

# SCIENCE AND TECHNOLOGY OFFICE - TOKYO

科学技術部

2014-15



## Ms Mohau N. Pheko, Ambassador Extraordinary and Plenipotentiary

Our cooperation with Japan on science and technology has been growing steadily, particularly since the two countries signed the Science and Technology Agreement in August 2003.

As South Africa was celebrating 20 years of freedom and democracy throughout 2014, Japan and South Africa marked yet another noteworthy milestone of 10 years of a science and technology collaborating. This milestone is significant for us as South Africa because this illustrates how North-South relations are essential.

This sentiment could not have been highlighted better than by our Minister of Science and Technology, Minister Naledi Pandor. During her visit to Japan in her closing remarks at the Science and Technology in Society Forum in Kyoto, Minister Pandor stressed that more than ever we need global solidarity in tackling global challenges. She said science and technology is an important instrument that we can use to address the challenges facing the world right now.

South Africa is increasingly becoming a recognized hub for science and technology excellence. We are also playing an important role in major international projects and making groundbreaking progress in research and development initiatives.

I am proud to introduce this booklet which highlights some of the science and technology activities and events that the Embassy has embarked on in the 2014/15 financial year. I hope that through these activities, Japan will engage with the Science and Technology Office in Tokyo in exploring ways in which this unique South-North collaboration can be elevated and enhanced on mutual grounds.



## Mr Daan du Toit, Deputy Director General: International Cooperation and Resources, DST



Despite the great geographic distance, cultural differences and difference in size of the science systems between South Africa and Japan, our countries have been able to mark a very important milestone – 10 years of science and technology collaboration.

In order for this milestone to be achieved in 2004-2006 the Ministry of Education, Sport, Culture, Science and Technology (MEXT) seconded an expert to South Africa whose responsibility was to link the two systems together, Mr Yoshinari Akeno (whom today is the honorary science ambassador for both our countries). This has been reciprocated by South Africa, since 2004 until today. The Department of Science and Technology has seconded 3 senior officials to Japan in our Embassy in Tokyo. The placement of these officials is to strategically strengthen relations between our countries in the field of science, technology and innovation, considering the odds we face with regards to the distance, culture and difference in sizes of the systems.

During the 20-year's anniversary of South Africa's freedom and democracy, the Science and Technology Office Tokyo, organized a number of activities and events related to South Africa's education, research and innovation in order to further bring our countries together. The office also supported and participated in events that were facilitated by the Japanese side, such as the Science Agora which took place in November last year, amongst many others.

I would like to take this opportunity to congratulate and thank all stakeholders involved in being the bridges between our two countries. I sincerely hope that both countries can benefit from this long-lasting friendship and collaborate even closer together to tackle future challenges that lie ahead.

## Ms Eudy N. Mabuza, Minister Counsellor: Science and Technology



A year has come and gone and we are happy and proud to present to you the Annual Report of 2014/15. The report aims to share with you the numerous events and activities that the Science and Technology Office in Tokyo was able to organise and support. The events and activities were organised with a diverse range of partners in order to deepen and further develop relations with Japan on science, technology and innovation (STI) and find new projects to collaborate in. These events were designed to provide an optimal enabling environment for the Office in Tokyo to leverage resources and access experience and expertise for the benefit of South Africa's National System of Innovation (NSI). Furthermore, they were also aimed at strategically profiling South Africa as the preferred partner for international STI partnerships.

The Science and Technology Office in Tokyo is a unit of the Department of Science and Technology in South Africa. Its main focus is to support both the South African and Japanese sides by acting as an intermediary and bridge between the two countries, considering the distance between the countries, cultural difference and gap in the sizes of the two science systems.

The Office's activities in this past year were accentuated by the 10 years commemorative book launch between South Africa and Japan. The book launch showcased our science and technology collaborations. These commemorative activities also included the hosting of a number of Science Cafes in Japan with the aim of spreading awareness to the general public of the existing bilateral relation between South Africa and Japan on science and technology.

We welcomed the Minister of Science and Technology, Ms Naledi Pandor, where she delivered the Closing Remarks at the Science, Technology in Society (STS) Forum in Kyoto.

The Office participated in the Japan Science Agora hosted by the Japan Science and Technology Agency (JST), which aimed to bring science and society through science communication.

On the innovation level the Office, in partnership with various stakeholders in South Africa and Japan on the government, academic and industry level facilitated, together with the South African Embassy in Tokyo, the inaugural South Africa-Japan Business Forum on Innovation. The Forum was designed to leverage on the strength of innovation in both countries, with the aim of catalysing innovation and technology for new trade and investment opportunities between the two countries.

With regards to higher education, we promoted to a number of universities the idea of re-establishing the South Africa-Japan University Forum in Japan. The Office also participated in the Japan Student Services Organisation (JASSO) Study Abroad Fair, where we marketed South African Universities to Japanese high school students and young graduates. We also welcomed 14 South African masters students who came to Japan under the African Business Education (ABE) Initiative, where they will pursue their masters degrees in Japan and be linked to Japanese private sector to do their internship.

Lastly, the Office facilitated and supported a number of delegations that travelled between South Africa and Japan in the fields of research, education and innovation in order to make their trips more meaningful.

The work of the Office could not be possible without the support received from the South African government and our stakeholders both in South Africa and Japan. We are deeply grateful for the continued support and commitment to strengthening the collaboration between South Africa and Japan.

Science and Technology Office, Tokyo Team



The long-standing science, technology and innovation partnership with Japan was strengthened through Minister Naledi Pandor's participation in October 2014 at the world renowned Science and Technology Society (STS) Forum, which brought together a range of STI leaders to discuss global collaboration.

In her closing session address, Minister Pandor used the opportunity to highlight some of the pertinent goals of STI. The main points of focus in her address were:

1. The need to understand the nature of the rapid changes, geopolitical, scientific and societal, that are shaping all aspects of our world in the 21st century.
2. The new prominence of science, technology and innovation enjoys in global political discourse related to dealing with societal challenges and that it must be leveraged.
3. The responsibility of developing new partnership modalities for international research and innovation cooperation, and effective responses to the opportunities and challenges of sustainable development.

She ended her remarks by saying that, "Our world is ever more fragile as we struggle with climate change and sustainability. But if we have the political will, we have a real opportunity to make a difference in science and technology."



2014年10月にパンドール科学技術大臣が再来日したことで長年続いている日本とのSTI協力関係の強固さは明らかですが、大臣は国内外でSTIを牽引している方々が一同するSTSフォーラムでSTIの国際協力について議論しました。パンドール大臣はSTSフォーラムの閉会セッションで次の様に述べました(抜粋)。

1. 今私たちが生きている21世紀を形成する全ての要因、つまり急速な変化、地理的な政治要素、科学技術的要素、社会的要素の本質を理解する必要があります。
2. 国際的な政治談話を通じ、社会的な問題を解決するために、新しく卓越したSTI事例を最大限に利用していかなければなりません。
3. 環境配慮的な開発の場や課題を有効に共有し、国際共同研究やイノベーション協力のための新たな協力関係の仕組みをつくっていかなければなりません。

結びとして、「気候変動や持続可能性に苦しめられているように私たちの世界はかつてないほどより脆くなっています。ただし政治的な意思があれば、我々は科学技術によって違いを作り出す事もできます。」と、パンドール大臣は締めました。



The current chairman, Mr. Koji Omi, who is also a former Minister of Finance and Minister of State for Science and Technology Policy from Japan, established the STS Forum in November 2004. Since its inauguration, its meetings are held annually on the first Sunday of October in Kyoto. The meeting is aimed at creating a global human network based on trust, and providing a framework for open discussions regarding the development of Science and Technology for the benefit of humankind. Under the theme of 'The Lights and Shadows of Science and Technology', the STS Forum controls and monitors the ethical, safety and environmental challenges that may result from their policies. Concerted international efforts from various areas are essential in addressing these challenges effectively. For this reason, the top leaders in business, politics, science and research, and media gather every year at the forum.

