CONFERENCE REPORT

Fifth South Africa – Japan University Forum Conference

(SAJU 5)

28 – 29 July 2022, Virtual

- Open Collaboration and Innovation with Trust -

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ACKNOWLEDGEMENTS

The following organisations are thanked for their support for the 5th SAJU Forum.

SOUTH AFRICA

Department of International Relations and Cooperation (DIRCO)

Department of Higher Education and Training (DHET)

JAPAN

Ministry of Foreign Affairs (MOFA)

Ministry of Education, Culture, Sports, Science and Technology (MEXT)

Japan Agency for Medical Research and Development (AMED)

Japan International Cooperation Agency (JICA)

Japan Society for the Promotion of Science (JSPS)

Japan Science and Technology Agency (JST)

Japan-Africa Academic Network (JAAN)

THE ORGANIZATION COMMITTEE OF THE 5TH SAJU FORUM

Universities of South Africa (USAf)

University of Tsukuba

Tokyo University of Foreign Studies

Department of Science and Innovation (DSI)

National Research Fund (NRF)

Japan International Cooperation Agency – South Africa

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Embassy of Japan

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Ms Ayako Inaba (University of Tsukuba)

1. BACKGROUND

The fifth South Africa – Japan University (SAJU) Forum was held on 28-29 July 2022 with the theme "Open Collaboration and Innovation with Trust". The host of the SAJU Forum, which started in 2007 in Hiroshima, has alternated between the two countries, and the SAJU5 should have been hosted in Japan. Yet, the conference was held entirely online, considering the residual effects of Covid-19.

Whereas the program timing was tight due to the online meeting, several exciting and important issues were addressed in the conference, which provided public arenas for the discussions to strengthen the academic network joined not only by scholars and students but also by governments and industries. The two-day opportunity for discussion and debate repeatedly addressed and confirmed the significance of the collaboration among these stakeholders among Japanese and South African scholars, students and institutions.

2. SESSION 1: WELCOME & OPENING, KEYNOTE LECTURES, SUPPLEMENTARY LECTURES

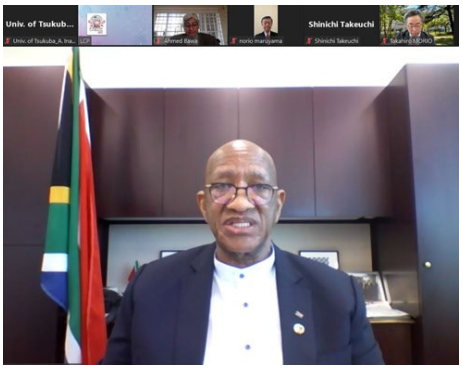
2.1 Welcome and opening

Opening the conference, **Prof. Takahiro Morio** noted that the first SAJU Forum was held in 2007, and this was the fifth SAJU forum. Reintroducing the theme for this year's Forum, he directed attention to how the internet changed society's perceptions of information, especially in light of how easily false information could be spread online. The misinformation spreading online may have been accelerated in the wake of the COVID-19 pandemic. Open and innovative collaboration based on mutual trust is more important than ever to reintroduce and retain faith in information and academic research. Prof, Morio finally introduced Ambassador Maruyama, who had supported SAJU for several years and delivered an address at the 4th SAJU Forum.

His excellency **Ambassador Norio Maruyama** started by linking SAJU to TICAD, specifically TICAD8, which would be held in August 2022 in Tunisia. Ambassador Maruyama emphasised the importance of TICAD, especially in light of the various institutions and disciplines involved and the critical role of academia within it. About the collaboration between South Africa and Japan, He attracted attention to the importance of science, technology and innovation. Various efforts and initiatives have been made available to further this collaboration, such as SATREPS, AJ-CORE, JSPS, the MEXT scholarship, and the ABE initiative, all of which promote joint research. The MEXT scholarship started being offered to South African students in 1993 and has been awarded to over 1000 South African students since then. Ambassador Maruyama particularly emphasised the importance of a decarbonised society and South African potential for hydrogen production. Ambassador Maruyama was also excited to open the Japanese Centre at Stellenbosch University, which can increase the collaboration between South Africa and Japan. Finally, Ambassador reiterated his expectation for the next SAJU Forum.

From the South African side, **Prof. Ahmed Bawa** noted that the SAJU Forum was a fantastic opportunity for collegiality and collaboration, emphasising that SAJU was critical for the chance to bridge not only universities in South Africa and Japan but also our societies. He opined that adopting these collaborative, trust-based approaches was essential when Geopolitics was pulling science apart. Prof. Bawa introduced Ambassador Ngonyama, including his academic background and strong ties to South African and Japanese institutions.

His excellency **Ambassador Smuts Ngonyama** remarked that the 5th SAJU Forum was held in the aftermath of former Prime Minister of Japan Shinzo Abe's death, offering his condolences and stating that Mr Abe was someone who worked hard towards bridging South Africa and Japan, especially about research exchange in Science, Technology and Innovation (STI). He asserted that he was proud that there were over 150 participants present and went on to congratulate and express his pride in Prof. Tshilidzi Marwala, who was recently named as the next rector of the United Nations University in Tokyo. Ambassador Ngonyama emphasised the importance of the theme for the 5th SAJU Forum as it dealt with issues of ethics and integrity, which were values that were becoming increasingly important during the pandemic. He then urged academia to be engaged in critical discussion with other stakeholders such as industry and the changing society to remain relevant and trustworthy. Ambassador Ngonyama informed the Forum that the Centre for Japanese Studies at the University of Pretoria had closed but that a new Japan Centre at Stellenbosch University would be inaugurated in September 2022, under Prof. Scarlett Cornelissen. The Japan Centre's work will complement and add to achieving the objectives of SAJU.



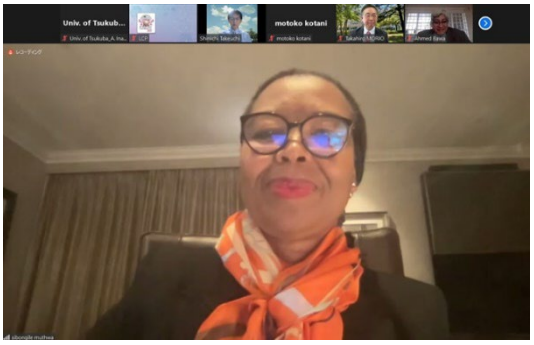
2.2 Keynote lectures

Prof. Motoko Kotani started her speech by emphasising the interaction between the stakeholders in Science, Technology and Innovation (STI) and Diplomacy. She confirmed that the utilisation of technology had increased, allowing for the global exchange of information in multi-lateral ways. Turning to the Tokyo International Conference on African Development (TICAD), she insisted that the collaboration between Japan and African countries such as South Africa should be based on mutual understanding and be strengthened opportunities such as TICAD were vital.

Prof. Kotani then introduced the multiple collaborations between Japan and South Africa, namely the MEXT scholarship, the Japan Exchange and Teaching (JET) Program, and several Japan International Cooperation Agency (JICA) Programs. She also mentioned various frameworks supporting Japan-South Africa S&T cooperation, including the JSPS-NRF Joint Research programme and the JST-NRF collaborations such as SICORP and Africa-Japan Collaborative Research (AJ-CORE), SATREPS, AMED, the African Business Education (ABE) Initiative, and various MOUs for inter-unit on African Development (TICAD), she insisted again that the collaboration between Japan and African countries such as South Africa should be based on mutual understanding and diversity exchange.

As a mathematician, Prof. Kotani expressed her deep admiration of the African Institute for Mathematical Sciences (AIMS), one of the most prominent mathematical institutes. She encouraged the Mathematical Society of Japan to agree with AIMS, a partnership she was happy with. Prof. Kotani closed her speech, emphasising that human resource development was essential for high-quality cooperation and research outcomes and that pure science needed to be promoted for societal development.

In the speech, **Prof. Sibongile Muthwha** emphasised that human dignity was a must in academia, with a strong focus on solidarity and ethics, stating that education was a common good, in warning of the danger of the current era of distrust and division amplified by the impact of social media, irrational thought, political factionalism, and paying attention to the envisaged role of academia,



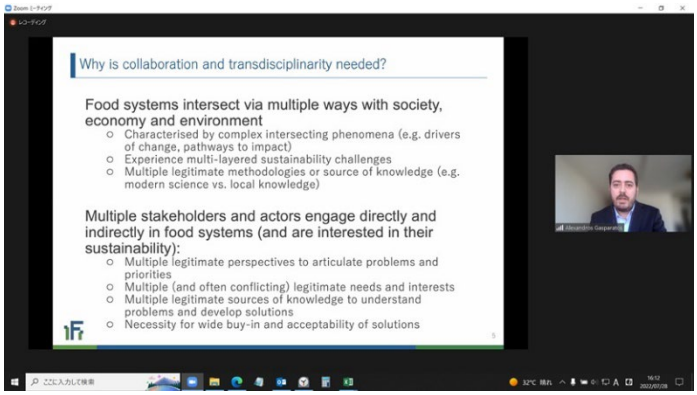
Prof. Muthwa believed there were three focal themes for achieving these future goals for academia: the need for interdisciplinary teaching, learning, and research, fully open and inclusive universities, and more active roles for academia in broader society by partnering with other institutions and industry stakeholders. In terms of changing roles of the university, noticing the increasing demands for social justice, education, and equity, she emphasised the necessity for universities to become more inclusive and open to meet these demands.

Finally, Prof. Muthwa stressed the importance of collaboration between South Africa and Japan for reaching the goals of social justice and equity and promoting the open, accessible sharing of information. Universities' values must embrace and inspire trust in students, staff, and society. Policy and regulation changes were rapid, demonstrating fortitude and flexibility in the face of calls for diversity, inclusion, and response to the pandemic. She closed the speech by stating that the exchange

of knowledge lies at the heart of the massive transformative potential that universities latently have.

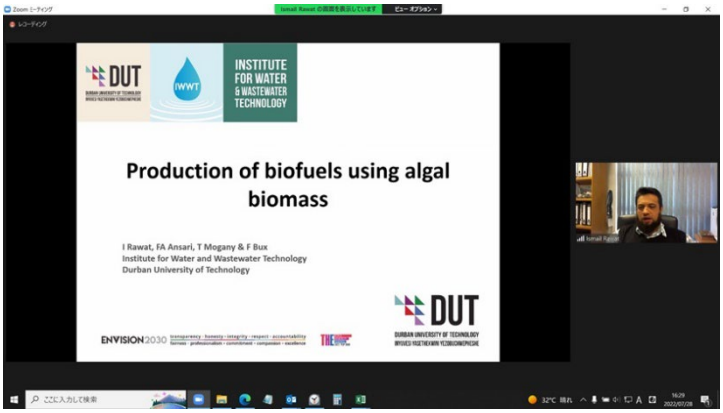
2.3 Supplementary lectures

At first, **Prof. Alexandros Gasparatos** (Institute for Future Initiatives, University of Tokyo) gave a lecture on research collaboration on interdisciplinary topics. He raised implicit and explicit points in collaborative research based on his career working on multiple projects regarding food security and sustainability over the years. Using a basic SWOT analysis scheme, he argued how to address these points and set up the project frameworks.



The research collaboration in interdisciplinary fields offers multiple perspectives and a multi-dimensional understanding of complex issues and allows for various solutions. A representative example may be the diversity in methodologies and the possibility of working with numerous stakeholders, enabling capacity building in multiple directions, intellectual variety and avoiding intellectual isolation. Meanwhile, there are also limitations. Intellectual and logistical difference requires more time to organise when there is a variety. He also pointed out the challenge of engaging non-academic partners. To close his lecture, Prof. Gasparatos recommended two points: the attitude to be open-minded and willing to change views regarding lenses, methods, questions, or ways of knowing; the other was improving communication.

The second lecturer was **Dr Ismail Rawat** (Institute for Water and Wastewater Technology, Durban University of Technology), who has collaborated with several Japanese universities through his research project on biofuel produced by algae. In addition to South Africa's conventional fuel, algae, which can be grown in wastewater, is a partitional advantage of being able to cope with water shortage. In this project, the bilateral collaboration contributed to solving technical problems and successfully increased harvesting. Moreover, it allowed for the capacity building of young academics and professionals.



One lesson learnt by Dr Rawat was the difficulty of the language barrier. It was more complicated than expected, as finer points get lost in translation. Understanding the broader context was essential to ensure less miscommunication. It

was, therefore, crucial for all team members to make sure that the project was a combined effort, and clear communication would be essential. Lastly, Dr Rawat stressed the significance of adaptability for the success of the research collaboration.

3. SESSION 2: THEMATIC PARALLEL SESSIONS

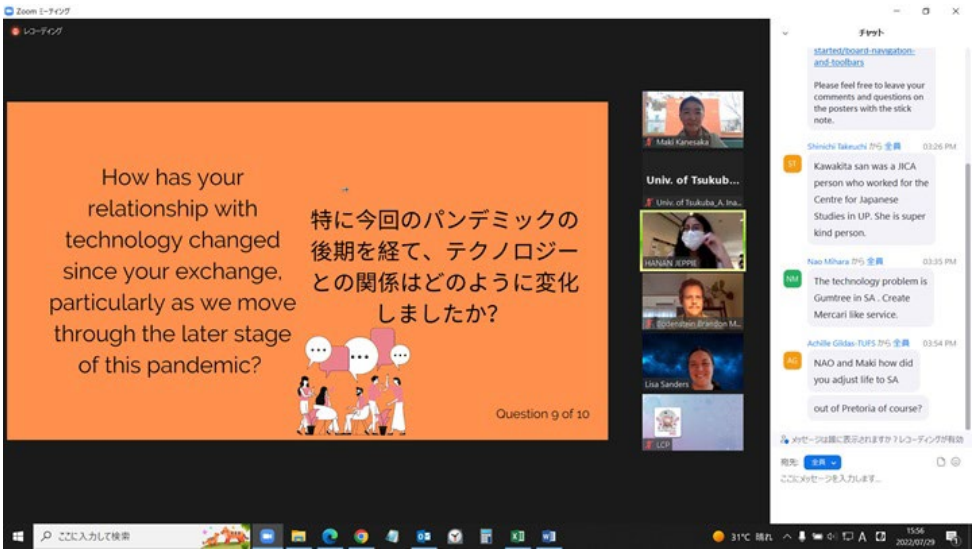
Please see the annexure.

4. SESSION 3: STUDENT SESSION, PRESENTATIONS ON PARTNERSHIPS AND NETWORKING

4.1. Student session

The student session was the first attempt in the history of SAJU. Under the title "Technologies of (dis)Trust and Transformation: South African and Japanese Students' Experiences of Exchange and Change Through a Pandemic in the Era of Misinformation", students who knew life in both South Africa and Japan discussed their views. Two moderators, **Mr Brandon Bodenstein** and **Ms Lisa Sanders** sought panellists' opinions on mobility, pandemic, technologies, trust, and (dis)information through the following questions;

1. What technology, online spaces or information sources did you use when planning to leave your home country?



2. Did technology make this trip simpler, and why?

3. What was your most critical technology as you moved to the host country?

4. Did you struggle to find information, particularly regarding COVID and the many rules and regulations that came with the move? How did you find the information you needed?

5. How did you know if you could trust the information you found?

6. Were you ever confused by information? When this happened, how did you try to correct it?

7. Do you have an example of a situation or experience where technology or the information you found online made navigating the host country easier or more challenging?

8. Whom do you think can be "trusted" when providing truthful information, and why do you think so?

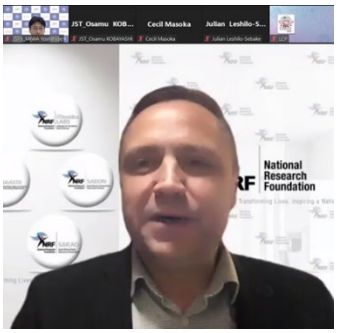
9. How has your relationship with technology changed since your exchange, particularly as we move

through the later stage of this pandemic?

10. How did you experience technology or information differently in these countries?

The discussion illustrated how the students struggled with accessing accurate information about such issues as visa, flight, and university enrolment under challenging situations in pandemics. It was closely related to the conference's general theme. One exciting discovery was that although the smartphone and the PC were undoubtedly indispensable tools for gathering information, the panellists unanimously stressed the necessity of supplementary and additional ways to confirm. Meeting face-to-face and asking directly to a reliable source was also emphasised. Such an attitude will be required to navigate the era of disinformation successfully.

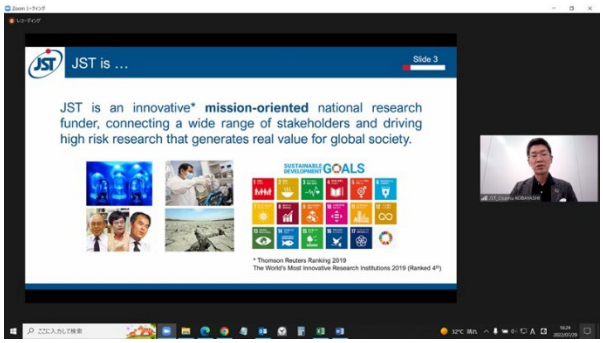
4.2. Research funding mechanisms



Under the facilitation of **Dr Aldo Stroebel**, Executive Director, National Research Foundation (NRF), the session discussed how to adequately support the research through various attempts made by representing funding agencies in South Africa and Japan.

The first presenter was **Mr Masashi Hara**, Director, International Cooperation, Science and Technology Policy Bureau, Ministry of Education, Culture, Sports, Science and Technology (MEXT). He offered an overview and perspectives of STI funding in Japan in addressing the administrative structure of STI policy governance and the three pillars of Japan's STI policy.

Mr Cecil Masoka, Director, Multilateral Cooperation, Department of Science and Innovation (DSI), illustrated some growing areas in the funding mechanisms. He pointed out the improvement of trade schools and appreciated the advance of the bilateral collaborations that have ensured sharing of best practices between science institutions.

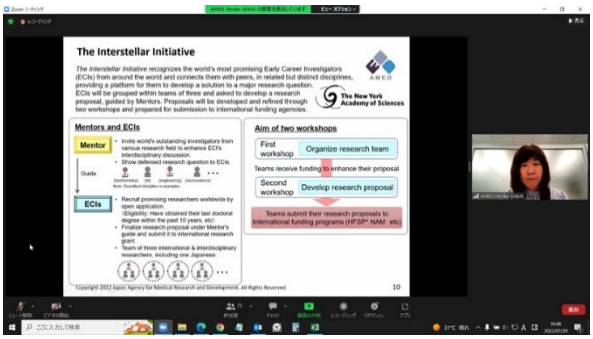


Mr Osamu Kobayashi, Director, Department of International Affairs, Japan Science and Technology Agency (JST), briefly introduced his organisation as a mission-oriented research funder. Following the explanation of existing research collaboration mechanisms, AJ-CORE and SATREPS, he introduced the Sakura Science Exchange Program, aiming to promote human connections by encouraging students to travel from SA to Japan.

As a speaker from the Japan Society for the Promotion of Science (JSPS), **Mr Yoshihide Miwa**,

introduced its bilateral research cooperation program and the Core to Core program. JSPS has provided research funds through these funding mechanisms, through which over 3000 foreign scholars were annually invited to Japan before the pandemic.

To introduce the activities of the Japan Agency for Medical Research and Development (AMED), **Ms Hiroko Sakai** presented Japan's healthcare policy and its connection with the organisation. She also talked about the SATREPS, for which AMED played an indispensable role with JICA and JST.

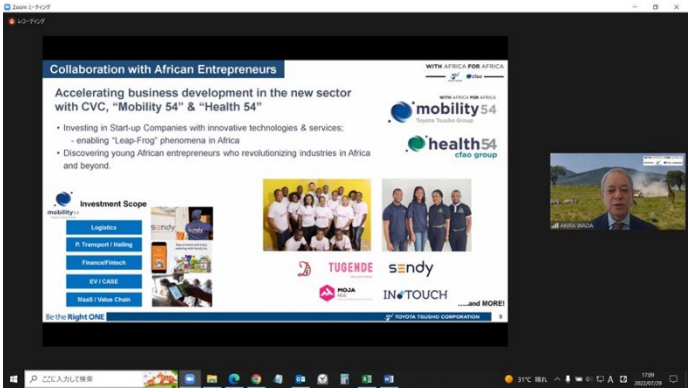


Finally, **Dr Aldo Stroebel** overviewed the NRF's collaborative activities with Japan and emphasised the necessity of a platformed approach to bolster the bilateral relationships. Then, he invited questions and comments from the floor. A question was asked to the JST about the benefit of humanities, and Mr Kobayashi responded positively.

4.3. Cooperation beyond academia

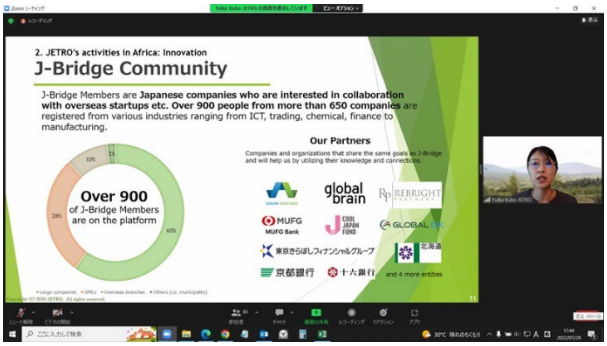
In this session, facilitated by **Dr Katsumi Hirano**, Executive Senior Research Fellow, IDE-JETRO, the possibility of cooperation between academia and industry was discussed.

The first presenter was **Mr Akira Wada**, Senior member of Toyota Tsusho Africa. Mr Wada presented a whole picture of the company's activities in Africa, engaging 54 countries with its slogan 'With Africa For Africa'. Emphasising the importance of human resource development, the company has provided ANZEN (Security) and KAIZEN (improving awareness on sites) training in African countries, including Angola, Uganda, and Kenya.



Next, **Mr Zipho Zwame** of the Technology Innovation Agency introduced the South African initiative for innovation. This is a governmental initiative whose vision is to be a leading technology to improve South African lives and provide sustainable solutions to tackle poverty, inequality and unemployment. He explained that the organisation's ultimate goal was to bridge the gap between innovation and the market.

The third presenter was **Mr Martin Manganye**, the first batch alumni of the African Business Education Initiative for Youth. He talked about his experience as a beneficiary of the ABE Initiative and appreciated the JICA's program to become a changing agent.



Then, **Ms Yuita Kubo**, Global Strategy, Africa, Planning Department at JETRO, presented its business supporting activities in Africa. With a robust African network with nine offices in Rabat, Abidjan, Accra, Johannesburg, Lagos, Cairo, Addis Ababa, Nairobi and Maputo, JETRO facilitates innovation through trade and foreign direct investment. In addition, the organisation strengthens assistance for the start-up in Africa, particularly in the digitalisation of the private sector.

The final presenter was **Ms Kumi Sekizawa**, Deputy Director, Technical Cooperation Division, Trade and Economic Cooperation Bureau, Ministry of Economy, Trade and Industry (METI). She presented projects currently carried out by METI and available for Africans.

After a couple of remarks from the speakers on cooperation in human resource development and the mobilities of the young generation between the two countries, the moderator closed the session.

4.4. Platforms for academic networking

In this session moderated by **Mr Ghaleeb Jeppie**, Minister Counsellor, Science, Innovation and Education, Embassy of South Africa in Japan, representative programs implemented to forge academic networks between Japan and South Africa were presented.

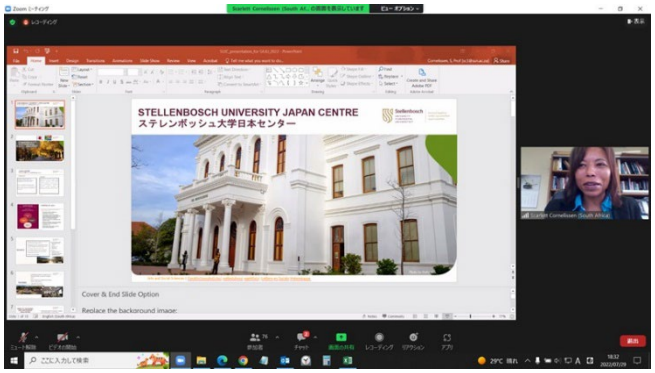
The first presenter, **Prof. Shinichi Takeuchi**, African Studies Center at Tokyo University of Foreign Studies, introduced the Japan-Africa Academic Network (JAAN). The network was established in 2015 for information sharing. With its 25 member universities, JAAN has 80 partner universities and 30 overseas offices in Africa. In a recent effort to develop the network, the presenter mentioned a survey on students' struggles from African countries during the COVID-19 pandemic.

The second presenter, **Dr Samia Chasi**, a strategic advisor at the International Education Association of South Africa (IEASA), explained the organisational structure, the people involved and connections to other international organisations. Key activities mentioned focused on advocacy, information and knowledge sharing, training and development. She also shared

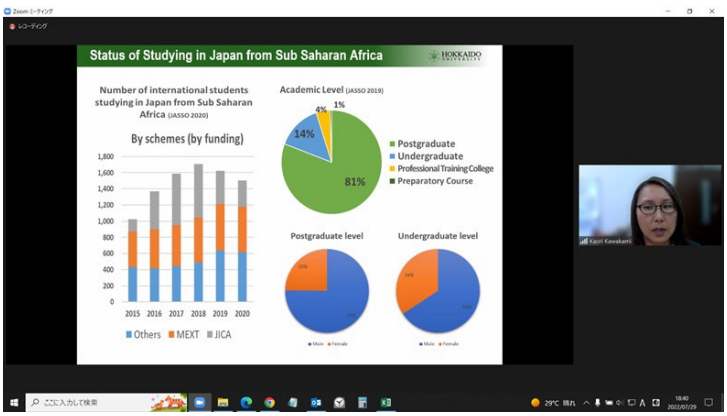
information about the conference held on 24-26 August 2022.

Prof. Motoki Takahashi, Graduate School of Asian and African Area Studies at Kyoto University, introduced the Inter-University Exchange Program jointly with the Tokyo University of Foreign Studies. Stressing the necessity of constructing an excellent platform for better student exchange between Africa and Japan, he presented several efforts in the program to build such a platform for strengthening exchanges and requested participants to contact him for more detailed information.

Next, **Prof. Scarlet Cornelissen**, who would assume the director of the Stellenbosch University Japan Centre, which was about to open on 11 August, presented activities of the newly established organisation. This centre, which will play an essential role in networking between South Africa and Japan, will not be standalone but will collaborate with other existing centres at Stellenbosch University. In addition to offering courses on Japan and the Japanese language, the centre will also host events and other cultural activities.



Finally, **Ms Kaori Kawakami** and **Dr Hikaru Kusakabe**, Hokkaido University, introduced the activities of the Study in Japan Global Network Project in Sub-Saharan Africa. The project is based at Hokkaido University and has an office in Lusaka, Zambia, and a branch in Nairobi, Kenya. Discussing the project and its expansion plans, South Africa was mentioned as a growth point for the project. The presenters sent the invitation to the Study in Japan Fair, which will be launched in September.



5. SESSION 4: WRAP-UP & CLOSING

The wrap-up and closing session were chaired by **Prof. Masafumi Nagao**, Research Advisor, International Development Center of Japan, Professor Emeritus, Hiroshima University, and Visiting Fellow, Future Africa Institute, the University of Pretoria. He is one of the founding members of SAJU. Prof. Nagao outlined the purpose of the wrap-up session into the following three points: to review the discussions, reflect on them, and conclude the 5th SAJU Forum. He invited Prof. Morio to summarise the overarching theme of the 5th SAJU Forum, three organising committee members to summarise the parallel sessions, and Prof. Bawa to summarise the Forum as a whole.

Summary of the plenary session

On the first day, the 5th South Africa-Japan University Forum (SAJU Forum) was opened with the remarks by H. E. Ambassador Norio Maruyama and H. E. Ambassador Smuts Ngonyama. Both Ambassador emphasized the advantage of academic cooperation between South Africa and Japan in the African continent.
It is also emphasized that the collaboration will be very important and powerful engine to solve the global issues, especially realizing the carbon neutral hydrogen society.
Finally, both Ambassador expressed their expectation on the Japan Center to be launched in Stellenbosch University very soon.

Following the opening remarks, two keynote lectures were delivered. Prof. Motoko Kotani, Science and Technology Co-Advisor to the Minister of Foreign Affairs in Japan overviewed the science and technology diplomacy of Japan and emphasized the role of science, technology and innovation in the TICAD process. Prof. Sibongile Muthwa, Nelson Mandela University overviewed the challenges facing higher education in South Africa today and initiatives to resolve them and look to the future.

In the Supplementary Lectures "Lessons from experiences of bilateral research cooperation from researchers' viewpoints," Prof. Alexandros Gasparatos, Institute for Future Initiatives, University of Tokyo introduced benefit and challenges of transdisciplinal and multistakeholder collaboration. His word that multidisciplinal collaboration was a big chance to young researchers was very impressive.
Prof. Ismail Rawat, Institute for Water and Wastewater Technology, Durban University of Technology introduced collaborative research project on production of biofuels from the microalgae cultivated in wastewater. Although there is language and cultural barrier between South Africa and Japan, he was confident about the success of the project.

Through the plenary session of the two days, we recognized again the significance and advantage of the academic cooperation between South Africa and Japan and the potential of multilateral and multistakeholder cooperation beyond countries, institutions and sectors, which is based on strong mutual trust.

As Prof. Kotani mentioned from her experience, cooperation on basic and pure science is also very important. It also involves not only science but also humanity, social science, arts and all the basic studies. The year 2022 is the International Year of Basic Sciences for Sustainable Development.
In the occasion of the SAJU Forum, we acknowledge once again that academic and beyond academic cooperation in all fields between South Africa and Japan contributes to sustainable development and the well-being of humanity.

In the second day, we had a student session, panel discussion of Technologies of (dis)Trust and Transformation. Based on their own experiences, the students from South Africa and Japan, Mr Brandon Bodenstein, Ms Lisa Sanders, Mr Naoto Mihara, Ms Hanan Jeppie and Ms Maki Kanesaka shared their views how technology contributed to getting information on the life abroad especially under COVID-19 pandemic situation and how to deal with uncertain information. It is the first attempt in the SAJU Forum to promote the participation of the young generation.

In the session Research Funding Mechanism, we invited Mr Masashi Hara, the Ministry of Education, Culture, Sports, Science and Technology, Japan. He introduced the Japanese STI policy for realization of the Society 5.0 and the International cooperation of the MEXT including international brain circulation, promotion of international joint research and joint degree programs and support to PhD students, followed by the funding agencies from South Africa and Japan, namely, Mr Cecil Masoka, DSI, Mr Osamu Kobayashi, JST, Mr Yoshihide Miwa, JSPS, Ms Hiroko Sakai, AMED and Dr Aldo Strobel, NRF to overview the current situation and future perspectives. At the discussion, agencies shared their views on the next challenge and the emphasized the importance of networking and development of next generation human resources.

The session Cooperation beyond Academia invited speakers form the industry, Mr Akira Wada from Toyota Tsusho who introduced the company's contribution to the African continent, such as vertical value chain integration, capacity building and cooperation with young entrepreneurs, the agencies, Mr Zipho Zwane, from TIA to introduce support framework of entrepreneurs and start-ups and Ms Yuika Kubo from JETRO introducing its contribution to business and innovation bridging with Africa and Ms Kumi Sekizawa from Ministry of Economy, Trade and Industry, Japan to introduce the new framework for developing IT skilled young human resource. Mr. Martin Mangnye, Batch 1 Alumni, ABE Initiative introduced his experience of bridging between South Africa and Japan, and between

academia and industry.

