RESEARCH COOPERATION FOR DEVELOPMENT

40 years of Research Cooperation between Sweden and Tanzania
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Research cooperation has evolved between Tanzania and Sweden. Human capacity has increased and created a wealth of invaluable knowledge, benefiting both countries. More than a thousand researchers have been trained through Swedish support and continue to publish relevant studies which have an impact on Tanzania’s growth and prosperity, and contributes to poverty alleviation.
Since 2006, 23,000 have begun farming seaweed, increasing their income.
INTRODUCTION

As we commemorate 40 years of research cooperation, and look at the goal set for it – to strengthen the research capacity of Tanzania and its access to knowledge in areas of importance for poverty-reduction – we should acknowledge the achievements of all of those who have and who continue to explore areas of great importance.

There are a number of scientific achievements in areas such as malaria, HIV/AIDS, reproductive and child health, marine sciences, energy, ICT, urban and rural planning, business administration, natural resources management, geology, molecular biology and biotechnology and more.

We must not forget that Sweden has also benefited greatly from the research performed within the cooperation. Increased knowledge of tropical diseases among Swedish researchers has come as a direct result of the bilateral cooperation.

The research cooperation initiated 40 years ago was at that time unique and innovative. The approach was to support sustainable capacity through research training of university staff, research supporting infrastructure as well as structures for research management and funding grants.

The first Swedish support was directed to the Tanzania National Scientific Research Council to provide grants for researchers. Gradually, the cooperation grew with an increasing focus on developing institutional research capacity in which research training in areas of relevance to Tanzania was key.

The Tanzanian partners are University of Dar es Salaam (UDSM), Ardhi University (ARU), Muhimbili University for Health and Allied Sciences (MUHAS) and Tanzania Commission for Science and Technology. (COSTECH) These institutions are now considered research hubs with the capacity to offer Tanzanian students high quality training.

Efforts have been put in place to strengthen the links between Tanzanian researchers and the rest of society. HIV/AIDS and malaria
research has influenced policy and saved lives. The marine science research has contributed to the seaweed farming industry and given support to small business firms. These marine resources have benefited thousands of people, mainly women, and improved their livelihood.

The research on certain seeds has resulted in safe and cheap processes to purify water. Archaeology researchers have discovered human settlements along Tanzania’s coastline.

**Human Curiosity to Explore**

The human curiosity to explore our surrounding is at the heart of all development. Without research, which is the more systematic and methodical form of curiosity, our world would be dramatically different.

The value of research in itself and its ability to create knowledge should be a generally accepted principal. Ground breaking results can not be produced without funding. It is crucial that all countries secure the funding and support of research, and acknowledge the need for a long-term perspective. The results from research are immense; from advising policy decisions to the creation of innovative ideas and businesses start ups leading to more jobs, increased wealth as well as improving public health and education.

Society must be able to benefit from research performed. Researchers produce scientific knowledge but there must also be receivers that can implement the knowledge for the benefit of society. Therefore, increasing collaboration, and the uptake of knowledge between researchers, policy makers, private companies, and society at large, is the responsibility of us all.

Sweden and Tanzania will continue to cooperate. Between 2015 and 2020 Sweden has committed to support Tanzanian research development with 336 million SEK (USD 41 million).

**RESULTS FROM THE RESEARCH COOPERATION**

- 216 PhD graduates and 106 currently studying
- 686 MSc graduates
- 1,921 peer reviewed scientific publications
“SWEDISH SUPPORT GAVE US THE FREEDOM WE NEEDED”

The University of Dar es Salaam is the oldest and largest university in Tanzania. The research cooperation was initiated in 1990 with support to one research programme in marine sciences. In the mid-nineties the approach changed to strengthen the university’s institutional research capacity. The support has made it possible to carry out research in many fields and to train a large number of UDSM staff to PhD degrees.
The University Library at University of Dar es Salaam.
The University of Dar es Salaam (UDSM) is beautifully located on a hill overlooking the bustling city. Between large park areas, with grass lawns, plants and trees, new buildings are being constructed to house the growing number of postgraduates, currently 15,000 postgraduates, students and more than 1,500 academic staff. UDSM is ranked at the top of all the Tanzanian universities.

The cooperation between Sweden and Tanzania started with support to a marine science programme in the 1990’s. Later the approach changed and concentrated on strengthening the institutional research capacity at the entire university. Today, UDSM is the largest research institution in Tanzania, and the cooperation with Sweden has covered research areas of high relevance to Tanzania from renewable energy, ICT, water and sanitation, biomedicine, archaeology, physics, mathematics, natural resources management, climate change, to languages, statistics and many, many more.

“Of all the donors, Sida has given us the freedom to carry out research in Tanzania with the training of postgraduates and administrative support being done within Tanzania, instead of being managed from outside the country,” said Professor Shukrani Manya, Director of Research at University of Dar es Salaam.