Because of its global recognition and wide sphere of influence, the Forum has been dubbed the "Davos of Science and Technology". It is not a decision making body but much rather a platform for international participants to engage with Japanese research institutes, politicians and business. It also grants the opportunity to conduct formal and informal bilateral meetings with CEOs and presidents of influential multinational companies.

STSフォーラムは尾山幸次氏(現STSフォーラム理事長、元財務大臣、元内閣府特命担当大臣:科学技術政策担当)により設立されました。2004年11月の第一回のフォーラムをかわきりに、毎年10月の第一日曜日に京都で開催されています。それ以降、政治・時の政権に左右されない場として、国内外の与野党の政治家、政策立案者、多国籍企業のCEO、国際的な研究機関の代表、大学の学長、科学者、メディアなど国際的に活躍する指導者が「科学技術の光と影」というテーマで科学技術と人類の将来という極めて重要な観点の論議を重ねて来ました。社会に恩恵をもたらす科学技術を活用する事はもちろん、それを適切にコントロールするための世界規模での協調・協力が話し合われてます。



▲ Minister Pandor, Prime Minister Abe, and Mr Omi

At the margins of the STS Forum, Minister Pandor held bilateral meetings with her counterpart ministers, Mr. Hakubun Shimomura, Minister of Education, Culture, Sports, Science and Technology (MEXT) and Mr. Shunichi Yamaguchi, Minister of States for Science and Technology Policy. The Ministers discussed STI cooperation, and Science and Technology Policy between two countries. The meetings in 2014 marked a decade of STI cooperation between South Africa and Japan. Minister Pandor also met Dr. Yuichiro Anzai, the President of the Japan Society for the Promotion of Science (JSPS), Dr. Jonathan Dorfan, the President of Okinawa Institute for Science and Technology (OIST), and Mr. Yoshinari Akeno, Executive Vice President of Tohoku University and the 2014-15 South African Friendly Ambassador: Science and Technology.

パンドール大臣は下村博文 文部科学省大臣、山口俊一 内閣府特命担当大臣(科学技術政策、宇宙政策、情報通信技術政策担当)と個別会談を行い、10周年を迎えた両国の科学技術協力や両国の科学技術政策に関して意見交換をしました。また、日本学術振興会の安西祐一郎 理事長、沖縄科学技術大学院大学のジョナサン・ドーファン 理事長兼学長、2014-15南アフリカ科学技術親善大使で東北大学の明野吉成 理事と面談を行いました。



▲ Minister Pandor and Minister Shimomura (MEXT)



▲ Minister Pandor and Minister Yamaguchi (CSTI)

The South Africa-Japan University (SAJU) Forum was established to facilitate partnership for education, research and training between universities and higher education institutions in South Africa and Japan. The facilitator role of the SAJU Forum will ensure that there is an increased flow of knowledge and resources, an exchange of best practices and that South Africa and Japan become prominent players in the international S&T arena.

The Forum has only met on two occasions due to it not having a central coordinating body in Japan and that it did not receive financial support from government.

The Science and Technology Office has visited universities in Japan and had various activities such as courtesy calls with them in order to promote the interaction between Japanese and South African Universities. Among those activities, presidents/vice presidents from ten different universities were invited to a working dinner hosted by Ambassador Mohau Pheko held on 18 September 2014. The purpose of this meeting was to discuss ways in which the South Africa-Japan Universities (SAJU) Forum could be reinstated. The universities that were in attendance were:

- Asahi University;
- Kanagawa University;
- Nagaoka University of Technology;
- Okinawa Institute of Science and Technology;
- Ritsumeikan University;
- Sokendai Graduate University for Advanced Studies;
- The University of Tokyo;
- Tohoku University; and
- University of Marine Science and Technology

科学技術部は日本と南アフリカの大学間の交流を推進するため、大学に表敬・視察訪問を行うなど、日本の大学と様々な連携を行ってきました。中でも2014年9月18日に開催した日本・南アフリカの大学間の協力に関する意見交換会では10校の大学の学長・副学長にご参加いただき、日本・南アフリカ大学(SAJU)フォーラムの開催に向けて、様々な提案がなされました。

At the working dinner, members of the Forum sought to tackle the following challenges that hinder both countries, especially South Africa, from achieving maximum benefits of its cooperation:

- The nature of the collaboration is relatively skewed considering that the size of Japan's science systems are larger than South Africa's.
- The partnership between South African and Japanese institutions has been slow in gaining traction due to most collaborations have been at researcher-individual level and not at an institutional level.
- The cultural differences between South Africa and Japan, which have become a barrier in establishing a truly beneficial relationship.

There was an exchange of options that could tackle the challenges present in the South Africa-Japan cooperative, and in the rejuvenation of the SAJU Forum.

- A proposal for a young researcher's -instead of senior professors- exchange programme, which will create long lasting and sustainable research partnerships.
- A four-week cultural exchange programme to help facilitate a better understanding, and breaking, of culture barriers.



- A promotion to send Japanese students to South Africa because there are geographical advantages. In this regard, South Africa needs to establish scholarship that will attract Japanese researchers into the country's system.
- The need to establish a collaborative higher education institution similar to the Egypt-Japan University of Science and Technology (E-JUST) in South Africa.
- The President of OIST, Jonathan Dorfan volunteered to host and facilitate as the central coordinating body in Japan.

These options will be evaluated at the inauguration of the new SAJU Forum.

若手研究者の交換留学や、研究交流に向けての文化障壁を理解するための短期留学プログラム、アフリカ諸国の大学も含めての交流などが提案されました。また、長期研究交流のためのフラグシップ共同研究プログラムを導入すべきではないかとの案も出されました。



▲ University of the Western Cape signed a MoU with Asahi University and Meikai University in March 2015

## Featured Article – ABE Initiative from TICAD V

In 2014, 14 South African graduates have been given the opportunity to study in the 'Land of the Rising Sun'.

The Prime Minister of Japan, Shinzo Abe, announced at the 5th Tokyo International Conference on African Development (TICAD V), the launch of the African Business Education Initiative for Youth (the ABE Initiative). It is one of the many programmes that Japan has with Africa; a sign of Japan's recognition of Africa as a continent with great wealth and potential, and its willingness to help develop it.

According to International Labour Organisation (ILO) statistics, the number of unemployed youth in Africa has reached nearly 75 million, which is almost one third of the youth population of the African continent (200 million). Japan recognises the impact of strongly supported industries, and the realisation of highly productive industries in Africa, will play a major role in reducing this number, guaranteeing Africa a more prosperous future. Japanese industries and organisations that have cooperatives with African countries noted that there is a need for more advanced studies in Africa in order to cultivate a strong human network between Africa and Japan. As part of cultivating a strong human network, Japanese organisations are aiming to increase awareness among Africans regarding the efficiency of Japanese technologies and industries, and exposing them to the opportunities available.

The ABE Initiative is a five year plan that will provide 900 African youths, from all 53 African countries, (South Africa has been allocated 100 out of the 900), the opportunity to study at prestigious universities in Japan gratis, and participate in internships and observation tours provided by Japanese enterprises.

The master's programme is divided into four groups and 14 students from South Africa are part of the first group, which started in September 2014. The Initiative's aim is to support and develop youth in Africa that will contribute positively to the development of industries in their home countries and in collaboration with Japan.

The programme, which is taught in English, seeks to immerse African students in Japanese culture and way of life. It is important for the African graduates



▲ SA students for the Abe Initiative

to be immersed in Japanese society as they will be able to bridge the cultural barriers between the two groups when in collaboration - they will be able to recognise and understand Japanese society and the systems of Japanese industries. This fosters an easy relationship and more effective collaboration efforts between the Japanese private sector and African industries.

Participants in this programme are accepted in any fields of study for master's courses while engineering, agriculture and economics/business administration are specified as key fields of interest. Target participants include:

- those working for Japanese companies;
- those working for local companies that have close relations with Japan;
- young government official/civil servants that participate in industrial policy development related to Japan; and
- Young instructors or teachers in higher education and Technical and Vocational Education and Training (TVET) institutions in Africa.



The Department of Science and Technology (DST) is driving the establishment of a climate-based infectious diseases early warning system (iDEWS) project under the Science and Technology Research Partnership for Sustainable Development (SATREPS).