In the Platform for Academic Networking session, efforts for networking and institutionalizing academic collaboration, namely, Prof Shinichi Takeuchi, Japan-Africa Academic Network JAAN, Dr Samia Chasi from International Education Association of South Africa IEASA, Prof Motoki Takahashi, Inter-University Exchange Project, Prof Scarlet Cornelissen, Stellenbosch University, Japan Centre, and Ms Kaori Kawakami and Dr Hikaru Kusakabe, Hokkaido University, Study in Japan Global Network Project in Sub-Saharan Africa whose mission is to promote sub-Saharan African students to study in Japan.

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As Prof. Kotani mentioned from her experience, cooperation on basic and pure science is also very important. It also involves not only science but also humanity, social science, arts and all the basic studies. The year 2022 is The International Year of Basic Sciences for Sustainable Development.
In the occasion of the SAJU Forum, we acknowledge once again that academic and beyond academic cooperation in all fields between South Africa and Japan contributes to sustainable development and the well-being of humanity.

A month later, TICAD 8 will be held in Tunisia, and there as at previous TICADs, the importance of scientific and technological innovation for Africa's sustainable development, as well as wider academic collaboration and highly qualified human resource development, will be emphasised. We hope that the SAJU Forum will contribute to the TICAD process as a good practice for academic collaboration between the African continent and Japan.

Summary of the Parallel Sessions

1 Health and Wellness, by Prof. Shinichi Takeuchi

In the parallel session of Health and Wellness, eleven interesting presentations were made. The topics dealt with in the session were broad, inter-disciplinary, and stimulating. Some researches dealt with South African experiences such as cultural policies, the social impact of the Covid-19, South African social enterprises on education, cyanobacteria in Limpopo river, Antimicrobial Resistance, and oral health practice. Other presentations clarified situation in Japan with regard to participation of disabled persons in the sport, cattle related injuries, and the university's infectious disease research alliance.

Every presentation was interesting and vibrant discussion was followed after the presentation. Hearing the presentations, I was impressed to learn a lot, and was strongly convinced of the great possibility of research collaboration. All presenters are willing to work together with different partners. Presentations were quite conscious of the nature of the SAJU forum and open for a wide range of specialties.

We heard a number of good comments which can lead to further collaboration. For instance, the comment made by Professor Sakagami of Meikai university to the presentation of Dr. Natalie Ann Gordon of the University of the Western Cape would be a good example. I really hope a new research collaboration will develop from this SAJU forum.

It is not only within the same discipline that we can learn from each other. Another strong impression that I had was that inter-disciplinary attempts have been promoted in different research fields, and thus broadening the possibility of collaboration and mutual learning. Personally, the most impressive presentation for me was that of Professor Faadiel Essop, introducing a programme for post-graduate students. Targeting the students specializing the medical physiology, the programme provides opportunities for the reflection through experiences of arts. This is a significant attempt to foster the students' capabilities to live in the difficult "post-truth" world. I am quite sure that Japanese universities have many things to learn from such an attempt.

Generally, it was really wonderful experience to listen to 12 excellent presentations and discussion. I strongly recommend all of you to visit the poster session to learn from these presentations, and hope that mutual exchanges start from this opportunity, which will result in fruitful research collaboration someday.

2 Security and Social Justice, by Dr. Linda Meyer

The thematic session "Security and Social Justice" had 14 abstracts for the oral presentation and

online poster session. The topics were varied but can be summarised in the overarching themes of **engaged citizenship**, **social justice**, socio-economic **security**, **earth stewardship and sustainability** and **student well-being and success.**

The first theme on **engaged citizenship** included presentations on Corporate Volunteerism, Corporate social responsibility, and advancing indigenous knowledge constructs.

Under the second **social justice theme,** there were presentations on: Creating a disability economic empowerment inequality index, Public Diplomacy and Climate Smart Water and Soil Management Strategies for Achieving Food Security in Africa.

In the third theme of **socio-economic security**, there were presentations on Rising Japanese Foreign Direct Investment in African Countries, the impact of minimum wage adjustments in the Agricultural sector, student Food Security, and research from the Institute of Developing Economies.

The fourth theme dealt with **earth stewardship and sustainability;** presentations were made on Inter-Generational Justice and Children's Rights, Neglected and Underutilized Plant Species for Sustainable Nutrition, Soil Management strategies, Livelihoods and Resilience to Climate Change in Western Africa and Entomophagy Tourism opportunities.

The fifth theme related to **student well-being and success**; there were presentations on student well-being and enablement in a rural university context and culturally responsive strategies for teaching taboo subjects.

The final presentation appropriately dealt with Current and Past Research Interests in Southern Africa at the Institute of Developing Economies (IDE-JETRO), Japan. These seminal inputs confirmed the long-term and extensive collaboration between South Africa and Japan.

During the engaging and well-received session, active deliberations formed part of a rich tapestry of cross-disciplinary collaboration. They confirmed the solid academic ties in academic cooperation between South Africa and Japan.

3 Growth, Exploration and Conservation, by Prof. Takahiro Morio

In the thematic session "Growth, exploration, and conservation," there were 12 abstracts for the oral presentation and online poster session.

The topics were widely diverse, but can be summarised in a few key words: language, mining and the past and future.

With regard to the language, there were presentations on multilingualism in law and archiving, research on stress in language acquisition and research on the impact of literature on anti-apartheid activism.

As regards mining, studies on earthquakes in mining, studies on the biosphere in deep mine saline hydrospheres, studies on the physico-chemistry of strata groups in coal fields and studies on the implementation of smart technology in mining were presented. These topics presented the results of long-term and extensive collaboration between South Africa and Japan, demonstrating the high productivity of joint research between the two countries.

On the past and future, there were research presentations on re-evaluating traditional African communitarianism as potential alternative development, designing future societies through science fiction thinking and manga production methods, and entrepreneurial education through remote collaboration.

In this session, I would like to emphasize that active discussions took place between researchers from different fields, reminiscent of a melting pot for cross-disciplinary collaboration. It is hoped that the continuation of such interdisciplinary exchanges will lead to innovative academic collaboration.

Conference Statement

As a deliverable of the 5th SAJU Forum, a draft of the Conference Statement was prepared by Prof Ahmed Bawa, reviewed by the Organising Committee and presented by Prof Masafumi Nagao and Prof Bawa at the conclusion of the Wrap-up session. At the suggestion of the moderator, the statement was adopted by consensus ad referendum.

The adopted statement will be published as an official document in the Final Report of the Conference after reflecting any feedback from the forum participants in accordance with the ad referendum protocol.

CONFERENCE STATEMENT
AS ADOPTED AT THE CONCLUSION OF THE SAJU 5 CONFERENCE

After a CoVid-19 inspired hiatus of two years, the South Africa–Japan University (SAJU) Forum convened its fifth conference on the 28th and 29th of July 2022. The SAJU 5 conference, held virtually, is a restatement of and recommitment to the importance of building strong, sustainable research/innovation and education relationships between universities in the two nations. At a time when the rapidly deepening dangers of the grand challenges facing humanity are gathering pace the importance of building collaborations between university systems has never been more important.

Following on the devastating impact of the pandemic on societies across the world, and universities have not been spared, many lessons have been learned and others remain to be learned. Among the lessons learned is the need to foreground the challenge of improving the quality of life of all people and to reduce as much as possible the deep inequalities within and between societies. The pandemic also raised the spectre of rising anti-intellectualism, escalating distrust of science and experts and attempts to coopt science for political expediency and populism. We have also seen large shifts in geopolitics which places strain on the role of universities in the production of knowledge and of experts in the service of the common good of all humanity. Understanding that the grand challenges facing humanity are simultaneously local and global, the SAJU Forum proclaims the centrality of universities in developing a global commons of scholars and scholarship.

SAJU 5 sought to understand what steps might be taken to enhance this bilateral collaboration and its impact. It brought together researchers and students, administrators, research funding agencies, industry and development agencies. Each sector was provided an opportunity to express their successes and concerns.

Between 2017 and 2021, collaborations between Japanese and South African scholars produced more than 3,100 publications (on the Web of Science database). Close on 90% of these papers were cited at an average citation impact of 4.89. A booklet was launched celebrating the science, technology and innovation partnerships between Japan and South Africa over the past five years by the respective science funding agencies.

As was the case with SAJU 4, the SAJU 5 conference drew presentations and posters from researchers who were either already involved or plan to be involved in collaborative work. The presentations were organised within three rubrics: ***Health and Wellness****;* ***Security and Social Justice;*** *and* ***Growth, Exploration and Conservation****. The conference drew 41 papers and posters.*

SAJU 5 recognised as a major mission its contribution to the promotion of exchanges between the

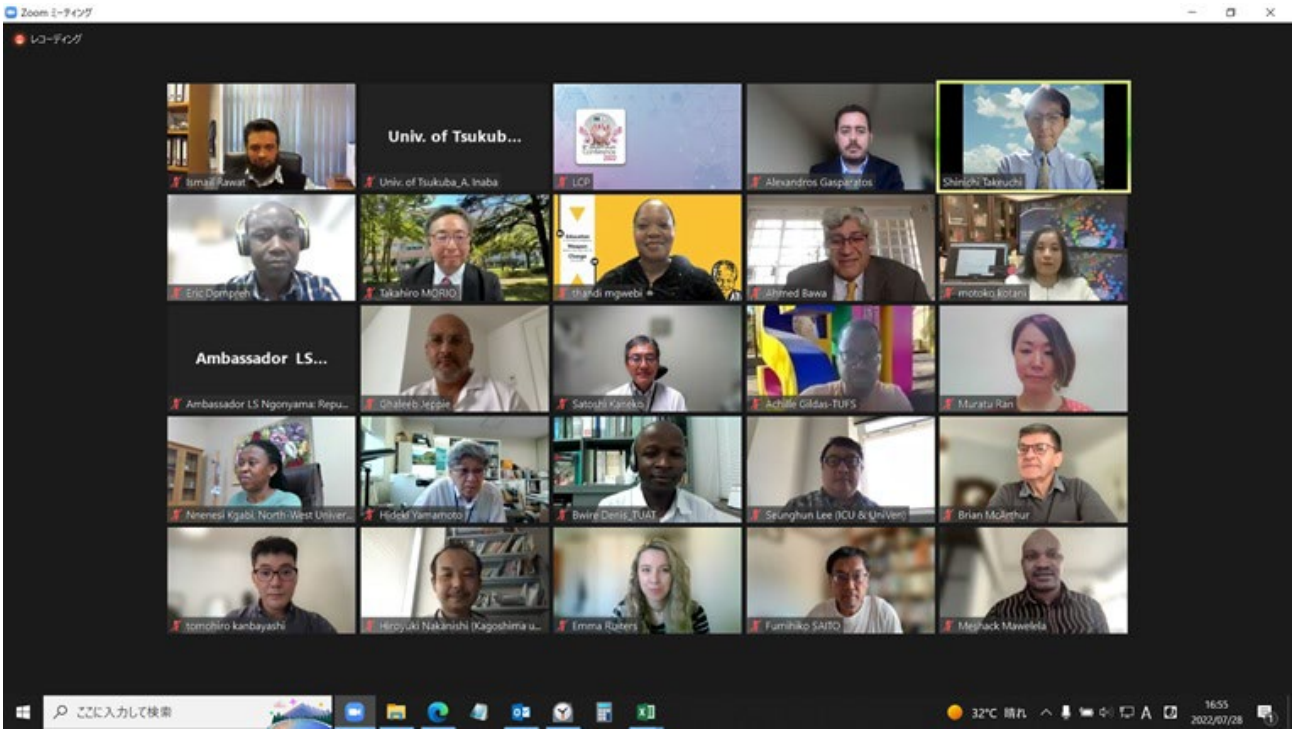
next generation of young scholars. In support of this, SAJU 5 organised a session involving students which reflected on the impact of the pandemic on scholarly work. It also introduced a support mechanism for young entrepreneurs.

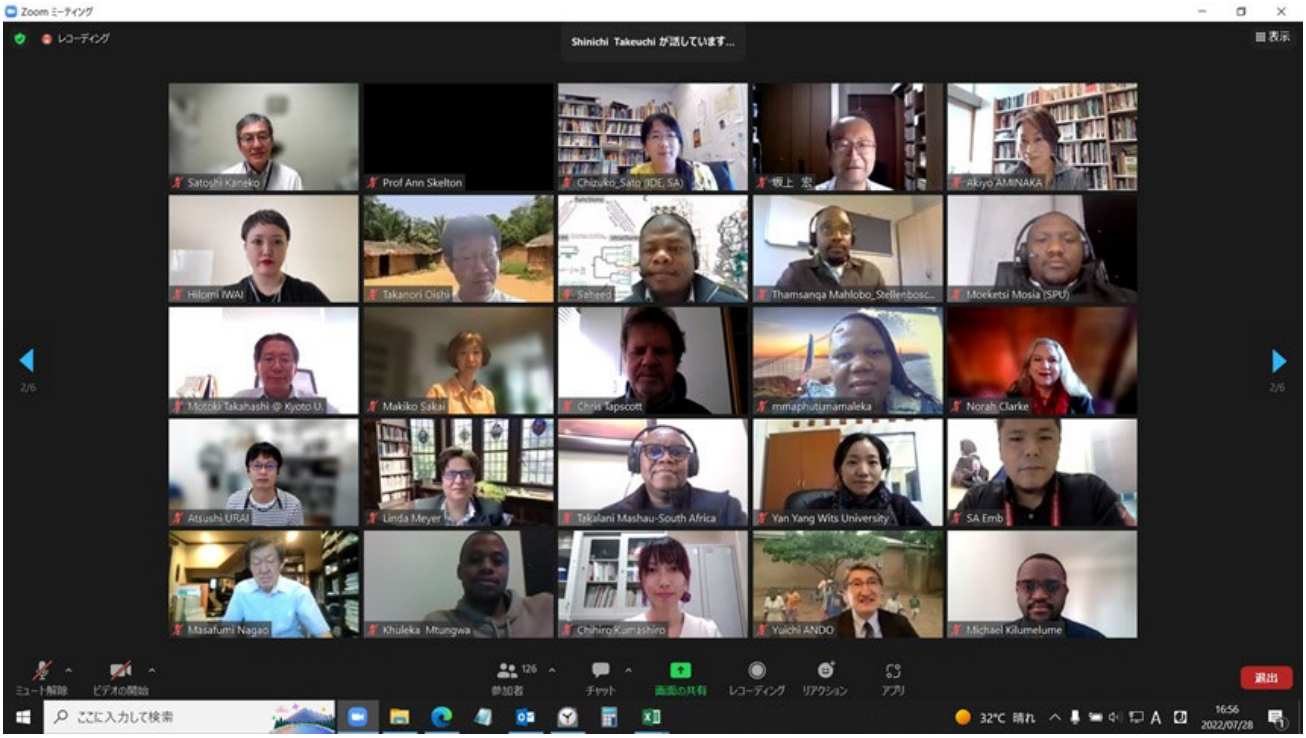
Following the conference, the SAJU Forum commits itself to the following positions and actions.

1. *The SAJU Forum will continue to actively pursue more frequent and stronger collaborations between South African and Japanese scholars and universities. It will work with government partners and funding agencies to develop an ecosystem (including funding) for this purpose.*
2. *The SAJU Forum commits itself to working with other bodies, such as the Japan-Africa Academic Network, the African Research Universities Alliance and the International Education Association of South Africa, to build a global commons of scholars and scholarship to address the grand challenges facing humanity, for which the SDGs provide a framework. The SAJU Forum will place special emphasis on building partnerships with universities across Africa.*
3. *Emphasis will be placed on building open collaboration and innovation with trust; in particular, in the areas of joint postgraduate education and research and innovation. The SAJU Forum will work assiduously to strengthen the public ownership of science and scholarship with the purpose of rekindling trust in experts and in science.*
4. *Through its work the SAJU Forum will create the conditions for university-based scholars to collaborate with industry, the development agencies, and local and national governments to enhance the articulation of the knowledge enterprise with the challenges of development and economic growth.*
5. *The SAJU Forum will deliberately strengthen the capacity of universities in both systems to work effectively as bridges between these societies and to permit the free flow of ideas and scholars.*
6. *The multilateral Eighth Tokyo International Conference on African Development (TICAD 8) will be held in Tunisia on the 27th and 28th of August 2022. Following the preliminary engagement between SAJU 4 and TICAD 7 in Yokohama in August 2019, the SAJU Forum will build the momentum to understand how best to galvanise the academic sectors in Japan, South Africa and other parts of Africa to address the challenges of sustainable development on the continent.*

The SAJU Forum will meet regularly to maintain the momentum it has developed to work on its agenda.

PHOTO SESSION





ANNEXURE

1. Programme SAJU5
2. Presentation files – Plenary session (28 July 2022)
3. Presentation files – Plenary session (29 July 2022)
4. Agenda Session 2: Parallel thematic sessions
5. Book of Abstracts

PROGRAMME

Fifth South Africa – Japan University Forum Conference

(SAJU 5)

28 – 29 July 2022, Virtual

- Open Collaboration and Innovation with Trust -

Organized by
The Organization Committee of the 5th SAJU Forum consisting of
Universities of South Africa (USAf)
University of Tsukuba
Tokyo University of Foreign Studies
Department of Science and Innovation (DSI)
National Research Fund (NRF)
Embassy of the Republic of South Africa
Embassy of Japan

Supported by
Department of International Relations and Cooperation (DIRCO) – South Africa
Department of Higher Education and Training (DHET) – South Africa
Ministry of Foreign Affairs of Japan
Ministry of Education, Culture, Sports, Science and Technology – Japan
Japan Agency for Medical Research and Development (AMED)
Japan International Cooperation Agency (JICA)
Japan Society for the Promotion of Science (JSPS)
Japan Science and Technology Agency (JST)
Japan-Africa Academic Network

TICAD Tokyo International Conference on African Development
Tunisia
2022

THURSDAY, 28 JULY 2022

Time: 08:00-13:00 (SAST), 15:00-20:00 (JST)
MC: Prof Shinichi TAKEUCHI, Tokyo University of Foreign Studies

SESSION 1: WELCOME & OPENING ● KEYNOTE LECTURES ● SUPPLEMENTARY LECTURES			
TIME	**DESCRIPTION**	**PRESENTER/S**	**NOTES**
08:00-08:30 (15:00-15:30)	**Welcome & Opening**	**REMARKS FROM JAPAN** Introduction: **Prof Takahiro MORIO**, University of Tsukuba Opening: **HE Mr Norio MARUYAMA**, Ambassador of Japan to South Africa **REMARKS FROM SOUTH AFRICA** Introduction: **Prof Ahmed BAWA**, CEO, Universities of South Africa (USAf) Opening: **HE Mr Smuts NGONYAMA**, Ambassador of South Africa to Japan	
08:30-09:10 (15:30-16:10)	**Keynote Lectures** (20 min each) **Perspectives and challenges towards open academic cooperation with trust**	**Prof Motoko KOTANI** Science and Technology Co-Advisor to the Minister of Foreign Affairs in Japan **Prof Sibongile MUTHWA** Nelson Mandela University & Chair of USAf Board	Moderator: **Prof Shinichi TAKEUCHI**
09:10-09:50 (16:10-16:50)	**Supplementary Lectures** (15 min & 5 min Q&A each) **Lessons from experiences of bilateral research cooperation from researchers' viewpoints**	**Prof Alexandros GASPARATOS** Institute for Future Initiatives, University of Tokyo (UOT) *Enabling transdisciplinary research at the interface of food security and sustainability in Sub-Saharan Africa: Opportunities and challenges* **Dr Ismail RAWAT** Institute for Water and Wastewater Technology, Durban University of Technology (DUT)	Moderator: **Prof Thandi Mgwebi** Deputy Vice-Chancellor Research, Innovation and Internationalisation, Nelson Mandela University
PHOTO SESSION ● ANNOUNCEMENT OF DAY 2			
BREAK (10 min)			

SESSION 2: THEMATIC PARALLEL SESSIONS			
TIME	**DESCRIPTION**	**PRESENTER/S**	**NOTES**
10:00-13:00 (17:00-20:00)	**Presentations**		Chairs will be researchers from related themes, one each from Japan and South Africa, applicable to each session)
<u>Health and Wellness</u> Chairs: Japan: ▪ Prof Yuichi ANDO, Institute of Global Medical and Sports Science ▪ Prof Satoshi KANEKO, Nagasaki University South Africa:		<u>Security and Social Justice</u> Chairs: Japan: ▪ Prof Motoki TAKAHASHI, Kyoto University ▪ Dr Chizuko SATO, Institute of Developing Economies (IDE-JETRO) South Africa:	<u>Growth, Exploration and Conservation</u> Chairs: Japan: ▪ Prof Takahiro MORIO, University of Tsukuba ▪ Prof Hiroshi Ogasawara, Ritsumeikan University South Africa:
	Poster Session (Open for one week) Comments and Q&A to be parked on posters		Those who prefer only poster presentations, will be given an opportunity for short oral presentations at parallel sessions
END OF DAY 1			

FRIDAY, 29 JULY 2022

Time: **08:00-12:30 (SAST), 15:00-19:30 (JST)**
MC: **Prof Shinichi TAKEUCHI**

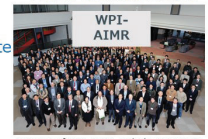
SESSION 3: STUDENT SESSION ● PRESENTATIONS ON PARTNERSHIPS AND NETWORKING			
TIME	**DESCRIPTION**	**PRESENTER/S**	**DESIGNATION**
08:00-09:00 (15:00-16:00)	**Student Session** **Technologies of (dis)Trust and Transformation: South African and Japanese students' experiences of exchange and change through a pandemic in the era of misinformation**	Panelists: 1. **Mr Naoto MIHARA (in Japan)** 2. **Ms Hanan JEPPIE (in Japan)** 3. **Ms Maki KANESAKA** (in South Africa)	Moderators: 1. **Mr Brandon BODENSTEIN** 2. **Ms Lisa SANDERS**
09:00-10:00 (16:00-17:00)	**Research Funding Mechanism**	1. **Mr Masashi HARA**, Director, International Cooperation, Science and Technology	Moderator: **Dr Aldo STROEBEL**, Executive Director, National Research Foundation (NRF)

	(7 min each)	Policy Bureau, Ministry of Education, Culture, Sports, Science and Technology (MEXT), Overview and perspectives of STI funding in Japan 2. **Mr Cecil MASOKA**, Director, Multilateral Cooperation, Department of Science and Innovation (DSI) 3. **Mr Osamu KOBAYASHI**, Director, Department of International Affairs, Japan Science and Technology Agency (JST) / SATREPS, SAKURA Science Programme, etc. 4. **Mr Yoshihide MIWA**, Japan Society for the Promotion of Science (JSPS), Bilateral, Core to Core 5. **Ms Hiroko SAKAI**, Japan Agency for Medical Research and Development (AMED), SATREPS, NTDs 6. **Dr Aldo STROEBEL**, NRF Q&A / Discussion (5 min in total)	
10:00-11:00 (17:00-18:00)	**Cooperation Beyond Academia** (5 min each)	1. **Mr Cas COOVADIA**, Chief Executive Officer), Business Unity South Africa (BUSA) 2. **Mr Akira WADA**, Africa Division, Toyota Tsusho 3. **Mr Tandokazi NQUMA**, Technology Innovation Agency (TIA) [TBC] 4. **Mr Martin MANGANYE**, Batch 1 Alumni, African Business Education (ABE) Initiative for Youth 5. **Ms Yuika KUBO**, Global Strategy, Africa, Planning Department, JETRO 6. **Ms Kumi Sekizawa**, Deputy Director, Technical Cooperation Division, Trade and Economic Cooperation Bureau, Ministry of Economy, Trade and Industry (METI) Q&A / Discussion (5 min in total)	Moderator: **Dr Katsumi HIRANO**, Executive Senior Research Fellow, IDE-JETRO

11:00-11:40 (18:00-18:40)	**Platforms for Academic Networking** (5 min each)	1. **Prof Shinichi TAKEUCHI**, Japan-Africa Academic Network (JAAN) 2. IEASA 3. **Prof Motoki TAKAHASHI**, Inter-University Exchange Project 4. **Prof Scarlet CORNELISSEN**, Stellenbosch University, Japan Centre 5. **Ms Kaori KAWAKAMI and Dr Hikaru KUSAKABE**, Hokkaido University, Study in Japan Global Network Project in Sub-Saharan Africa	Moderator: **Mr Ghaleeb JEPPIE**, Minister Counsellor, Science, Innovation and Education, Embassy of South Africa in Japan
BREAK (10 min)			
SESSION 4: WRAP-UP ● CLOSING			
TIME	**DESCRIPTION**	**PRESENTER/S**	**NOTES**
11:50-12:30 (18:50-19:30)	**Wrap-up** (7 min each)	1. What did SAJU 5 accomplish in the context of the main theme? (Prof Takahiro MORIO) 2. Summary of each thematic parallel session and perspectives of future academic collaboration • Health and Wellness (Session Representative) • Security and Social Justice (Session Representative) • Growth, Exploration, and Conservation (Prof Takahiro MORIO) 3. How can academia impact on TICAD8 outcomes? (Prof Ahmed BAWA)	Moderator: **Prof. Masafumi NAGAO**, Research Advisor, International Development Center of Japan, Professor Emeritus, Hiroshima University (Japan), Visiting Fellow, Future Africa Institute, the University of Pretoria
12:30-12:40 (19:30-19:40)	**Closing** (5 minutes each)	1. **Prof Ahmed BAWA** 2. **Prof Takahiro MORIO**	
END OF DAY 2 & END OF CONFERENCE **THANK YOU FOR YOUR PARTICIPATION**			

Science and Technology Co-Advisor to the Minister for Foreign Affairs (Apr.2022-)

Mathematics, Geometry, Discrete Geometric Analysis



Director of WPI-AIMR, Tohoku University (2012-2019)

Project Leader

@Tohoku University
2004- Professor, Mathematical Institute
2012-2019 Director of WPI-AIMR(Advanced Institute for Materials Research),Principal Investigator
2020- Executive Vice President for Research
@RIKEN, Designated National Research and Development Institute
2017 – 2019 Executive Director
@OIST(Okinawa Institute of Science and Technology)
2016- Member of Board of Governors
@CSTI (Council for Science, Technology and Innovation), cabinet office
2014-2022 Executive Member
@CSJ (Council of Science of Japan)
2017-
@MSJ(Mathematical Society of Japan) **IMU,ICIAM**
2008- 2019 BoG, 2015-2016 President
@ISC (International Council for Science)
2021- President-elect

28 July 2022

Perspectives and challenges toward open academic cooperation with trust

from the viewpoint of Science and Technology Diplomacy

KOTANI, Motoko
Science and Technology Co-Advisor to the Minister for Foreign Affairs of Japan

- S&T Advisor to the Foreign Minister
- Overview of Japan's S&T Diplomacy
- Japan - South Africa Collaborations
- Summary

S&T Advisor to the Minister of Foreign Affairs

S&T Advisor to the Minister for Foreign Affairs has been established in order to better utilize scientific expertise in planning and implementing diplomatic policy

Prof. MATSUMOTO Yoichiro
Science and Technology Advisor to the Minister for Foreign Affairs

Dr. KOTANI Motoko
Science and Technology Co-Advisor to the Minister for Foreign Affairs

Roles of the S&T Advisor to the Foreign Minister

- Support the activities of the Foreign Minister from the S&T perspective
- Provide advice to the Foreign Minister and relevant departments on the utilization of S&T in various foreign policy-makings
- Reinforce networking among S&T advisors, scientists/academics for better international relations

Beginning of the Japan's Science and Technology Diplomacy

- **May 2008**
  A report "Toward Strengthening Science and Technology Diplomacy" (CST)
- **February 2010**
  A report submitted by Science and Technology Diplomacy Task Force (CST)
- **July 2014 – April 2015**
  Advisory Panel on Science and Technology Diplomacy (MOFA)
  (Chair: Dr. SHIRAISHI Takashi, then President of GRIPS)
- **8 May 2015**
  A report with 15 recommendations in 5 directions was submitted to the Minister for Foreign Affairs.
  - Recommendation 9: Establishment of Science and Technology Advisor to the Minister for Foreign affairs as a trial
- **24 September 2015**
  Prof. KISHI Teruo was appointed as Science and Technology Advisor to the Minister for Foreign Affairs.

Japan's Science and Technology Diplomacy

Demand and necessity of scientific advice to **bridge S&T and diplomacy**

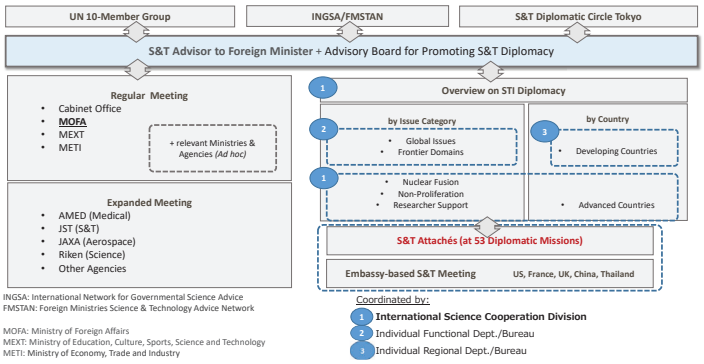
S&T × **Diplomacy** = **S&T Diplomacy** → Contribute to int. society / Deepen diplomatic relations / Promote STI domestically

3 Dimensions of Science Diplomacy:
Science in Diplomacy / Diplomacy for Science / Science for Diplomacy

Appointment of the S&T Advisor to the Foreign Minister of Japan

- September 2015 – March 2020
  Prof. KISHI Teruo (Advisor)
- **April 2020 – present**
  Prof. MATSUMOTO Yoichiro (Advisor)
- **April 2022 – present**
  Dr. KOTANI Motoko (Co-Advisor)

Japan's S&T Diplomacy Network



INGSA: International Network for Governmental Science Advice
FMSTAN: Foreign Ministries Science & Technology Advice Network

MOFA: Ministry of Foreign Affairs
MEXT: Ministry of Education, Culture, Sports, Science and Technology
METI: Ministry of Economy, Trade and Industry

S&T Advisor's Activities

▪ The Advisory Board for Promoting Science and Technology Diplomacy

Gathering expertise from 20 board members with a variety of disciplines in order to develop policies on S&T Diplomacy, to strengthen STI networks in Japan and overseas, to support public relations, and to hold seminars to improve S&T literacy of MOFA officials.