Many of the UDSM staff have been trained and graduated at Swedish universities. Today these universities collaborate with UDSM to develop content for the high quality PhD training programmes that UDSM can now offer in Tanzania.

**WILDLIFE PROTECTION**

To study the movements of elephants in the remote Ugalla landscape in western Tanzania, Dr Elikana Kalumanga, a Wildlife Ecologist at the Institute of Resource Assessment, had to locate and put a collar with a GPS-tracker on elephants from different herds. It took months of living in camps together with park rangers, walking in marshlands and driving on remote mud roads to locate and collar six elephants. During two years the GPS could locate the elephants four times a day.

“In the Ugalla landscape the elephants are not confined to one area
but they roam around in areas that are managed differently, so the engagement of different stakeholders is crucial to make sure they are well protected,” said Dr Kalumanga who did his PHD studies at both Stockholm University’s Department of Physical Geography and the University of Dar es Salaam.

His study shows that the elephants move more freely around the areas where park rangers are located, whereas they avoid areas in the southern part where there are greater opportunities for poachers to enter.

“The elephant population is being decimated on an unprecedented scale. In 2009 we counted more than 3000 elephants in Ugalla, but in 2012 that number dropped to 1000. Today, we see around 500 elephants in the area, which is a hotspot for poachers. The solution is for different stakeholders to work together to better protect elephants,” Dr Elikana Kalumanga added.
ENERGY AND THE ENVIRONMENT

To achieve economic growth that benefits the majority of the population of the country, Tanzania must develop environmentally sustainable energy. It is estimated that 90 per cent of Tanzania’s total energy consumption is met by burning charcoal and wood, accelerating the forest degradation and causing pulmonary diseases, particularly among children.

Energy is the largest research component at UDSM. iGrid is a new research programme involving a number of PhD studies, PostDoc trainings and Master of Science studies. The concept is to train in, and build knowledge about, the Smart Grid concepts. Smart Grid is a concept that seeks to improve the efficiency in the energy network through creating an intelligent system, from energy producers all the way to the consumers.

Solar energy is growing fast in Tanzania. Even in the most remote areas small solar panels light up lamps and charge mobile phones. At UDSM a solar energy group was formed as early as 1977 and in 2004 it merged with a materials science group from the chemistry department to form the Materials Science for Solar Energy and Industrial Applications Group. The group has through Swedish research funds set up a solar-based micro grid in Kisiju Pwani, providing electricity to people who do not have access to the national grid.

AFRICAN HERITAGE AND HISTORY

A regional research project on African heritage and history included Somalia, Kenya, Tanzania, Mozambique, Zimbabwe and the islands around the Indian Ocean. The project, supported by Sweden, has been viewed as integral to the development of archaeology in Tanzania.

Professor Felix A. Chami, an archaeologist at University of Dar es Salaam, with PhD studies at Uppsala University, was very much part of the African heritage and history project. During his studies he found caves in Zanzibar that had been used by human beings for at least 30,000 years.
Through the archaeology findings Felix A. Chami has formed a theory that may change the ancient history of Africa. According to his theory, civilisations in Africa, and particularly the Swahili culture of East Africa, evolved unbroken from the stone age through early iron age and up to the time when Vasco da Gama landed on the island of Kilwa Kisiwani. There, the Portuguese explorer saw large beautiful buildings equal in architecture to those in Europe.

“Africa has been viewed as a continent peopled with simple minded ethnic groups, who only received knowledge and skills from outsiders. This perception is wrong and it is racist to hold on to it,” said Professor Chami, who works at the Department of Archaeology and Heritage Studies.
RESEARCH IMPROVES LIVES

The Cantharellus mushrooms, a delicacy in Sweden, are widely found in Tanzania. But for Dr Donatha Tibuhwa, Associate Professor of Microbiology at University of Dar es Salaam, the cantharellus study is related to livelihood and food security:

“Mushrooms are proven to be a great sources of protein, arguably replacing meat. They are also a great supplement for HIV positive people as they can boost immune systems,” she said.

In 2009, Dr Tibuhwa finished her PhD on the potential of wild, edible mushrooms in the Miombo woodlands of the Selous – Niassa Wildlife Corridor. The study identified several new species adding these to the already rich biodiversity of Tanzania’s mushroom species.

“Mushrooms are collected from the wild, during the rainy season by indigenous people for food and medicinal applications, who receive an income from selling them,” said Associate Professor Tibuhwa, adding: “My colleague, Doctor Rose Masalu has also recently discovered a compound in mushrooms which induces apoptosis for preventing cancer –inhibiting the growth of cancer cells.”
Dr Donatha Tibuhwa continues to focus on mushrooms and is now conducting lab research on domesticating mushrooms and how to grow them all year round for food and medicine.