The iDEWS is a five year project that wants to establish a climate-based early-warning system for the improved management of infectious diseases such as malaria, pneumonia and diarrhea. Research will be conducted in the lowveld areas of Limpopo as the region has the highest incidences of these diseases.\*

The iDEWS Memorandum of Understanding (MoU) was signed in May 2014. The project is funded by both the Japan International Cooperation Agency (JICA) and the DST. They will be contributing R60 million and R5.7 million in research funding respectively, over the course of five years.

Other institutions are involved in the project. From the Japanese side, the other lead institutions involved are : the Japan Agency for Marine-Earth Science and Technology (JAMSTEC); and Nagasaki University. South Africa's Department of Health and the Limpopo Department of Health will be the additional institutions involved.

The Health Innovation Unit is expected to play the critical role of facilitating partnerships with South African researchers working in the field of health research and development. It will also ensure synergy between iDEWS and some of the strategic health innovation initiatives such as the South African malaria Initiative (SAMI), currently supported by the DST.



◀ Ambassador Pheko and Dr Katamine: President of Nagasaki University

The South African research consortium involves a wide range of institutions and is being led by DST's Applied Centre for Climate and Earth Systems Science (ACCESS). The consortium is comprised of the following institutions:

- The Medical Research Council (MRC);
- Council for Scientific and Industrial Research (CSIR);
- South African Weather Service (SAWS);
- University of Pretoria (UP);
- University of Limpopo (UL);
- University of Western Cape (UWC); and
- University of Cape Town (UCT).

In August 2014, the DST hosted a Japanese delegation for the inaugural iDEWS Symposium and Joint Coordinating Committee (JCC) meeting. The symposium served as a platform for researchers to discuss their progress, refine research ideas and discuss the latest developments and plans for the development of the iDEWS project.

In January 2015, the University of Nagasaki's Institute of Tropical Medicine (NUTM) hosted the second symposium in Japan. The DST Office in Tokyo treated this symposium as part of the celebrations of a decade of science and technology cooperation between South Africa and Japan and the 20 years of South African freedom and democracy.

During the symposium Ms Mabuza did the opening remarks and Ambassador Mohau Pheko delivered a Nelson Mandela Memorial lecture titled "Governance & Citizenship Lessons from Nelson Mandela".

Ambassador Pheko also paid a courtesy visit to the Deputy Governor Mr Makiko Hamamoto and Mayor Mr Tomihisa Taue of Nagasaki. Together with the South African delegation Ambassador visited the Nagasaki Atomic Bomb Museum. The site visit at the Museum served as a reminder that the world should never create nuclear weapons to destroy humanity and life.



JICA と JST が共同実施している地球規模課題対応国際科学技術協力プログラム (SATREPS) のもと、南アフリカ科学技術省 (DST) は 2014 年 5 月に JICA と覚書 (MoU) を締結し、今後 5 年間にわたり両国で感染症早期警戒システム (iDEWS = アイデューズ) の研究開発を行って行きます。

この iDEWS プロジェクトは、2013 年 3 月に終了した同 SATREPS での「気候変動予測と南部アフリカにおける応用」を引継ぎ、気候変動予測モデルから感染症流行の予測モデルを算出し、それをシステム化する事で、南部アフリカで持続的に運用できる感染症早期警戒システムを開発します。対象となる疾患はマラリア、肺炎、コレラ等の下痢症としていて、これらの発症率が高いリンボボ地方で研究を行う予定です。

このプロジェクトには、日本側から海洋研究開発機構 (JAMSTEC) と長崎大学が、南アフリカ側からは ACCESS、CSIR、リンボボ大学やプレトリア大学などの学術・研究機関だけでなく保健医療省やリンボボ地方の保健医療省も参加する予定です。

これらの保健医療省は健康関連の研究開発を行っている南アフリカの研究者らとの協力関係を円滑にするための重要な役割を

果たすと期待されてます。南アフリカ・マラリア・イニシアチブ (SAMI) 等他の健康関連政策と iDEWS 間の相乗効果も多いに期待できるでしょう。

2014 年 8 月には DST が両国の関係者を招いての合同キックオフシンポジウムを主催し、研究目標や手法など、プロジェクトを進めて行く上での様々な議論が繰り広げられました。

長崎大学熱帯医学研究所主催で第二回目のシンポジウムが 2015 年 1 月に長崎大学で開催されました。科学技術部ではこのシンポジウムを二国間科学技術協力締結 10 周年、そして南アフリカ民主化 20 周年記念の一環としてイベントに参加しました。南アフリカを代表しマブーサ科学技術担当公使が開会の挨拶を、また、ペコ大使が「The role of government towards its citizens and what constitutes citizenship?」と題した特別講演を行いました。

ペコ大使はこの長崎県訪問中に、濱本 磨毅穂 副知事、田上 富久 市長を表敬訪問しました。その後、プロジェクトの研究者らと一緒に長崎原爆資料館と平和公園を訪れ、生命そして人間性までを破壊してしまう原爆や核兵器を世界中どの国でも絶対に作ってはいけないと改めて感じました。



The Department of Science and Technology Office in Tokyo participated in Science Agora hosted by Japan Science and Technology Agency (JST). The word 'Agora' is Greek for 'gathering place'. Science Agora is the largest interactive science event held every fall for three days at maritime sub-city center around Miraikan in Daiba, Tokyo. This event is aimed at linking science and society through science communication. It also aims to foster the enjoyment and understanding of science, and to let science become a part of your life. The theme for the 9th Science Agora was "Building relations between future society and science". There were 172 exhibitors and 10,142 attendees over the three days. The Miraikan sub-city became a gathering place for the public, researchers, media, various industries, policymakers and any other stakeholders to come and converse about science and hopes for the future. South Africa was the first embassy in Japan to participate in this event and it is likely there will be more embassies attending in the future.

科学技術部は科学技術振興機構 (JST) 主催のサイエンスアゴラに初参加しました。サイエンスアゴラは東京・台場の日本科学未来館を中心に臨海副都心一帯が会場となり、毎年秋に開催している日本最大級のインタラクティブ科学イベントです。出展者と来場者が科学を通して一体となり、科学を楽しみ、科学を理解し、科学を生活の一部にすることを目的としています。9回目となる今年のサイエンスアゴラは「あなたと創るこれからの科学と社会」というテーマのもと、172 団体が出展し、3日間合計で 10,142 名の来場者が訪れました。私たちの出展は駐日大使館としては初で、今後他の大使館の参加も増えて行く事が予想されます。



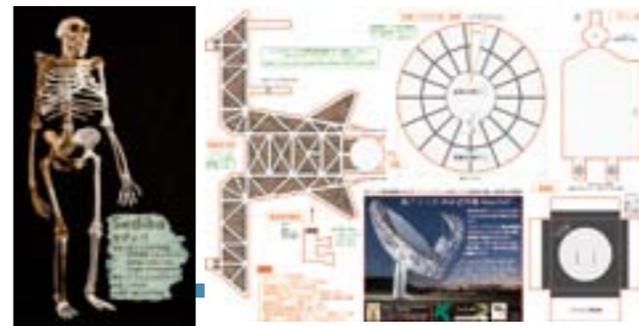
On the first day of Science Agora, Ms. Eudy Mabuza, Head of the Science and Technology Office was privileged to participate in one of the main programmes of the day: Agora Keynote Session 2 "Science in Transition: Bridging Science, Society, and Policy". She shared the stage with a high level panel made up of: Dr. Alan Leshner, Chief Executive Officer of the American Association for the Advancement of Science (AAAS); Dr. Peter Tindermans, the Secretary-General of Euro Science; Dr. Satoru Ohtake, Executive Director of JST; Sir Peter Gluckman, a Chief Science Advisor from New Zealand; Prof. Romain Murenzi, Executive Director of The World Academy of Science (TWAS); and Prof. Tateso Arimoto from the National Graduate Institute for Policy Studies (GRIPS).