Chair: Prof. MATSUMOTO Yoichiro (S&T Advisor to FM) Vice Chair: Dr. KOTANI Motoko (S&T Co-Advisor to FM)

Neuroscience Data x AI Business strategy	**Prof. ATAKA Kazuto**	Professor, Keio University CSO, Yahoo Japan Corporation	International cooperation and development	**Prof. ISHII Naoko**	Professor, Institute for Future Initiatives Director, The Center for Global Commons, The University of Tokyo
Material chemistry Electronics	**Mr. ISHIMURA Kazuhiko**	President, National Institute of Advanced Industrial Science and Technology	Industry Economy	**Ms. OGAWA Naoko**	Co-Director, Industrial Technology Bureau, Keidanren
Scientometrics S&T policy	**Prof. KAJIKAWA Yuya**	Professor, Tokyo Institute of Technology	Global health Health policy	**Cr. KANAMORI Sayako**	Associate Professor, Center for Education in Liberal Arts and Sciences
ICT Wireless-communication	**Assoc. Prof. KANEKO Megumi**	Associate Professor, National Institute of Informatics	Physical chemistry Surface science	**Prof. KAWAI Maki**	President, National Institute of Natural Sciences
Systems biology AI	**Dr. KITANO Hiroaki**	President and CEO, Sony Computer Science Laboratories, Inc.	Applied physics	**Cr. KYUMA Kazuo**	President, National Agriculture and Food Research Organization
International politics	**Assoc. Prof. SAHASHI Ryo**	Associate Professor, The University of Tokyo	Environmental Science	**Prof. TAKEUCHI Kazuhiko**	President, Institute for Global Environmental Strategies
International politics	**Prof. TANAKA Akihiko**	President, Japan International Cooperation Agency (JICA)	Molecular biology Virology	**Prof. NAGATA Kyosuke**	President, University of Tsukuba
Medicine Tumor biology	**Prof. HAMAGUCHI Michinari**	President, Strategic Center of Biomedical Advanced Vaccine Research and Development for Preparedness and Response (SCARDA)	Social psychology Disaster prevention	**Prof. HAYASHI Haruo**	President, National Research Institute for Earth Science and Disaster Resilience
Thermal engineering Fluid engineering	**Prof. HISHIDA Koichi**	Professor, Meiji University	Materials engineering	**Prof. MISHIMA Yoshinao**	President, Japan Agency for Medical Research and Development
Public administration Public policy	**Prof. MORITA Akira**	Representative Director, Next Generation Fundamental Policy Research Institute	Mathematics Mathematical science	**Prof. WAKAYAMA Masato**	Fundamental Mathematics Research Principal, NTT Institute for Fundamental Mathematics

S&T Advisor's Activities

▪ Online and onsite-online hybrid lectures, symposia and meetings

- Meeting with Prof. Sir Peter Gluckman (INGSA chair) (Online)
- Japan - Sweden symposium (Hybrid)
- CST Salon: exchanging views with US STAS Prof. Mung Chang (Online)
- Japan - France Symposium (Hybrid)
- FEALAC (Online)
- SciREX Open Furum (Online)
- 24th Session of the UN CSTD (Online)
- 2021 OSCE Asian Conference
- Global Technology Summit (Online)

etc.

▪ FMSTAN and INGSA online meetings

- International framework for sharing experiences
  INGSA Policy-making Tracker (First report was published in September 2020)

(Source: https://www.ingsa.org/)

(Source: https://www.ingsa.org/)

Strategic Public Relations with like-minded S&T Advisors

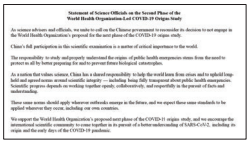
▪ Joint Statement on the Occasion of the Tokyo Nutrition for Growth Summit 2021

- "Promoting Global Utilization of Science, Technology and Innovation for Food Systems Transformation to Ensure the Health of People and the Planet (STEPP)"

with S&T Advisors from Canada (Québec), EEAS, India, Italy, the Netherlands, the UK and the US

▪ Statement of Science Officials on the Second Phase of the WHO-led COVID-19 Origins Study

with Science Officials from Australia, EU and the US

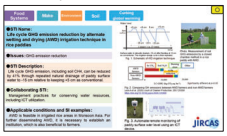

Statement of Science Officials on the Second Phase of the World Health Organization-Led COVID-19 Origins Study

Planetary health: STI for food systems transformation

▪ The Recommendation "Planetary health: STI for food systems transformation"

- The Advisory Board suggests that the Government of Japan should
(1) Compile a showcase that presents the strengths of Japan's STI;
(2) Lead the global efforts to promote the active utilization of STI
by creating and making use of an STI showcase and a matching fund,
through interactive dialogues with relevant stakeholders and
in collaboration with international organizations; and
(3) Actively support countries and regions making development plans and policies
by utilizing the showcased STI, collaboration across sectors, and interdisciplinary human resource development;
in order to take the next steps in tackling hunger and malnutrition and transforming food systems,
through promoting the global utilization of STI.

⇒ Presented as the "STEP Initiative by STI" (Systems Transformation to Ensure Planetary health)
Compiled an STI showcase with some examples of Japan's STI



Human Resources: the Driving Force of S&T Diplomacy

▪ The Recommendations "Strengthening the Foundation of Science and Technology Capabilities" June 16, 2022

-One of the most important factors in promoting S&T diplomacy → Having outstanding scientific and technological capabilities
-Concerns about the current situation of Japan's science and technology → Shaky foundations and declining international status

Human Resources

-Source of science and technology
-Driving force of S&T diplomacy

Investment in Human Resources

-Promotion of efforts such as environmental improvement, institutional design, and budgetary measures aimed at fostering and utilizing human resources

-Circulation and networking of highly-skilled human resources within and outside Japan and among industry-academia-government

Efforts in industry, academia, and government	Efforts in diplomacy
-Improvement of R&D environment and support for internationalization -Human resource development and cross-disciplinary and cross-border circulation -Attracting and retaining outstanding overseas personnel	-Improving synergy effects by connecting existing measures and initiatives: collaboration between researchers and diplomatic missions -Utilization of Japan's diplomatic missions and strengthening of science and technology attachés

Strategy for International Development of Science and Technology (Overview)

March 30, 2022
International Strategy Committee
Council for Science & Technology

Main points

MEXT

○With the realignment of the international order, climate change, pandemics, and other issues on the global agenda becoming more pressing, as well as the decreasing presence of Japan's research community worldwide, developing strategically the international scope of Japan's science and technology is becoming increasingly important. Based on that situation, the International Strategy Committee compiled a report titled "Toward the Strategic International Development of Science and Technology" in June 2021.

○In response to this report, the Committee formulated its "Strategy for the International Development of Science and Technology." This strategy compiles development measures for all academic stages, from undergraduate, master's and doctoral degree programs to the researcher level, linked to the advancement of joint degree programs, which have been gaining ground in recent years, and the enhancement of support for doctoral degree students. It also makes explicit measures that should be focused on in the future regarding the "international brain circulation" and international joint research, which are held out as the direction for international exchanges and cooperation.

Strategy for International Development of Science and Technology (Overview)

March 30, 2022
International Strategy Committee
Council for Science & Technology

Measures to be taken

① International brain circulation (outbound)

Present
- Receiving fellowships to research overseas is the main way Japanese researchers gain international experience. While the enhancement of these opportunities will be sought in the future, attention must also be paid to the limitations on financial resources.

Measures
- Promotion of "new mobility modes" of "seconding/assignment-type overseas stays," which allow research and acquisition of degrees while receiving value from overseas researchers (PI). Strengthening of networks with top-level research labs.
- Continued promotion of basic fellowship-type overseas stays, such as overseas stays through overseas research fellowship systems.
- Spurring momentum for entrenching overseas seconding/reassignment-type stays in connection with measures for promoting international student programs overseas.

② International brain circulations (inbound)

Present
- From 2018, MEXT started measures for the horizontal dissemination of the results of the WPI, but the efforts have been limited to only symposiums and presentations of individual research results up to now.

Measures
- Showing the advantages of preparing international research environments gained from the WPI, and promoting the horizontal expansion of results to other universities and institutions while compiling relevant indicators.

WPI: World Premier International Research Center Initiative

③ Expansion of international joint research

Present
- In recent years, partner countries have been making greater inquiries to Japan, but "third-level" funding for international joint research based on cooperation among countries has not been increasing, and the assessment by foreign countries that Japan is doing "too little, too late" has remain unchanged.

Measures
- Expansion of third-level international joint research funding, change to/increase of the "opening up of Japan" for domestic research projects. Promotion of international joint research with top-level researchers.

④ Promotion of joint degrees

Measures
- Promotion of joint degree programs so that students from the undergraduate and graduate school levels can acquire a deeper international background.

⑤ Support to doctoral students

Measures
- Granting opportunities for overseas experience and providing greater incentives for advancing to doctoral programs by improving treatment of research assistances (RA) in addition to sharp increase in financial support. Creation of attractive academic environments to attract excellent human resources from overseas.

TICAD

▪ **The Recommendations for TICAD**

Enrich Africa through the use of Science, Technology and Innovation [August 2016]

- Enhance African S&T standards through human resource development "from Brain drain to Brain circulation"
- Spread R&D outcomes to the entire society "Enrichment people's lives with Science and Technology"

Achieving an innovation ecosystem together with Africa [March 2019]

The keywords of four "S"s : SDGs, STI, SATREPS & Society 5.0

- Continued and expanded STI human resource development
- Support for resolution of social issues, including SDGs, harnessing STI
- Social implementation of STI results through enhanced utilization of ICT

Strengthen the collaboration between Japan and the African countries through a *mutual understanding*

Japan-South Africa Collaborations

Human Resource Exchange and Development

- **Japanese Government (MEXT) Scholarships Since 1993**
- **Japan Exchange and Teaching（JET）Programme Since 1997**
- **JICA Program**
  - **Training Program in Japan Since 1993**
  - **Dispatch of JICA Expert Since 1997**
  - **JICA Volunteer Since 2002**

Exchange of Notes for the Dispatch of Japan Overseas Cooperation Volunteers (2001)

15

Japan-South Africa Collaborations

Bilateral Development Cooperation

- **Agreement on Technical Cooperation signed in 2011**
- **Priority Areas of Japan's Assistance Policy for South Africa**
  - **Support to enhance human capacity and to promote infrastructure development including expansion of mutual cooperation in science and technology**
  - **Support to the socially vulnerable to participate in the economy and the society**
  - **Promotion of development in the Southern Africa Region**
- **Recent Projects**
  - **Project for Support for Transitioning from Conventional Plastics to More Environmentally Sustainable Alternatives**
  - **Development of a Carbon Recycling System toward a Decarbonised Society by Using Mineral Carbonation**
  - **Project for Capacity Development of Pilot TVET Colleges for Artisan**
  - **Project for the Promotion of Empowerment of Persons with Disabilities and Disability Mainstreaming**

16

The Agreement between the Government of Japan-Republic of South Africa

The Agreement for Science and Technology Cooperation signed in 2003

(South Africa is the only sub-Saharan country)

(under this framework)

Japan-South Africa Joint Committee Meeting on Science and Technology Cooperation

To share information on the developments of collaborative activities and discuss future activities

1st Meeting (October 2008 in Tokyo)
.
.
.
7th (January 2020 in Pretoria)
8th (October 2022 in Tokyo (TBD))

17

Frameworks for Supporting Japan-South Africa S&T Cooperation

JSPS-National Research Foundation(NRF) Joint Research ← MOU signed in 2005
(Bilateral Programs, Core to Core Program)

JST-NRF collaborations ← MOU signed in 2008
(SICORP, AJ-CORE (Africa-Japan Collaborative Research))

SATREPS

ODA + Funding by JST and AMED ← Since FY2008

The African Business Education (ABE) initiative (JICA), Inter-University Exchange Project, etc.

Various cooperation frameworks have been in place for a long time based on trust and mutual understanding

18

Toward open academic cooperation with trust

Key factors for co-creation of a sustainable future:

- Respect cooperation and trust that our two countries have cultivated over the years and conduct fair research following the rules
- Promote cross-disciplinary and cross-border human resource circulation for better research project making and mutual understanding
- Enhance efforts for human resource development including pure basic science through open academic cooperation

Human resource development through mathematics

In 2003, the **African Institute for Mathematical Sciences (AIMS)**, a panAfrican networking institution focusing on mathematics, as the common base of science, was established with the aim of developing "the next Einstein", elite young human resources who can create science and technology by themselves. It is currently composed of six centers in South Africa, Senegal, Ghana, Cameroon, Tanzania and Rwanda, with the target of a further nine being established by the year 2023. The AIMS serves as a hub of international education and research on mathematical science that bring together excellent students and teachers from all over the African continent. Their activities are based on the following three pillars: 1)graduate school education; 2) teacher training, and 3) research (basic research on mathematics, and joint research with other fields and industry). Based on an MOU with AIMS, the Mathematical Society of Japan is carrying out the dispatch of lecturers and donation of the Society's publications.

Achieving an innovation ecosystem together with Africa Recommendations towards TICAD7
https://www.mofa.go.jp/mofaj/files/000505690.pdf

Thank you very much for your attention

Responses Related to Ensuring Research Integrity

○ In recent years, **concerns such as conflicts of interest and commitment and technology leaks** caused by **undue foreign influence** have come to light.
○ Major countries such as the U.S. have been taking countermeasures while attaching importance to international research cooperation and respecting independence of **universities**.
○ While responding to these **new risks**, it is indispensable for Japan also to **build an internationally reliable research environment** in order **to promote necessary international cooperation and exchange**.
➡ To autonomously secure the soundness and fairness of research ("Research Integrity"), the government needs to **declare a policy seeking transparency and accountability from researchers and research institutions and start working on concrete responses early on**.

International trend

U.S.
- In 2019, it was pointed out at the U.S. Senate that integrity in research activities were threatened by foreign countries and its national security is exposed to danger.
- Since 2019, there have been a series of indictments involving researchers such as that of a professor who made false statements regarding his participation in China's Talent Recruitment Plans.
- Commissioned by the National Science Foundation (NSF), the expert group JASON recommended improvements in transparency (December 2019). NSF updated the application forms and procedures and clarified the policy on importance of transparency and information disclosure.

U.K.
- The Centre for the Protection of National Infrastructure and other organizations formulated and published checklists and guidelines to ensure integrity in international research cooperation (September 2019).

Australia
- A study panel was established within the government, which prepared and published Guidelines to Counter Foreign Interference for universities (November 2019).

Integrated Innovation Strategy 2020

<Protect>

○It is important that the research community recognizes the concerns regarding damage to Japan's excellent research activities and the values, such as openness and transparency, which form the base of and research environment, caused by undue foreign influence and takes initiatives to autonomously secure the soundness and fairness of research (research integrity). To this extent, discuss and urge preparation of reports to develop common understanding of clarifying the issue and measures for responding to it within the research community.

○ Make it a requirement to disclose information of the status of acquisition of foreign funds upon application for research funds and seek transparency and accountability of research in which government funds are used. At the same time, discuss concrete measures of framework including cancellation of the decision to allocate funds when false reports are found and take necessary measures.

Responses Related to Ensuring Research Integrity

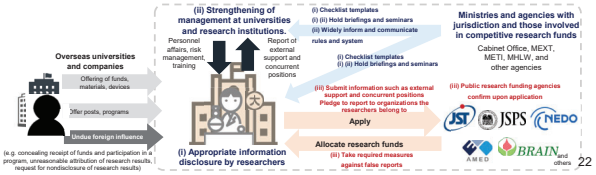
Government's Policy Directions
(decision at the Integrated Innovation Strategy Promotion Council on April 27, 2021)

*A policy based on the recommendation by an expert panel consisting of specialists from universities and research funding agencies (published in March 2021)

(i) Appropriate information disclosure by researchers
- Prepare, publish, and distribute checklist templates for researchers and organizations the researchers belong to. [Cabinet Office, MEXT, and other agencies]
- Hold briefings and seminars for researchers and organizations they belong to. [Cabinet Office, MEXT, and other agencies]

(ii) Strengthening of management at universities and research institutions.
- Hold briefings and seminars for researchers and organizations they belong to. [Cabinet Office, MEXT, and other agencies]
- Widely inform and communicate related development of rules and system [Ministries with jurisdiction] (-> to follow up in fiscal year 2022)

(iii) Public research funding agencies confirm upon application
- **Revise guidelines** regarding competitive research funds on December 17, 2021 [Cabinet Office, related ministries]
  - Require researchers to submit information regarding external support and concurrent positions including those overseas and pledge appropriate reporting to organizations the researchers belong to
  - Clearly state the importance of development of rules regarding conflicts of interest and commitment and confirm the status as necessary
  - False reports shall be announced, involved research topic shall be rejected or withdrawn, researchers shall be made to return research funds, and they shall face application restriction for 5 years (incorporated from solicitations in fiscal year 2022)



Key Points of Revision of Common Guidelines for Competitive Research Fund Projects

Scope of target projects	• Target not only competitive funds but competitive research fund projects
Scope of information to be submitted	• Seek to submit information regarding external support in Japan and abroad*1 and concurrent positions *2 *1 Current status of application and acquisition of other competitive or other research funds (all research funds which the researcher is being allocated for individual research content such as subsidies, grants, joint research funds, consigned research funds both in Japan and abroad. Excluding basis expenses distributed within the organization to which researchers belong or internal fund and funds procurement through commercial transactions stipulated by the Commercial Code and direct or indirect financing) *2 All organizations they belong to and positions (including concurrent positions, participation in a foreign recruitment program, position of honorary professor without employment contract)
Handling of information of research for which a non-disclosure agreement is signed	• As for the information such as joint research for which a non-disclosure agreement is signed, researchers are sought to submit only the necessary information,*3 and such information is handled only by those who have confidentiality obligation, from the perspective of avoiding constraining activities of commitment in industry-academia collaboration. *3 As a rule, it is limited to information such as the name of counterpart organizations of joint research, the amount of research funds being accepted, and effort. However, for the time being, if it is difficult to respond because a non-disclosure agreement has already been signed and so on, such information can be limited to information regarding research effort.
Handling of information of donations and non-fund support	• Require researchers to pledge appropriate reporting of information on support*4 such as donations, and non-fund support including facilities and equipment to organizations they belong to. *4 Including information regarding the acquisition status of facilities, equipment, etc. used in research they are separately engaged in although they are not used for the concerned research topic.
Development of rules regarding conflicts of interests and commitment and related responses	• Clarify the importance of developing rules regarding conflicts of interests and commitment and the policy to possibly confirm the status of grasping and managing of information with organizations the researchers belong to when necessary.
Response to false reports	• There may be announcements, rejections or withdrawals of research topics, reduction in fund allocation, and application restriction for 5 years. (Responses are unchanged for descriptions that differ from facts and fund receipts by deception or other improper means.)
Timing of implementation	• The responses shall be made in the solicitations made in fiscal year 2021 to the extent possible in accordance with the purpose of these guidelines and the responses shall be fully implemented with solicitations made from April 2022 onwards.

Enabling transdisciplinary research at the interface of food security and sustainability in Sub-Saharan Africa: Opportunities and challenges

Alexandros Gasparatos
Associate Professor

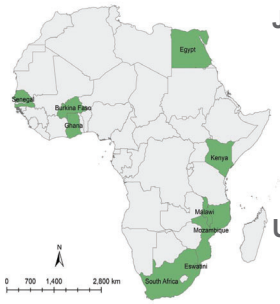
東京大学未来ビジョン研究センター
Institute for Future Initiatives, The University of Tokyo

Research interests in Africa

Interface of food systems, development and sustainability

- What are the drivers and sustainability impacts of different food production systems?
- What interventions can enhance the sustainability of food systems? What is their performance and acceptability?
- What drives dietary change in African cities? How does this change look like, and what are its impacts?
- Can neglected and underutilised species (NUS) increase the resilience of food systems? How, can we mobilise them in a sustainable manner?

Projects and funding



Japan

- **Japan Science and Technology Agency (JST)**
  - Belmont Forum Call on Food Security (2014 - 2018), PI
  - AJ-Core (2022 - present), Co-PI
- **Japan Society for the Promotion of Science (JSPS)**
  - Grant-in-Aid for Scientific Research (2017 - 2022), PI
- **Asahi Glass Foundation**
  - Grant for Younge Researchers and Continuation Grant (2017 - present), PI

UK

- **UK Research Councils**
  - Multiple calls under the Ecosystem Services for Poverty Alleviation Programme (ESPA) (2012-2017), PI or Co-I

Common underlying themes in these calls

Innovative and highly-original research BUT…

- Target real-world problems
- Impactful to society
- Interdisciplinary and transdisciplinary
- Collaborative

Why is collaboration and transdisciplinarity needed?

Food systems intersect via multiple ways with society, economy and environment

- Characterised by complex intersecting phenomena (e.g. drivers of change, pathways to impact)
- Experience multi-layered sustainability challenges
- Multiple legitimate methodologies or source of knowledge (e.g. modern science vs. local knowledge)

Multiple stakeholders and actors engage directly and indirectly in food systems (and are interested in their sustainability):

- Multiple legitimate perspectives to articulate problems and priorities
- Multiple (and often conflicting) legitimate needs and interests
- Multiple legitimate sources of knowledge to understand problems and develop solutions
- Necessity for wide buy-in and acceptability of solutions

Approach to collaboration

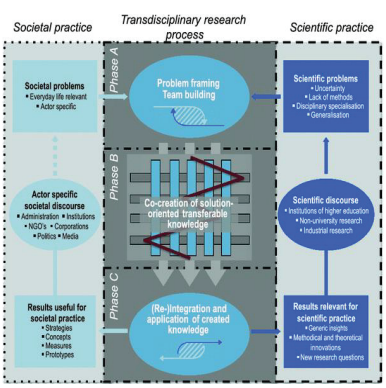
Research organisations
- Universities
- R&D organisations and centres
- Think tanks

Private sector
- Companies (e.g. large plantations, mills)
- Certification agencies
- Social enterprises

Civil Society
- Non-governmental organisations (NGOs) (domestic and international)
- Community organisations

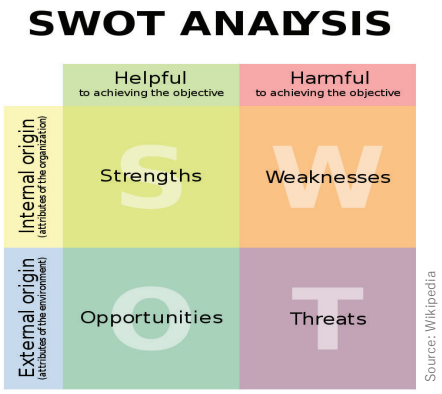
National government
- Different ministries and national government agencies
- Local government

International organisations



(Lang et al., 2012; *Sustain Sci* **7**,25–43)

What are the lessons from experiences of bilateral research cooperation?



Source: Wikipedia

Acknowledgement: Collaborative research in other fields (e.g. medicine, engineering) will most likely have other strengths, limitations, weaknesses and opportunities

Strengths

Enables a multi-dimensional understanding of complex issues and design of solutions
- Leverage different methodologies and ways of knowing
- Enables local vs. global perspective

Allows for reality checks about understanding and solutions
- Constant feedback and negotiations between partners

Provides an excellent capacity-building mechanism
- Within research team: *transfer of methods, training of students and young researchers*
- With stakeholders: *co-design and co-development of research, dissemination of results*

Offers intellectually fulfilling opportunities
- Exposure to different intellectual, cultural and geographic contexts
- Avoid intellectual isolation

Limitations

Inherently difficult intellectually and logistically
- Challenging to develop common vision within team: *different lenses, visions, interests*
- Difficult to combine concepts/tools from different fields
- Logistically demanding: *different admin procedures and cycles*
- No matter what is the team chemistry, distance takes some toll in understanding, communication, tension resolution, ···

Requires more time
- Requires consensus and constant negotiation within team
- Requires time to get up to speed with common aims, objectives and **expectations**
- Different admin procedures and cycles delay certain tasks: *Collaboration Agreements, ethical approval, fieldwork*

Resource-intensive
- Human capital: *need to allocate substantial time for project management*
- Financial capital (from experience more expensive)

Challenging to engage non-academic partners
- Different motives (sometimes conflicting)
- Lack of incentives: *participation in kind or with minimal resources*
- Completely different time scales and tolerance of uncertainty

Threats

Valorisation of interdisciplinary and collaborative research within academia (especially universities)
- "Opportunity costs" for researchers as it is generally slower and until recently had few high-impact publication options
- Not always well-integrated in standard organisation structures

Different evaluation criteria in multi-lateral projects
- Different funders essentially have different evaluation criteria: *innovative research vs. collaborative research vs. capacity building*

Sometimes perceived as "luxury" or "less important" considering other pressing societal imperatives

Opportunities

High visibility of SDGs and other related topics (e.g. climate change, energy security, food insecurity) in public discourse
- Strong case for solutions-oriented research
- Demand for inclusivity in the broadest sense

Coordinated efforts to internationalise the research landscape in some countries
- Increased availability of funding for multi-lateral research
- Easiness to facilitate researcher mobility and exchanges

Improvement in ICT
- Infrastructure for online meetings
- Tools for data collection and exchange

More publication options
- Increase in high and very high impact factor publication options for interdisciplinary science
- Promotion of Open Access publication options, and schemes to cover such fees

Suggestions

Be open-minded and willing to change view (…again and again) in terms of lenses, methods, questions or ways of knowing
- Establish close contact early in process (ideally face-to-face)

Be conscious of why you embark in this research and how you will be judged by your funder
- Clarify personal motives: *Fascination to understand something? Passion to solve a real problem? Effort to improve your CV?*
- Clarify valuation criteria: *Innovation? Collaboration? Capacity building? Other?*
- Articulate such aspects clearly from proposal development and early stages of project to prevent subsequent tensions

Improve communication skills and flow of information
- Find ways to bridge inter-cultural divide: *"calibrate" ways of expressing urgency, problem, or success*
- Find ways to manage and solve the unavoidable tensions
- Establish clear communication channels: *leadership of tasks, "chain of command", communication tools*

Clarify the logistics for you and partners
- Understand contacting/funding/reporting cycles between partners
- Avoid antagonising admin, but explain that there are also other admins involved

Thanks for your attention

Any questions?

gasparatos@ifi.u-tokyo.ac.jp

www.gasparatos-lab.org

DURBAN UNIVERSITY OF TECHNOLOGY
INYUVESI YASETHEKWINI YEZOBUCHWEPHESHE

ENVISION2030
transparency · honesty · integrity · respect · accountability
fairness · professionalism · commitment · compassion · excellence

THE WORLD UNIVERSITY RANKINGS 2021 TOP 500

Production of biofuels using algal biomass

I Rawat, FA Ansari, T Mogany & F Bux
Institute for Water and Wastewater Technology
Durban University of Technology

Partners and Roles

South Africa
Durban University of Technology (DUT)
eThekwini Municipality
Agricultural Research Council (ARC) Technology Innovation Agency (TIA)
Japan
Nagoya University
Tokyo University of Agriculture and Technology
Aichi Shukutoku University.

Output 1: Development of high biomass production system using open raceway pond
Durban University of Technology (DUT), Institute for Water and Wastewater Technology

Output 2: Development of effective harvesting and biofuel extraction technology
Nagoya University, Department of Materials Process Engineering

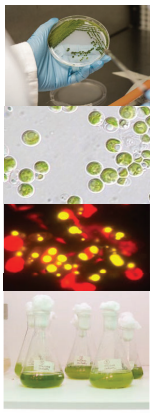
Output 3: A cost effective technology and preliminary model for the production of agricultural bi-products is developed from waste (Agrimats)
Tokyo University of Agriculture and Technology, Aichi Shukutoku University, Agricultural Research Council (ARC)

Output 4: Test equipment for harvesting and extraction technology is developed
Nagoya University, Department of Materials Process Engineering

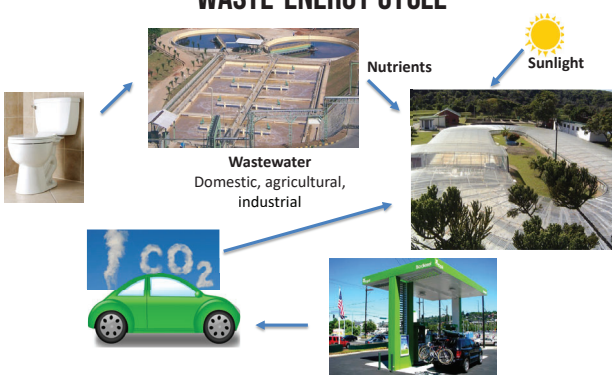
Output 5: Development of business model
Aichi Shukutoku University, eThekwini Municipality

ALGAE AS A BIOFUELS FEEDSTOCK: BENEFITS OF MICROALGAE

- Microalgae have faster growth rates than crops
- High lipid accumulation per dry biomass
- Suitable lipid profile
- Ability to fix CO_2 – Carbon credits
- Cultivation on wastewaters
- No need for productive agricultural land
- No food security issues



WASTE-ENERGY CYCLE



"Our approach is to use wastewater for cultivation of microalgae and for final effluent polishing to prevent eutrophication"

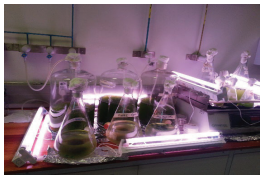
BENEFITS OF MICROALGAL CULTIVATION USING WASTEWATER

Improvement of economics
- Wastewater replaces artificial media
- Cost effective

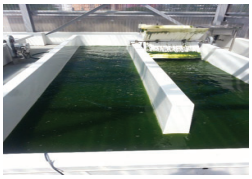
Potential for mixotrophic growth
- More efficient Net Energy Ratio
- Higher lipid productivity

Tertiary treatment of wastewater
- Removal of residual Nitrogen & Phosphorous
- COD removal
- Protection of surface water in receiving streams

SCALE UP OF MICROALGAE CULTIVATION (INDOOR-OUTDOOR)



Laboratory (3L)



Raceway (3000L)

Raceway Kingsburgh (300000L)

Porta pool Kingsburgh (3000L)

LARGE SCALE ALGAE CULTIVATION

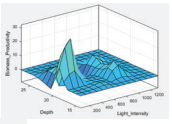
Area of raceway pond : 1146 m²
Capacity of raceway : 300 000 L
Depth of raceway pond: 30 cm
Built by eThekwini Municipality
Year: 2010
Production period : 14-17 days
Species of Algae : *Scenedesmus* sp. and *Chlorella* sp.

KEY FINDINGS

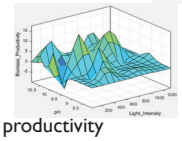
- Wastewater has shown potential to replace conventional media.
- Supplemented wastewater achieved similar results to conventional BG11 medium with increase lipid production
- Nitrate is the preferred nitrogen source for optimal growth and lipid production
- Indigenous strains perform the best in opened conditions

FACTORS AFFECTING BIOMASS PRODUCTION

- Biomass productivities vary seasonally, moderate conditions are preferred
- The maximum biomass production is ~30g/m²/d and maximum lipid content is 28% of dry weight.



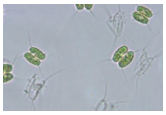
- Optimal growth conditions
  - Light: 200 - 400 µmol/m²/s
  - Depth: 20 – 22 cm
  - pH: 9 - 9.5



- Waste CO_2 streams could increase productivity

POND CRASHES

- Common in all opened systems globally
- Caused by proliferation of grazers/contaminants
- Can result in total biomass loss in 24 hours
- Key indicators
  - Reduced DO
  - Reduced pH
  - Reduced Photosynthetic efficiency
  - Colour Change
- We are currently authoring an Elsevier book on pond crashes



HARVESTING

EXTRACTION USING DME

HUMAN CAPACITY DEVELOPMENT

GRADUATES

Btech:	2
Masters:	3
Doctorate:	3

RESEARCHER DEVELOPMENT

Research Assistants:	3
Post-Doctoral Fellows:	3
Interns:	2
In-service Trainees:	6

MUNICIPAL STAFF TRAINED

eThekwini Municipality staff have been trained on various aspects of the project

HIGHLIGHTS

- First large-scale demonstration plant in Africa for producing biofuels from microalgae grown on wastewater.
- Project contributes directly to the Sustainable Development Goals (SGDs) and circular economy which is imperative in terms of promoting green energy.

VALUE PROPOSITION

- Revenue generation from the products (oil/biomass/residues)
- Protection of surface water from potential eutrophication
- Environmentally friendly, sustainable technology
- Accrual of carbon credits
- Contributes to the bioeconomy and SDGs

Lessons Learned

- Covid 19
- The language barrier
  - Greater challenge than expected
  - Training
- The need to be specific
- Fit for purpose technology
  - When the advantages lead to further challenges
  - Local expertise (repairs and maintenance)
  - Availability of replacement parts

Lessons Learned

- Researcher continuity
  - Technology
  - Business model
- Logistics
  - Customs and VAT exemptions
- The state of the nation
- Adaptability


THANK
YOU

JSPS and its International Programs

Japan Society for the Promotion of Science
29 July 2022

JSPS: Basic Features in its Program Operation

What is JSPS (Japan Society for the Promotion of Science)

- Established in 1932 (with an imperial endowment)
- It is Japan's core funding agency.
- Places high value on both researcher autonomy and research diversity.

