
UNSW – The University of New South Wales (Australia)	Yuan Wang (online)
UoH – University of Huddersfield (United Kingdom)	James Devitt
UY1 – Université de Yaounde (Cameroon)	Julienne Nguetack
VITO NV	Dietrich Van der Weken

## 1. Opening and Welcome

The Chair opened the 26th WAITRO General Assembly and gave an introduction. Raymond Tavares presented greetings from UNIDO emphasizing the collaboration of UNIDO and WAITRO. The President presented words of welcome by video as well as expressions of gratitude and pride for the term of her ending presidency

## 2. Attendance and Quorum

The attendance and quorum were checked to ensure compliance with the constitution. The necessary quorum was reached, with 53 organizations out of 116 members represented.

## 3. Approval of the Agenda

The majority of the present delegates and representatives approved the provisional agenda of the 26<sup>th</sup> General Assembly by raising hands.<sup>1</sup>

## 4. Approval of the 25<sup>th</sup> General Assembly Minutes

The minutes from the 25<sup>th</sup> General Assembly in 2030 were approved by the majority of the General Assembly.

## 5. Election of the Returning Officer & the Nomination Committee

As recommended by the WAITRO Executive Board, Berenice Lue Marais was elected as the Returning Officer in order to conduct the upcoming elections of the General Assembly.

Secretary General Eckart Bierdümpel and the head of the WAITRO Office China, Paul Burrows, served as the Nomination Committee.

## 6. Report of the Executive Board and the Secretariat 2021-2022

Various members of the Secretariat gave a tag-team presentation summarizing the achievements of the last two years. In brief:

- The WAITRO membership has grown significantly
- The WAITRO Capacity Development Program offered various workshops in different formats: panel discussions, trainings and workshops focused on specific research areas
- The Benchmarking project was introduced as an initiative that helps members identify best management practices and learn from each other

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<sup>1</sup> Approval of the delegates participating online was indicated electronically using the Zoom platform's "raise hand" function.

- The WAITRO Innovation Awards rewarded project teams that are collaborating in the field of Water in 2020 and in the field of Sustainable Agriculture in 2021
- SAIRA's users have been growing steadily and currently amount to over 900 from over 450 organizations
- SAIRA facilitated over 80 matches and over 50 projects
- An important relationship was built with G-STIC
- The WAITRO Summit 2022 was a success with 175 participants (123 Internationals, 52 Locals, 40 countries, 80 organizations)
- The performance of communication and outreach efforts has been improving consistently
- The number of people viewing and engaging with the WAITRO website and the social media channel has increased significantly
- For email marketing the number of subscribers has significantly increased (by 46,2%), but the open and click rate is still quite low (27.39% and 8.72% respectively)

## 7. WAITRO Work Program 2023-2024

Paul Burrows (JITRI) presented the draft Secretariat work program for 2023 – 24. The overall aim of the work program 2023-24 is to ensure more continuity, since the last years have been spent implementing new initiatives and changes. Specific goals of the work program are:

- Establish and staff a WAITRO Secretariat based at JITRI in Nanjing, China
- Seek a partner for Secretariat operations (hopefully Fraunhofer but uncertain due to financial constraints)
- Continue the Benchmarking project
- Establish WAITRO Working Groups
- Continue the publication of an annual report, holding a WAITRO Summit and Capacity Development events
- Strengthen the RFPs
- Remodel the Fellowship Program
- Formalize the Role of Associate Members
- Implement an Independent WAITRO Revenue Strategy

The work program was approved by the General Assembly with JITRI as the host of the WAITRO Secretariat for 2023 – 2026.

## 8. Nominations for the WAITRO Executive Board 2023-2024

- Eight positions needed to be filled
- The deadline for nominations had to be extended due to lack of responses (particularly for RR LAC and the first Vice President). All required nominations were received by the extended deadline.
- Members were allowed to register for remote attendance due to the ongoing difficulties in international travel caused by pandemic restrictions.
- The candidates and the results of the elections are reported below (Please note that there was fluctuation in online attendance which leads to a different number of people voting for different elections):

### **President:**

- Two candidates: Hasan Mandal (TÜBITAK) and Taha Matter (TIMS)
- Result: Hasan Mandal won with 38 votes against 13 votes for Taha Matter and is the new WAITRO president

### **1<sup>st</sup> Vice President:**

- Two candidates: Robson M Mafoti (SIRDC) and Hans-Erich Schulz (CARIRI)
- Result: Hans-Erich Schulz won with 37 votes against 14 votes for Robson M Mafoti