初日である 11 月 7 日には未来館で基調講演が中心に行われ、マブザ科学技術担当大使がアゴラキーノート 2 転機を迎える科学~科学、社会、政策をつなぐ~に登壇し、アメリカ科学振興協会のアラン・レシュナー最高経営責任者、ユーロサイエンスのピーター・ディンデマンス事務局長、科学技術振興機構の大竹暁 理事、ニュージーランド政府のピーター・グルックマン主席科学顧問、開発途上国における科学振興のための世界科学アカデミー (TWAS) のロメン・ムレンズィ事務局長、政策研究大学大学院の有本達男 教授と討議しました。



Angora Keynote Session 3, which was titled "What we can learn from international research collaborations: Global environmental issues and Japan's role in science and technology", was held on the second day of the event. Ms. Mabuza participated as a panelist with Dr. Toshio Yamagata, Director of Japan Agency of Marine-Earth Science and Technology (JAMSTEC). Dr. Yamagata has done joint research on Prediction of Climate Variation and its Application in the Southern African Region with the Applied Center for Climate and Earth Systems Science (ACCESS) under Science and Technology Research Partnership for Sustainable Development (SATREPS) by JST and Japan International Cooperation Agency (JICA). Ms. Mabuza, speaking from her own experience as a Science and Technology diplomat, noted that "It is important to build mutual trust although it may take time, and that it is wonderful for various countries to collaborate with Japan on science and technology."

11 月 8 日にはアゴラキーノート 3 国際共同研究の現場から学ぶ~地球規模問題と日本の役割~に、JST と JICA による地球規模課題対応国際科学技術プログラム (SATREPS) で「南アフリカの気候地球システム科学応用センター (ACCESS) らと「気候変動予測とアフリカ南部における応用」で共同研究されていた海洋開発研究機構 (JAMSTEC) の山形俊男 客員研究員らとパネリストとしてマブザ科学技術担当大使が登壇し、「諸外国が日本の科学技術と協力することは素晴らしい連携だ。時間はかかるが、お互いに信頼を構築して行く事が大切だ」と、自身の科学技術外交の経験を交え、日本・南アフリカの科学技術協力について述べました。



▲ Sediba welcome panel & MeerkAT papercraft

Furthermore, the Department of Science and Technology Office in Tokyo exhibited a booth on South Africa named "The Living Laboratory - from paleontology to the latest radio astronomy". Since South Africa was celebrating its 20 years of freedom and democracy throughout 2014, the Science Agora presented a momentous opportunity to showcase the country's achievements in various areas. Throughout the exhibition, replicas of the Australopithecus Sediba fossils, discovered in the Malapa Fossil Site in 2008, caught the attention of the exhibit. The skulls are believed to belong to a juvenile male and an adult female. The paper model of the latest radio telescope- MeerKAT-, a precursor to the Square Kilometre Array (SKA) that the Office created with Kagoshima University, attracted many young minds.

また、科学技術部は 11 月 8 日と 9 日の両日にわたり未来館 1 階で特別展示を行いました。南アフリカ民主化 20 周年を記念し、この 20 年の南アフリカの科学技術を振り返る展示とともに、the Living Laboratory ~古生物学から最新電波天文学までと題し、南アフリカでしか行えない研究活動の広報活動を行いました。オーストラロピテクスで 2008 年にマラバ地方で発見されたセディバ猿人 (10 代前半の少年と 30 歳前後の女性) のレプリカは多くの人の目に留まり、鹿児島大学と共同で作成した次世代国際電波望遠鏡群 SKA の試作機ミーアキャット (MeerKAT) のペーパークラフトは子ども達の好奇心を釘付けにしました。





The Department of Science and Technology in Tokyo co-hosted Science Cafés with our stakeholders in Japan to spread awareness on the activities of S&T cooperation between South Africa and Japan, and the research activities in South Africa. Students from the host universities, the general public, and industry related to the topic attended the café. Ms. Mabuza delivered a presentation on science and technology research that is currently being done in South Africa. To foster and shape discourse on science, technology and innovation among the Japanese public, researchers who have received grants from the joint calls between South Africa and Japan were invited to explain the achievements of joint research to the audience. "Tea time" followed lectures at which afforded the audience opportunities to have personal conversations about topics with the speakers. It was a great opportunity for introducing South Africa itself and its S&T to people who usually do not have a chance to talk to the people involved in the S&T cooperation between South Africa and Japan, such as students and the general public.

日本と南アフリカの科学技術協力の実例を広めるため、また南アフリカでの研究活動を日本の方々には知らせるため、日本の協力関係者とサイエンスカフェを実施してきました。このサイエンスカフェでは、マブーザ科学技術担当大使が南アフリカで行われている科学技術研究を紹介し、実際に南アフリカと共同研究を実施している研究者を講師として招き、学生や一般市民の方々に科学や南アフリカと日本の共同研究成果を分かりやすく解説してもらいました。サイエンスカフェの特徴でもある講義後の歓談時には、普段あまり会う事のない学生や主婦など多くの方々に南アフリカの科学技術や南アフリカを紹介する良い場となりました。



In the year of 2014, there have been a total of three Science Cafés with two individual themes regarding the health benefits of Rooibos – a plant endemic to South Africa- which has been selected as part of the joint research projects under the JSPS-NRF bilateral science and technology cooperation, and the topic of radio astronomy in South Africa, which won the bid of the international astronomical science and technology project –the Square Kilometre Array (SKA).

2014年度は、南アフリカが誘致に成功した SKA に関連しての電波天文学と、日本・南アフリカの二国間科学技術協力の一つの事業である JSPS-NRF の共同研究・セミナー事業に採択されている 2 件の南アフリカ固有植物であるルイボスと健康面の関係について、計 3 回のサイエンスカフェを実施しました。



1st Café, 06 November 2014, the South African Official Residence, Tokyo

**Health Promotion Effect of Rooibos & Honeybush and Teaching on How to Make Rooibos Ice Cream**

Lectures: Prof Yutaka Miura from Tokyo University of Agriculture and Technology (TUAT), Dr. Christro J.F. Muller from Medical Research Council, Mr. Clinton Gass from ROOIBOS Marketing, and Mr. Hideya Miyamoto from Chez Matsuo

**ルイボス・ハニーブッシュによる健康増進作用とルイボススイーツ作り**

講師：東京農工大学農学部教授 三浦 豊先生、南アフリカ国立医療研究所 クリストロ ミラー先生、ROOIBOS Marketing ガス クリントン先生、シェ松尾 宮本 英也先生



2nd Café, 13 November 2014, Nagoya City University, Aichi

**Challenge to Prevention of Calculosis – Relationship between Tea and Calculus Stones by University of Cape Town and Nagoya City University**

Lecturer: Prof. Kenjiro Khorri from Nagoya City University

**ケープタウン大学 x 名古屋市立大学による結石症予防への挑戦～お茶と結石の関係**

講師：名古屋市立大学学長 郡 健二郎先生



3rd Café, 16 November 2014, Kagoshima University, Kagoshima

**South Africa and Astronomy**

Lecturer: Associate Professor Dr. Hiroyuki Nakanishi from Kagoshima University

**南アフリカと天文学**

講師：鹿児島大学理学部准教授 中西 裕之先生



# 10 Years Commemorative Book Launch & South Africa-Japan Business Forum on Innovation

南アフリカ-日本 科学技術協定10周年記念本の刊行と南アフリカ-日本 イノベーション ビジネスフォーラム



On 25 November 2014, the Science and Technology office organized a commemorative book launch in Japan to celebrate 10 years of STI cooperation between South Africa and Japan of science and technology collaboration. The launch took place in the margins of the Embassy's Business Forum on Innovation. The book launch commemorates a milestone in South Africa-Japan relations, which have been mutually beneficial for both countries, in the space of science and technology.

Mr. Mmboneni Muofhe, Deputy Director-General: Research, Development and Innovation of DST from the South African side and Mr. Yasuo Kishimoto, Senior Deputy Director-General of MEXT Science and Technology Policy Bureau from the Japanese side both signed the 10 years commemorative book. Dr. Yuko Harayama, an Executive Member of the Council for Science, Technology and Innovation (CSTI) at the Cabinet Office, also participated in the event and the both countries are committed to continuing their efforts to grow and strengthen STI cooperation.