(JSPS's committee chairmen's meeting in 1937)

What does JSPS support

- From basic to applied research conducted based on curiosity-driven research and the free ideas of researchers.
- Covers the entire spectrum of academic fields including the humanities, social sciences, and natural sciences.

Application Selection

- Bottom-up approach; invites applications via open calls.
- Competitive funding; evaluates applications via peer review.
- Fair and transparent screening; selects projects based on academic merit.

JSPS International Programs

- Focus placed on mobilizing researchers.
- Aimed at establishing robust international cooperative networks.

(1) Supporting International Joint Research and Seminars
Bilateral Programs
International Joint Research Programs
Core-to-Core Program

(2) Providing Platforms for International Training for Young Researchers
Frontiers of Science (FoS) Symposia
HOPE Meeting

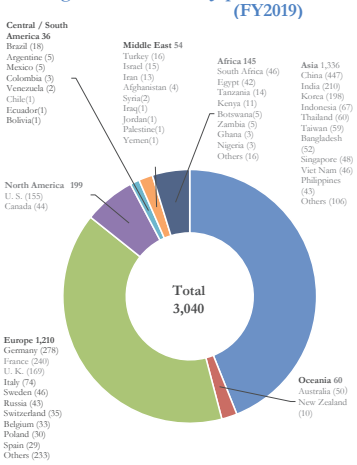
(3) International Fellowships for Research in Japan
Postdoctoral Fellowships for Research in Japan
Invitational Fellowships for Research in Japan

(4) Support for Outbound Young Japanese Researchers
Overseas Research Fellowships
Challenge Program for Young Researchers

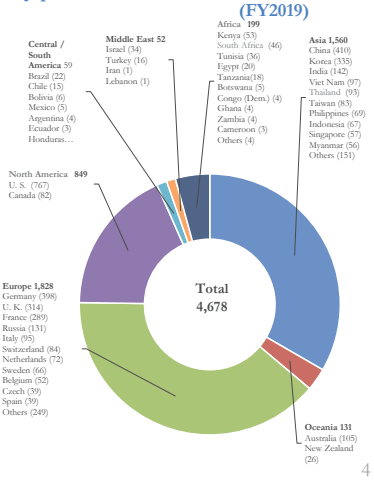
(5) Building Robust International Research Networks and Infrastructures
Global Research Council (GRC)
JSPS Overseas Offices
Support for Creating an Overseas Researcher Community

Number of Researchers Exchanged under JSPS Programs

◆Foreign Researchers → Japan (FY2019)

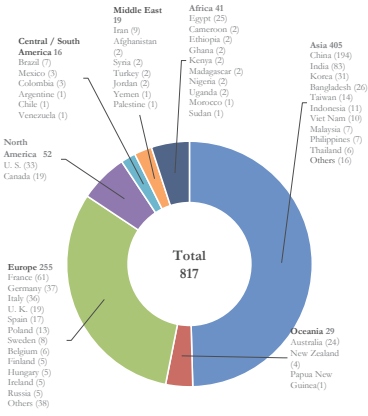


◆Japanese Researchers → Abroad (FY2019)

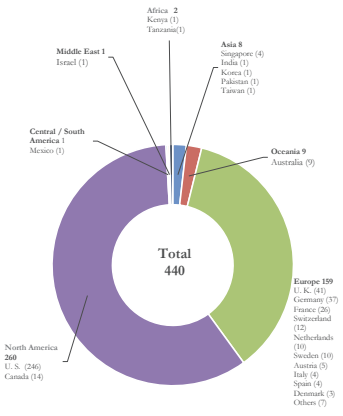


Number of Researchers Exchanged under JSPS Programs

◆Foreign Researchers → Japan (FY2020)

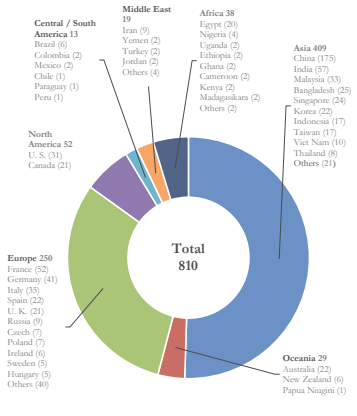


◆Japanese Researchers → Abroad (FY2020)

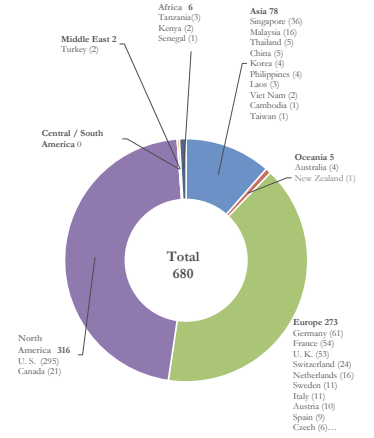


Number of Researchers Exchanged under JSPS Programs

◆Foreign Researchers → Japan (FY2021)



◆Japanese Researchers → Abroad (FY2021)



International Fellowships for Research in Japan

Features

1. Pursuit of knowledge valued above all else.
   The program is open to all researchers regardless of nationality or academic field
2. Tailored to a full spectrum of researchers, from early-career researchers to eminent scientists
3. Flexible durations ranging from short to long terms

Career Stages of Researchers

PhD Students/Postdocs | 6 years after PhD | Mid career - Professor

Postdoctoral Fellowships for Research in Japan

- Summer Program — 2 months, About 100 (Nomination Only)
- Strategic Program — 3-6 months, About 10 (Nomination Only)
- Short-term — 1-12 months, About 140
- Joint Research / Standard — 1-2 years, About 340

Invitational Fellowships for Research in Japan

- Long-term — 2-10 months, About 60 (Joint Research)
- Short-term — 14-60 days, About 160 (Discussions, opinion exchanges, lectures and other activities.)

Researchers Exchanged	FY2017	FY2018	FY2019	FY2020	FY2021
Postdoctoral Fellowships	1,142	1,150	1,083	757	669
Invitational Fellowships	307	261	236	44	56

RONPAKU (Dissertation Ph.D.) Program

Out line The aim of this program is to provide tutorial and financial support for promising researchers, in the countries of Asia and Africa or other specified countries among Japanese ODA recipients, who wish to obtain a PhD degree from a Japanese university through the submission of a dissertation without matriculating a doctoral course.

Eligibility Who is employed full time at a university or research institution in the applicable country (45years of age or younger)

Fellowship Tenure Maximum of 3 years

Number of Fellowships to be Awarded Approximately 9 per year

JSPS Support of Fellows Maximum of 3.6million yen (Up to 1.2million yen per fiscal year)

Ph.D. Awardees Medal Ceremony in Thailand
(left: FY2018, right: FY2020)

Country / Region	FY1978-2020 Number of Ph.D. Awardees
Thailand	224
Indonesia	150
the Philippines	94
South Korea	80
China	78
Vietnam	47
India	34
Malaysia	33
Bangladesh	22
Mongolia	7
Nepal	5
Singapore	4
Others	39
Total	**817**

Support for Outbound Young Japanese Researchers

Overseas Research Fellowships

- ✓ Tenure: 2 years
- ✓ Financial Support: Roundtrip international airfare, maintenance allowance (4.5 - 6.2 million JPY / year / person)

FY 2020: 367 persons / 21 countries
FY 2021: 396 persons / 20 countries

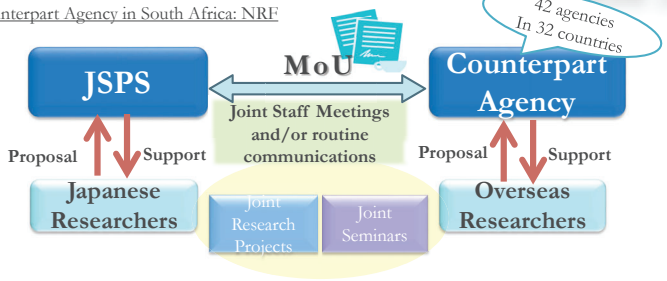
Challenge Program for Young Researchers

- ✓ This program gives doctoral students an opportunity to go overseas to challenge a new research environment
- ✓ Period of Overseas Stay: 3 to 12 months
- ✓ Financial Support: Roundtrip international airfare, maintenance allowance (1-1.4 million JPY), bench fees (Up to 200,000 JPY)

FY2020: 56 persons / 13 countries
FY2021: 141 persons / 26 countries

Bilateral Cooperation Based on MoUs

Counterpart Agency in South Africa: NRF



Purpose: To promote and support academic cooperation between highly qualified Japanese and overseas researchers

Practice: Equal or cross cost sharing for implementing cooperative activities

Support: Joint Research: Up to USD 20,000/year/project for 1-3 years
Joint Seminar: Up to USD 20,000/ seminar

Core-to-Core Program

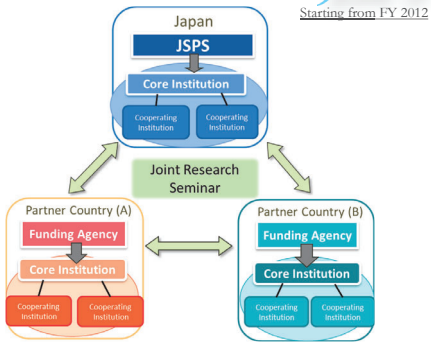
Starting from FY 2012

A. Advanced Research Networks

- ■Target: **Any country** in the world
- ■Objective:
- • Promote international collaboration in cutting-edge fields by creating world-class research hubs
- • Foster new generations of talented young researchers in Japan and other countries
- ■Grants: Up to USD 144,000/year
- *Partner institutions are required to cover their own expenses.
- ■Project Duration: 5 years

B. Asia-Africa Science Platforms

- ■Target: Asian and/or African countries / regions
- ■Objective:
- • Japanese research institutions take the lead in building research hubs and fostering young researchers so as to contribute to Asian/African region
- ■Grants: Up to USD 64,000/year from JSPS
- ■Project Duration: 3 years



Number of applications/selected proposals

	FY2018		FY2019		FY2020		FY2021		FY2022	
	App.	Sel.	App.	Sel.	App.	Sel.	App.	Sel.	App.	Sel.
A. Advanced	59	8	52	8	41	9	38	8	17	8
B. Asia-Africa	77	10	74	10	50	10	38	10	33	10

Global Research Council (GRC)

- **Forum of Heads of Research Councils (HORCs) from around the world**

Sao Paulo Annual Meeting in 2019

- **Provides a forum for HORCs to:**
  - -Address common issues
  - -Build trust between research funding organizations
  - -Endorse common principles for fostering research cooperation
- **10th Annual Meeting**
  May 30 – June 3, 2022, Hybrid (Panama City and online) [SENACYT (Panama) and NSF (USA)]

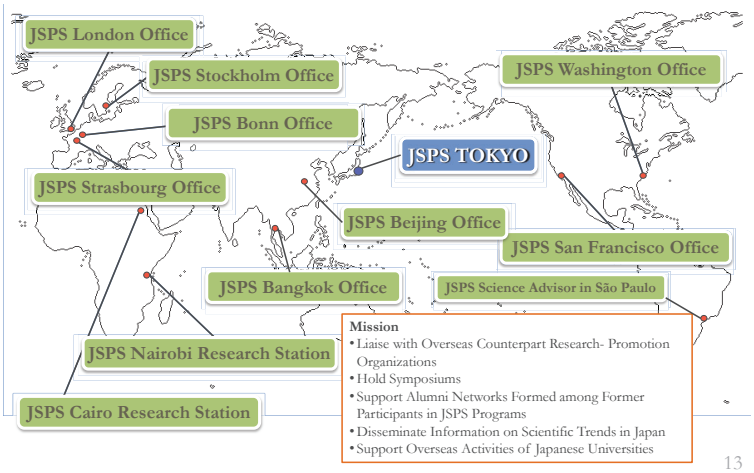
Sao Paulo Annual Meeting in 2019

◆**Participants**
About 260 delegates attended including about 70 Heads of Research Councils from more than 70 countries.

◆**Achievements**
Endorsement of "Research ethics, integrity and culture in the context of rapid research results" and "Science and technology workforce"

Next 11th **Annual Meeting**
May 2023 in Den Haag, Netherlands [NWO and FAPESP]

JSPS Overseas Offices



Mission

- Liaise with Overseas Counterpart Research- Promotion Organizations
- Hold Symposiums
- Support Alumni Networks Formed among Former Participants in JSPS Programs
- Disseminate Information on Scientific Trends in Japan
- Support Overseas Activities of Japanese Universities

Reference: JSPS Fellows, Projects, and Seminars

Please check our website below (jump to related links);

International Fellowships for Research in Japan

- Postdoctoral Fellowships for Research in Japan
- Invitational Fellowships for Research in Japan
- RONPAKU (Dissertation Ph.D.) Program

Support for Outbound Young Japanese Researchers

- Overseas Research Fellowships
- Challenge Program for Young Researchers

Supporting International Joint Research and Seminars

- Bilateral Programs
- Core-to-Core Program

Building Robust International Research Networks and Infrastructures

- JSPS Overseas Offices
- Support for Creating an Overseas Researcher Community

Thank you for your kind attention.

Crowing Rooster
Harbinger of new knowledge that promises
a brilliant future for humankind

July 29th, 2022

Japan Agency for Medical Research and Development

AMED

Fifth South Africa – Japan University Forum Conference
SAJU 5
Open Collaboration and Innovation with Trust

Hiroko SAKAI

international@amed.go.jp

Japan's healthcare policy and AMED

The Act on Promotion of Healthcare Policy (promulgated on May 30, 2014)

Aim (Article1)
To promote Healthcare policy and contributes the formation of healthy longevity society, by establishing the headquarters for Healthcare Policy ,etc. with regards to frontier R&D and the creation of new industries sounding in health and medicine.

Basic principles (Article 2)
- Provide medical care using the cutting-edge technologies
- Contribute to Japan's economic growth while helping to improve the quality of medical care abroad

Headquarters for Healthcare Policy
The Healthcare Policy (Approved by Cabinet), The Plan for Promotion of Medical Research and Development (Approved by the Headquarters)

Competent Ministries: Cabinet Office (AMED Office); MEXT・MHLW・METI
Related Ministries: MIC, etc.

Japan Agency for Medical Research and Development

Budget consolidation and integrated execution

Universities / Hospitals / Companies / Researchers / Institutes

- One-stop service for research fundings, etc.
- Consistent research management from basic to practical use

Mission : from basic to clinical research

- Promote and support medical R&D through seamless funding from basic to clinical research/trial
- Management of R&D programs/projects by Program Directors (PD) /Program Supervisors (PS) /Program Officers (PO).
  - ✓ Identifying and evaluating outstanding R&D proposals
  - ✓ Managing the integrated projects and promoting collaboration between them
  - ✓ Management of basic research results leading to clinical research and practical applications.

Basic Research → Application Research → Pre-Clinical Research → Clinical Research/Trial → Market /Clinical Use

Scope promoted by AMED

Science and Technology Research Partnership for Sustainable Development (SATREPS), Infectious Diseases

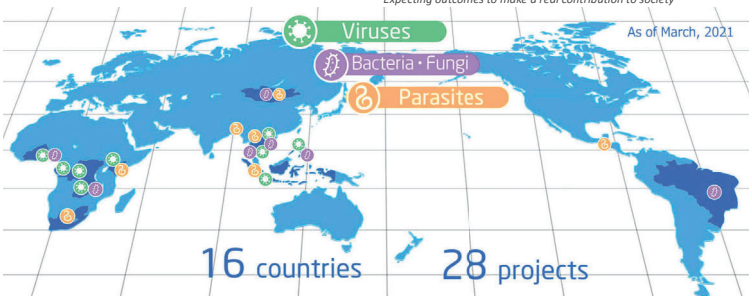
Goals

> Enhancing cooperation in science and technology
Building win-win relationship between Japan and developing countries

> New technology and new knowledge
Addressing global issues and advancing science

> Capacity development
Boosting self-reliant R&D capacity and sustainable research systems,
training human resources and coordinating networking between researchers

> Practical utilization
Expecting outcomes to make a real contribution to society



International Collaborative Research Program for Tackling the NTDs (Neglected Tropical Diseases) Challenges in African countries

Goals: to achieve the goal of controlling NTDs

R&D Targets
- ➢ *From basic research to the establishment of methods for diagnosis, surveillance, prevention, drug discovery and treatment in the medical and public health fields*

> Sustainability
- ➢ *Through close cooperation at local sites, centers for international joint research and cooperative activities will be established to help local researchers continue and extend their efforts over a long period.*

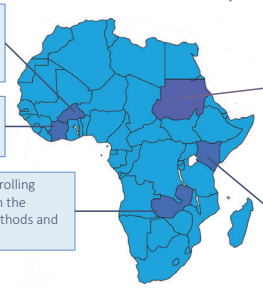
> Capacity development
- ➢ *to provide training to prospective young African researchers with the aim of contributing to innovation in Africa.*

Integrated research program for the control of dengue fever mosquito in Burkina Faso, West Africa

Integrated research to fight against Bruli ulcer and other skin NTDs in West Africa

Establishment of the model for controlling neglected tropical diseases based on the development of rapid diagnostic methods and risk analysis

4 completed projects



One ongoing project

Research on the diagnostics of early or latent eumycetoma: Search for new biomarkers, POC diagnostics, and development of a clinical epidemiology platform

An innovative continent-wide NTD surveillance network based on simultaneous multiplex assay technology in Africa

SUCCESSFUL PROJECT 2013-2018

Establishment of an Early-warning system for infectious diseases in Southern Africa incorporating climate prediction

【Japan-side】
・Principal Investigator:
Noboru Minakawa
Institute of Tropical Medicine, Nagasaki University, Professor

【Republic of South Africa -side】
・Counterpart Principal investigator:
Neville Sweijd
Applied Center for Climate & Earth Systems Science, Acting director

【Objective】
To develop infectious disease transmission models and climate prediction models

【Research Outline 】
Development of malaria prediction models incorporating climate prediction data.

【Result 1】
Development of two malaria prediction models ;
based on statistical models and a mathematical model.

【Result 2】
The model was able to predict the outbreak of malaria in the 2016-17 season.
Shared the information with local agencies of Republic of South Africa for the early-warning of malaria outbreak

Remaining Issue:
Social Implementation of R&D achievements

How con we make the R&D outcomes a real contribution to society ?

Main factors for the succeed of project presented by Prof. Watanabe, the Program Supervisor of AMED SATREPS and NTDs Programs

Coming soon
AMED International Joint Symposium 2022 1-2 December

1. Strong and excellent joint research experiences between Japan and the partner country before the project started.
2. A solid achievement goal of the project;
3. Selection of a good cohort for the research; incident of disease, population of the cohort etc.
4. Involvement of government organizations in the partner country from the beginning of the project; MOH, local government, governmental institutes as well as universities, which is critical when considering social implementation in the end
5. Establishment and maintenance of research system in the partner country; commitment of government to secure research funds and establish guidelines, etc.
6. Development of human resources: support for young talented researchers, who will take a leading position in the country in future

The United Nations Procurement is also promising to spread the achievements widely.

Two Funding Programs may provide opportunities for joint research between Japan and South Africa

- Human Frontier Science Program
- Interstellar Initiative

The Human Frontier Science Program

The HFSP (Human Frontier Science Program) provides support for innovative, interdisciplinary and highly original basic research into the complex mechanisms of living organisms. Topics range from molecular and cellular approaches to biological functions to systems neuroscience including cognitive functions. Clear emphasis is placed on novel collaborative research at the cutting-edge of the life sciences, drawing on the expertise of scientists from other research areas (physics, mathematics, chemistry, computer science, engineering etc.)

Member Countries/Regions
Australia, Canada, France, Germany, India, Italy, Japan, Republic of Korea, Norway, New Zealand, Singapore, Switzerland, the United Kingdom, the United States of America and the European Commission.

Funding programs

Research Grants
Encourages participation of scientists outside the life sciences to understand the complex structures and networks that characterize the living state.
Stimulates novel, daring ideas and innovative approaches, preliminary results are not required in research grant applications.
Applicants are expected to develop new lines of research through the collaboration.

Fellowship Programs
Provide international research opportunities
Broaden expertise / switch fields / learn new theory and methodology
Address fundamental (basic) questions in the life sciences
Facilitate research independence
A competitive fellowship application proposes a basic research project that is creative, frontier, potential to be transformative

Overview of Interstellar Initiative

The Interstellar Initiative recognizes the world's most promising Early Career Investigators (ECIs) from around the world and connects them with peers, in related but distinct disciplines, providing a platform for them to develop a solution to a major research question. ECIs will be grouped within teams of three and asked to develop a research proposal, guided by Mentors. Proposals will be developed and refined through two workshops and prepared for submission to international funding agencies.

The New York Academy of Sciences

Mentors and ECIs

Mentor
- Invite world's outstanding investigators from various research field to enhance ECI's interdisciplinary discussion.
- Show defensed research question to ECIs.

Guide

(biochemistry) (AI) (engineering) (neuroscience) ・・・
Note: Described discipline is examples.

ECIs
- Recruit promising researchers worldwide by open application.
  (Eligibility: Have obtained their last doctoral degree within the past 10 years, etc)
- Finalize research proposal under Mentor's guide and submit it to international research grant.
- Team of three international & interdisciplinary researchers, including one Japanese.

Aim of two workshops

First workshop: Organize research team

Teams receive funding to enhance their proposal

Second workshop: Develop research proposal

Teams submit their research proposals to International funding programs (HFSP* NAM etc)

Thank you

Contact
hiroko-sakai@amed.go.jp
Or
international@amed.go.jp

July, 2022

Toyota Tsusho Group: Contributions & Initiatives for Capacity Building in Africa

WITH AFRICA FOR AFRICA

TOYOTA TSUSHO | cfao

Overview of Toyota Tsusho Corporation

Corporate Profile

Toyota Tsusho Corporation
- a Trading and Investing Firm of Toyota Group

Head office location : Nagoya, Tokyo in Japan
Global network : Around 120 countries
Number of employees : 65,218 (consolidated) *as of April 2022
Stock Exchange : Tokyo, Nagoya (Stock Code: 8015)

Nagoya head office | Tokyo head office

Business Divisions

Established in April 2017

Metals | Global Parts & Logistics | Automotive | Machinery, Energy & Project | Chemicals & Electronics | Food & Consumer Services | Africa

Toyota Tsusho Group's presence in Africa

Business network covering the whole Africa with rich human resources

Global deployment: **54 countries**
(Business sites in 43 countries)

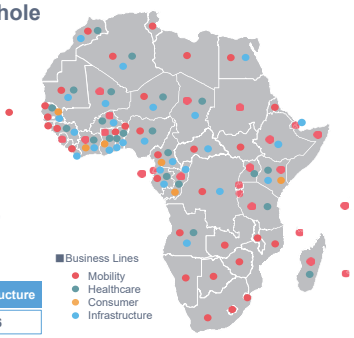
Number of employees: approx. **22,000**

Group companies: **155**

Revenue: Approx. **1.1 trillion** JPY (FY2021)
(approx. 8.5 billion USD)

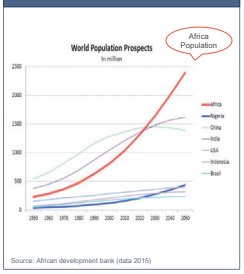
Four Major business domain & footprint:

Mobility	Healthcare	Consumer	Infrastructure
54	22	6	26



Contributions for the Continent

Contribute to a faster economic growth than the rapid growth of the African Population



Contribute to the industrialization of the Continent

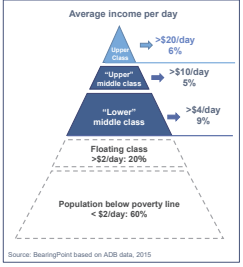
Mobility
Vehicle assembly

Healthcare
Pharmaceutical production

Consumer
Breweries

Infrastructure
Wind, Geothermal and Solar power generation

Contribute to the emergence of the middle class by creating jobs & offering affordable products



Value chain integration strategy

Strong growth potential for growth and long term value creation

Upstream
Produce locally when possible and profitable
« Made in Africa »

IMPORT, WHOLESALE & LOGISTICS
Historical core business

MOBILITY
Market leader in Sub-Sahara (B2B and B2G)

HEALTHCARE
Market leader in Morocco, Sub-Sahara and FOT

CONSUMER
Challenger in FMCG and beer markets

INFRASTRUCTURE
Challenger in ICT and lift (B2B and B2G)

Downstream
Develop our **Retail** activities to generate future growth drivers for Africa Division

Capacity Building - Safety & Kaizen Activities

Applying business support functions and know-how within the group companies

Safety (Anzen)

- Improving awareness on site
- Starting from risk assessment at logistics bases and production sites
- Implementing each type of safety training for all staff in all businesses

Classroom training scene

ANZEN:FIRST

Warehouse site scene

Kaizen

- Developing "kaizen" as part of the company culture in all companies in Africa (165 companies)
- Implementing kaizen at production sites, realizing efficient operations. Starting with 5S: sifting, sorting, spick and span, sweeping and washing, and sustaining and discipline

Before introducing kaizen activities

After introducing

Capacity Building - Providing Vocational Education Opportunity

WITH AFRICA FOR AFRICA

Implementing local human resource training & education for local community

■ **Toyota Kenya Academy**
- Established: 2014
- Location: Nairobi, Kenya
- Fostering engineers in automotive, construction & farming machinery
- Enhancing next-generation leadership and management in cooperation with JICA and local universities.


Toyota Kenya Academy


Training scene

■ **Toyota de Angola Academy**
- Established: 2020
- Location: Luanda, Angola (Cazenga Vocational Training Center)
- Training instructors of vehicle maintenance
- Technical training provided with the support from JICA

Unveiling ceremony at Toyota de Angola Academy


Trainees receiving technical guidance

■ **Training of auto-mechanics (collaboration with UNHCR)**
- Established: 2022
- Location: Uganda
- Providing training of auto-mechanics
- Cooperation with UNHCR to support the independence of refugees



Image of training of auto-mechanics

Capacity Building – Internship for ABE Initiative Students

WITH AFRICA FOR AFRICA

■ **What is ABE Initiative (African Business Education Initiative for Youth)?**

- Program by JICA offering opportunities for young Africans to study at graduate schools in Japan along with internship courses at Japanese companies
- Fostering young personnel who can contribute to the development of industries in Africa as well as to be a "navigator" for Japanese companies' business activities in Africa.

■ **ABE Initiative in TTC**

Country	Cameroon, Cote d'Ivoire, Egypt, Eritrea, Gabon, Kenya, Morocco, Mozambique, Rwanda ,Senegal, South Sudan, Sudan, Tanzania, Tunisia
2015-2022 TOTAL	35 summer internships 7 Post Graduation Internship


Collaboration with African Entrepreneurs

WITH AFRICA FOR AFRICA

Accelerating business development in the new sector with CVC, "Mobility 54" & "Health 54"

- Investing in Start-up Companies with innovative technologies & services;
  - enabling "Leap-Frog" phenomena in Africa
- Discovering young African entrepreneurs for revolutionizing industries in Africa and beyond.

WITH AFRICA FOR AFRICA mobility54 Toyota Tsusho Group

health54 cfao group

Investment Scope

- Logistics
- P. Transport / Hailing
- Finance/Fintech
- EV / CASE
- MaaS / Value Chain

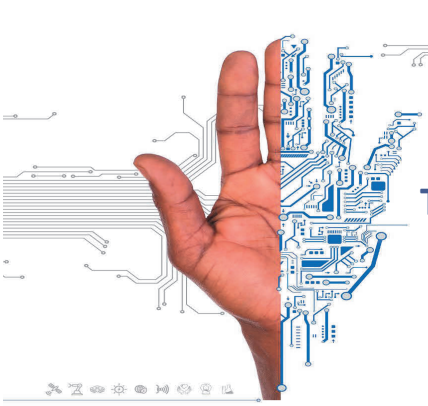


TUGENDE sendy MOJA RIDE IN TOUCH

.....and MORE!

WITH AFRICA FOR AFRICA

TOYOTA TSUSHO | cfao



TIA Presentation

Zipho Zwane
Portfolio Manager: International Partnerships
Email: zipho.zwane@tia.org.za

Portfolio Sharing

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Strategic & Policy Enablers

United Nations: **SDGs 2030**
- Focus: Economic, social and environmental sustainable development
- Goal 9: Industry, Innovations & Infrastructure

African Union Agenda 2063: 10-year STI Strategy 2024
- Socio-economic transformation for Africa framework
- Promotion of competitiveness through people, innovation & value addition

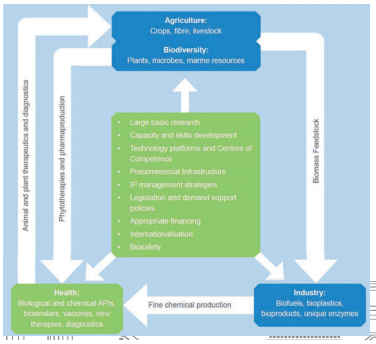
National Development Plan 2030
- Recognition of STI in tackling the triple challenge
- Phase II: Foundations for more intense improvements in productivity

Bioeconomy Strategy 2013
- Creation of and growth of biotechnology-based industries for significant economic contribution.
- Focus on bio-based resources for economic inclusion and transformation and benefits sharing

White Paper of Science, Technology & Innovation 2019
- The contribution of STI to transformation, inclusivity and stronger linkages with NSI

TIA Strategic Plan 2020 – 2025
- Focus on Commercialisation of public sector R&D, Implementation of Bioeconomy and Technology Stations Programme

Bioeconomy Strategy



- Broad-based economic inclusivity and industrialisation across all sectors
  - Agriculture
  - Indigenous Knowledge systems
  - Industry & Environment
  - Health
- Creation of new bio-based services, products and innovations for commercial and industrial development and enhance competitiveness

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TIA Mandate: TIA Act No 26 of 2008

ACT

To provide for the promotion of the development and exploitation in the public interest of discoveries, inventions, innovations and improvements, and for that purpose to establish the Technology Innovation Agency; to provide for its powers and duties and for the manner in which it must be managed and controlled; and to repeal an Act; and to provide for matters connected therewith.

Object of Agency

3. The object of the Agency is to support the State in stimulating and intensifying technological innovation in order to improve economic growth and the quality of life of all South Africans by developing and exploiting technological innovations.

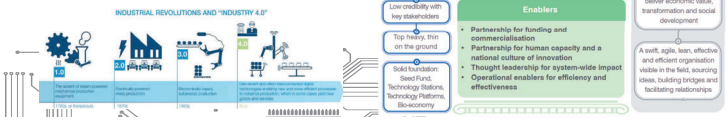
Vision:
Be a leading technology innovation Agency that stimulates and supports technological innovation to improve quality of life for all South Africans.

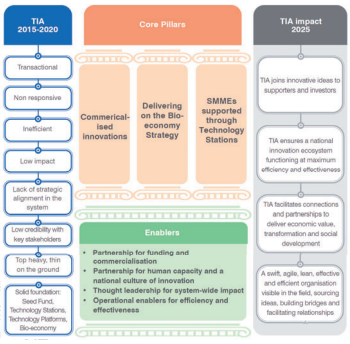
Mission:
Facilitate the translation of South Africa's knowledge resources into sustainable socio-economic opportunities.