### **2<sup>nd</sup> Vice President:**

- One candidate: Dirk Saseta Krieg (LEITAT)
- Result: Dirk Saseta Krieg was elected with 48 votes in favour and one vote not in favour

### **RR Sub-Saharan Africa:**

- Two candidates: Paul Pinnock Bosu (CSIR Ghana) and Abukabar Shehu Kollere (RMRDC)
- Result: Paul Pinnock Bosu won with 32 votes against 16 votes for Abukabar Shehu Kollere

### **RR Asia and the Pacific:**

- One candidate: Theresia Ningsi Astuti (BRIN)
- Result: Theresia Ningsi Astuti was elected with 45 votes in favour and one abstention

### **RR Europe:**

- One candidate: David Tveit (DTI)
- Result: David Tveit was elected unanimously (48 votes in favour)

### **RR Latin America and the Caribbean:**

- One candidate: Jefferson de Oliveira Gomes (SENAI)
- Result: Jefferson des Oliveira Gomes was elected unanimously (47 votes in favour)

### **RR MENA:**

- Two candidates: Abeer Arafat (RSS) and Emad Ewais (CMRDI)
- Result: Abeer Arafat won with 28 votes against 20 votes for Emad Ewais.

## 9. Administrative Matters

### 9.1 Proposal for Membership Fee

The General Assembly approved to continue waiving the membership fees for two more years, unless the Secretariat is unable to come up with the necessary funding, then the Board will be able to instigate the fees without asking the GA.

### 9.2 Proposal for Honorary Member

In the previous General Assembly 2020, it was decided by the members to implement an Honorary Membership category. The WAITRO Executive Board nominated Dr. Moses Mengu as the first WAITRO Honorary Member for his long-standing commitment and dedication to WAITRO. This was unanimously approved by the General Assembly. The Chair presented a plaque to Dr. Mengu.

## 10. Any Other Business

No other issues were raised

## 11. Close of the Meeting

The Chair closed the meeting



**CHAPTER 4**  
**WAITRO ACTIVITIES**  
**In 2022**

# Events

## Online CBE-JU session on the new Circular Bio

Date: March 25<sup>th</sup> 2022

LEITAT hosted an online session on the new Circular Bio-based Europe Joint Undertaking (CBE JU) a €2 billion partnership between the European Union and the Bio-based Industries Consortium (BIC) that funds projects advancing competitive circular bio-based industries in Europe.

### The agenda covered:

- CBEJU structure and difference with the BBIJU - Q&A - Francesco Sottile, BDM for Circular & Bio Economy in LEITAT
- How to address CBE-JU partnerships - Q&A - Francesco Sottile, BDM for Circular & Bio economy in LEITAT.
- SAIRA as a networking tool for CBE-JU - Q&A - Julia Wiethüchter, WAITRO German Secretariat
- Next steps - Laia Piñol, BDM for Circular & Bio economy in LEITAT

**WAITRO members involved** included TWI, Instituto Pedro Nunes (IPN), VITO NV

## Webinar on Small Things but Giant Steps to Bio-Circular-Green (BCG) and Resilient Economy

Date: March 29<sup>th</sup> 2022

Regarding the survey of member's capacity development demand in early 2022 and the voting result showed the members' interest on the technology trend for resilient economy in post-COVID19.

TISTR organized the Webinar on Small Things but Giant Steps to BCG and Resilient Economy : Food, Health, Wellness for the Future and Business Opportunity on 29 March 2022 by Zoom Webinar. There were speakers from WAITRO member organization within and across the regions e.g. Food Industry Research and Development Institute (FIRDI) of Taiwan, Aarhus University of Denmark, and Leitiat Technological Center (LEITAT) of Spain, GreenAnt of the Netherlands, and TISTR of Thailand to sharing and discuss on the technology and utilization of microorganisms for food Industries, and insects as a trend of alternative protein source.

During the webinar, TISTR promoted on WAITRO highlights in 2021 and showcase of winner of WAITRO Innovation Award 2021 to encourage the interest of participants on WAITRO.

The webinar was showcase the expertise of WAITRO member organizations in the technologies of such theme, including to showcase the SmartinFood, winner project of WAITRO Innovation Award 2021. The webinar opened publicly which finally could gather over 150 registered participants from 19 countries.

## Workshop on Advanced Materials and Manufacturing Technologies for Africa and Middle East Development.

Date: 1-2 June 2022

The WAITRO member Central Metallurgical Research & Development Institute (CMRDI) organized the Regional Workshop on Advanced Materials and Manufacturing Technologies for Africa and Middle East Development. The hybrid event took place on June 1-2 in Cairo, Egypt and online and included a keynote address from Dr. Paul E. Burrows, Director of the WAITRO Secretariat China Office.