2014年11月25日に開催された南アフリカ-日本イノベーションビジネスフォーラムの一環として、両国の科学技術協力締結10周年を記念する本の発表祝賀会を開催しました。

南アフリカを代表し科学技術省(DST)の研究開発イノベーション局のムボネニ・ムオフォヘ局長と文部科学省科学技術・学術政策局の岸本康夫 局長により記念本への署名交換が執り行われました。総合科学技術・イノベーション会議の原山優子 議員も交え、両国が今以上の科学技術協力を行っていきけるよう引き続き努力をしていく事が確認されました。



## South Africa - Japan Business Forum on Innovation

The South African Embassy in Japan, in partnership with the South African Chamber of Commerce in Japan, hosted the inaugural South Africa-Japan Business Forum in November 2014. It was supported by the Japan External Trade Organisation (JETRO), KEIDANREN, Japan International Cooperation Agency (JICA) and the African Development Bank External Representation Office for Asia. The Forum was designed to leverage on the strength of innovation in both countries, with a focus on catalyzing innovation and technology for new trade and investment opportunities between the two countries in the three key areas of: platinum beneficiation, agriculture and agro-processing, and green economy.

The Forum's aims were based on the drive to find solutions to two key questions:

- How do South African and Japanese entrepreneurial innovators collaborate in creating new technologies that empower not only innovators but the entrepreneurs and producers as well?
- What are the tools that technology and innovation initiatives need to create jobs and wealth on a large scale, and generate new businesses that provide new opportunities for trade and investment?

在日南アフリカ共和国大使館は、JETRO、経団連、JICA、アフリカ開発銀行の協力のもと、在日南アフリカ商工会議所と2014年11月に南アフリカ-日本イノベーションビジネスフォーラム(以下、フォーラム)を初開催しました。両国間の新たなビジネスと投資機会が産み出されるためのアイデアとして、鉱物資源(特に白金系金属)の付加価値可産業、農業と食品加工、グリーンエコノミーの3点に特化し、両国の持つ要素技術とビジネスイノベーション事例が紹介されました。



South Africa and Japan have a long history of trade and investment. South Africa is Japan's largest trading partner in Africa while Japan is South Africa's third largest trading partner. Trading patterns between the two economies is mainly focused on the traditional sectors of the economy. Through the Forum, South Africa wants to expose the country's innovative landscape which has produced world-renowned scientists and innovators.

The Business Forum was attended by a multidisciplinary group of experts from Japan and South Africa to the "Davos-style" sessions such as venture capitalists financiers, business, government, academics, with the South African Department of Science and Technology (DST) acting as the key interlocutors for the South African government. The Forum was further divided into two sections which aim to promote a vigorous mixture of dialogue and action. The environment of the sessions was informal, where simple presentations are encouraged in order to foster highly engaging discussions.

The South African government has identified three areas of interest where there are opportunities for science, technology and innovation investment and development with Japan.

ビジネスフォーラムはダボス会議のように投資家や実業家、産業界、政府、学者などの様々な専門家が参加する形で行われました。南アフリカ政府を代表して科学技術省 (DST) が世界的に著名な科学者やイノベーターを産み出す南アフリカの国家的イノベーションの展望が紹介されました。

両国は長年にわたり良好な貿易投資の関係を続けていますが、このフォーラムでは、両国の科学技術イノベーションにより新規ビジネスの期待が持てる3つの産業を念頭に、次の2つの課題が協議されました。

- ・ 両国のスタートアップイノベーターは利害関係を維持しながら新技術の共同事業をどのように行えるか？
- ・ 貿易投資への新たな機会が望める新規ビジネスを作り出し、莫大な富と雇用創出が必要になる技術革新イニシアチブの役割は何か？



## Platinum Benefication

Platinum is a major resource driving trade between Japan and South Africa. Japan's automobile industry is a prolific consumer of PGM autocatalysis. The industry accounts for just under half of the total consumption of the three autocatalyst metals: platinum, palladium and rhodium. Together with the increase use of platinum in Japanese industry related to the development of glass fiber, optical glass and cancer drugs, Japan has become a world-leading consumer of platinum. South Africa, as the largest producer of platinum in the world, seeks new innovation technologies to create new products with platinum. The country's industry has developed a Platinum Valley Special Economic Zone (SEZ) with a focus on innovation of new products with platinum group metals (PGM). Products made from PGM can contribute to reversing climate change and significantly reduce CO2 emissions. Opportunities in fuel cells, not only for electric vehicles but other energy uses, can provide cleaner energy solutions to the world. Currently, fuel cell development is not at commercial stage but at the research and development stage since cost performance and economies of scale is still not good. As part of the South Africa-Japan Business Forum, there was a Breakaway Session on this topic which was coordinated by the Department of Trade and Industry (the dti). The breakaway workshop provided a rare opportunity for the two countries' key players in the green energy and fuel cell sectors to get together under one roof for the first time. The workshop had two objectives: Representing the South African delegation, Hydrogen South Africa (HySA) provided an overview of the current status of South Africa's fuel cell development in conjunction with the Platinum Valley SEZ established by the dti. Japanese business provided an overview of the current status of the country's fuel cell development, covering government policy, production, manufacturing and implementation. The South African delegation learnt that Japan will most likely take the lead and establish the de facto standard for fuel cells in the world.

## Agriculture and Agro-Processing

・ Agriculture and agro-processing: Current food production systems, especially in the Small, Medium Enterprise (SME) sector, need to be revised and optimized with the aim of achieving a significant reduction in water and energy use, greenhouse gas emissions, and waste generation. There also a need to optimize the use of raw materials, increase climate resilient products, and ensure and improve shelf life, safety, packaging and quality of food products.

The aims of this Breakaway Session in agriculture innovation processes include: innovating human capital models that explore tools and technologies that assist farmers expand the agriculture chain; collaborating innovative agro-processing companies, academics and science and technology entities that can catalyze South Africa's agro-processing capacity and output; innovating R&D for farming infrastructure, maintenance and the improvement of irrigation and farmland while considering the living conditions and multiple benefits of farming communities in line with rural development; and exploring innovation for functional foods that can expand nutritional needs in South Africa.



### 白金族金属の付加価値化産業

白金は両国間で貿易される主要品目の一つです。日本の自動車産業は自動車用触媒に白金族を多く利用しています。また、ガラス繊維、光学部品、抗がん剤などでも白金の利用が増えているので、全体として日本での白金使用量は増加傾向にあります。世界最大の白金産出国である南アフリカは白金を用いた新たなイノベーション技術による新製品の開発を目指しています。開発中のプラチナバレー経済特区では、白金族を利用したイノベーションに重きをおいています。白金族製品の一例として、燃料電池やそれを利用した水素燃料電池車などが挙げられます。この技術は他の再生可能エネルギーと共に気候変動の抑制に大きく貢献していくでしょう。南アフリカの通産省 (the dti) の協力のもと、グリーンエネルギーと燃料電池における両国のア

## Green Economy

・ Green economy: South Africa considers the practical applications of innovation in technologies as key to enabling industry to create new business values while also benefitting people and the planet. The Forum provides manufacturing companies the space to share the latest innovations in enhancing their efforts towards sustainable manufacturing, ranging from pollution prevention to integrated approaches that take into consideration product lifestyles and wider impacts. Eco-innovation accelerates the move towards a green economy through a combination of technological and non-technological changes, and assist in the development of water, smart cities, architecture and renewable energy green infrastructure.