TIA Strategy 2020 - 2025

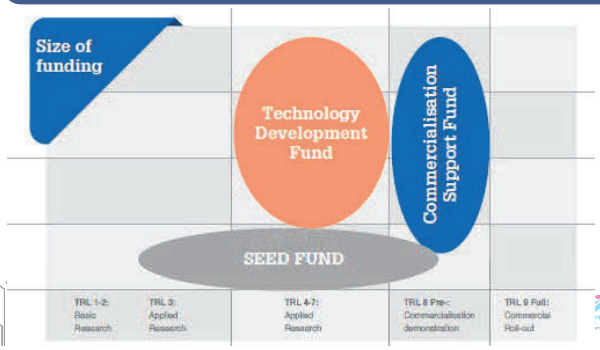
Alignment to NDP and White Paper on STI

- Accelerate translation and commercialisation of publicly-funded research & innovations
- Intensifying bioeconomy driven efforts for economic growth
- Increase innovative support to SMEs through Technology Stations Programme
- Grassroots innovations for development of local communities





Risk Funding Schemes



SEED fund

Administered through HEIs and RDAs

- National footprint e.g. HEI OTT and RDAs
- RDAs: Innovation Hub, Smart Exchange, Eastern Cape Developmental Corporation (ECDC), Limpopo Development Corporation (LIEDA), Cape Craft Design Institute (CCDI), Invotech & Free State Development Corporation (FDC)
- Leverage support
- Support throughout the TRLs
- Intellectual property management
- Prototype development, market testing (TRL 2 to 8)
- Enquiries: seedfund@tia.org.za

Technology Development Fund

- Most commonly accessed fund
- Technology de-risking (MRL & BRL)
- Requirement: Proof of concept (TRL 4)
  - evidence, typically deriving from an experiment or pilot project, which demonstrates feasibility of an idea/observation
- Funding instruments: conditional levy, loans & equity
- Multiple-rounds of funding towards full development
- Apply for funding: www.tia.org.za

Pre-commercialisation Support Fund

- Bridging the gap between innovations and the market
- Requirement: de-risked technology, business plan, market interactions (TRL8)
- Funding instruments: conditional levy, loans & equity
- Apply for funding: www.tia.org.za

Innovation Enabling Programmes

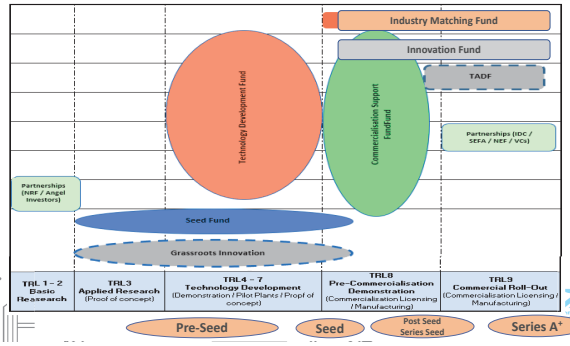
- Collaborative RDI programmes that leverage the strengths of partners to develop a technology
  - **Technology Innovation Cluster Programmes**
- Enables universities to provide innovative SET solutions to SMEs
  - **Technology Stations Programme**
- Facilitate access to key infrastructure and expertise for technology innovation
  - **Technology Platforms Programmes**
- Promotes innovations by communities for inclusive development with funding, mentorship and enterprise development
  - **Grassroots innovation Programme**
- Strengthens the fundamental business skills required by technopreneurs
  - **Innovation Skills Development**
- A Business Acceleration Programme for SMMEs in renewables, energy, waste and water
  - **Global Cleantech Innovation Programme (UNIDO)**

Table of Contents

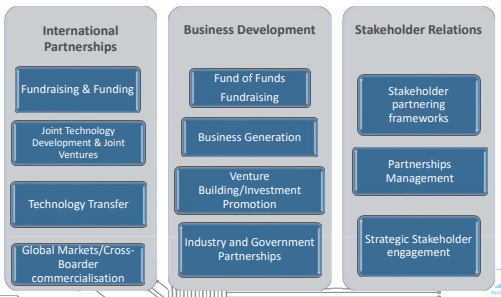
Purpose

- Fundraising
- Resource Mobilisation
- Internationalisation
- Business Development/Generation
- Partnerships

TIA Interventions across the Innovation Chain



Functions



Industry Matching Fund/Fund of Funds

Venture Capital Funds				Business Angel Network		Development Finance Institutions	
Biotech Fund (R83.5M + R10M)				Jozi	TIA	Natural Indigenous Products Fund/Programme (R46M)	
						IDC	TIA/DSI
SA SME Fund	TIA	OneBio & SEFA		Dazzle		TIA – Implementing partner for the technical assistance fund portion	
Venture Fund (112M)							
SA SME Fund	TIA	IDC				IDC – Implementing partner for the commercialisation assistance fund portion	
University Technology Fund (R185M)				WZ Capital			
SA SME Fund	TIA	SEFA	Tamela	R4M			

Other IMF model programmes	
Water Seed Fund	Water Research Commission
Health Innovation	Western Department of Economic Development
Health Innovation	SEDA/TuksNovation (University of Pretoria Incubator)
Eastern Cape Agro Industry Innovation Programme	ELIDZ, ECDED, Tiger Brands

Partnering with Industry

- 5 Sub Funds (Seed to Series A)
- 2 Industry/ED/BD support Fund Programmes
- 4 Pre-Seed Funds
- 24+ invested projects
- 60% from TIA de-risked portfolio
- 65% involves publicly funded IP
- R524M funding leveraged against R43M TIA funds at Fund level
- R1.5bn+ leveraged at project level
- 9 of 22 projects commercialised (making sales) to date
- 12 Companies created
- 176 Jobs created

Internationalization Instruments

- Industry Partnerships
  - J&J
- Start-up Support – Joint Ventures (Eu Bilaterals)
  - Eurostars
  - Eureka (Horizon Europe)
  - Tanzania….
  - UK
  - Switzerland

- Research Upscale Programme – (Africa Bilaterals)
  - Joint Technology Development
  - Zambia, Tanzania, Egypy, Mauritius,
- SAIC- Southern Africa Innovation Collective
  - Namibia, SA, Tanzania, Zambia and Botswana
  - African Innovation Fund

Zipho Zwane
Portfolio Manager: International Partnerships TIA
Zipho.zwane@tia.org.za
customerservice@tia.org.za

Thank you

JETRO
Go Digital!!

Japanese Business in Africa

Yuika KUBO
Global Strategy, Africa,
Planning Dept. JETRO
July 29th 2022

Agenda

1. Introduction of JETRO
2. JETRO's activities in Africa
3. Japanese business in Africa
4. Covid-19 and beyond

1. Introduction of JETRO

- Government-related organization for promoting mutual trade and investment between Japan and the rest of the world
- Overseas offices: 76 (in 55 countries)
- Japan offices: JETRO HQ in Tokyo and Osaka, 48 regional offices and Institute of Developing Economies (IDE-JETRO)
- Employees: 1,819 (1,114 in Japan and 705 overseas)

- **Facilitating** innovation through FDI in Japan, supporting overseas expansion of startups
- **Supporting exports** of Japanese agricultural, forestry and fishery products and food
- **Assisting Japanese companies** with their overseas business
- **Contributing to activities** of Japanese companies through surveys/research

Japan Pavilion at an international food exhibition


Business-matching event on exporting to Asia

1. Introduction of JETRO: Network in Africa

- JETRO has nine offices in Africa which cover the entire African region.
- The Africa regional headquarters is in Johannesburg.

2. JETRO's activities in Africa: Business mission and seminars

- JETRO supports overseas expansion of Japanese firms, particularly SMEs, to emerging and developing countries.
- This advancement abroad is expected to enhance international competitiveness not only for these companies but also for local industries as well as create new employment in those regions.


Japan business mission (2020, DRC)


Japan business mission (2019, Egypt)


Japan business mission (2019, Zimbabwe)


Japan business mission (2018, Mauritius)


Japan business mission (2018, Madagascar)


Japan business mission (2018, Mozambique)


Japan business mission (2017, Namibia)


BOP business mission (2013, Kenya and Ethiopia)

2. JETRO's activities in Africa: Trade fairs in Africa

JETRO supports Japanese companies expanding business overseas, especially in emerging markets, through exhibitions where they are able to exhibit their technologies, products and services. And this facilitates the establishment of mutually beneficial business relationships between Japan and those countries and contributes to their sustainable development.

Lagos International Trade Fair (2014 – 2019, Nigeria)


Cairo International Trade Fair (2013, Egypt)

Dar es Salaam International Trade Fair (2014, 2015, Tanzania)


Ghana International Trade Fair (2015, Ghana)


Algiers International Trade Fair (2014 – 2018, Algeria)


Japan Week @ Sandton City (2014, South Africa)


Power & Electricity World Africa (2013, South Africa)


Japan-Arab Business Fair (2016, Morocco)

2. JETRO's activities in Africa: FOODEX and OVOP Markets

- JETRO has participated in FOODEX Japan, one of Asia's largest food and beverage trade shows, since 1997, and we have supported over 350 exhibitors from more than 25 African countries in total. We will continue working to further develop the food industry in African countries.
- The One Village, One Product (OVOP) Markets are permanent antenna shops where attractive products made in emerging countries are displayed and sold in order to introduce them to Japanese consumers. JETRO has been operating the OVOP Markets at the Narita and Kansai International Airports since 2006.

FOODEX Japan

One Village, One Product (OVOP) Markets

Narita International Airport

One Village, One Product Market
4th Floor, Passenger Terminal 1, Central Building

Kansai International Airport

One Village, One Product Market
4th Floor, Passenger Terminal 1

173 items from 31 African countries

2. JETRO's activities in Africa: Digital JETRO

- The number of "real" instances of contact with foreign countries dropped in 2020 due to cancellation of trade fairs, etc.
- JETRO creates business opportunities for Japanese companies by making full use of digital technology and online tools, which dramatically reduce the geographical gap between Japan and Africa.

Phase	Information	Consulting	Matching
Exporting	Web seminars	Online consultation in Japan, online briefings with JETRO overseas offices	Training course / Africa Business Desk
Investment			E-commerce (Japan Mall) ※ BtoC / Virtual trade shows ※ BtoB / Online business matching

Africa Online Business Matching

2. JETRO's activities in Africa: Innovation

2. JETRO's activities in Africa: Innovation

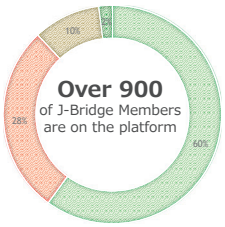
J-Bridge is a business platform to facilitate collaboration between Japanese companies and overseas startups/companies. JETRO supports cross-border open innovation for accelerating digital transformation (DX).

Target Countries/Regions	Priority Fields	Objectives
▸ Southeast Asia ▸ India ▸ Israel ▸ Australia ▸ U. S. ▸ Europe ▸ Africa ▸ Japan	Carbon Neutral, Mobility, Healthcare, Agriculture and Fisheries, Retail, Smart Cities	Cooperation between Japanese companies and overseas startups for the development of new businesses, thereby: • Business alliance including technical cooperation, joint R&D, and M&A • Capital alliance including investment, setting up JV (Joint Venture), etc.

2. JETRO's activities in Africa: Innovation

J-Bridge Community

J-Bridge Members are **Japanese companies who are interested in collaboration with overseas startups etc. Over 900 people from more than 650 companies** are registered from various industries ranging from ICT, trading, chemical, finance to manufacturing.



Our Partners

Companies and organizations that share the same goals as J-Bridge and will help us by utilizing their knowledge and connections.

SCRUM VENTURES / global brain / REBRIGHT PARTNERS / MUFG Bank / COOL JAPAN FUND / GLOBAL DX / 東京きらぼしフィナンシャルグループ / 北海道 / 京都銀行 / 十六銀行 and 4 more entities

3. Japanese Business in Africa

- The number of Japanese companies based in Africa is increasing in recent years.
- Japanese startups and SMEs are actively involved in African business with brand new products and business models.

Allm (Tokyo)

"Join": Communication app for medical personnel


(Photo) Provided by the company

Focus: Shortage of doctors, spread of COVID-19, increased demand for telemedicine

- Working to establish a network of telemedicine in mobile medical ICT in Africa.
- Expanded business to Rwanda and South Africa, and plans to establish a base in Kenya in 2021.

Tromso (Hiroshima)

Device to make solid fuel from rice husks


(Photo) Provided by the company

Focus: Rapid spread of rice cropping and reuse of rice husks

- Full-scale entry into the African market starting with test delivery of the device to Tanzania in 2014.
- Received orders from and sold the device to Madagascar, Nigeria and Senegal.
- Even amid the COVID-19 pandemic, Tanzanian technical staff have taken the lead in introducing the device and providing technical guidance in African countries.

Daikin Industries (Osaka)

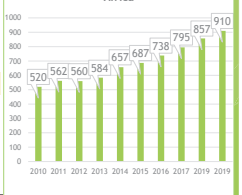
Subscription of air conditioners


(Photo) The company's Facebook page

Focus: Immature market, new business model

- Established a joint venture with Japanese startup WASSHA, which develops power service business in Tanzania.
- A service to allow subscribers to use air conditioners for 130 yen a day.
- The company aims to build a business model with reduced initial costs to generate profits even in small immature markets.

Japanese companies based in Africa



Source: MOFA

3. Japanese Business in Africa

- Through those services, JETRO has several successful cases between African Startup and Japanese companies.
- Though venture investment, Japanese companies aim to expand their network and leverage in Africa

M-KOPA

M-Kopa presented at the Africa New Business Trend Seminar in Tokyo, hosted by JETRO in January 2018.

Acquired a stake in March 2018

MITSUI & CO.

×

Acquired a stake in December 2018

Sumitomo Corporation

SANERGY

Sanergy participated in the JETRO business matching program held in Japan in 2019.

Made an investment in December 2020

KEPPLE AFRICA VENTURES

×

Made an impact investment of $2.5M In October 2021

JICA Japan International Cooperation Agency

KOMAZA

JETRO met Komaza in 2019 and wrote about them in an article. They made a presentation at the Startup seminar hosted by JETRO Nairobi in 2020.

Made $10M investment with Sobrato Philanthoropies In March 2022

MITSUI & CO.

Other Cases: Confidential

African Startup	Japanese partner	Type | Year
BBOXX	Mitsubishi	Acquisition Aug 2019
Zipline International	Toyota Tsusho	Partnership & Investment June 2018& May 2019
Sendy	Mobility54 (Toyota Tsusho)	Investment Nov 2017, Feb 2020
Bit Pesa (BTC Africa A.C.)	Sompo Japan	Partnership & Investment Nov 2018
Azuri Technologies	Marubeni	Acquisition June 2019
Power Gen (WindeGen Power USA. Inc)	Sumitomo	Investment Aug 2019

*Source: Press release.
*JETRO supports their business operation directly and indirectly.

Japan Africa Public-Private Economic Forum in Kenya, 2022

The METI, the Government of Kenya, and JETRO held the Second Japan-Africa Public-Private Economic Forum as a business forum that brings together people from the highest levels of the public and private sectors in Japan and Africa to discuss how all these sectors can work together to achieve concrete business outcomes. It was the first forum of its kind to be held during the COVID-19 pandemic.

Japan-Africa Business Forum and Expo at TICAD 7

- Responding to TICAD's transformation to a more economy-oriented platform, JETRO organized the Japan-Africa Business Forum and Expo consisting of Japan Fair, Africa Lounge and the event stage.

TICAD 7 Japan-Africa Business Forum & EXPO
【Date】 August 28-30, 2019
【Organizer】 JETRO
【Supporter】 METI, MOFA
【Venue】 The Yokohama Bay Hotel Tokyu/ PACIFICO Yokohama
【Size of exhibition】 6,700㎡
【Exhibitors】 Japan Fair: 156, Africa Lounge: 45

Quality Infrastructure (46)
Food Value Chain (14)
Climate Change (6)
Improvement of Health Issues (28)
Sustainable Urban Development (5)
Human Resource Development (13)
Japanese Companies Activities for Africa (44)

Africa Lounge

Event Stage

Thank you very much!

Japan – Africa Academic Network (JAAN)

5th SAJU Forum

29 July 2022

Shinichi Takeuchi

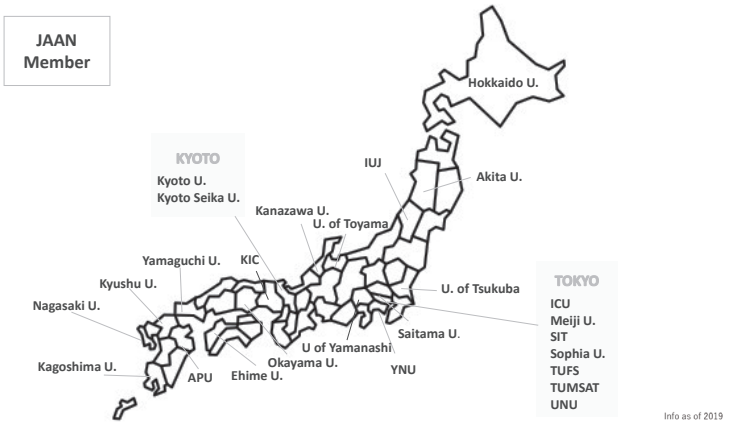
African Studies Center – Tokyo University of Foreign Studies

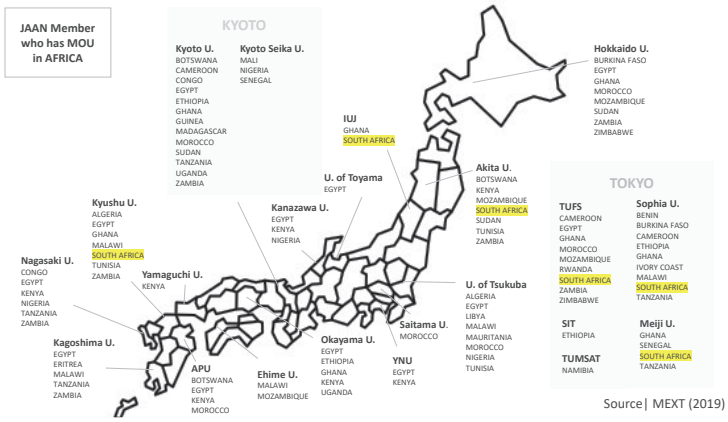
What is JAAN

A NETWORK OF JAPANESE UNIV.
engaging with universities and higher educational institutions in Africa
25 Japanese univ. , more than 80 partners univ. , 30 overseas offices

OBJECTIVES
Information sharing and collaboration
Developing the network

STRUCTURE (2021-2023)
Chair | TUFS
Vice | Hokkaido University, Kyoto University





Source| MEXT (2019)

KNOWLEDGE SHARING
through the WEBSITE

Activities of member universities
Partner institutions

Student exchange programmes
Scholarship

Research projects

https://jpafacadnet.wordpress.com/

CONDUCTED SURVEYS

EXPERIENCE OF ONLINE EXCHANGES
- Member universities
- Activities
- Merits / shortcomings

AFRICAN STUDENTS' LIFE under COVID-19
- Students from African countries
- Challenges

Importance of the UNIVERSITIES' NETWORK

BOLSTER SUPPORT
for academic and student exchange with African countries

USING JAAN MEMBERS' ASSETS
Information sharing, building experiences in the university level

International Education Association of South Africa

Dr Samia Chasi

Manager Strategic Initiatives, Partnership Development and Research

5th South Africa – Japan University Forum Conference

29 July 2022

ABOUT US

- Non-profit organisation, established in 1997
- Advancing internationalisation of higher education with an African perspective in a global context
- 21 institutional members
- Small secretariat
- Member of the Network of International Education Associations (NIEA)
  - Asia Pacific Association for International Education (APAIE)
- PIEoneer Awards 2022 finalist

KEY ACTIVITIES

- **Advocacy**
  - Providing a collective, independent voice of its members on HE internationalisation issues, both locally and internationally
  - Lobbying on behalf of SA HEIs and liaising with SA government departments and other relevant stakeholders to provide strategic input on policies and procedures linked to internationalisation
  - Collaborating with other relevant organisations in the field
- **Marketing**
  - IEASA website, Study SA guides (see IEASA website > Publications)
  - Study SA exhibitions at international conferences

KEY ACTIVITIES (cont.)

- **Information and Knowledge Sharing**
  - IEASA website, email distribution list and electronic newsletters
  - IEASA webinar series
  - Facilitating research on HE internationalisation
  - Representing SA HE at international conferences and events
- **Training and Development**
  - Facilitating training and development of international educators, practitioners & others involved in HE internationalisation, particularly in Africa, through:
    - IEASA conference sessions and workshops
    - *Short courses and learning programmes*
    - Leadership opportunities through involvement in IEASA structures
    - Induction and mentoring

KEY ACTIVITIES (cont.)

- **Products and Resources**
  - Medical aid project
  - Immigration procedure manual
  - Code of Ethical Practice
  - *Crisis management framework for HEIs*
- **Networking and Engagement**
  - Providing access to country-wide network of HE internationalisation stakeholders as well as sister organisations
  - Facilitating professional networking and engagement through annual conferences and other events (workshops, dialogues, etc.)
  - Supporting the development of regional and national communities of practice in HE internationalisation
  - Promoting an African focus in HE internationalisation

2022 CONFERENCE

Theme: "Reigniting and Reimagining Internationalisation of Higher Education in South Africa"

24 – 26 August 2022

Online

To find out more and to register:

https://ieasa-conference.studysa.org

2022 CONFERENCE (cont.)

Join us!

Register by 10 August.

Register at: https://ieasa-conference.studysa.org/conf_registration/registration-2022/

CONTACT DETAILS

Email: admin@ieasa.studysa.org

Website: https://www.ieasa.studysa.org

Facebook: https://www.facebook.com/IEASA.StudySA/

LinkedIn: https://www.linkedin.com/in/ieasa-studysa-468104169/

The Inter-University Exchange Program

Platform Project B: Formation of Platforms for Promoting Transdisciplinary Human Resources for SDGs-Oriented Innovation in Africa

Motoki Takahashi, Professor and Director, Center for African Area Studies

Kyoto University and Tokyo University of Foreign Studies

What is the Inter-University Exchange Program?

- The Japanese Ministry of Education (MEXT) has been providing financial support for the program since 2011.
- The purpose is to strategically promote collaboration and student exchange with universities in countries and regions of importance to Japan.
- Each project of individual university(ies) needs to implement qualified education in accordance with international standards and strengthen the global capability of Japanese higher education while expanding the scale of student exchange worldwide.

大学の世界展開力強化事業
(INTER-UNIVERSITY EXCHANGE PROJECT)

Inter-University Exchange Program (Africa)

- **Kyoto University and Tokyo University of Foreign Studies**

Africa Inter-University Exchange Project: SDGs Human Resource Development and Platform Office

- **Utsunomiya University**

Programme for Developing Human Resource to Contribute to SDGs by Merging African Potential and Japanese Scientific Technology

- **Yamaguchi University**

Veterinarian Training Program Responsible for Infectious Disease Control to Solve One Health Problem in Asia and Africa

- **Hokkaido University**

International Veterinary and Conservation Medicine Education Program: Building upen generations of collaboration between University of Zambia and Hokkaido University for the future of Africa-Japan relations

- **Akita University and Kyushu University**

An innovative program for development of core human resources for smart mining to lead sustainable resource development in South Africa

- **Hiroshima University**

Triangular Study Abroad Program for Reciprocal Partnership with North and Sub-Saharan Africa

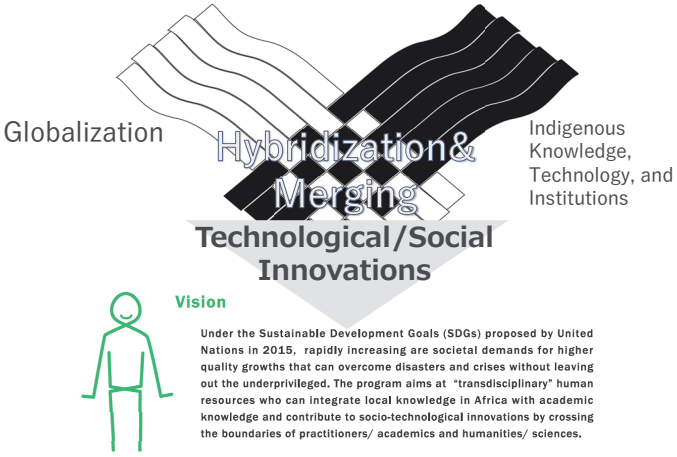
- **Nagasaki University**

Planetary Health Africa-Japan Strategic and Collaborative Education (PHASE) Program

- **Tokyo University of Agriculture**

Project-based collaborative education program focusing on nutrition improvement in Africa

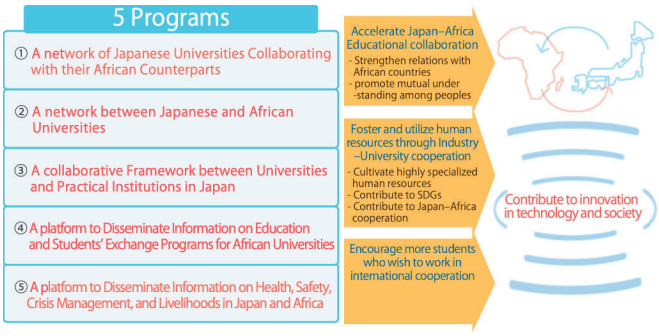
What human resources we cultivate in this program ?



Under the Sustainable Development Goals (SDGs) proposed by United Nations in 2015, rapidly increasing are societal demands for higher quality growths that can overcome disasters and crises without leaving out the underprivileged. The program aims at "transdisciplinary" human resources who can integrate local knowledge in Africa with academic knowledge and contribute to socio-technological innovations by crossing the boundaries of practitioners/ academics and humanities/ sciences.

Outline of Platform Program

【Summary of Platform Projects】
To promote far-reaching innovation in various areas to achieve the Sustainable Development Goals (SDGs) in Africa, we will build collaborative and interactive networks between universities in Japan and Africa, and between universities and practical institutions engaged in Africa.



The main purposes of the platform The Inter-University Exchange Program

Strengthening exchange and understanding between Africa and Japan by sharing information on the current state of education and interactions among African and Japanese universities.

1. To provide information of student exchange and human resource development between Africa and Japan
2. To introduce and match African and Japanese Universities with each other.

If you need more information, please check our website!

https://iafp.africa.kyoto-u.ac.jp/en/

Or contact us,

Africa Inter-University Exchange Project SDGs Human Resource Development and Platform Office

E-mail: iafp-office@jambo.africa.kyoto-u.ac.jp

We are willing to help you find counterpart universities in either South Africa or Japan!

Thank you very much

The Inter-University Exchange Program

Platform Project B: Formation of Platforms for Promoting Transdisciplinary Human Resources for SDGs-Oriented Innovation in Africa

KYOTO UNIVERSITY

京都大学

The 5th South Africa-Japan University (SAJU) Forum

Overview of Study in Japan Global Network Project (Study in Japan for Africa)

Kaori KAWAKAMI
Coordinator for Study in Japan for Africa
Study in Japan Global Network Project
Regional Office in Sub-Saharan Africa

29 July 2022

The Project

- Launched by the Government of Japan / the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in 2014.
- **Objectives**: To increase the number of sub-Saharan African students studying in Japan through various schemes including scholarship programmes
- In Japan, nearly 1,000 programmes taught fully in English
  - Around 150 at undergraduate level
  - Around 850 at postgraduate level

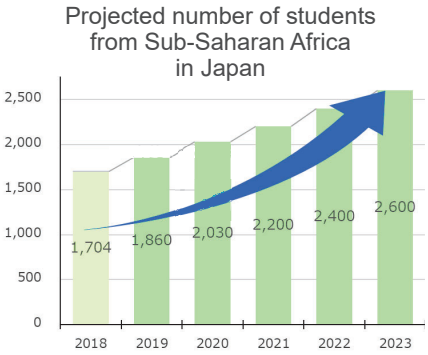
The Project

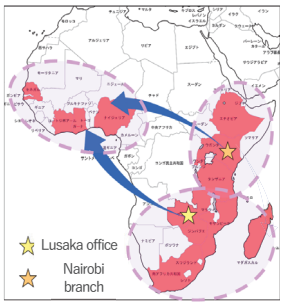
- 6 Offices in the world to implement the project, one of which is Hokkaido University Africa Office in Lusaka.
- Located in University of Zambia with three coordinators is responsible for Sub-Saharan Africa.
- Satellite Office in Nairobi was opened in JSPS Nairobi Research Station in 2019. One coordinator is focusing on Eastern Africa.
- Partner institutions: Embassy of Japan, JICA, JETRO, JSPS, Ashinaga Foundation, Japanese Teacher Associations, etc.

Hokkaido University Africa Office in Lusaka

University of Zambia

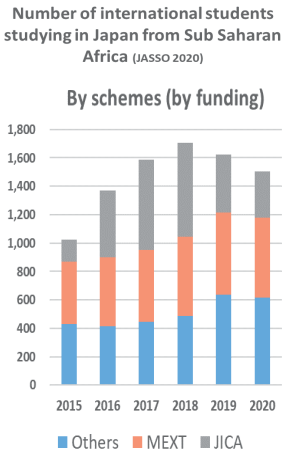
Target Countries

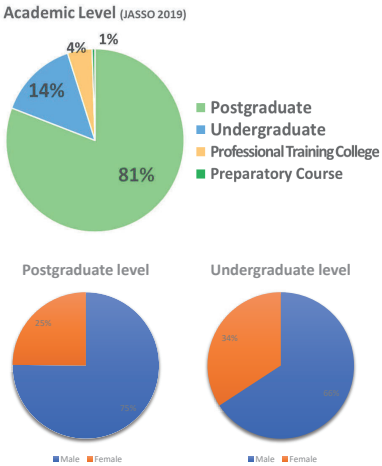




South Africa, Kenya, Nigeria, Ghana, Tanzania, Uganda, Rwanda, Ethiopia, Zambia, Côte d'Ivoire, Zimbabwe, Senegal, Mozambique, Madagascar

Status of Studying in Japan from Sub Saharan Africa





What We Do: Fairs

◆Study in Japan Fair

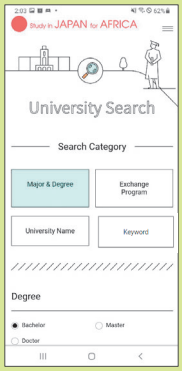
- 2019: Three fairs held in South Africa, Kenya and Ghana.
- On average, we organize 3-4 fairs (onsite and online) per year.

Fair 2019, Pretoria, South Africa

Fair 2019, Accra, Ghana

What We Do: Online Activities

① University Search (Data Portal)



② Study in Japan Online Fair for Sub-Saharan Africa

General information session and University consultations.

③ Webinar (Programme introductory webinar)

e.g., ICT Global programme in the university of Aizu was introduced to students and teachers in African Leadership Academy, South Africa.

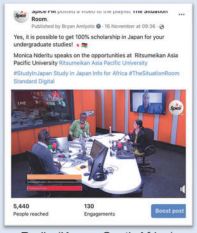
What We Do: Awareness-Raising

① Website and SNSs

www.studyinjapan-africa.com

@STUDYinJAPANforAFRICA
@StudyJPN_africa
studyjpn_africa

② Mass media



Radio (Kenya, South Africa)

TV adverts (Nigeria, Ghana)

Newspaper adverts (Uganda, Tanzania, etc.)

③ Others

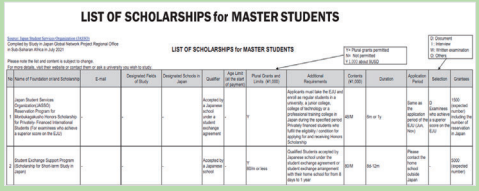
Promotional song composed by Cameroonians

Study in JAPAN for Africa

Africa friendly logo creation

What We Do: Consultations/Counselling

① Individual consultation by Study Abroad Coordinators



University admission Info

- Application documents
- Pre-departure admission exam
- **Scholarship** programme

② Career guidance/counselling (by Study Abroad Coordinators)

Career after studying in Japan

- Internship
- Employment
- Special visa for **highly-skilled foreign professionals** done by Japanese Government

What We Do: Academic Exchange

◆Academic exchange

- Promoting communication between universities from Africa and Japan through workshops (26 universities - 14 from Japan and 12 from Africa - joined in 2019.)
- Assist in establishing partnership agreements (MOU) between universities for student/faculty exchange programmes
- Assist in student exchange programmes between universities especially in South Africa (42 universities have MoUs).