The workshop aims to optimize the development of Africa and the Middle East, establishing networks between representatives of science and industry. In the five sessions of the workshop, people can learn about:

**Session 1:** Minerals, Recycling, 3D Printing

**Session 2:** Heat Transfer, Energetic Materials, Wastewater Treatment

**Session 3:** Fusion Welding, FSW, Metallic and Non-metallic Materials

**Session 4:** Nano composites, Graphene, Materials Processing

**Session 5:** Composites, Ferrous and Non-ferrous Alloys

## The Horizon Europe Capacity Building & Networking Event

Date: 21-22 June 2022 in Barcelona, Spain.

Joint hosted by the WAITRO Office Germany and the Regional Focal Point for Europe. This event was addressed to Project and area managers, business development managers and/or researchers involved in projects and proposals preparation and interested in coordinating and participating in upcoming Horizon Europe calls. More than 50 attendees from 6 European and 10 international countries made the event a success.

The event started with a welcome coffee in LEITAT facilities (Terrassa) and the intervention of Dr. Eckart Bierdümpel (WAITRO Secretary General) and Dirk Saseta (WAITRO RR Europe) who thanked WAITRO partners for coming and open the event with the expectations of WAITRO and its activities post pandemics. Laia Piñol (WAITRO RFP Europe) followed with a presentation of the overall aim of the event, the agenda and an introduction of the first speakers.

The first keynote speech was given by Verena Fennemann (Head of Fraunhofer EU Office Brussels) who talked about the evolution of international cooperation in the different framework Programmes, Horizon Europe Work Programme general conditions, targeted international cooperation actions and initiatives at regional level (Africa, LAC, Asia&Pacific) and multilateral activities.

After the networking lunch, the following international WAITRO partners pitched on their organizations, capacities and interest in Horizon Europe topics: TISTR, RMRDC, CENAT, CENIBIOT, University of Yaoundé, IWRP, SENAI, JITRI and BRIN.

To conclude the event, Dominik Reinertz (Head of WAITRO Office Germany) presented the opportunities that SAIRA can provide to the WAITRO partners within and beyond WAITRO community and put some examples of collaboration. Paul Burrows (Head of WAITRO Office China) together with Dominik introduced the plan about Innovation Summit 2022. Speakers invited WAITRO partners to chair a session/workshop related to one of the Sustainable Development Goals.

## WAITRO Exhibition at the IAPRI World Packaging Conference

Date: 13-15 June 2022

TISTR organized the exhibition of WAITRO during the 23rd IAPRI World Packaging Conference or IAPRI Bangkok 2022 during 13-15 June 2022 in Bangkok. The President of IAPRI, President of World Packaging Organization (WPO), researchers and higher students in domestic and overseas visited the exhibition booth. The WAITRO exhibition included of leaflet, posters, and VDOs introduction of WAITRO and SARA tutorial. It could attract the interest in the WAITRO innovation ecosystem and services.

## Jiangsu-Thailand Seminar for Cooperation Projects of Agricultural Resources and Environment

Date: July 11<sup>th</sup> 2022

JITRI together with TISTR organized the Jiangsu-Thailand Seminar for Cooperation Projects of Agricultural Resources and Environment on 11 July 2022. The seminar was the platform to learn new policy, actions, or trend of agriculture to achieve SDGs, including sharing of projects and separate room for discussion or matchmaking. There were speakers from WAITRO members e.g. JITRI, TISTR, and BRIN of Indonesia to deliver the keynote and project roadshow.

## International Workshop on Development of Ornamental Plant and Flower Clusters for Sustainable Careers and Competitiveness of SMEs in APEC

Date: 19-20 July 2022

The workshop was organized by TISTR during 19-20 July 2022 as an APEC Project to promote exchange and learning on global trend of floriculture plants industry for commercial, e-commerce in this business, and sharing perspectives of APEC member economies. The event was open publicly for any WAITRO members to participate. Besides, the researcher from BRIN of Indonesia and JITRI of China were the speakers of the sharing session.

## APCTT Regional Conference

Date: September 15<sup>th</sup> 2022

TISTR hosted APCTT Regional Conference on Energy Resilience through Decentralized Power Plants and Smart Grid Integration on 15 September 2022 in a hybrid. It was the regional event under the Asian and Pacific Centre for Transfer Technology (APCTT) of UN-ESCAP.