リーダーが初めて意見交換を行いました。南アフリカの水素社会の概要をハイサ (HySA) が紹介され、日本の産業界からは燃料電池の現状を政策や製造などの説明がありました。

### 農業と食品加工の高度化

農業生産、特に中小企業における現在の食料生産システムは再生と最適化が必要で、水使用とエネルギー使用の大幅な削減が必須となっています。原料使用の効率化、気候耐性化、保存期間、食の安全、包装、食品の品質向上も必要です。この分科会では、革新的な農作物加工企業、学会、科学技術関係者を招いて農業分野においての人材育成モデルや手法と技術が協議されました。農家の援助、農業システムの拡充、南アフリカの農作物生産の効率化、農村開発を含めた農家の生活向上と多くの利益をもたらすような灌漑と農地の手入れの質向上を含めた農業インフラストラクチャーの革新的研究開発、南アフリカの栄養必要量を拡大することができる機能食品イノベーションなどが紹介されました。

### グリーンエコノミー

南アフリカは2050年までにエネルギー需給オプションを検討しており、グリーンエコノミーにおける海外直接投資や現地企業との提携による技術発展や新技術の開発に期待しています。グリーンエコノミーは技術イノベーションの実例として考えられており、新規ビジネスの創生や地球上の人類に貢献するでしょう。この分科会では、産業界に汚染予防から製品サイクルと世界への影響を考慮した統合的手段まで、環境配慮型製造にむけての努力を最大限に活かす最新のイノベーションが紹介されました。水源開発、スマートシティ、建設、再生可能エネルギーを含めたグリーンインフラストラクチャーを技術内外で統合することにより、エコイノベーションはグリーンエコノミーへ移行していくでしょう。



▲ at Sophia University

In the celebration of 20 years of freedom and democracy in South Africa, South African Ambassador to Japan Ms. Mohau Pheko delivered a series of lectures across Japan on various topics as part of the Nelson Mandela Memorial Lectures. The first lecture in the series was held at the Okinawa Institute of Science and Technology (OIST) on "Can Science and Technology Promote Development and Democracy?". Ambassador Pheko addressed that, "Africa's economies are growing, and now is the time to funnel more resources into science and technology to stimulate job creation and further economic growth." by showing a map of the power of Science and Technology in the world. She also showed the usefulness of Science and Technology in Africa that has been stagnating due to the lack of investment and the social unrest. President Jonathan Dorfan, himself a native South African, called to remembrance of Mr. Nelson Mandel's great accomplishments and contributions and said, "He was always smiling, and always confident in his mission. Example of his humanitarian work and compassion is one we must never forget." The lecture series has been conducted in various places entire in Japan.

南アフリカ民主化 20 年を記念し、当大使館はネルソンマンデラ記念講演を実施してきました。シリーズ第 1 回は、「科学技術は開発と民主主義を両立できるか?」と題し、沖縄科学技術大学院大学院で開催いたしました。

▼ at OIST



ペコ特命全権大使は、世界各国の科学技術力を地図化した科学技術情勢世界地図を用いて、「アフリカ経済は成長しており、今こそ、より多くの資力を科学技術に注ぎ、雇用創出とさらなる経済成長に拍車をかけるべきだ。」と、社会不安や投資不足により低迷しているアフリカへの科学技術の有用活用について講演しました。また、同大学院のジョナサン・ドーファン学長は南アフリカ出身で、「マンデラ元大統領はいつも笑顔を絶やさず、自らの使命に揺るがぬ信念をもっていました。彼が示した人道的活動と思いやりの精神を決して忘れてはなりません。」と、同郷の民主化に尽力した元大統領の偉業と貢献を振り返りました。このネルソンマンデラ記念講演は、様々なテーマにおいて日本全国で開催されました。



▲ at Kansai University



▲ at Nagasaki University

The Science and Technology Office paid a prefectural visit to Okinawa. The visit, which was part of South Africa's celebration of 20 years of democracy, sought to explore opportunities for South Africa in the Okinawa Prefecture. The first of the Nelson Mandela Memorial Lectures was delivered during this visit by Ambassador Mohau Pheko.

Courtesy calls and site visits were made to the:

- Okinawa Institute of Science and Technology (OIST);
- University of the Ryukyus;
- Miyakojima Eco-Island;
- ANA Cargo and Naha Port Logistic Hubs;
- Japan External Trade Organisation (JETRO); and
- Trim Co., Ltd.

南アフリカ民主化 20 周年記念の一環としてのネルソンマンデラ記念講演実施の他、再生可能エネルギーや革新的な物流手法など南アフリカとの協力機会を調査するため沖縄県を視察訪問しました。



### Okinawa Institute of Science and Technology (OIST)

Ambassador to Japan Mohau Pheko delivered the first Nelson Mandela Memorial lecture here on 14 May 2014. About 300 people were in attended Ambassador Pheko's lecture which focused on the powerful role science and technology can play in the development and democratisation of Africa.

The Science and Technology Office chose OIST because of the various opportunities the institute has for not only South African students, but research and development collaborations. The multicultural and interdisciplinary graduate school is recognised for original research and innovative international workshops and courses. Its state-of-the-art facilities and frequent visitations by internationally renowned scientists makes OIST an attractive and capable partner in further developing South Africa's human capital.

Discussions with President of OIST (native South African) Jonathan Dorfan, revealed an interest in having South African graduates at OIST. Furthermore, due to the geographic location of OIST and their keen interest in establishing relations with South African universities, they are willing to host, or co-host, the reestablishment of the South Africa-Japan University (SAJU).

2014 年 5 月 14 日に沖縄科学技術大学院大学にてペコ大使によるネルソン・マンデラ記念講演シリーズの第一回が行われました。アフリカの発達、そして民主化において科学技術がどのような役割を果たすかを議題とした講演を、約 300 名が傾聴しました。

OIST は南アフリカの学生の為だけでなく、共同研究開発においてもたくさんの可能性を秘めています。最新の設備を整えた施設、そして世界的に有名な科学者らが頻りに訪れる OIST は、南アフリカの人材育成を更に発達させる為のとても魅力的、かつ有力なパートナーでもあります。

南アフリカ出身のジョナサン・ドーファン学長との面談では、OIST にて南アフリカの生徒の受け入れに対して興味を持っているという事が明らかされました。

◀ Ambassador Pheko and the Okinawa Governor Mr Nakaima



### Miyakojima Eco-Island 宮古島次世代エネルギーパーク

The largest island among the Miyako Islands of the Okinawa Prefecture, Miyakojima Island is an island affected by extreme weather. The island, formed by swelled coral reefs, is 205km<sup>2</sup> large and is home to about 55 000 inhabitants. The major industries on Miyakojima Island are tourism and agriculture, producing mainly sugarcane and tobacco. The island also grows mangoes and bitter melon, a popular melon in Asia.

Since the early 1990s, the island has introduced renewable energy programmes to preserve the environment. In 2008, the island was declared an Eco-Island which was a step towards addressing the challenges that the island faces, to mitigate the effects of climate change and to introduce people to the existing facilities on Miyakojima.

There are several renewable energy facilities around the island, ranging from solar and wind electricity plants equipped with a large NAS battery (sodium-sulfur battery) system to bio-ethanol production plants. Other facilities that have been established provide farmers with livestock manure and garbage composting which produces a cleaner and environmentally friendly fertiliser.

Miyakojima Island introduced a comprehensive counter-programme to regulate limited resource usage and protect the island's natural environments. The programme was designed to help reduce carbon dioxide emissions by 30 percent by 2030, and 70 percent by 2050. The four action areas of the programme are:

- Low carbon emissions from homes and industry.
- Establish an eco-transport system.
- Focus research and development on future energy.
- A zero-carbon agriculture system.