UDSM hosts a diverse range of study topics. From the study of mushrooms benefiting health to improved fishing, which creates jobs.

At the Institute of Marine Sciences in Zanzibar research has been able to improve the lives of thousands of families, improve fisheries, introduce fish farming and market seaweed. The university engages directly with the fish industry, developing high quality yields, with low-cost feed to breed the fresh-water fish tilapia in the salt water of Zanzibar. The institute works closely with coastal communities, government and private sector to find ways for a sustainable use of marine resources.

“One of our main achievements is the creation of marine reserves. Today 10 per cent of Tanzania’s marine area is protected,” said Dr Matern Mtolera, Deputy Director at the Institute of Marine Sciences.

FUTURE COOPERATION, FUTURE CHALLENGES

The Swedish support to UDSM up to 2020 aims at strengthening the research capacity in energy, water and sanitation, food security, marine sciences, biomedicine, natural resource management, mathematics and business economy with a focus on agriculture and tourism. All of these areas are vital for Tanzania to combat poverty.

RESEARCH COOPERATION IN NUMBERS

- 120 PhD graduates and 64 PhD currently trained
- 665 MSc graduates and 36 to be trained
- 1,235 peer reviewed scientific publications

IMPROVING HEALTH IN TANZANIA

To evolve from having almost no medical doctors at all at independence in 1961, to hosting a health research institute with global recognition is an astonishing achievement for Muhimbili University of Health and Allied Sciences.
At the time of independence there were only a very small number of Tanzanian medical doctors. Many British doctors had left the country and there were no postgraduate students to train new medical staff in the entire country of 10 million people.

Today, Muhimbili University of Health and Allied Sciences (MUHAS) is Tanzania’s main health research university and also hosts the main university hospital in Tanzania. In 2007 MUHAS became independent from University of Dar es Salaam.

**SPREADING THE KNOWLEDGE**

“Research training has been carefully developed at MUHAS and is core to all functions here. Through research training, MUHAS is able to generate research findings that have a great impact on society, particularly in healthcare”, said Eligius Lyamuya, Professor of Microbiology and Immunology. He is himself a beneficiary of the PhD programme, graduating in 2000 at Karolinska Institutet. Since then Professor Lyamuya has supervised ten students to PhD degree.

With Swedish support, MUHAS has strengthened its research capacity and research infrastructure. So far 668 scientific publications have been published and 72 PhD students have graduated through the programme. An additional 30 PhD students are in the current programme. Quite a few of the current and past top management staff at MUHAS have been trained with Swedish support.

**ROOTING OUT MALARIA**

The malaria department at MUHAS has participated in more than 90 scientific research papers and contributed to several new policies and regulations in fighting malaria. To avoid unnecessary drug prescriptions, the research team was involved in developing a national testing strategy and to find ways to diagnose malaria faster than was previously possible. A policy was in put in place in 2002 making it compulsory to confirm malaria through using a microscope before prescribing drugs. In 2009, when rapid malaria diagnostic tests were made available, these became compulsory to detect the parasite.
Researchers at MUHAS have proved the need to change malaria treatments twice in Tanzania due to drug-resistance. The number of deaths caused by malaria have decreased dramatically over a number of years. It came to the point where some believed that Tanzania could soon root out malaria completely. Recent studies at MUHAS found that anti-malaria drug resistance is growing faster than originally thought, making it much more difficult to stop the spread of the disease and urging policy makers to conduct further studies: “We don’t know enough to be able to say how, or even if, we can end malaria,” said Professor Omary Minzi, Pharmacologist at Muhimbili University Hospital who received his PhD at Karolinska and UDSM in clinical pharmacology in 2005.

Future studies are to be conducted to see if a malaria vaccine is possible, and to determine the role of the development of anaemia.
Professor Eligius Lyamuya, Professor of Microbiology and Immunology, in a laboratory set up to perform HIV vaccine studies.

Dr Muzdalifat Abeid, Department of Obstetrics and Gynaecology, studies how to combat sexual violence in Tanzania.
RESEARCH SAVING THOUSANDS OF LIVES

The HIV and Tuberculosis research cooperation with Sweden began in 1986, through the TANSWED programme, when Karolinska Institute and Muhimbili Medical School of University of Dar es Salaam initiated a study of the HIV/AIDS epidemic in Dar es Salaam, Pwani and Kagera regions.

“In 1988 a joint Swedish supported research programme introduced the first HIV test kits in Tanzania. With testing we found out that the prevalence of HIV among hospitalised patients in Dar es Salaam and pregnant women in Kagera was more than 20 per cent. These findings led to policy makers understanding the magnitude of the epidemic, saving thousands of lives,” said Professor Kisali Pallangyo, former Vice-Chancellor at Muhimbili University.