TISTR included a session for WAITRO members in the conference' s agenda, namely "Panel discussion - Regional cooperation for energy resilience through decentralized power plants and smart grids to advance Bio-Circular-Green (BCG) economy" . The session was moderated by the Head of APCTT, and there were panelists from JITRI, SIRIM, BRIN. The VDO clips of WAITRO Introduction, and SAIRA Tutorial were played during the conference. There was positive feedback found in the chat box saying that the VDOs were useful and interesting.

In the year 2023, TISTR has been approached by APCTT to conduct the project on air pollution. We aim to ask APCTT to invite WAITRO and the members in Bangladesh or India (the targeted countries) to engage in the project.

### **WAITRO Executive Board - RFP meeting**

Date: 28-29 September 2022. Jakarta, Indonesia

In this meeting, Each RFP presented the progress and achievements obtained up to date in accordance with their work plan and in the construction of initiatives and also discussed a regional integration of all the RFP in order to have joint achievements. The RFPs also present and discuss best practices among other RFPs of how to dynamize RTOs interactions in the different regions. At the end of the event, RFP shared their strategies and activities to promote the WAITRO Summit 2022.

### **Fostering collaborations and seeking collaboration opportunities in region**

Date: September 15<sup>th</sup> 2022

Leitat executed a commercial mission to Colombia and took advantage of this to meet CTA and CIDET, get to know their facilities and strengthen ties with their teams. During the visits, meetings were held to discuss on how could we could foster collaborations at both public and private level under the WAITRO umbrella. At the same time, Leitat together with CTA visited the Associate Member Empresas Publicas de Medellin, to find collaboration opportunities that could result in new R&D projects and initiatives.

### **International Seminar on Food and Packaging Safety : Thailand – Japan Perspective**

Date: October 5<sup>th</sup> 2022

The seminar was hosted by TISTR in Bangkok. The seminar was part of Food Ingredient Asia Expo 2022. There were participants who are from ASEAN and Japan both research and technology organizations and private companies

### **WAITRO Exhibition at the TISTR Meeting with the Stakeholders**

Date: December 14<sup>th</sup> 2022

TISTR organized the WAITRO booth exhibition at the meeting with the stakeholders of TISTR on 14 December 2022 in Bangkok. The meeting attendees included of TISTR Executive Board Members, public organizations and state enterprises under the ministries of Thailand, private and industrial sector, academic universities.

# Capacity Development Program

## Technology transfer in Latin America: opportunities and lessons learned.

Date: June 2<sup>nd</sup> 2022

Presented the technology transfer macro-processes to the different RTOs in the region; the opportunities for technology transfer in Latin America; the challenges in technology transfer offices and the lessons learned in transfer processes from the university perspective.

## Roundtable on Managing Diversity in International Research

Date: June 2<sup>nd</sup> 2022

The first event of the WAITRO Event Series on Diversity in International Research Cooperation aims to unite different perspectives on the topic of diversity in international research. Speakers with different expertise will discuss the challenges of diversity and ways to overcome them.

Potential areas that were explored in the context of diversity include:

- The Responsible Research and Innovation (RRI) Framework
- Female Entrepreneurship
- Fair Research Collaboration Practices
- Field Research

## A Practical Introduction to Responsible Research and Innovation (RRI)

Date: June 15<sup>th</sup> 2022

Innovation is crucial to our future. But what kind of future do we want? Responsible research and innovation (RRI) answer this question with clear values designed to guide every research activity. The RRI framework helps to achieve a better alignment of research and innovation with societal and environmental needs.

The aim of the workshop is to introduce the principles of RRI and to discuss how they can be applied and considered in the field of application-oriented research.

The following topics were discussed in detail during the workshop:

- Mission Orientation
- Participation
- Sociotechnical Innovation
- Innovation Ecosystems
- SDGs (Sustainable Development Goals)
- Green Deal

## **Fair Research Partnerships and the Role of Intellectual Property (IP)**

Date: June 28<sup>th</sup> 2022

Good partnerships in research lead to excellence and innovation. That is a fact that every researcher knows. However, good partnerships are not always easy to institute.

This practical workshop organized in collaboration with Research Fairness Initiative (RFI) will highlight ways to conduct fair research and specifically look at IP rights in this context. In addition, research fairness reporting standards will be presented. To provide real insights, researchers from the Global South and – North will share their experiences with implementing these standards.

## **Digital Transformation: A management strategy for science, technology and innovation**

Date: August 18<sup>th</sup> 2022

Provide WAITRO member institutions (RTOs) in Latin America and the Caribbean with the concepts, keys, and good practices so that digital transformation can become a management strategy for science, technology and innovation

## **The Circular Economy as a tool for Sustainable Development**

Date: September 29<sup>th</sup> 2022

Aims to help people know the importance of the circular economy as a strategy for the sustainable development of the territories.