沖縄県の宮古諸島で一番面積の広い宮古島は珊瑚礁が発達し形成されています。面積は 205 km<sup>2</sup>、人口はおおよそ 55,000 人で、主な産業は観光、農産業です。

1990 年代始め、宮古島は環境保護の為に再生可能エネルギープログラムを発表しました。2008 年、エコアイランドと名付けられるまでになり、島々が直面する気候変化が与える影響等の問題解決への一歩前進となりました。

島内には太陽光、風力発電所からバイオエタノール生産施設まであります。他にも地下水を化学肥料等の大量使用の地下浸透による汚濁から守る為にもうけられた家畜排泄物や生ゴミを回収し、堆肥を生成し農家へ提供する施設もあります。

宮古島は環境モデル都市として認定を受けていて、2030 年までに CO2 排出量を 30 パーセント、2050 年までには 70 パーセント減らす事を行動計画目標としています。

宮古島にあるいくつかの企業が CO2 の排出量を減らす事を保証する解決策を見だしています。科学技術部はこれらの企業を訪問し、どのようなシステムで対策が行われているのかを見学しました。

そしてさらに、台風のシーズン等に使用する水を貯蓄する地下ダムの見学を行いました。宮古島には川がほとんどなく、雨水にも頼る事ができない為、農産企業が水不足を改善する為に考えだされたアイデアです。

バイオエタノールプロジェクトは、宮古島バイオ・エコシステム研究センターと内閣府など関係 6 省庁の連携事業として進められています。目的は、バイオエタノールと E3 燃料の製造供給における技術開発、システムの構築としています。

バイオ・エコシステム研究センターでは、バイオマスの効果的な利用に関する研究、メタン発酵・炭化・ガス化・堆肥化・エタノール等のバイオマスへの変換技術、利用システム、物質循環システム等を進めています。科学技術部では、バイオ・エコシステム研究センターのバイオマスプロジェクトにおけるコラボレーションが望めるのではないかと見えています。研究センターは南アフリカでバイオマスプロジェクトを実行すれば、特に農業が盛んな地方に利益を与えるだろうと考えています。

## Article written by Kathleen Estes from OIST

On the evening of May 14, OIST welcomed Mohau Pheko, Ambassador Extraordinary and Plenipotentiary, Embassy of the Republic of South Africa. She gave the Nelson Mandela Memorial Lecture titled "Can Science and Technology Promote Development and Democracy?" She answered the question with a resounding "yes!" With nearly 300 audience members in attendance, her thought-provoking presentation left many in the audience with a new appreciation of the need for development of science and technology in Africa.

President Jonathan Dorfan, himself a native of South Africa, opened the Nelson Mandela Memorial Lecture with a remembrance of his countryman's great accomplishments and contributions. President Dorfan referred to Mandela by his nickname 'Madiba', saying he was "always smiling, always confident in his mission," and that "his example of humanitarian work and compassion is one we must never forget."

After President Dorfan introduced Ambassador Pheko, she began her lecture by illuminating the rich history of science and technology on the African continent. Examples spanned from architectural feats such as the great pyramids in Egypt to 35,000-year-old math textbooks describing division and multiplication to practices still used in modern medicine. However, this legacy of science and technology has been stifled in the recent past due to unrest and lack of investment.



▲ (From left) Sir Richard Timothy Hunt, Dr Torsten Wiesel, Ambassador Mohau Pheko, Minister Counsellor: S&T Eudy Mabuza, President of OIST Jonathan Dorfan, Dr Jerome Isaac Triedman



The Ambassador illuminated the differences in education, scientific investment and patents between different countries around the world. Japan featured prominently in nearly every category, while it was apparent that Africa lacked many of the tools that lead to success in science and technology. She pointed out that "if you're going to use science and technology to drive democracy, you've got to have it."

Despite the current discrepancies between Africa and other countries, she had a message of hope. The economies in Africa are growing, and now is the time to funnel more resources into science and technology to fuel job creation and further economic growth. She believes a mix of internal government funding and foreign investment is the best strategy. As she spreads this message around the world, the Ambassador says she is asked by some why Africa should develop more science and technology when there are so many issues of unrest and basic life necessities that are lacking for so many. Her response was, "we need to send satellites up to see flooding, to identify where global warming is impacting the continent, to see what's happening to herds of animals and to develop strategies to help ease these problems." She added, "this is where we can form collaborations with countries like Japan and institutions like OIST to resolve many of the challenges on the African continent."

She ended the lecture by saying "I hope that I have touched a nerve to begin a discourse here that will help develop science and technology partnerships with Africa."

#Article courtesy of Okinawa Institute of Science and Technology  
<http://www.oist.jp/news-center/news/2014/5/16/name-great-leader>





### (Continued: Miyakojima Eco-Island)

Industries in Miyakojima sought innovative solutions that would guarantee lowered carbon emissions, and the Science and Technology Office visited each of these to learn more about them and to see how their systems work. To lower carbon emissions from homes and industries, Miyakojima built a wind and solar power generation facility. There is ongoing empirical research to improve and stabilise the power generation of a small-scale stand-alone 4,000kW solar energy system, and to see the effects of the real system when a large amount of solar power is produced. Wind energy on Miyakojima Island produces enough electricity to power 1,900 households every year – that is 6,900,000kWh every year. It has reduced the island's CO<sub>2</sub> emissions by about 7 tons every year.

The Office toured the underground dam that has been built in the island to collect ground water during typhoon season, ensuring that there is a reserve of water for when the island is hit by a drought. Due to a lack of rivers in Miyakojima, and the unreliability of rain water, the agriculture industry had to find an innovative solution to its irrigation problem.

There was also a visit to the Eco-system Biotechnology Research Centre. The Centre promotes research in Miyakojima's eco-systems and the effective use of biomass, methane, fermentation, carbonisation, gasification, composting and conversion of biomass into ethanol. Research activities are conducted in collaboration with specialist from government agencies, private companies and agricultural organisations. Farmers contribute in many areas such as crop science, farm management science, agricultural and civil engineering studies, and soil science. The Office sees an opportunity for collaboration with the Eco-system Biotechnology Centre in its biomass projects. It wants to adapt and implement it in South Africa's agricultural sector, and recognises that this type of project would be especially beneficial and effective in the rural regions of the country. For example, the Centre is using manure from farm animals and organic material from garbage and the garden, to make environmentally safe fertilisers and produce electricity.

The Bio-Ethanol Production Institution is a co-op project between the Eco-system Biotechnology Research Centre and six Japanese Ministries. This unique project's aim is to develop and demonstrate the technology and management systems that will be used in the production and supply of bio-ethanol and E3 fuel. They are also designing a business model that focuses on improving regional development which will ensure effective management of the local supply of biomass and its consumption. The Bio-Ethanol Production Institute wants to make bio-ethanol production and supply a common practice in Okinawa.



### University of the Ryukyus 琉球大学

University of the Ryukyus has established a cooperative with South Africa by signing a MoU with the University of Cape Town (UCT), however Ryukyus is keen on expanding their collaboration with them in mutual areas of interest. The Science and Technology Office encouraged the institution to apply for the South Africa Research Chairs as a means of expanding their relations with UCT. It would be a beneficial collaboration as they will be contributing to South Africa's human capital development.

The University is also keen on having South African students furthering their education at Ryukyu since they offers some courses in English.

琉球大学は南アフリカのケープタウン大学と部局間国際交流協定を締結していますが、今後さらに様々な分野での交流を増やそうとしています。そこで科学技術部より、ケープタウン大学との協定を深めるために、South Africa Research Chairに参加する事を提案しました。琉球大学では、英語での授業もあるため、南アフリカの学生を受け入れる事も検討しています。

▼ at University of the Ryukyus

(From left) Prof Sakai, Dr Hokama: Executive Vice President, Ambassador Pheko, Ms Mabuza



### Trim Co., Ltd. 株式会社トリム

The Science and Technology Office Office visited a glass recycling plant called Trim. It is a company that recycles glass waste gathered from the local community, and it is recycled in the Waste-Glass Recycling Plant. Unlike conventional glass recycling plants, the Waste-Glass Recycling Plant produces Supersol. Supersol is an artificial light porous foam material that has various industrial applications.

Most conventional glass recycling machines crush glass into cullet which is then either mixed in secondary concrete products, asphalt paving and blocks, or is used for making glass again. Cullet, however, is a low-value product and business is limited. Supersol, on the other hand, has a wide range of uses in agriculture, engineering, horticulture, architecture and in water purification.

ガラスのリサイクル事業所の株式会社トリムの工場を訪問しました。トリムでは家庭ゴミとして出されたガラスをリサイクルし、様々な企業で利用されているスーパーソル（人工軽石）を製造しています。工場では不要になったガラス瓶を粒状に砕き、カレットというガラスの粒にし、アスファルトの舗装や、再度ガラス瓶を作る為に使われる形状にします。カレットはとても価値が低く、使われる分野も限られているため、トリムでは農業や工学、園芸、建設、そして水質浄化などと幅広い分野で使われるスーパーソルに着目し、製造していました。



### Okinawa Logistic Hub - ANA Cargo & Nara Port 沖縄県国際物流拠点

The Science and Technology Office visited Okinawa [ANA Cargo] Logistic Hub in an effort to better understand Prime Minister Shinzo Abe's different 'Special Economic Zones' in Okinawa.