Academic workshop 2019, Nairobi, Kenya

Upcoming Events

◆Study in Japan Fair

Study in JAPAN Online Fair for Sub-Saharan Africa 2022

① Undergraduate Programme (3rd Sep.)

② Graduate Programme (30th Sep.– 1st Oct.)

＊57 programs from 31 Japanese universities will join.
Registration (free of charge) will begin on 1 August.

Study in JAPAN Fair for Francophone Africa 2023

③ Abidjan in Côte d'Ivoire (scheduled in Feb.)

④ Dakar in Senegal (scheduled in Feb.)

Services We Can Offer

Further stimulation of student mobility between Africa and Japan

- Support for agreements of partnership (MOU) between universities from Africa and Japan
- Support for the establishment of Japanese language courses

Inquiry

E-mail: studyinjapan@oia.hokudai.ac.jp

Regional Office in Sub-Saharan Africa (Lusaka office)
c/o Department of Disease Control, School of Veterinary Medicine, University of Zambia

Office Hours: 9:00-12:00,13:00-16:30 (Mon-Fri)
Closed Days: Saturdays, Sundays and Zambian Holidays

Branch in Nairobi
c/o JSPS Nairobi Research Station

Agenda

Session 2: Parallel Thematic Sessions

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28 July 2022 | 10:00 – 13:00

(17:00 – 20:00)

TICAD Tokyo International Conference on African Development
Tunisia
2022

1. Health and wellness (13)

	Authors	Presentation title
	Chair: Japanese side Prof. Yuichi ANDO & South African side	
1	Akiyo Aminaka1, Matchume Zango 2 1. Institute of Developing Economies (IDE-JETRO), Japan 2. MMus, South African College of Music, University of Cape Town, South Africa	Cultural Policies and Knowledge Circulation after Regime Change: A Cross-Border Case of Chopi's Timbila between Mozambique and South Africa
2	Chris Tapscott University of the Western Cape, South Africa	The Impact of Structural Inequality in State Responses to the Covid-19 Pandemic: A South Africa Case Study
3	Fumihiko Saito Ryukoku University, Japan	Possibilities of Social Enterprises for South Africa's Better Future? Lessons from SPARK Schools
4	Yuichi Ando1, Sanpei Ohama2, Atsuko Ohama2, Nanako Tamiya3, Hideki Yamamoto3,4 1. Institute of Global Medical and Sports Science, Japan 2. Non-Profit Corporation Smile Club, Japan 3. Health Services Research and Development Center, University of Tsukuba, Japan 4. Faculty of Pharma-Science and School of Public Health, Teikyo University, Japan	Do Sports Clubs Contribute to Community Wellness? An Empirical Study of One Spot Club's Experience in Japan.
5	Hilomi Iwai1, Hideki Yamamoto1,2 1. Faculty of Pharma-Science, Teikyo University, Japan 2. Health Services Research and Development Centre, University of Tsukuba, Japan	Shearing the Experience of Cattle-related Injuries in Japan: For Occupational Health in Livestock Industry of Africa
6	Faadiel Essop Division of Medical Physiology, Faculty of Medicine and Health Sciences, Stellenbosch University, South Africa	Establishing a BSc (Hons) (Medical Physiology) Module Focusing on a Humanities-Rooted Science Context and Approach
	Chair: Prof. Satoshi KANEKO & South African side	

7	Satoshi Kaneko1, Osamu Kaneko1, Kouichi Morita1,2 1. Institute of Tropical Medicine, Nagasaki University, Japan 2. DEJIMA Infectious Disease Research Alliance, Nagasaki University, Japan	DEJIMA Infectious Disease Research Alliance (TOKKU)
8	Lorato Modise, Bontle Motsoedi, Khutso Mothapo, Gloria Selabe Sefako Makgatho Health Sciences University, South Africa	Investigation of Hepatitis C Virus and Hepatitis E Virus in Cerebrospinal Fluid of Patients Tested Positive for Human Immunodeficiency Virus and SARS-COV-2 in Dr. George Mukhari Academic Hospital, Pretoria in 2020-2021.
9	Faadiel Essop Division of Medical Physiology, Faculty of Medicine and Health Sciences, Stellenbosch University, South Africa	Establishing a Rat Model of Chronic stress: An Analysis of Oxidative Stress
10	Saheed Sabiu, Jamiu Olaseni Aribisala Department of Biotechnology and Food Science, Faculty of Applied Sciences, Durban University of Technology, South Africa	Cheminformatics Identification of Phenolics as Modulators of Penicillin Binding Protein-3 of Pseudomonas Aeruginosa Towards Interventive Antibacterial Therapy
11	Jabulani Ray Gumbo University of Venda, South Africa	Cyanobacteria in Water Sources: Implications for Public Health: A review
12	Natalie Ann Gordon Faculty of Dentistry, University of the Western Cape, South Africa	Oral Health Practices of Community Health Workers in a Primary Health Care Setting in South Africa
13	Londeka Nokulunga Phakathi Durban University of Technology, South Africa	Chiropractic Manipulation and Mobilization for Postpartum Low Back Pain: A Systematic Review

2. Security and social justice (13+1 short presentation)

	Authors	Presentation title
	Chair: Prof. Motoki TAKAHASHI & South African side	
1	Ndanganeni F. Litshani, Takalani S. Mashau University of Venda, South Africa	Attribute of Corporate Volunteerism as an Aspect of Citizenship: A Corporate Social Responsibility Perspective
2	Mamaleka Mmaphuti University of Venda, South Africa	Literal Poverty or Poverty of the Mind? An Examination of How Indigenous Ways Could be Used to Curb Poverty in the 21st Century
3	Takalani S. Mashau, Ndanganeni F. Litshani University of Venda, South Africa	Investigation of Student Well-Being and Success in the South African Rural-Based University
4	Ayanda Simayi Nelson Mandela University, South Africa	Imperatives of Culturally Responsive Strategies in Teaching Taboo Science Sexual Concepts in Rural South African Secondary Schools
5	Tadues Thamsanqa Mahlobo Stellenbosch University Japan Centre, South Africa	Public Diplomacy with Soft Power and its Role in Education: A Comparative Study on African Participants in Sino-Japanese International Education Programs
6	Ann Skelton1, Mikiko Otani2 1. University of Pretoria, South Africa 2. Soka University, Japan	Towards Inter-Generational Justice in an Inter-Connected World: Climate Change and Children's Rights
7	Zukiswa Nzo Waseda University, Japan	Exploring a case for a disability economic empowerment inequality index in the context of South Africa and Japan
	Chair: Dr. Chizuko SATO & South African side	
8	Emma Ruiters Nissan Institute of Japanese Studies, University of Oxford, United Kingdom	Rising Japanese Foreign Direct Investment in the Digital Economy of African Countries
9	Michael Kilumelume1, Rulof Burger1, Dieter von Fintel1, Mariles Piek1, Seiro Ito2 1. Stellenbosch University, South Africa, 2. Institute of Developing Economies, Japan	Agricultural producer responses to minimum wage changes
10	H. V. Mbhatsani (Presenting Author), Baloyi B, Mogalu MC, Netshifhefhe T University of Venda, South Africa	Food Security Status Amongst Students Registered at the University of Venda
11	Denis Bwire, Hirotaka Saito, Kenichi Tatsumi United Graduate School of Agricultural Science, Tokyo University of Agriculture & Technology, Tokyo Japan	Climate Smart Water and Soil Management Strategies for Achieving Food Security in Africa

12	Naushad Emmambux University of Pretoria	Neglected and Underutilized Plant Species for Sustainable Nutrition, Livelihoods and Resilience to Climate Change in Western Africa
13	Bianca N Mkhize-Simelane1, P. van der Merwe, Luiza de Sousa 1. Department of Tourism and Events Management, Central University of Technology, South Africa	Entomophagy Tourism: The Panacea for Food Insecurity and Poverty
14	Chizuko Sato, Kumiko Makino, Akiyo Aminaka Institute of Developing Economies (IDE-JETRO), Japan	Current and Past Research Interests on Southern Africa at the Institute of Developing Economies (IDE-JETRO), Japan

3. Growth, exploration, and conservation (12)

	Authors	Presentation title
	Chair: Prof. Takahiro MORIO & South African side	
1	Seunghun J. Lee1, Crous M. Hlungwani2 1. International Christian University, Japan 2. University of Venda, South Africa	Showcasing remote collaboration in linguistic research
2	William Tait MacDonald1, Jacqueline Akhurst2 1. University of Nagasaki, Japan 2. Rhodes University, South Africa	Using Wearables to Investigate Stress and Language Learning
3	Russell H. Kaschula, Monwabisi K. Ralarala University of the Western Cape, South Africa	Positioning the Study of Forensic Linguistics in South Africa and on the African Continent
4	Takahiro Morio University of Tsukuba, Japan	Imagine and Create the Future Through Making Manga Stories
5	Farai Kapfudzaruwa University of Pretoria, South Africa	Reflections on the effectiveness of virtual engagements in facilitating collective learning, empowerment, and co-innovation amongst South African and Japanese agribusiness entrepreneurs
6	Sithembile Innocentia Nkosi, Ikpomwosa David Ighodaro Mangosuthu University of Technology, South Africa	Solving Practical Needs of Communities Through University-Community Engagement: The Case of Wetland Rehabilitation and Restoration at Amandawe Community, Kwazulu-Natal (KZN) Province
	Chair: Prof. Hiroshi OGASAWARA & South African side	
7	Tomohiro Kambayashi Cross-border Postdoctoral Fellow, Japan Society for the Promotion of Science, Japan	Epic Collaboration: Mazisi Kunene and Japanese Anti-apartheid Activists
8	Daichi Shimizu University of Tsukuba, Japan	Alternative Development Model for Sustainability: Communal Development Perspective from Ubuntuism
9	Hiroshi Ogasawara1, Yasou Yabe2, Raymond Durrheim3 and Musa Manzi4 1. Ritsumeikan University, Japan 2. Tohouku University, Japan 3. University of the Witwatersrand, South Africa 4. University of the Witwatersrand, South Africa	Studies of Earthquakes and Deep Life in Deep South African Gold Mines
10	Julio C. Castillo1, A. Gómez-Arias1, J. Alom1, D. Nisson2, T. Kieft3, Y. Suzuki4, A. Urai5, H. Ogasawara6	Life in a Hypersaline Subsurface Ecosystem Analogous to Subsurface Martian Environments

	1. University of the Free State, South Africa 2. Princeton University, USA 3. New Mexico Institute of Mining and Technology, USA 4. University of Tokyo, Japan 5. Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Japan, 6. Ritsumeikan University, Japan	
11	Ncube Lindani, van Niekerk J. Helena, Zhao Baojin, Gan Shengfei, Rasmeni K. Sonwabile and Mkonde A. Akhona University of South Africa (UNISA), South Africa	Petrography and Geochemistry of Sandstones of the Permian Vryheid Formation, Highveld Coalfield of South Africa: Implications for Provenance, Palaeo-Weathering and Palaeo-Redox Conditions
12	Hajime Ikeda, L. Cheng, F. Kolade, B. Sinaice, T. Adachi, Y. Kawamura Graduate School of International Resource Sciences, Akita University, Japan	Study on Wi-Fi Direct for Implementing Smart Mining into Underground Mines in South Africa

Poster only (2)

	Authors	Presentation title
1	Shuichiro Masukata Tokyo University of Foreign Studies, Japan	Emerging Powers' Cooperation for Energy Transition: Boosting the South Africa-Brazil Strategic Partnerships
2	Kumiko Makino Institute of Developing Economies (IDE-JETRO), Japan	Japanese Anti-apartheid movements at the intersection between Western and Afro-Asian contexts

BOOK OF ABSTRACTS

- Open Collaboration and Innovation with Trust -

South Africa – Japan University Forum

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ACKNOWLEDGEMENTS

The following organizations are thanked for their support for the 2022 SAJU Forum. In particular Universities South Africa (USAf) for their financial contributions.

JAPAN
Ministry of Education, Culture, Sports, Science and Technology (MEXT)
Ministry of Foreign Affairs (MOFA)
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University of Tsukuba
Tokyo University of Foreign Studies
Japan Agency for Medical Research and Development (AMED)
Japan International Cooperation Agency (JICA)
Japan Science and Technology Agency (JST)
Japan Society for the Promotion of Science (JSPS)
Japan External Trade Organization (JETRO)
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Study in Japan Global Network Project in Sub-Saharan Africa

SOUTH AFRICA
Embassy of South Africa in Japan
Department of Science and Technology (DST)
National Research Foundation (NRF)
Universities South Africa (USAf)
Technology Innovation Agency (TIA)
Business Unity South Africa (BUSA)
Toyota Tsusho Corporation (TTC)

PREFACE

We are very happy to organise the 5th South Africa-Japan University Forum (SAJU Forum) Conference online. The objective of the Forum is to establish a firm and sustainable platform for academic collaboration among the stakeholders from South Africa and Japan.

The Conference has been organised with the theme: **Open Collaboration and Innovation with Trust**. The recent explosion of the internet has drastically changed the way of communication. This has resulted in false information and extreme ideas with no scientific basis spreading around the world in the blink of an eye, creating division and distrust amongst people, distrust of science, distrust of democracy and so on. In addition, the isolation and frustration of people due to the COVID-19 pandemic may, in a sense, have accelerated this trend.

Under these circumstances, we in academia and related sectors must once again rebuild and continue open and innovative collaboration based on mutual trust, which is why we have set this theme.

In the two days, the following plenary lectures and panel discussions are planned, Perspectives and challenges towards open academic cooperation with trust, Lessons from experiences of bilateral research cooperation, Research Funding Mechanism, Cooperation Beyond Academia and Platforms for Academic Networking.

The parallel oral presentation and online poster session are made under three subthemes,
- Health and Wellness
- Security and Social Justice
- Growth, Exploration and Conservation

More than 40 abstracts from South Africa and Japan including the joint research between the two countries will be presented.

In order to contribute to the promotion of exchanges between the next generation of young people, the student's session is newly organized, where the students from South Africa and Japan discuss "Technologies of (dis)Trust and Transformation: South African and Japanese students' experiences of exchange and change through a pandemic in the era of misinformation."

We hope that the Conference will help to catapult South Africa – Japan collaboration to further levels.

LIST OF ACRONYMS

AMED	Japan Agency for Medical Research and Development
BUSA	Business Unity South Africa
CSIR	Council for Scientific and Industrial Research (South Africa)
DHET	Department of Higher Education and Training (South Africa)
DIRCO	Department of International Relations and Cooperation (South Africa)
DSI	Department of Science and Innovation (South Africa)
IDE-JETRO	Institute for Developing Economics, Japan Trade External Organization
IEASA	International Education Association of South Africa
JAAN	Japan-Africa Academic Network
JAMSTEC	Japan Agency for Marine-Earth Science and Technology
JICA	Japan International Cooperation Agency
JSPS	Japan Society for the Promotion of Science
JST	Japan Science and Technology Agency
METI	Ministry of Economy, Trade and Industry (Japan)
MEXT	Ministry of Education, Culture, Sports, Science and Technology - Japan
MOFA	Ministry of Foreign Affairs of Japan
NRF	National Research Fund (South Africa)
SATREPS	Science and Technology Research Partnership for Sustainable Development
TIA	Technology Innovation Agency
TICAD	Tokyo International Conference on African Development
TTC	Toyota Tsusho Corporation (Japan)
TUFS	Tokyo University of Foreign Studies
USAf	Universities of South Africa

THEMATIC AREA 1: HEALTH AND WELLNESS

Cultural Policies and Knowledge Circulation after Regime Change: A Cross-Border Case of Chopi's Timbila between Mozambique and South Africa

Akiyo AMINAKA and Matchume ZANGO

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This study aims to inductively reveal how intangible traditional performing arts have confronted various policy interventions and maintained their characteristics. Cultural policy is a policy intervention of the state in society through culture, however, its impact does not confine to the geographical and temporal range envisaged by one country's policymakers, and the target culture continues to transform. Against the background of the growing interest in new cultural policy since the 1990s seeing culture as capital, as represented in David Throsby's work The Economics of Cultural Policy, this study aims to capture the new dynamics of cultural transformation that transcend the range of cultural policy. The conception of this study involves a cross-regional research interest in capturing the impact of the Cold War cultural policies in Southern Africa and East Asia in parallel. The study focuses on the case of performing art of timbila (xylophone), an intangible traditional culture of the Mozambican ethnic group, Chopi, who regularly migrated between the two countries as a part of contract migrant workers to the South African mining industry. It aims to examine; (1) The ethnic division policy in workplace under the apartheid regime. (2) The de-ethnicization and national integration policy under the socialist regime. (3) The transformation of traditional performing arts by combining the opposing elements of these policy interventions. (4) The practice of regional reflux of knowledge on traditional performing arts in contemporary Southern Africa. The methodologies employed to address these issues are (1), (2) archival research, oral history collection, and textual analysis of the archival material. For (3), an analysis of the musical works themselves, and for (4), interviews with those involved about practical initiatives incorporating elements of traditional performing arts at the South African College of

Music, University of Cape Town. The paper explores the case study as an emergent phenomenon of de-unilateral and complementary reconstruction of regional identity.

Keywords: Cultural policy, migration, South Africa, Mozambique, timbila

Biography:

Dr Akiyo AMINAKA
Researcher, Area Studies Centre,
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Akiyo Aminaka has been involved with studies related to migration and socioeconomic change in Mozambique and South Africa. Currently she has recently been taking part in research projects on social protection of migrants, African states, constitutional changes, and characteristics of "knowledge" among African youths.

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The impact of structural inequality in state responses to the Covid-19 pandemic – A South Africa case study

Chris Tapscott

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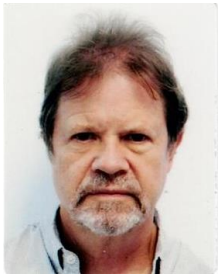
As a legacy of its past and as a consequence of shortcomings in its social policies in the post-apartheid era, South Africa was ill-prepared for the onset of Covid. Large numbers of people live in densely populated informal settlements with inadequate access to basic services such as public health and water. In addition, high numbers of people live with compromised immune systems (from HIV/AIDS, Tuberculosis, diabetes, and cerebrovascular diseases) and this was a key factor in determining the government's strategy in combating the virus, namely that of "saving lives and preserving livelihoods" (Ramaphosa, 2020). Whilst the focus on saving lives met with initial popular support, little official attention was paid to resolving the paradox of preserving public health and sustaining growth in a highly dualistic economy. The lockdowns introduced at various stages of the pandemic were applied in equal measure to all citizens. However, in one of the most unequal countries in the world, it was inevitable that these measures would impact different strata of the population in different ways. Those more affluent, with access to public health, to the internet and other assets and resources weathered the Covid storm, albeit not always without difficult. In contrast, the poor in great numbers lost their livelihoods and continue to suffer as a result. The impoverishment brought about by the pandemic is acknowledged to have been one of the triggers of an attempted insurrection and the outbreak of mass looting in 2021, prompting many commentators to question whether the preventative measures introduced were not worse than the disease itself.

Keywords: structural inequality, health-economy paradox, Covid-19, South Africa

Biography:



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Possibilities of Social Enterprises for South Africa's Better Future? - Lessons from SPARK Schools

Fumihiko Saito

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Since limitations of capitalism have become apparent, there has recently been initiatives to seek alternative economies. It is important to address how social and solidary economy (SSE) can contribute to realize more sustainable South Africa (SA) in the future. Although apartheid ended in 1994, SA still suffers from ill-legacies of the past. This situation presents both opportunities as well as challenges for SSE to be nurtured. Social enterprises (SEs) have recently been playing prominent roles, and the government of SA is now adopting the policy of social economy. This presentation uses SPARK School, established in 2012, in Johannesburg as a case study. The School adopts a customized hybrid model of computer-assisted online activities with face-to-face learning. This model is also enabled by sustainable financing. The SPARK Schools have become very popular among middle- and lower-middle income families, and the School is now the third largest private school network in SA. While the COVID-19 pandemic seriously hit the country, the Schools have succeeded in maintaining scholastic performances due largely to consolidated collaboration among teachers, pupils and parents. This impressive result presents a sharp contrast with national trends that unfortunately show significant pupil dropouts. The pandemic also highlighted the importance of policy dialogue among stakeholders. Even if public-private collaboration is far from easy, it has a potential to realize inclusive as well as sustainable community, which is much needed in the post-Apartheid SA. The SA experiences generate key lessons for us all who would like to see our life-world having a sense of purpose.

Keywords: social and solidary economy (SSE), social enterprises (SEs), SPARK School, COVID-19, stakeholder collaboration, policy dialogue.

Biography:

Fumihiko Saito
Professor
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Before joining the University, Fumihiko worked at UNDP in Bangladesh and Uganda for two and half-year each. At Ryukoku, he has been researching mainly on international development and sustainability studies. Special emphasis is placed on the complex trajectories of poverty, equity and social justice.

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Do Sports Clubs Contribute to Community Wellness? An Empirical Study of One Spot Club's Experience in Japan.

Yuichi ANDO[1,2,3], Sanpei OHAMA[2], Atsuko OHAMA[2], Nanako TAMIYA[3], Hideki YAMAMOTO[3,4]

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Background: Community wellness is an important factor in people's well-being, along with physical and mental health. This presentation will introduce the experiences of Smile Club, a non-profit organization sport club with a wide range of members, and discuss the potential of sports clubs to contribute to the wellness of the community.

Results of Activities: Smile Club, located in Chiba Prefecture, started exercise classes for children with developmental disabilities and volleyball classes as a voluntary organization in 1998 based on the philosophy of "encouraging people to enjoy sports, maintain good health, and lead better lives regardless of age, gender, or disability. The club has since been expanding its business while increasing the number of locations. The main projects and the number of participants in FY2019 are as follows: 1) Classes for children who are not good at exercise (exercise classes for children and adults with developmental disabilities) 200 participants (once a week at each facility); 2) Sports classes (volleyball 162 participants, badminton 84 participants, basketball 37 participants) (once a week per facility); 3) Infant gymnastics classes (37 participants) (once a week per facility); 4) After school day services (child development support: individual exercise classes, held daily) 192 participants; 5) Catering classes: total 34 times, 12~600 participants per class.

Conclusion: The experiences of the Smile Club show that local sports clubs have the potential to contribute to the individual wellbeing and community wellness for many residents, including those with disabilities.

Keywords: Sport club, Community wellness, Disability inclusion, Physical activity

Biography:

Yuichi Ando, M.D., Ph.D.
President, Institute of Global Medical and Sports Science Japan
Tokyo, Japan

In 2015, he founded the Inst. GMSS, where he practices and conducts research on social wellness. Before starting it, he worked as a surgeon in Tokyo, US, and Ivory Coast. Publications: Sport for Peace and Development: Perspectives of the United Nations (UN): Volume 1: United Nations involvement, decisions and initiatives.

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Shearing the experience of Cattle-related injuries in Japan. - For Occupational health in livestock industry of Africa -

Hilomi IWAI[1], Hideki Yamamoto[1,2]

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Cattle are closed to our life and culture in Africa and Japan. And in some African region, cattle are important assent. We treasure cattle as assent, food, and labour for long time. However, occupational health in livestock industry is still poor. We need to deal with it more seriously for livestock industry's sustainability. Though cattle are looks genial, they are large herbivore. In Hokkaido Japan, cattle are significant factor in 84.3% of livestock-related accident. The specific countermeasures to respond to its characteristics are needed because cattle move as they like. This study aims to consider farmer's occupational health according to the cattle-related injuries in Japan. Authors examined the JA Kyosai mutual aid payment claim form data of the agricultural work-related accidents that occurred from 1st January 2013 to 31st December 2016. In these four years, there were 227 cattle-related accidents, and all were non-fatal cases. The most common age group of victims were in their 60s (37.9%). The Therapy duration was 1 to 243 days, with one day being the most common (10.1%); however, in 51.5% of the cases it required more than 30 days. The most common Operation at the moment of the accident was 'bringing' (22.5%), of which 'leading the cattle by rope' (56.9% of bringing) was most frequently mentioned. Even farmers with vast experience with cattle cannot control cattle proficiently. Since prevention of accidents has limits, harm reduction to farmers must be considered. Not only productivity but occupational health must be improved at the same time.

Keywords: Occupational health, Agriculture, Livestock, Cattle-related injuries, Japan

Biography:

Ms Hilomi IWAI
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Since joining the Teikyo University, IWAI has been involved with studies related to occupational health and the livestock industry. Before joining University, IWAI took graduate courses in public health and worked at some pharmaceutical company as a junior researcher.

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Establishing a BSc (Hons) (Medical Physiology) module focusing on a humanities-rooted science context and approach

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Many research scientists view their discipline as ‘’neutral’’ and devoid of any socio-political and historical contexts. This became evident during the Covid-19 pandemic where scientific facts mattered less in terms of shaping public opinion. Thus, there is a gap in the instruction of research scientists to be better trained to operate within the ‘’post-truth’’ world. A unique *Features of Science* module was therefore conceptualized and introduced as part of a BSc (Hons) one-year postgraduate degree program. The module curriculum was constructed, and the course content covered with BSc (Hons) students. Design principles rooted in authentic, self-reflective, and transformative learning theories were employed to enable a transformative teaching and learning experience. The module provided insights into the scientific process and knowledge production, its applications, and focused on the role of socio-politico-cultural and neoliberal economic factors in this instance. Student assessments included the completion of self-reflective journals, group presentations and an essay on a related, open-ended question. Student feedback was assessed by completion of an anonymous survey and a thematic-type analysis (anonymous) of their self-reflective journals. Feedback indicated that students found the subject content interesting and relevant, and that the safe and brave spaces allowed for different viewpoints to be freely expressed. The Socratic-type discussions in classes were well received and students indicated that it added considerable value to their learning experience. They also felt that the module enhanced their understanding of the complexity of the scientific process, while raising their awareness of humanity, empathy, and social justice. Our findings indicate that the *Features of Science* module can be successfully implemented within the Physiology higher education context and in other STEM environments, and that it may assist to produce science graduates that are well equipped and trained to handle (and lead) some of the contemporary, societal challenges facing humanity.

Keywords: Medical Physiology; Curriculum renewal; Postgraduate honors students; Post-truth world; Scientific process; Design-based research.

Biography:

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Prof. Faadiel Essop is the Director of the Centre for Cardio-metabolic Research Centre in Africa at Stellenbosch University. He is a Fulbright fellow, current President of the African Association of Physiological Sciences, a council member of the International Union of Physiological Sciences, and an elected Fellow of the American Physiological Society.

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DEJIMA Infectious Disease Research Alliance (TOKKU)

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2 DEJIMA Infectious Disease Research Alliance, Nagasaki University, Japan

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At Nagasaki University, five departments have vigorously promoted infectious disease research: the Institute of Tropical Medicine, the National Research Center for the Control and Prevention of Infectious Diseases, the School of Tropical Medicine and Global Health, the Graduate School of Biomedical Sciences, and the University Hospital. Along with the BSL-4 facility constructed in 2021 and overseas research centers in Asia and Africa, a research environment for all infectious diseases prevalent worldwide has been established. On the other hand, decentralization of functions due to independent operations had become an issue. In April 2022, the University launched the "DEJIMA Infectious Disease Research Alliance (TOKKU)" as a mechanism to enable the integrated operation of research resources dispersed throughout the University involving non-medical departments such as the Faculty of Information and Data Science. In the case of an emergency, the TOKKU will serve as a platform for pathogen analysis, clinical research, and the rapid development of therapeutic drugs and vaccines to provide a top-down emergency response. In addition, as an initiative to encourage the development of human resources for the infectious disease research not only at our University but also in Japan as a whole, we will also establish a "Researcher Mobility Program" that allows faculty members from domestic universities to conduct researches at the TOKKU (for about five years) while retaining their status at universities to which they were affiliated, and return to their original universities after the completion of the program. This system is expected to improve the research capability of our University and also to improve Japan's research capability in infectious diseases by creating a foundation to utilize our University's unique research resources in tropical medicine and emerging infectious diseases nationwide over a long period and to promote the development of the next generation of infectious disease researchers with a broad academic perspective.

Keywords: Infectious disease, BLS-4, Research organization, vaccine development

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He joined Nagasaki University from the National Cancer Center Research Institute in 2005 to establish a Kenya Research Station in Nairobi. Since then, he has continued his research on public health in Africa with a focus on Kenya. From 2022, he will also work as the Vice Dean of the Institute of Tropical Medicine, Nagasaki University.

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INVESTIGATION OF HEPATITIS C VIRUS AND HEPATITIS E VIRUS IN CEREBOSPINAL FLUID OF PATIENTS TESTED POSITIVE FOR HUMAN IMMUNODEFICIENCY VIRUS AND SARS-COV-2 IN DR. GEORGE MUKHARI ACADEMIC HOSPITAL, PRETORIA IN 2020-2021.

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Introduction: Hepatitis C and Hepatitis E virus are a global health problem. Enterically transmitted Hepatitis E is believed to be associated with limited lack of good hygiene which might lead to fecal-oral transmission. While HCV is usually transmitted through infected blood. Both viruses, HCV and HEV can cause hepatocellular inflammation, liver cirrhosis, and hepatocellular carcinoma (HCC) in more severe cases. Neurotropism by both HCV and HEV viruses have been reported in the cerebrospinal fluid (CSF).

Aim: To investigate the prevalence of HCV and HEV in CSF of HIV and SARS-Cov-2 co-infected patients admitted at Dr. George Mukhari Academic Hospital (DGMAH) during 2020 and 2021.

Methodology: This was a descriptive study and consisted of 57 CSF samples collected from HIV and SARS-Cov-2 co-infected patients. Serum samples were subjected to extraction of RNA, cDNA synthesis for both viruses and PCR using specific primers targeting ORF2/ORF3 for HEV and those targeting the NS5B for HCV were used.

Results: HEV RNA was detected in 40% (23/57) of the HIV-positive CSF samples tested. While HCV RNA was not detected in any of the CSF samples tested 0% (0/57). There was no significant difference in CSF HEV RNA positivity and/or negativity when stratified by age, sex, ethnicity, CD4 count, as well as HIV viral load ($P \geq 0.7$, $P \geq 0.9$, $P \geq 0.087$ and $P \geq 0.2$ respectively).

Conclusion: HEV is more prevalent in the CSF of HIV-infected patients admitted at the DGMAH, while HCV was not found. Our finding necessitates studies to further

understand the diagnostic meaning of HEV RNA in CSF of HIV-infected patients in order to better manage neurological disorders in these patients.

Keywords: Hapatitis E Virus, SARS-Cov-2, HIV, cerebrospinal fluid, Neurological disorder

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I am currently a post-doctoral research fellow at the Sefako Makgatho Health Sciences University 2021; I have been involved with my occult hepatitis b infection post-doc research project. My other duties include teaching, mentoring, training and research supervision of medical student's research on hepatitis, HIV and SARS-Cov-2. I have expertise in medical science research and cell and molecular diagnosis, in vitro, bioinformatics and statistical analysis.