## **Quality Management in RTOs: Best Practices for Knowledge Organizations**

Date: October 27<sup>th</sup> 2022

It highlights the importance of quality management and the best practices in its implementation in knowledge organizations or RTOs for Latin America

## **Online matchmaking session regarding the Smart IN FOOD**

Date: November 22<sup>nd</sup> 2022

Leitat executed a matchmaking session regarding the SMART IN FOOD project that was awarded on the 2021 WAITRO Innovation Award. The session was oriented to finding potential partners to create a consortium to prepare a proposal for the program Horizon Europe. During the event, a presentation of WAITRO was made and the tool SAIRA was presented as an excellent tool to find opportunities within WAITRO members.

# Projects

## Collaborative Research project: EASI Zero proposal

The EASI Zero proposal was submitted under the HORIZON-CL4-2022-RESILIENCE-01-16 on Building and renovating by exploiting advanced materials for energy and resources efficient management. EASI ZERO proposes a global system to cut the environmental impact by rising the thermal performance of buildings' envelope by 20% with bio-sourced and recycled materials. This includes grown mycelium, wood fibres, low carbon foam, recycled raw material for spayed renders, multi-functional building bricks, and healthy finishes. This unique portfolio of tailored components results from manufacturing and sourcing with reduced CO2 emission and embodied energy. The proposal was led by CEA with the participation of Fraunhofer, DTI and LEITAT (WAITRO members).

## Collaborative Research project: NET-Fuels

The NET-Fuels proposal was submitted under the topic HORIZON-CL5-2021-D3-03 Hybrid catalytic conversion of renewable energy to carbon-neutral fuels further to an initiative from Fraunhofer through WAITRO. NET-Fuels develops a novel pathway to produce carbon-negative biofuels from low value biogenic residues through a combination of thermochemical conversion, separation of hydrogen from the syngas, oxy-fuel combustion of the tail gas, bioelectrochemical conversion of CO2 into methane and carbon sequestration in the biochar. The proposal is finally led by UNIBO with participation of Fraunhofer and LEITAT as WAITRO members among other partners.

## Collaborative Research project: METAVERS

The METAVERS proposal was submitted under the topic HORIZON-CL5-2022-D2-01-02, led by LEITAT and with the participation of Fraunhofer. METAVERS will take the first step to bring the First Time Right process to battery development by combining: (1) on-the-fly simulation and machine learning for faster and more iterative development cycles, (2) a characterisation tool consisting of in situ & operando analytical techniques allowing new characterisation methods, and (3) a demonstration on the fully solid-state Li/S system and a range of other battery chemistries.

■

**Collaborative research project:  
Recovery of agro-industrial residues - Evaluation of the methanogenic potential of banana peel for biogas production.**

The project aims to carry out activities leading to the evaluation of the methanogenic potential of banana peel for biogas production, the analysis of the feasibility of the anaerobic digestion process using banana peel as a substrate, the discovery of optimal operating conditions of an anaerobic digester to maximize the production of biogas, and the evaluation of the quality of the biochar obtained through the pyrolysis process of the banana peel, among others.

The proposal is basically divided into two major stages: 1. Anaerobic digestion, and 2. Pyrolysis to obtain biochar, and for each of these stages two major activities are proposed: a) Pre-feasibility study; which includes research activities and analysis of trials and results of laboratory tests, among others; and b) Production scaling up to a technology development maturity level (TRL) between 4 and 5; which involves the stage of experimental development, leading to simulation with a close approximation to real operating environments, and involves activities related to the design, construction, commissioning, and optimization of an anaerobic digester and a pyrolyzer at a later scale to that of laboratory tests. The project was designed and structured by LEITAT (Spain), CTA (Colombia) and a private company from Medellín (Colombia), it's proposed for a duration of 18 months.

■

**Collaborative research project:  
SUSI Consortium -Horizonte Europa CL4-2023-TWIN-TRANSITION-01-40**

Consortium created to formulate and structure a project for the Horizon Europe call CL4-2023-TWIN-TRANSITION-01-40 (2023). This consortium was formed as a direct result of the networking and capacity building workshop; carried out in the month of June 2022 because of the WAITRO networking meeting in the city of Barcelona, Spain. WAITRO members : CTA (Colombia), LEITAT (Spain), Fraunhofer (Germany) were involved in this project and also with participation of Polytechnic of Milan (Italy) and other Institutions.



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