The Logistic Hub, operated by ANA Cargo, is located at the Naha Airport. It enables shipping between South Asian countries and Japan. It markets to 2 billion people in the Association of Southeast Asian Nations (ASEAN) and their geographical advantage enables shorter delivery time than using other airports in Japan and have 24-hour operation. The flight schedules of the hub contribute to the distribution of local products, e-commerce/online shopping and repaired electronics to name a few.

Naha Port Logistic Hub, located near Naha Airport, is also considered to be a 'Special Economic Zone'. This hub connects not only Japan and ASEAN countries, but also between main island Japan and the Okinawa Main Islands. The logistic hub ships about 85,560 international and 385,147 domestic cargo loads. They are currently constructing an 8.6 hectare building at their international pier to address some of the challenges at Naha Port.

The Office learnt how the hub operates in handling international shipping, including their customs procedure.

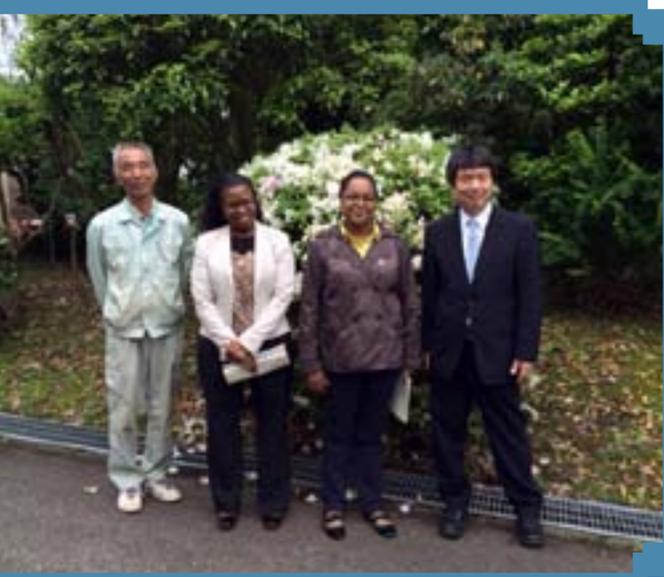
安倍首相の政策、「経済特区政策」をより理解するため、沖縄県の国際物流拠点（物流ハブ）を視察訪問しました。

那覇空港にあるANA貨物物流ハブでは、空港の24時間を有効に利用する事で日本各地とアジア域内の空港貨物の配達が迅速になりました。

一方、那覇空港の近くにある那覇港も経済特区に指定されています。このハブは日本とASEAN各国との海路だけでなく、日本本土と沖縄本島間をつないでいます。このハブでのコンテナの実入・空別貨物量は外貨で計85,560TEU、内貨で計385,147TEUです。現在、那覇港の機能強化のため、8.6ヘクタールの国際総合物流センターの建設を行っています。

この訪問により、集荷と配送の効率化、関税プロセスなど、どのように物流の国際拠点としての役割が機能しているのかを学ぶ事ができました。





◀ Seminar and presentation to the SADC Ambassadors to Japan on the World Bank and Elsevier Report titled "A Decade of Development in Sub-Saharan African STEM Research"

At the Africa-Japan Business Forum in June 2014, (From left) Prof Bruno Pollet from HySA: Syiems at UWC, Ms Daphney Mashile-Nkosi from Kgalgadi Resources Mining, Dr Darryl Naidoo from CSIR National Laser Centre, Ambassador Pheko and Minister Counsellor: S&T Mabuza (bottom left)

DST-Hitachi Scholarship Programme:  
▼ Report session by the Eskom trainees at the Hitachi Headquarters



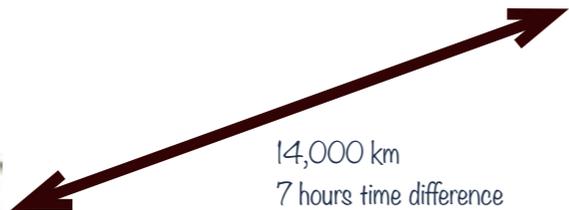
▲ Visit by Ms Amanda Gcabashe from the South African Bureau of Standards (SABS) to the Institute of Natural Medicine, Toyama University

Workshop promoting South African R&D to Japanese private sector in Osaka. In attendance were the following: Akira Life Laboratory; Mitsubishi Tanabe Pharma Corpo, Sumitomo Electric Industries, LTD.; The Kansai Electric Power Co., Inc (KEPCO); Yamamoto Kougaku Co., Ltd.; Osaka Science and Technology Club; and International Science Club of Osaka (top right ▼)

JASSO's Study Abroad Fair 2014:  
Promoting and marketing SA's universities to Japanese students ▶

Fact Sheet

数字で見る日本・南アフリカ比較



South Africa		Japan
662,470	GDP (US\$. millions) <small>2013 OECD</small>	4,592,849
51,392	Population (thousands) <small>2013 OECD</small>	127,334
0.76	GERD as a percentage of GDP <small>2012 OECD</small>	3.35
23	Numbers of Universities	782
3	Top 500 universities <small>2013 OECD</small>	20
1.11	Total researchers per thousand labour force <small>2012 OECD</small>	9.86
1.83	Total R&D personel per thousand labour force <small>2012 OECD</small>	12.98
43.72	Women researchers as a percentage of total researchers <small>2012 OECD</small>	14.41
47.19	International co-authorship, % of total scientific articles <small>2012 OECD</small>	24.8
15.56	International co-invention, % of all PCT patent applications <small>2011 OECD</small>	1.88

Did you know that...

- ... Researchers at South Africa's Council for Scientific and Industrial Research (CSIR) have claimed another world first with the development of a digital laser that is seen as a milestone in laser technology that could spur future laser-related innovations.
  - ... Japanese Professors Isamu Akasaki, Hiroshi Amano and Shuji Nakamura made the first blue LEDs in the early 1990s. This earned them a Noble Prize in Physics in October 2014 "for the invention of efficient blue light-emitting diodes which has enabled bright and energy-saving white light sources"
- ... Mark Shuttleworth founded Thawte, an early Internet security company which is now the second largest certificate authority on the internet. Furthermore, the development of Ubuntu is led by Canonical Ltd., a company owned by South African entrepreneur Mark Shuttleworth.
  - ... Professor Shinya Yamanaka is a Japanese Nobel Prize-winner in stem cell researcher. In October 2012, he and fellow stem cell researcher John Gurdon were awarded the Nobel Prize in Physiology or Medicine "for the discovery that mature cells can be reprogrammed to become pluripotent."
- ... The Cape Floral Kingdom has 9,600 plant species, 70% of which are not found anywhere else in the world. South Africa has the third highest level of biodiversity in the world
  - ... In rail transport, Japan has the most advanced trains in the world. Shinkansen ("new mainline") known as bullet trains, are the high speed trains and has an amazing technology to date. Japan operates almost 250 bullet trains every day. The N700 series Nozomi are the fastest trains in Japan with a speed of 300 km per hour. The punctuality of trains is unmatched.
- ... The invention of the computed axial tomography scan, or CAT scan, was a combined effort by South African physicist, Allan McCleod Cormack, based in the United States and British electrical engineer, Godfrey Hounsfield. They jointly won the Nobel Prize in Medicine in 1979.
  - ... Japan is the only country in the world that has the largest international conglomerates like Sony, Canon, Panasonic, Fujitsu, Sharp, Hitachi, NEC, Epson and Toshiba. Then in the other fields Honda, Mazda, Nissan, Toyota, Nintendo, Mitsubishi and Subaru are the greatest companies known in the world as well.
- ... The rich fossil heritage of South Africa is telling the story of the origin of modern humans. The Taung Child skull, found in 1924, 'Mrs Ples' and Little Foot (all from the species Australopithecus africanus) have each in turn shaken the world with further evidence for the theory that Africa was the cradle of humankind. The recent find of a new species, Australopithecus, sediba, opens another exciting chapter in this story.





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