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Establishing a rat model of chronic stress: an analysis of oxidative stress

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Chronic psychosocial stress is implicated in the onset and progression of non-communicable diseases, and mechanisms underlying this relationship include alterations to the intracellular redox state. However, such changes are often investigated in isolation, with few studies adopting a systems level approach. Here, male Wistar rats were exposed to 9.5 weeks of chronic unpredictable mild stress and redox status assays were subsequently performed on cardiac, hepatic and brain tissues versus matched controls. The stressed rats displayed an anxious phenotype, with lowered plasma corticosterone levels ($p = 0.04$ vs. controls) and higher plasma epinephrine concentrations ($p = 0.03$ vs. controls). Our findings showed organ-specific redox profiles, with stressed rats displaying increased myocardial lipid peroxidation ($p = 0.04$ vs. controls) in the presence of elevated non-enzymatic antioxidant capacity ($p = 0.04$ vs. controls). Conversely, hepatic tissues of stressed rats exhibited lowered non-enzymatic antioxidant capacity ($p < 0.001$ vs. controls) together with increased superoxide dismutase (SOD) activity ($p = 0.05$ vs. controls). The brain displayed region-specific antioxidant perturbations, with increased SOD activity ($p = 0.01$ vs. controls) in the prefrontal cortex of the stressed rats. These findings reveal distinct stress-related organ-specific vulnerability to redox perturbations and may provide novel insights into putative therapeutic targets.

Keywords: Chronic stress; Rat model; Oxidative stress.

Biography:

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Prof. Faadiel Essop is the Director of the Centre for Cardio-metabolic Research Centre in Africa at Stellenbosch University. He is a Fulbright fellow, current President of the African Association of Physiological Sciences, a council member of the International Union of Physiological Sciences, and an elected Fellow of the American Physiological Society.

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CHEMINFORMATICS IDENTIFICATION OF PHENOLICS AS MODULATORS OF PENICILLIN BINDING PROTEIN-3 OF *PSEUDOMONAS AERUGINOSA* TOWARDS INTERVENTIVE ANTIBACTERIAL THERAPY

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Antibacterial resistance to β-lactams has been attributed to alterations in penicillin binding proteins (PBPs) coupled with β-lactams' inactivation by β-lactamase. Consequently, identification of a novel class of therapeutics with improved modulatory action on the PBPs is imperative and plant secondary metabolites, including the phenolics, have found relevance in this regard. In this study, phenolics were computationally evaluated against PBP3 of *Pseudomonas aeruginosa*, a superbug implicated in several nosocomial infections. In doing this, a library of phenolics with affinity for PBP3 of *P. aeruginosa* was screened using structure-activity relationship-based pharmacophore and molecular docking approaches. Subsequent screening of the top 5 phenolics (C1 – C5) with more drug-likeness attributes, feasible synthetic accessibility, and less toxicity characteristics was achieved through molecular dynamic (MD) simulation to understand their flexibility, compactness, and stability upon binding to PBP3 over a 120 ns evaluation period. Except for C1, all the hit phenolics had significantly higher negative free binding energy than cefotaxime (-18.72 kcal/mol), with C2 having the highest affinity (-28.99 kcal/mol) for PBP3. All the hits were stable at the active site of the protein with C2 being the most stable (2.14 Å) and established important interactions with Ser294, implicated in the catalytic activity of PBP3. Furthermore, following binding of the hit phenolics, PBP3 became more compact (bound: 29.90 Å Vs unbound: 30.39 Å) with less fluctuation (bound: 0.95 Å Vs unbound: 1.23 Å) of the active site amino acid residues. These observations are indicative of the potential of the test compounds as PBP3 inhibitors, with

C2 being the most prominent of the compounds that could be further improved for enhanced druggability against PBP3 *in vitro and in vivo*.

Keywords: Phenolics, β-lactam antibiotics, Structure-based pharmacophores, Molecular docking, Molecular dynamic simulation.

Biography:

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Since joining the Durban University of Technology (DUT) as a Senior Lecturer in 2019, Saheed has been involved with computational and systems biology studies related to drug discovery and development. Before joining DUT, he was a postdoctoral fellow at the University of the Free State NGS Unit.

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Cyanobacteria in Water Sources: Implications for Public Health: A review

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Study 1: The Presence of Toxic and Non-Toxic Cyanobacteria in the Sediments of the Limpopo River Basin: Implications for Human Health. The study involved molecular techniques targeting the 16S rRNA gene and flowcam. The study showed the presence of genes expressing toxicity in the river sediments collected in the Limpopo River basin. The dominant cyanobacteria was *Microcystis* species, followed by *Raphidiopsis raciborskii, Phormidium and Planktothrix* species and were confirmed using molecular techniques. The presence of toxic cyanobacteria in the river sediments may be harmful to humans, livestock and wildlife.

Study 2: Occurrence of Cyanobacteria and Microcystin variants in Musina Raw Water Supply and Limpopo River Sediment, South Africa. Water & sediment samples were collected from Musina raw water supply and Limpopo river. The study showed the presence of *Oscillatoria, Microcystis* and *Planktothrix* as conformed by FlowCam and scanning electron microscope. The HPLC-PDA showed the dominant presence microcystin LR 47ppb and YR27ppb in levels in excess of WHO guidelines values. These high levels of microcystin LR are harmful to humans.

Study 3: The Quality of Water Sources of Two Towns in Arid Region During a Drought Year: A Study of Musina & Beitbridge Towns. Southern Africa experienced a severe drought in 2016. The samples were collected from Musina and Beitbridge towns' water taps and the raw water supplies. The molecular techniques showed the presence of *cyr* genes expressing toxicity for the cylindrospermopsin toxin in both the Limpopo weir and sediment samples. The Musina water tap showed the presence of genes expressing toxicity, while the Beitbridge water tap was free of these genes expressing toxicity. Thus, the presence of these genes is worrisome since they are a likelihood of contamination of the drinking water.

Study 4: Occurrence of cyanobacteria in water used for food production. The grinding of maize seeds to produce maize meals is an occurrence that happens in rural

communities all the time. However, the use of contaminated water with the presence of cyanobacteria is worrisome. Here the water is mixed with maize seeds to soften the seed and produce a fine mealie meal for human consumption. This study is ongoing and will report of the actual results.

Keywords: cyanobacteria, toxic and non-toxic species, cyanotoxins, human health, drinking water, sediments

Biography:

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He has supervised 4 PhD and 17 Masters students from Universities of Venda, Zimbabwe and Pan African University, Institute of Water and Energy Sciences including Climate Change, University Abou Bekr Belkaid. Published 45 peer reviewed journal articles, 46 peer-reviewed conference proceedings and 5 book chapters and has registered 4 patents.

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Oral health practices of community health workers in a primary health care setting in South Africa

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Research question: Do community-health workers (CHWs) have adequate oral health practices and knowledge to maintain their oral health? *Background*: CHWs are core to the outreach component of the primary health care approach in South Africa. Their inclusion in the health care system is intended to promote health on a community level and increase access to health care, by forming the link between health facilities and the community. Oral health is not explicitly included in their role even though oral health is integral to health and wellbeing. *Purpose:* To enquire about the oral health related practices of CHWs in order to guide subsequent oral health interventions for CHWs. *Methodology*: A survey for a sample of CHWs in a district in a province in South Africa was done. One aspect of the survey enquired about oral health practices, attitudes and knowledge. *Results:* Most (98%) of respondents brushed their teeth at least once a day, 63% used a fluoridated toothpaste and 19% visited a dentist in the past two years-primarily for pain relief (43.9%). 50%-58% rated their teeth and gums respectively as good to excellent. Respondents who brushed their teeth less than twice a day had a significantly less positive attitude towards their gum ($p<.001$) and tooth ($p<.05$) health. 19.5% of respondents complied with minimum acceptable dental practices. Only 20% knew the causes of dental problems identified in the communities that they worked in. *Conclusion:* The oral health practices and knowledge of CHWs in this study are not adequate to maintain their oral health. If oral health is to be made a priority within the primary health care system, addressing the knowledge, attitude and skills regarding personal oral health of CHWs should be core to such an intervention.

Keywords: community-health workers, oral health, oral practices, attitudes, primary health care

Biography:

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Natalie teaches in the oral hygiene and dentistry programs. She has an interest in curriculum development, clinical teaching and assessment and oral health promotion, also her research interest. She is doing a PhD on primary oral health care within the primary health care system in a district in South Africa.

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Chiropractic manipulation and mobilisation for postpartum low back pain: a systematic review

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Low back pain is a common global problem and has been the leading cause of years lived with disability since 1990. Postpartum low back pain (PLBP) is very common, affecting between 33% to 75% of women in varying intensity, and can range from moderate to severely debilitating pain. Previous studies have investigated and reported evidence on the effectiveness of chiropractic treatment for postpartum low back pain. Chiropractic mobilisation and manipulation are reported as the most effective treatment modalities. To locate published work, the researcher will employ the following electronic databases: Google Scholar, Pubmed, Medline, Proquest Health and Medical Complete, EBSCO (CINAHL), Cochrane Library, Cochrane Central Register of Controlled Trials (CENTRAL) and Index to Chiropractic Literature (ICL). A qualitative paradigm using the Cochrane systematic review approach will be used to ensure the impact of bias is reduced. The PICO framework (Patient/Problem, Intervention, Comparison and Outcome) will be employed to generate a focused research for this study, thereby identifying the key concepts for an effective search strategy. The objective of the present study is to ascertain whether manipulation and mobilisation can be considered as beneficial treatment modalities for PLBP. The aim of the study is to attain this information through a systematic review of studies, which will help the researcher identify, evaluate and consolidate existing evidence on the clinical efficacy of chiropractic manipulation and mobilisation as beneficial treatment for PLBP.

Keywords: Efficacy, Manipulation, Mobilisation, Postpartum low back pain, Pelvic Girdle pain

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THEMATIC AREA 2: SECURITY AND SOCIAL JUSTICE

Attribute of Corporate volunteerism as an aspect of citizenship: A corporate social responsibility perspective

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The focus of this paper is one of South Africa's higher education institutions, whose strategic plan is informed by nine institutional values, including social responsibility. Corporate volunteering can reinforce a positive workplace culture in the workforce, higher education sector. When students and employees work without expecting compensation but instead aim to promote others' well-being, the learning and working environment is improved. Given that everyone has a natural urge to give back, higher education institutions need to provide chances for students, support staff, lecturers, and managers to fulfil their civic duty. Therefore, we continue to investigate whether the institution offers these possibilities to encourage corporate volunteerism among its staff. To get information from students, staff members, lecturers, and management, focus groups are sought. Data will be analysed using themes. It is believed that the results would help to provide corporate volunteer opportunities.

Keywords: corporate volunteerism, corporate social responsibility, citizenship, higher education institution

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Ndanganeni Florence Litshani, known as Kelly, is a Senior Lecturer in the department of Educational Studies, in the faculty of Humanities, Social Sciences and Education, at the University of Venda, Limpopo, South Africa. She holds a Doctor of Education degree from the Rand Afrikaans University (now UJ). Dr Litshani is a teacher by profession. She has taught in several education institutions for the past 39 years. Her passion is in leadership, management, and governance research projects. She has supervised extensively Honours, Master, and Doctoral students who specialised in Educational Management to completion.

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Literal poverty or poverty of the mind? An examination of how indigenous ways could be used to curb poverty in the 21st century

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South Africa experiences serious challenges such as live catastrophe which leads to many families living in poverty. The downfall of the country's economy aggravates the situation by inflating commodities that are essential for human survival. Poverty is ongoing and affected many people and their families. This problem challenges social work as a profession that deals with the well-being of vulnerable groups including families that lives in poverty-stricken environments. The question to be asked is "is the poverty literal or is the poverty of the mind? The main research question guiding this paper is: what strategies did our forebears use to survive the impoverished conditions of their time. Qualitative research will be used to conduct purposive face-to-face interviews with the old generation to hear their views that can guide social work practice. The purpose of this paper is to explore possible ways to alleviate poverty in communities through the power of the mind. The results will assist in developing strategies to alleviate poverty guided by the indigenous knowledge shared.

Keywords: Poverty, Mind, Strategies, Indigenous knowledge, social

Biography:

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Dr. Mamaleka is a social work lecturer at the University of Venda(UNIVEN). She worked as a supervisor with the Department of Social Development before joining UNIVEN in 2014. She teaches supervision and management in social work and fieldwork. Her areas of interest are parenting, indigenous knowledge, and supervising students' research.

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INVESTIGATION OF STUDENT WELL-BEING AND SUCCESS IN THE SOUTH AFRICAN RURAL-BASED UNIVERSITY

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This is a case study of one of the rural-based universities in South Africa. The university is in the category of Comprehensive Universities as universities in South Africa are categorized according to traditional, which are academic in focus, Science and Technology which are more vocational, and Comprehensive universities which offer a combination of both types of qualifications. In its Strategic Plan of 2021-2025, the first Thrust is student-centredness and engaged scholarship, out of the first thrust, there are four strategic objectives. The first strategic objective is student well-being and success. The study focuses on the first strategic objective of the first thrust of the selected university's strategic plan. We, therefore, investigate whether the university has adequate resources to accommodate student well-being and their success in the completion of programmes in the stipulated period. Student well-being and success are based on both undergraduate and postgraduate programmes. In this study, we are investigating factors that affect student well-being and success such as mental well-being, psychological distress, student accommodation, lecture halls, and e-learning. Data will be collected from students and academics (lecturers) through individual and focus group interviews. Data will then be analysed through themes and sub-themes. The assumed reality is that the university does not have adequate resources to fulfill the first strategic objective of the strategic plan.

Keywords: student well-being, student success, mental well-being, stress, accommodation, psychological distress

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Since joining the University of Venda as a lecturer in 2010, Prof Takalani Mashau has taught undergraduate and postgraduate students. His research interests are in Educational Leadership and Management, Comparative Education, Multicultural Education, and Law in Education. He has published extensively in peer-reviewed journals and supervised Master and Doctoral students to completion.

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IMPERATIVES OF CULTURALLY RESPONSIVE STRATEGIES IN TEACHING TABOO SCIENCE SEXUAL CONCEPTS IN RURAL SOUTH AFRICAN SECONDARY SCHOOLS

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This paper investigates the effects of designing and implementing culturally responsive strategies to promote effective teaching of science content of a sexual nature during Biology classes in rural South African secondary schools. Literature highlighting the challenge of naming sexual concepts perceived as taboo in cultural groupings where teachers' and learners' use English as a second language is reviewed against the backdrop of prescribed, school science curriculum requiring mandatory naming of sexual concepts regardless of taboo perceptions. Research shows that the recognition and integration of indigenous knowledge is an important issue for developing culturally responsive strategies when teaching and learning science to, and by, indigenous people. However, little has been said about cultural taboos of a sexual nature and their effects on teaching and learning. A teacher professional intervention was designed to develop a culturally appropriate strategy using Contiguity Argumentation Theory. Research methods used were open-ended questionnaires, focus group interviews and drawings. Evidence promoting the use of culturally responsive strategies was drawn from qualitative data, using Critical Participatory Action Learning and Action Research design in a sample of teachers from Xhosa indigenous grouping. The claim is made that using culturally responsive strategies provides an effective teaching strategy for teaching taboo sexual concepts in Biology classes situated in a deeply, culturally determined Xhosa indigenous communities. While not generalisable, the effect of this strategy should be of value when considering teacher development in indigenous communities and disciplines.

Keywords: Sexual concepts, cultural taboos, culturally responsive strategy, Xhosa indigenous community, science

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Ayanda has been involved with studies related to science teaching and language use on sexual concepts in rural schools. Ayanda worked previously as a teacher and a managing Subject Education Specialist for Biology. In 2018, Ayanda worked as a contract lecturer, got a PhD scholarship and lectured permanently from 2021.

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Public Diplomacy with Soft Power and its Role in Education: A Comparative Study on African Participants in Sino-Japanese International Education Programs

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In this research, by employing *new public diplomacy* as a theoretical lens, which defines public diplomacy more expansively than as an activity unique to sovereign states, I will elucidate the characteristics of Sino-Japanese public diplomacy towards Africa and international education. Since the actual scope of modern diplomacy has broadened over time and context, I shall review literature on the evolution of diplomacy in international relations. There is a difference between ancient and modern diplomacy, however, studies of public diplomacy remain on the margins of mainstream IR understandable through a state-practice lens, therefore my research seeks to theoretically elucidate the plurality of public diplomacy. I seek to investigate the extent to which international exchange education programs play a role in building good public diplomacy. Knowledge is limited on whether the experiences of African participants in international education exchange programs such as the ABE Initiative, the JET Programme, the MEXT Scholarship or the China Scholarship Council Scholarship etc, match the objectives of whence these exchange programs originate. Many scholars assert that; soft power in relation to educational assistance assumes that through participation in international educational exchange programs, graduates will be sensitized to their host countries viewpoints and become knowledgeable in their respective languages, societies, cultures, history, and politics. Therefore, I seek to interrogate the perceptions of current and former African recipients of the mentioned scholarships about their host countries, either China or Japan.

Keywords: Public Diplomacy with Soft Power, Sino-Japanese Educational Cooperation with Africa

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Thami is a 3rd Batch ABE Initiative alumnus, from Hiroshima University with a master's degree in international Cooperation Studies. Since joining Stellenbosch University as a Coordinator of Internationalisation Support, he's been involved with the establishment of the Stellenbosch University Japan Centre (SUJC) to be officially launched on August 11, 2022.

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TOWARDS INTER-GENERATIONAL JUSTICE IN AN INTER-CONNECTED WORLD: CLIMATE CHANGE AND CHILDREN'S RIGHTS

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The United Nations Framework Convention on Climate Change requires States to "protect the climate system for the benefit of present and future generations of humankind, on the basis of equity". Obligations to future generations are found in international law and in many Constitutions and national laws. In a recent case about climate change brought to the UN Committee on the Rights of the Child under its Communications Procedure, the five respondent States argued that because all States are, to some extent, responsible for the effects of global warming, no one state can be held responsible. The Committee found, in accordance with the principle of common but differentiated responsibility, as reflected in the Paris Agreement, that the collective nature of the causation of climate change does not allow individual States to evade their individual responsibility that may derive from the harm that the carbon emissions originating within its territory may cause to children, whatever their location. The research for this presentation will be undertaken through an analysis of primary and secondary sources in international children's rights law children and allied fields such as environmental law. This presentation argues that social justice remedies for transboundary harms caused by carbon emissions requires an approach that promotes solidarity across States and across generations.

Keywords: Inter-generational, climate change, children's rights, transboundary, inter-connected, social justice

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Professor Ann Skelton is a leading international children's rights expert, who has published widely in her field. She was Director of the Centre for Child Law at the University of Pretoria (2004-2018), and was counsel in more than 10 landmark cases that she argued in the Constitutional Court of South Africa. She is currently serving a second term of office as a member of the UN Committee on the Rights of the Child (2021-2025).

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Dr. Mikiko Otani is an international human rights lawyer based in Tokyo. In addition to over 30 years of practice in family law, she has extensive experience in the UN human rights mechanisms. She is Chair of the UN Committee on the Rights of the Child (2021-2023) and a Commissioner of the International Commission of Jurist.

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Exploring a case for a disability economic empowerment inequality index in the context of South Africa and Japan (Working paper)

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The poverty-disability two-way link continues to causes a vicious cycle, where individuals with impairments continue to face barriers limiting their socio-economic participation on an equal basis with others; thereby perpetuating economic empowerment inequality, consequently hurting economic growth by depriving people's wellbeing. While there is a consensus that Indices are useful for social reality scientific analysis, as this absence limits adequate explanations to inform socio-economic policies and interventions. On the other hand, there is a growing interest towards sustainability arguing that leaving others behind may not achieve either economic, social and environmental sustainability, as supported by the Sustainable Development Goals, Agenda 2030, with a reflection on how inequality measures help reform policies and progress towards bridging these gaps thus ensuring No one is Left Behind. These efforts have however have not been seen across all population groups, as existing indices exclude disability disaggregated data. This dearth of knowledge on disability focused or inclusive indices, let alone pertinent economic empowerment indicators; form a basis of this working paper that explores a disability inequality framework of indicators, by comparison of the context of Japan and South Africa, to support the development of a disability inequality index.

Keywords: Social Justice, Inequality, Economic Empowerment, Disability, Japan, South Africa

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With a background in Development Studies, an injury which left her paralyzed birthed her interest in social Justice, whereafter, she worked as senior disability equality facilitator, research senior manager, advocacy deputy director for disability organization and government respectively. She has also served on various transformation structures, including voluntary advocacy.

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Rising Japanese Foreign Direct Investment in the Digital Economy of African Countries

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Japanese foreign direct investment (FDI) into Africa has been under researched, particularly in comparison to China. The article explores the question of whether rising Japanese FDI into Africa is connecting to the continent's rapid emergence in ICT & Digital Technologies, and if so, how it is engaging with this emergence? To answer this question, the research assesses both quantitatively and qualitatively the rise of Japanese FDI into African countries, particularly in businesses and sectors that interact with ICT & Digital Technologies. This research is critical as it will contribute to the literature on Japan-Africa relations and the impact of Japanese investment on African economic development and innovation. It will also engage with rising scholarship on the digital economy which, from the perspective of compressed development, holds uncertainty for both African countries and Japan. Ultimately, the research finds that Japanese FDI is higher than Chinese FDI, and growing faster. It is unclear, however, to what extent this has been impacted by the Covid-19 pandemic. The research also finds that there is increased interest in African tech startups.

Keywords: Japan, Africa, FDI, Development, Digital, Economy

Biography:

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Emma Ruiters holds an MSc in Development Economics (SOAS, University of London) and is completing another MSc at the University of Oxford in Japanese Studies, focusing on Japanese investment patterns in African countries. She worked as a consultant at Genesis Analytics and Africa International Advisors. She founded and runs the Japanese Language Club of South Africa (JLCSA).

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Agricultural producer responses to minimum wage changes

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The South African agricultural sector experienced a 52% increase in the minimum wage in 2013. This study uses the difference-in-differences estimator on the administrative tax data to assess the channels through which farm-owners internalized the additional production cost associated with the minimum wage hike. Our study is significant on two primary levels. Firstly, we use administrative tax data to study minimum wage effects. It provides increased accuracy, larger sample sizes, and sensitive information that respondents are less likely to provide in a survey. Secondly, in addition to the employment channel which South African minimum wage literature extensively focuses on, it provides other firm-level margins that shift in response to minimum wage changes. Our empirical findings show that low-wage farms experienced a significant increase in labour costs. In response to increased labour costs, we show that low-wage farms gradually decreased their demand for labour overtime.

Keywords: Minimum wage, adjustment channels, employment, labour costs, capital, revenue

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PhD student in the Department of Economics at Stellenbosch University. Primary research interests concern the use of administrative tax data to study inequalities in the labour market. Experience in data collection, management, and quality assurance for academic research projects. Detail-oriented, with three years of experience in compiling raw company income tax records from the South African revenue service, providing documentation on the nature of the data. Also works as a research consultant at UNU-WIDER.

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FOOD SECURITY STATUS AMONGST STUDENTS REGISTERED AT THE UNIVERSITY OF VENDA

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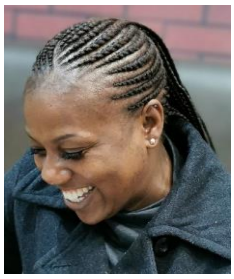
South Africa is food secure at the national level with pockets of insecurity at various levels of care. Food insecurity in institutions of higher learning has been reported to be high. The purpose of this study was to describe the food security status among students registered at the University of Venda and the coping mechanism adopted to tackle food insecurity challenges. A cross-sectional study was conducted on 515 university students. Three variables were measured namely, socio-economic status, food security status and coping strategies. A researcher-administered questionnaire was used to collect information from students. Data were analysed using the Statistical Package of Social Sciences, version 26. The study findings reveal that more than half (53.6%) of male and 62.8% of female students experienced hunger, while 36.5% of males and 30.1% of females were at risk of hunger. Only 9.9% of males and 7.1% of females were food secure. Coping strategies among Univen students included asking for money or food from parents and friends, having part-time jobs, cutting down money for clothes, consuming alcohol and skipping breakfast. It is concluded that the majority of University of Venda students were food insecure. Food insecure students are at risk of poor spending habits and resort to different coping strategies.

Keywords: Food secure, Strategies, Hunger, Challenges, and Students

Biography:



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Since joining the University of Venda, Ms Mbhatsani has been involved in food and nutrition security-related studies in Limpopo province. She started as a research assistant and then became a lecturer in the department of nutrition attached to the faculty of Health whereby she supervised honours and masters students in few research niche areas including food and nutrition security.

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Climate Smart Water and Soil Management Strategies for Achieving Food Security in Africa

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The global population is estimated at 9 billion by 2050, with much of this population increase will occur in developing countries. This will push the demand for agricultural crop production to counter food insecurity, especially in sub-Saharan Africa, where one in three people is chronically hungry. In this way, ensuring food security and agricultural water management is crucial since water scarcity is already a problem in many parts of the world. Additionally, the future of agriculture crop production has the challenge of enhancing crop production under uncertain climatic extremes, with limited (or degraded in some areas) land area, and rapid degradation and erosion of natural biodiversity such as soils. Climate variability and extreme weather events are projected to increase in nearly all regions. Although irrigation agriculture is being practiced, only 300million hectares of 1.5 billion cultivated are irrigated with over 70% in Asia. Irrigation agriculture has not developed much in most parts of Africa. The current irrigation water uses, and management practices include watering cans, border, furrow in paddy and pressurized ones such as drip and sprinkler. However, the continent faces several challenges such as declaiming soil fertility, limited innovative technologies in irrigation networks, limited in-situ data, poor irrigation practices, etc It's upon this background that this research paper highlights the current research findings and reviews from literature on technologies aimed at improving soil water management in Africa. Therefore, promotion of interventions such as alternate wetting and drying (AWD) in paddy, drip irrigation for upland rice and other crops, on-farm organic fertilizer, biomass mulching boards, part root drying, Internet of things (IoT) in agriculture will contribute to building climate resilience soil and water management in agriculture.

Keywords: Soil and water management, food security

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Denis Bwire is a Ugandan whose research focuses on optimizing alternate wetting and drying (AWD) irrigation for climate-smart water management in paddy fields. Bwire has worked at the current university as a research assistant and a lecturer at Busitema University, Uganda. He is the founder of Saerd Centre Ltd company.

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NEGLECTED AND UNDERUTILIZED PLANT SPECIES FOR SUSTAINABLE NUTRITION, LIVELIHOODS AND RESILIENCE TO CLIMATE CHANGE IN WESTERN AFRICA

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Agriculture is essential for food security in Sub-Saharan Africa (SSA), and an important source of livelihoods in the region. However, agricultural systems in SSA tend to rely on a few food crops (e.g. maize, rice, millet, sorghum, cassava) and cash crops (e.g. cotton, sugarcane). Furthermore, many agricultural systems are not resilient to climate change throughout the region. They tend to have low productivity, adopt environmentally unsustainable production practices, and be vulnerable to the accelerated climate change and other socioeconomic shocks. Arguably there is a need to develop highly productive and diversified agricultural production systems, that are locally appropriate, provide sufficient nutritious food, and are environmentally sustainable, climate-resilient and able to adapt to the rapidly changing environmental conditions. There is evidence to suggest that the increased promotion, adoption and utilisation of Neglected and Underutilised Plant Species (NUS) is one of the possible solutions in this challenging interface of food security, rural livelihoods, environmental degradation, and climate change. NUS are domesticated and locally-important crops that can cater for multiple uses (e.g. food, medicine), but are nevertheless less prevalent in the wider food system in SSA. This presentation will outline the FORENS project, a partnership between research institutions in South Africa, Japan, Senegal and Burkina Faso, which seeks to understand and assess the potential of NUS to enhance the resilience of agro-ecosystems and local communities

in Western Africa to environmental change. The FORENS project seeks to bridge knowledge gaps on the (a) conceptual links between NUS and resilience, (b) current and future distribution of NUS, (c) mechanisms and factors affecting the adoption and socioeconomic impacts of NUS, and (d) appropriate approaches to upscale the promotion and adoption of NUS. This presentation will provide a background about the relevance of NUS for sustainability, as well as share preliminary findings of the FORENS project.

Keywords: Food systems, Food security, Resilience, Agro-diversity, Senegal, Burkina Faso

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Prof Emmambux is currently a Full Professor in the Department of Consumer and Food Sciences, University of Pretoria. His research is broadly on African food biopolymers for food and nutrition security. He works on reducing glycaemic index of foods, improving nutrient density of foods and on biodegradable packaging system.

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ENTOMOPHAGY TOURISM: THE PANACEA FOR FOOD INSECURITY AND POVERTY

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There are two facts that cannot be disputed; firstly, the human population is constantly growing, and this has led to an increased demand for food; the second fact is that agricultural productivity is expected to decline due to climate change and this will affect food security. In African, Asian, and Latin American countries, entomophagy (the practice of eating insects) is proving to be an alternative source of food (protein), yet not everyone seems to be embracing this "alternative source of food." The aim of this study is to obtain insight into what motivates people when choosing what they eat and the willingness to eat edible insects among the ecotourism population in the Limpopo Province in South Africa. The research approach was both qualitative and quantitative and local people and ecotourists were included in the data collection. The study findings highlight that factor such as affordability, religion, nutrition value and looks/texture influence ecotourist choice of food. The availability of edible insects influences both urban and rural respondents' consumption of insects. The lower consumption of insect species in urban areas could hamper the potential contribution of insects to food security in these areas. Therefore, the promotion of entomophagy by marketing and maintaining traditional knowledge on insect processing should target urban people through the provision of tasty products and communicating nutritional value.

Keywords: ecotourism, entomophagy, Limpopo Province Consumption motives

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Bianca Mkhize holds a Master's degree in Tourism and Hospitality from the Tshwane University of Technology. She is working towards her PhD in Entomophagy Tourism. She is currently working as a lecturer in Tourism and Events Management at the Central University of Technology.

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Current and Past Research Interests on Southern Africa at the Institute of Developing Economies (IDE-JETRO), Japan

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This poster-presentation seeks to showcase the current and some of the past research projects on southern Africa at the Institute of Developing Economies (IDE-JETRO). IDE-JETRO is a publicly funded Japanese research institute specializing in social science research on the contemporary political, economic and societal issues in African, Asian, Latin American, and Middle Eastern countries. Each researcher focuses on one or a few countries and themes and participates in individual and/or collaborative research projects which normally last for 2 years. At the moment there are 3 area studies researchers working on southern African countries and together we are doing a research project which examines the challenges of social protection for transnational migrants in southern Africa with South Africa as the principal destination country. While the current project is conducted by a small team of researchers within IDE-JETRO, individually and collectively we are interested in opportunities to develop collaborative research projects with researchers based in southern Africa. In the past there was such a collaborative project between IDE-JETRO's and South African researchers on development experiences of Japan and South Africa. However, we understand that research collaboration is usually driven by personal relationships between individual researchers. As a first step to explore and facilitate the possibility of future research collaboration, we explain our research interests in the forms of past and present research projects and some of IDE-JETRO's institutional framework to support research collaboration.

Keywords: research collaboration, IDE-JETRO, transnational migrants, social protection, social science

Biography:

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Chizuko has researched a wide range of topics related to South African politics and society, including land reform, small-scale farming and livelihoods of urban refugees. Currently she is involved in research projects on social protection of transnational migrants, African states, and risk management under Covid-19.

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Poster only

Emerging Powers' Cooperation for Energy Transition: Boosting the South Africa-Brazil Strategic Partnerships

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This paper analyzes how emerging powers have cooperated in renewable energy and climate change policies that promote energy transition. Emerging Powers are countries that could be considered "pivotal states," which aim to maneuver a more significant role and influence in their region and the outside world and in a relationship to work together on the global agenda as members of BRICS, BASIC, G20, IBSA. In the 2000s, emerging powers began implementing economic development with technical and financial strategic partnerships. A strategic partnership defines a cooperative relationship between countries or groups based on national security and economic interests. However, previous studies on strategic partnerships have not thoroughly explained the dimension of "sustainability." Instead, they focused on economic and trade policies. To fill the gap, I combine insights from the literature on Earth System Governance and development assistance and identify the conditions under which strategic partnerships between economic powers on energy transition have been formed and developed in three main factors: geopolitics, economic interdependence, and international norms. The paper focuses on the historical evolution of the South-South climate cooperative relationship between South Africa and Brazil into three distinct periods: The Mbeki-Lula period, the Zuma-Rousseff period, and the Zuma-Temer period**.** By analyzing these dimensions of the relations, I can make two propositions. Firstly, identifying the conditions, objectives, and effects of the strategic partnership between South Africa and Brazil can help elucidate the dynamics and consequences of engagement through strategic partnerships between other emerging powers, such as South Africa-China relations. Secondly, including the 2030 agenda for Sustainable Development in strategic cooperation could promote comprehensive collaboration. As the confrontation between the Western and Non-Western countries in the "Multiplex world" becomes more acute, enabling the

SDGs could mitigate conflicts between countries if strategic partnerships in addressing global issues go beyond the mere pursuit of economic interests.

Keywords: Strategic partnership, energy transition, South-South Cooperation, emerging powers, economic security, Brazil

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Since joining the Tokyo University of Foreign Studies, Masukata has been involved with Global Environmental Governance, South-South Cooperation, and Latin American politics. Before joining the university, Masukata was a Visiting Researcher at the University of São Paulo, Brazil. Currently, Masukata is a Boarding member of the Japan Association for Latin America Studies (AJEL) and the Japan Society of Social Science on Latin America (JSLA).

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Poster only

Japanese Anti-apartheid movements at the intersection between Western and Afro-Asian contexts

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This poster presentation summarizes some of the research findings of the JSPS KAKENHI project "International Solidarity against Apartheid: The Case of Japanese Citizens' Movement" (KAKENHI grant number 26380227) of which the author was the principal investigator. It also provides an overview of ongoing research projects that build on the outcomes of the above project. The struggle against racial segregation and apartheid in South Africa was one of the most significant global political campaigns in the twentieth century. There is a growing research interest in the international aspects of anti-apartheid movement. However, the literature was until recently confined primarily to the Western anti-apartheid movements, and to a lesser extent African solidarity support for liberation movements. Instead, this study focuses on the anti-apartheid movements in Japan, which have been overlooked in the literature. The Japanese activism serves as an interesting case study for a global history of anti-apartheid movements in the sense that it was located at the intersection between Western and Afro-Asian contexts. Japan's overall relations with South Africa, both in terms of Cold-War geopolitics as well as economic relations, were similar to those of Western countries, therefore the Japanese anti-apartheid movements drew on experiences of Western anti-apartheid movements and adopted their strategies such as consumer boycotts into their own activism. On the other hand, however, unlike Western movements, the inception and early development of the Japanese anti-apartheid activism was significantly contextualized by the Afro-Asian solidarity.

Keywords: Anti-apartheid, Afro-Asian solidarity, Japan, citizen's movements

Biography:

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Since joining the IDE in 1996, Kumiko have frequently visited South Africa for research, including two extended stays at UCT (2001-03) and at Wits School of Governance (2018-19). Her research interests include democracy and distributional politics in post-apartheid South Africa, history of global anti-apartheid movements, and Africa-Japan relations.

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THEMATIC AREA3: Growth, exploration and conservation

Showcasing remote collaboration in linguistic research

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This paper presents research collaboration between Japan and South Africa during the pandemic when such a collaboration became challenging due to restrictions on cross-border movement. The remote collaboration resulted in three types of outcome: (i) translations of COVID-19 mythbusters from the World Health Organization, (ii) creation of digital archives of various eastern and southern African languages, as well as (iii) a publication based on archival data. First, the translations of COVID-19 mythbusters were prepared at the onset of the pandemic and disseminated through a website (https://covid-no-mb-org), which now contains versions 125 languages spoken in African and other parts of the world. These translations were also made into a language resource for natural language processing research (http:// db.covid-no-mb.org). Second, two types of digital archives were created so that researchers can further utilize resources in their research. One archive (https://renelda.aa-ken.jp) includes morphosyntactic recordings from six South African languages (Xitsonga, Tshivenda, Northern Sotho, Sesotho, Southern Ndebele and Siswati). The other archive, called Bantu Language Digital Archive (BantuDArc, https://bantuDArc.aa-ken.jp), includes paradigmatic data from 5 eastern and southern African languages. Third, Xitsonga data in BantuDArc was analyzed 6653 data points and summarized them into a manuscript by three authors, two of whom are native speakers of the Tsonga language. The book titled "Aspects of Xitsonga Grammar" is unique because it marks all the examples with tone, which was not done in previous publications. In sum, the three types of activities conducted during the pandemic showcase that remote collaboration is possible, even if challenges remain.

Keywords: COVID-19 Mythbusters, Digital Archives, Documentation, Remote Collaboration

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Since joining the International Christian University, Seunghun has focused on linguistics of the southern African languages. Since 2010, Seunghun has been working on Xitsonga and other languages with researchers in Limpopo, South Africa. He is currently an adjunct professor at the University of Venda.

Biography:

Dr Crous M. Hlungwani
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Since joining the University of Venda, Crous's research has focused on various morphosyntactic aspects of the grammar of Xitsonga. During his more than 24 years of tenure in higher education, he has supervised numerous honours, masters and PhD students. He has published extensively in peer reviewed and accredited journals.

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Using Wearables to Investigate Stress and Language Learning

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*Corresponding author. Study completed and successfully examined for Rhodes University PhD award, 2022

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Language Learning Anxiety (LLA) is a popular concept in the literature, where confusion over terms such as anxiety and stress is evident. This study investigated the link between stress and language learning, using wearable devices measuring heart rate variance, to establish the feasibility of using this new technology in stress research. The study was conducted in a Japanese university, with second year students as participants wearing the devices over a two-week period. The nature of the contextualised data generated in this study allowed for comparisons between participants' stress readings in academic contexts, such as language and non-language classes, and their free time. The findings suggest that certain long-held assumptions about heightened stress in academic contexts may not hold true. The findings constitute proof of concept that the contextualised data delivered by wearable devices may allow for new types of stress research, incorporating longitudinal perspectives on participants' stress levels. The inclusion of contextualising data led to fundamentally different conclusions about the relationship between stress and language learning. The generated data challenges the current dominant paradigm in LLA, which proposes a straight-line negative correlation between stress and learning. Instead, the inverted U stress relationship seems to be a better fit for the data. The same may be true of other areas of stress research. In addition, the type of data delivered by wearable devices was qualitatively different from that normally associated with quantitative studies, opening intriguing methodological possibilities for further research. The use of wearable devices prompts certain challenges ranging from practical considerations to ethical conundrums: these are tackled in this study and may make beneficial future contributions.

Keywords: LLA, Stress, Wearables, HRV

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William comes from South Africa, where he worked and taught at the Production Management Institute (a PHEI). In 2006 he moved to Japan to teach on the JET Program. After 5 years on the JET Program he lectured at the Fukui Prefectural University and in the University of Fukui Medical Department, before moving to Nagasaki in 2016 to work at the University of Nagasaki.

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POSITIONING THE STUDY OF FORENSIC LINGUISTICS IN SOUTH AFRICA AND ON THE AFRICAN CONTINENT

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In this paper we provide a holistic background to the study of forensic linguistics in South Africa and on the continent. We define the discipline in relation to seminal international scholars in the field such as Olson, Gibson, Eades and others. We ask the question as to why it has taken so long for the discipline to emerge in South Africa and in Africa, given that we are probably the most multilingual and multicultural continent. This in turn impacts on how courts of law conduct themselves in South Africa and elsewhere. This year the University of the Western Cape now offers formal courses in this discipline at the postgraduate level and it hosts a research Chair in Forensic Linguistics and Multilingualism. This is however a well-established discipline in countries such as Australia, New Zealand, Canada, Poland, America, Britain, and Japan. The purpose of this paper is then to explore comparative models for the teaching and researching of forensic linguistics from different countries, particularly those residing in the Global South, and to see how these can influence and benefit from the scholarship of the discipline in South Africa and on the continent. We will also review what has been done in Africa and in South Africa in particular, including the setting up of a research Chair as well as the impact of a series of publications in the field of forensic linguistics by African SUN Press. This has greatly positioned the visibility of the discipline in South Africa and abroad. The paper will explore what we can learn from one another in different parts of the world in constructing courses that are contextually relevant and how Africa can contribute to the discipline of forensic linguistics.

Keywords: Forensic Linguistics, Comparative models, Teaching, Research

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Russell Kaschula is Professor in the Department of African Language Studies at the University of the Western Cape where he is the Postgraduate Coordinator. He holds the Chair in Forensic Linguistics and Multilingualism.

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Prof Monwabisi Ralarala
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Ralarala is Professor (Forensic Linguistics) and Dean: Arts and Humanities. They recently co-edited volume 3 of the book series: Ralarala, M. K.; Kaschula H R. & G. Heydon (Eds.). 2022. *Language and the Law: Global Perspectives in Forensic Linguistics from Africa and Beyond.* Stellenbosch: Sun Press.

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IMAGINE AND CREATE THE FUTURE THROUGH MAKING MANGA STORIES

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My project is to apply Science and Fiction (Sci-Fi) thinking and Manga creation method to the project-based learning in order to nurture imagination to take unexpected challenges into account and to be prepared in the recent VUCA (standing for volatility, uncertainty, complexity and ambiguity) society. Sci-Fi thinking and prototyping is a way to predict future according to the Sci-Fi story making methods where one focuses on a certain social issue or science and technology and set up a future society and worldview based on scientific knowledge and then creates a story of the future from an individual perspective. Like creating Sci-Fi stories, the future is allowed to deviate from reality without constraints or assumptions, considering not only possible futures but also improbable futures, desired and undesired futures in equal measure. Manga creation considers living characters with an inner self and a personality and concrete setting and story with introduction, development, turn, and conclusion, which gives the characters of the future story created by science fiction prototyping a clear personality and inner life, giving the story a realistic and concrete image. In this presentation, I introduce the prototype of the online workshop for creating future stories. Through the workshop, the students are expected to acquire free imagination and the perspective that recognises future and global issues as problems that concern the individual.

Keywords: Sci-Fi thinking, Manga creation, Project-based learn

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As a professor of the Bureau of Global Initiatives, Dr. Takahiro Morio is involved in planning the international cooperation strategy of University of Tsukuba and coordination of academic exchange with universities of African countries. His current research topics are comparative study of contents business and application of manga to education.

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Reflections on the effectiveness of virtual engagements in facilitating collective learning, empowerment, and co-innovation amongst South African and Japanese agribusiness entrepreneurs

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The COVID-19 pandemic has provided significant challenges to collective learning and co-innovation often facilitated by collaborative partnerships. High education institutions have responded to this challenge by initiating and scaling up virtual learning and engagements between students, researchers, and other beneficiaries. Despite the continued utilization of online approaches, their effectiveness, particularly in collective learning and facilitating innovative collaboration is still unclear. Therefore, this paper utilises the responses and reflections of a cohort of South African and Japanese entrepreneurs who are targeted beneficiaries for a collective learning and co-innovation Africa-Asia Business Partnership Forum. The Forum is intended to provide a regular opportunity and platform for 18 young African and Asian entrepreneurs in the agribusiness sector to interact with and learn from experts and leaders in Africa-Asia partnerships exchanges. Through the utilisation of a "trans-local" network of "living labs", the forum focuses on promoting collective learning, empowerment, and co-innovation of collaborative practicable venture schemes. The first phase of virtual workshops will be followed by a second phase consisting of an exchange of field visits by the two teams (i.e., the Japanese team to South Africa and the South African team to Japan) for on-site learning and joint project development exercises, which will be followed by a synthesis phase to conclude both co-creation of projects and joint research covering the whole project process. This experimental action research project will be concluded in April/May 2023. The project first phase of engagements was originally intended to be in-person,

however, due to the COVID-pandemic these interactions were changed to virtual engagements. A series of 5 virtual workshops – each lasting 4 hours were held between November 2021 and April 2022 to support the project objectives. An experienced facilitator was appointed to facilitate the beneficiary interactions, as well as engagements with experts broad agreed agribusiness themes (e.g., financing Asia-Africa collaborative agribusiness initiatives). At the end of the 5 workshops in April 2022, an online survey was conducted together with interviews of the beneficiaries to assess the effectiveness of the online engagements in facilitating collective learning, empowerment, and co-innovation for the agribusiness entrepreneurs. The results reveal that the content and structure of the virtual engagements was considered to be adequate. However, the cultural differences between the entrepreneurs proved to be a challenge to overcome through virtual engagements, particularly for the Japanese entrepreneurs who are culturally not used to these forms of interactive engagements. As a result, the South African entrepreneurs learnt more than the Japanese entrepreneurs. There is evidence of formative collaboration but its development and scaling up was limited in an online environment.

Keywords: virtual, entrepreneurs, collective learning, empowerment, co-innovation, agribusiness

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Dr Farai Kapfudzaruwa is a Grants and Strategic Partnerships Specialist in the Department of Research and Innovation at the University of Pretoria (UP). His main responsibility is facilitating global partnerships through the University's transformative global engagement strategy – the African Global University Project (AGUP). Prior to joining UP he was a programme coordinator for the Education for Sustainable Development in Africa (ESDA) initiative which was initiated by the United Nations University Institute for the Advanced Study of Sustainability (UNU-IAS) in Tokyo, Japan. From 2016-2017, Farai was a JSPS UNU Postdoctoral fellow at UNU-IAS. His postdoctoral research focused on the 2030 Agenda (SDGs), with particular emphasis on governance and linking the global vision with national implementation strategies in the Asia-Pacific and Africa. Before joining the United Nations University, Farai was an Old Mutual Emerging Markets lecturer for three years at the Graduate School of Business, University of Cape Town. In addition to this, he also worked as a consultant on projects related to inclusive business models, energy efficiency, environmental management and climate change in Sub-Saharan Africa for organizations such as UNDP and GIZ.
Dr Farai Kapfudzaruwa holds a PhD in Business and Political Science from the University of Cape Town, South Africa. His thesis explored the business contributions to climate change governance in areas of limited statehood in the case of South Africa and Kenya.

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SOLVING PRACTICAL NEEDS OF COMMUNITIES THROUGH UNIVERSITY-COMMUNITY ENGAGEMENT: THE CASE OF WETLAND REHABILITATION AND RESTORATION AT AMANDAWE COMMUNITY, KWAZULU-NATAL (KZN) PROVINCE

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Historical evidence shows that anthropogenic activities have affected wetland ecosystems globally, with dire consequences for nature, humans, and economies of nations. The purpose of this paper is to study how university-community engagement can be a useful instrument to provide for rehabilitation and restoration of wetlands, using the case of Mangosuthu University of Technology (MUT) community engagement (CE) initiative. The study was conducted at the wetland area in Amandawe, in the south of Durban, which was registered with the Community Engagement and Development Directorate (CEAD), MUT in 2017. It focused on rehabilitating and restoring of degraded ecosystem, for improved quality and ecosystem services, with a service-learning unit. Over the years, the wetland has become invaded with alien species and turned into dumping sites, which impacted the ecology of the area. Soil and water samples were collected to understand the biochemical composition. A mapping exercise was conducted to identify areas needing attention for invasive alien plant clearing, tree planting and riverbank stabilization. Using an integrated control measure, alien plants were removed, and dumps cleared. Thereafter, a restoration process was initiated by planting indigenous plants. A total of three interventions were made between 2018 and 2019. After the second intervention, there was a progressive restoration of water in the area, but about 97% restoration of water was observed in the wetlands after the third intervention. Similarly, various faunal species were also observed. New native grass species sprouted, while some invasive alien plants were successfully cleared. The community also accessed the available water for irrigation purposes in their community gardens. Evidence of

reflections from students and community members suggests that service learning could be a vital instrument in restoration of degraded ecosystems to improve wetland functioning in areas with minimal funding.

Keywords: University-community engagement; community engagement; service-learning; wetland rehabilitation and restoration; Amandawe community

Biography:

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Sithembile is a lecturer and a passionate teacher who has been involved in improving student experience and graduate outputs within her Department. She has initiated various projects that are student, and industry centered. Before joining MUT, Sithembile worked at South African National Parks as an Invasive Species Researcher.

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Epic Collaboration: Mazisi Kunene and Japanese Anti-apartheid Activists

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This presentation will reveal the mechanism behind the formation, circulation, and legacy of the image of the pre-colonial African past in the age of decolonization through the examination of the political activities and literary work of Mazisi Kunene (1930 –2006), one of the most prominent South African poets in the twentieth century. I will examine Mazisi Kunene's travel worldwide as an exiled leader of the African National Congress and the significant impact Kunene had on the Japanese anti-apartheid movement and Japanese writers and literary scholars interested in African literature. With his two visits to Japan in 1970 and 1983, Kunene radicalized the Japanese activist as the proponent of armed resistance; as a Zulu poet, he showed Japanese novelists and poets the wealth of Zulu and the African past as poetic themes. This presentation will focus on the idea of "epic" in Kunene's work and examine how his "epic" of the Zulu past influenced Japanese reception of the African image through the translation of his works. More specifically, I will analyse the translation of Kunene's work. Kunene translated his Zulu epics into English himself. The self-translated work *Emperor Shaka the Great* established his reputation as the Zulu poet. English version became the base of Japanese translation. By examining the process of translations, I will argue that even though the Japanese translators read Kunene's works in English, it was partly his emphasis on the importance of original isiZulu writings that facilitated the reception of his poetry as an authentic African voice. By examining Kunene's visits to Japan and the Japanese reception of his work, this presentation will reveal how his epics enabled epic encounters between the Zulu intellectual and Japanese anti-apartheid activists.

Keywords: History, Mazisi Kunene, Anti-apartheid movements in Japan, Epic, Translation

Biography:

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My current project focuses on uncovering the African experience of racial segregation and apartheid in South Africa by using vernacular (isiZulu) and English text written by African people as the main source. I am a research associate at Archive and Public Culture, University of Cape Town and will be a visiting scholar at WiSER (Wits Institute for Social and Economic Research) from September 2022.

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Alternative Development Model for Sustainability: Communal Development Perspective from Ubuntuism

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This presentation is to shed light on an African sustainable development model from ubuntuism and to insist transitional pathway for an alternative model of development. Ubuntuism is one of the alternative discourses in development rediscovered in Africa. It is a Sub-Saharan Bantu philosophy on humanity, which represents the African dignity, communality to support each other, and interconnectedness with other humans, nature and the spiritual world. The presentation aims to integrate communalism into development discourse from the perspective of ubuntuism. The study will not be limited to Africa but on a global scale to suggest including communal capacity building by bonding and retaining individuals' social ties. Many scholars have researched sustainable development pathways from the livelihood, the state, and the planet's prosperity. Although the Sustainable Development Goal was introduced with a multilateral negotiation and agreement between United Nations member states, it remains a question— by looking at the reality—whether it has decolonised the development of the global south. Especially the post-development researchers, have long been warning about the westernisation of the development discourse/trends. For example, while Japan used to be a communal society that respects *wa* (harmony in Japanese), recent studies insist that economic affluence in Japan led to people's isolation. Additionally, there are concerns that this is due to excessive individualism in the pursuit of self-responsibility and independence, hardly able to rely on others, even their family. With its controversial debate on western development discourse, developing nations have introduced alternative terminology for their sustainable development and wellbeing.

Keywords: ubuntuism, alternative development, communalism, social ties, sustainability

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Since joining the graduate programme of University of Tsukuba, Daichi has been involved with studies related to anthropology and social transfer in Sub-Saharan Africa. He participated in United Nations Youth Volunteer programme during his undergraduate studies and worked for United Nations Resident Coordinator's Office as a communication officer.

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STUDIES OF EARTHQUAKES AND DEEP LIFE IN DEEP SOUTH AFRICAN GOLD MINES

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Gold and platinum mining makes a significant contribution to South Africa's prosperity, providing direct employment to more than 265,000 people (2021) and contributing to the fiscus through tax and royalties. SA's gold mines are amongst the deepest mines in the world. This poses significant technical challenges. For example, mining-induced stresses may exceed the strength of the rock, causing it to rupture and release energy in earthquakes that pose a risk to miners and the public. Japanese researchers have enhanced safety and the sustainability of deep mines through various technical collaborations. The bilateral SATREPS project (2010-2015) "Observational studies to mitigate seismic risks in mines", led by Professors Ogasawara and Durrheim (Ritsumeikan and Witwatersrand universities, respectively), produced new insights into earthquake nucleation and rupture processes, expanded the SA National Seismograph Network, implemented a Japanese technology to measure stress in highly-stressed rock masses, and fostered several outstanding early-career researchers. Building on the outcomes of the SATREPS project, in 2016 the project "Drilling into Seismogenic Zones in South African gold mines" (DSeis) was initiated under the auspices of the International Continental scientific Drilling Program (ICDP). In addition to the earthquake studies, DSeis geomicrobiologists are investigating organisms that live in 'solid hot rock' in conditions resembling those on extraterrestrial bodies such as Mars. Cooperation between Ritsumeikan, Tohoku and other universities and institutes (Japan) and Wits University, CSIR and the Council for Geoscience (South Africa) is governed by collaboration agreements. The DSeis project has introduced new partners from Free State University (South Africa), Australia, Canada, China, Europe, India and the USA. At the SAJU Forum we will review the contribution that we have made to knowledge and technology in the fields of mining engineering, rock mechanics, seismology, geology and geomicrobiology. We are keen to resume our

research activities that were disrupted by the COVID pandemic, and will introduce our prospects.

Keywords: South African gold mines, safety and sustainability, internationally ideal science lab at depth

Biography:

Dr Hiroshi Ogasawara
Professor, College of Science and Engineering,
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Since 1992, Hiroshi has been involved with studies in seismology in South African gold mines. As he has chaired several international projects, his research scope has broadened. He is retiring from Ritsumeikan University within two years, before which he is very keen to resume his activity in South Africa.

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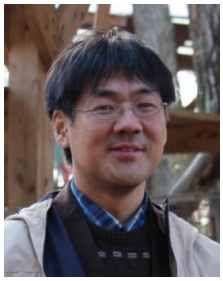

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Yasuo joined studies in seismology in South African gold mines. He is a co-PI of the Japanese-South African projects "Observational studies in South African mines to mitigate seismic risks" (2010-2015) and "Drilling into seismogenic zones of M2.0–M5.5 earthquakes from deep South African gold mines" (2016-present).

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Durrheim held the SARChI in Exploration, Earthquake and Mining Seismology from 2007-2021. He co-led the Japanese-South African project "Observational studies in South African mines to mitigate seismic risks" (2010-2015) and is a PI of the project "Drilling into seismogenic zones of M2.0–M5.5 earthquakes from deep South African gold mines" (2016-present).

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Professor Musa Manzi
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Manzi is an associate professor and the founding director of the Reflection Seismics Research Centre at Wits University. He leads a European Union – South African collaborative project that seeks to advance high-resolution imaging and modelling of the host rock and any mineralisation between tunnels and the surface and in the down-dip direction (EraMin Future, 2022-2024).

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LIFE IN A HYPERSALINE SUBSURFACE ECOSYSTEM ANALOGOUS TO SUBSURFACE MARTIAN ENVIRONMENTS

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South Africa hosts some of the deepest mines in the world (near 4 km depth). Since 1996, the exploration of deep hypersaline water found in those mines by geomicrobiologist researchers from South Africa (Prof. E. van Heerden), Japan (Dr. K. Takai and Prof. Y. Suzuki), USA (Prof. T. Kieft and Prof. T. C. Onstott) and Europe (Dr. G. Borgonie), and supported by the UN space Treaty, COSPAR, NASA, or ICDP programme, has expanded our understanding about the limits of life. Since 2016, the ICDP DSeis project, led by the Ritsumeikan University-Japan (Prof. H. Ogasawara) and hosted by the University of the Free State-South Africa, has recruited more researchers of different fields from Japan (Dr. A Urai), South Africa (Dr. J Castillo) and Europe (Dr. M Zimmer), among others. The joint effort of this multidisciplinary consortium (microbiologists, geologists, and chemists) has helped to elucidate the formation and habitability of a 3.2 km deep subsurface hypersaline brine found in the South African gold mine Moab Khotsong. The discovery of living microorganisms in this hypersaline deep fracture water dated 1.5 billion years old infers the capability of extremophiles microorganisms to colonize the subsurface of Mars, where analogous conditions are present. At the SAJU Forum, we will attempt to summarize and convey the experiences, lessons, and knowledge gained during the last three years within the ICDP DSeis project. Thanks to this project, we could

increase our mutual support and collaboration to overcome the challenges caused by the COVID pandemic.

Keywords: South African gold mines, geomicrobiologist, ICDP DSeis project, deep subsurface hypersaline brine, extremophiles microorganisms, Mars.

Biography:

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Castillo is the leader of the Applied and Environmental Microbiology Group at the University of the Free State. He is the head representative in South Africa for the HORIZON Europe project "Mine tailings reprocessing and revalorization" and is a member on National Committee of the International Continental Scientific Drilling Programme (ICDP).

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Alba has a doctorate in geohydrology awarded by the University of the Free State, and a doctorate Cum Laude in earth science awarded by the University of Huelva. She has participated in numerous national and international projects and co-leads an ERAMIN project of the Horizon 2020 platform.

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Jameel Alom is a master's student in the Applied and Environmental Microbiology Group at the University of the Free State under supervision of Dr. Castillo. Since 2020, He is collaborating in the project "Collaborative Research: US-South Africa: Biogeochemical Processes in a Subsurface Hypersaline Environment near the Abiotic Fringe".

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Devan is a fourth year PhD student and National Science Foundation Graduate Fellow in the Geosciences Department at Princeton University. She has worked in the Onstott Lab on the project "Collaborative Research: US-South Africa: Biogeochemical Processes in a Subsurface Hypersaline Environment near the Abiotic Fringe" over the last three years.

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Kieft is a microbiologist with >30 research experience in subsurface microbiology. He has been studying the geomicrobiology of deep fracture water in South Africa since 1998. He is currently co-PI on an NSF-funded project investigating ancient brine at Moab Khotsong mine in South Africa.

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Biography:

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He won the 2021 JpGU Nishida prize for his contributions to understanding biological and inorganic interactions in the dark biosphere (deep sea and underground). https://www.u-tokyo.ac.jp/focus/en/press/z0508_00099.html introduces one of his outstanding outcomes. Furthermore, a TV program of NHK World has introduced how keen he wants to join the DSeis project.

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He got a PhD degree in March 2021. Since April 2021, he has been a JSPS PostDoc at JAMSTEC. His latest outstanding outcomes include an invited talk BGM02-08 at JpGU 2022 and a paper published in Progress in Earth and Planetary Science (DOI: 10.1186/s40645-021-00450-7) on methane generation from active fault systems.

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PETROGRAPHY AND GEOCHEMISTRY OF SANDSTONES OF THE PERMIAN VRYHEID FORMATION, HIGHVELD COALFIELD OF SOUTH AFRICA: IMPLICATIONS FOR PROVENANCE, PALAEO-WEATHERING AND PALAEO-REDOX CONDITIONS

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Provenance, palaeo-weathering and palaeo-redox conditions of sandstones of the Vryheid Formation of the Ecca Group in the Highveld Coalfield, Mpumalanga, South Africa, were studied with the intention of identifying possible source rocks. The investigation approach involved collecting sandstone samples from borehole cores, followed by laboratory studies of mineralogy and petrography, major and trace element analysis by X-Ray Fluorescence (XRF). Mineralogy and petrographic analyses suggest that these sandstones are arkosic to sub-arkosic arenites. The generalized mineralogical compositions, in order of abundance, consist of monocrystalline and polycrystalline quartz, plagioclase, igneous and volcanic rock fragments and minor to trace amounts of mudstone clasts. Quartz grains are predominantly monocrystalline, implying they came from granitic and volcanic rocks and as well as hydrothermal quartz veins. The presence of higher amounts of feldspars favours either a fast/high depositional rate and relative dry or a cold climate at the source area, and is also indicative of dominance of felsic igneous or metamorphic rocks in the source area. The bulk rock geochemistry supports the petrographic results. The ratio of K_2O/Na_2O, plots of Na_2O-CaO-K_2O and Th-Sc-Zr/10 attest to a passive margin tectonic setting. Observed patterns of REE values, ratios of K_2O/Al_2O_3, Al_2O_3/TiO_2, La/Sc, Th/Sc, Th/Co, and Th/Cr, plots of Th/Co *vs* La/Sc, Hf vs La/Th, Th vs Sc, V-Ni-Th and discriminant function further suggest felsic rock sources. The sediments were deposited by glacial material, underwent mechanical weathering and grinding, and therefore the sediments deviate from normal chemical weathering trends. The chemical index of alteration (CIA) suggests minimal chemical

weathered source rocks typically deposited under a cool to temperate climate. U content, authigenic U, V/Cr, Ni/Cu and Cu/Zn ratios attest to an oxidic depositional environment.

Keywords: Sandstone provenance, palaeo-weathering, palaeo-redox conditions, Vryheid Formation, Ecca Group, Karoo Basin.

Biography:

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Since joining the University of South Africa, Lindani Ncube has been involved with studies related to the provenance of sediments and the development of both drainage and sedimentary basins in Southern Africa. Lindani joined UNISA as a Post-Doctoral Fellow as part of Unisa's Post-Doctoral Fellow's programme in 2015. Dr Ncube has initiated the formation of a research community of practice "GATE- Geology and the Environment" in the Department of Environmental Sciences. The research group consists of Professors, senior academics, junior academics, post graduate students, research associates and collaborators from South Africa, Zambia, China, Italy, German, United Kingdom, Sweden, CSIR, Japan and the USA. At present, the research group has six funded projects, and is developing a website to showcase the groups' work. In addition, she has initiated a community engagement project (in the process of being registered at UNISA) with successful US academics, Professors Geraldine Richmond (Under Secretary of Energy for Science, Department of Energy, USA; University of Oregon's Presidential Chair in Science, and Co-founder of COACh, USA), Margaret Gitau (Purdue University, USA and President of Mentoring Network for African Women in Academia -MTAWA) and Clare Muhoro (Towson University, USA). The CE project targets young female researchers from historically disadvantaged backgrounds, and seeks to address "***The issue of a leaky pipeline"*** in South African academia.

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Study on Wi-Fi Direct for Implementing Smart Mining into Underground Mines in South Africa

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South Africa is home to several mineral resources such as gold, coal, platinum, and diamonds, but global population growth and increasing demand for supply also require mining at greater depths, which in turn increases the risks faced by miners. In recent years, there has been an increasing need to develop more efficient and safer technologies that maximize production and reduce negative environmental impacts.

Japan has made progress in information and communication technology (ICT), with a focus on soft computing, artificial intelligence, big data, and data mining. ICT is versatile and has a high affinity with other technologies, making it applicable to a wide range of fields, and it has been the subject of recent research ICT has been the subject of much attention in recent years. The use of ICT in resource development is referred to as smart mining, Digimine or Mining 4.0. This study proposes smart mining practices in South Africa in collaboration with the Wits Mining Institute, which aims to utilize digital technologies such as Digimine for sustainable development.

The objective of this research is to develop a robust monitoring system to help monitor miner safety in increasingly complex underground mines. The study will develop an simple and cost-efficient communication system that will allow underground environmental data, to be verified at ground level. The communication assessment of the system will be evaluated by comparing demonstration tests and simulations in the mine. The communication standard to be used is Wi-Fi Direct for ad hoc communication. This communication system will be used for implementing other smart mining technologies. The results of this research will lead to practical applications in operational mines in South Africa.

Keywords: Smart Mining, Monitoring System, Wi-Fi Direct, Underground Mining, ICT

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Since joining the Graduate School of International Resource Science, Akita University, Ikeda has been involved with studies related to mining and information communication technology. His research interest is related underground monitoring systems in association with ICT.

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