As an offspring of the research cooperation with Tanzania an HIV vaccine was developed in Sweden based on HIV strains circulating in Tanzania. So far, four trials have been conducted between 2007 and 2015 with the European Developing Countries Clinical Trials Partnership (EDCTP) and MUHAS, in collaboration with partners in Europe, America and Africa. By building the capacity to perform vaccine tests MUHAS is now internationally recognised to perform complex vaccine studies.

COMBATING GENDER AND CHILD VIOLENCE

In Tanzania, at least 20 per cent of women have experienced sexual violence. Results of a MUHAS study carried out in two neighbouring districts of Kilombero and Ulanga in southeast Tanzania from 2012 to 2014 show that educating communities about sexual violence and focusing on improving accurate knowledge about sexual abuse reduces the social acceptability of violence against women.

Dr Muzdalifat Abeid worked together with Professor Projestine Muganyiizi in a study on rape against women in Tanzania. The research found that successful interventions aimed at improving people’s response to rape should assume a holistic approach and
address the negative factors identified at the individual, family and community levels.

There are special desks for reporting violence in police stations and some hospitals already have a special area dedicated to rape victims: “I want to see more accelerated services. Having a dedicated task force for example, to educate and inform policy makers about what they need to know to understand the importance of professionals working together in a one-stop shop to combat this violence,” said Professor Muganyizi.

Studies on violence against women and children generated evidence which contributed to the amendment of the Sexual Offences Act. The findings have also increased the understanding of how communities react to rape and childhood sexual abuse.

**CONNECTING MUHAS WITH THE WORLD**

International health research requires strong ICT backbones, such as fibre optics, database, networks, wireless access points and 24-hour access to Internet and global scientific research. Through support from Sweden MUHAS has been able to connect most university buildings, lecture halls, student hostels and offices. Databases have been upgraded and students and staff have better access to books and online portals, which connects them with the global academic community.

The library has installed solar panels on the roof that can support a number of computers and light up rooms where students can study 24 hours a day, even if the public network is down. Sweden has also supported online academic databases and student labs.
FUTURE CHALLENGES

Despite the many successes, the challenges for health research in Tanzania is huge; 1.4 million people are living with HIV, one out of ten children will die before their fifth birthday, and the number of maternal deaths are too high. And with increased traffic the number of road accidents are alarming.

Much more research is needed to address health issues, and to assure improved medical care for the 55 million people living in Tanzania. The focus of the current Swedish support to MUHAS continues to be the major research areas that were selected early in the cooperation, such as malaria, HIV, reproductive and child health and health system research. With increased economic development, other urgent public health issues that needs to be studied appear. One involves the study of traffic injuries, which has received Swedish funding to provide knowledge and input for policy makers and to improve the medical care of those injured.

RESEARCH COOPERATION IN NUMBERS

- 72 PhD graduates and 30 being trained
- 15 MSc graduates and 18 being trained
- 668 peer reviewed scientific publications
- HIV/AIDS vaccine programme acknowledged internationally
- Malaria research change policy savings thousands of lives

Every year, tens of thousands of youths leave their rural homes to seek opportunities in urban centres, causing increasing pressure on access to housing and service delivery. In the largest cities, new high-rise office buildings are transforming the skyline every year, while not enough houses are built for the poor and informal settlements and markets develop as a consequence. Therefore land development, environmental management and human settlements have become important areas of research at Ardhi University.
Faraj Said Rangi pictured. Research performed at Ardhi University is vast, from land use to water and sanitation.
“We have multiple challenging factors in Tanzania which need to be investigated in depth to address the root causes and prescribe the correct intervention, “said Professor Gabriel Kassenga, Deputy Vice-Chancellor, Academic Affairs.

The cooperation aims to alleviate poverty through a vast variety of research projects. These include analysis of petty trading in market places in Dar es Salaam, studying the impacts on livelihoods of households living next to urban centres and urban planning for resettlement of displaced communities. One project studies how to cater for service delivery in the rapidly growing small towns all over the country. The goal for the research is to provide better environmental conditions for poor and often displaced people. It is ultimately aimed at improving their standard of living.

RESULTS FROM THE COOPERATION

The cooperation with Sweden has been vital to ARU. Since 1998, 24 of the university’s lecturers have been trained at PhD level and six to a MSc degree. Currently, 12 PhD students are being trained in various areas of expertise, contributing to increasing the research capacity at ARU. One third of the academic staff currently holds a PhD degree.

Professor John Lupala, Director for Rural and Town Planning was among the first of the PhD students at ARU to graduate at the Royal Institute of Technology (KTH) in Sweden in 2002. “Thanks to the Swedish support, ARU has been put on the map of academic institutions worldwide, and its visibility has been boosted,” Professor John Lupala said. His PhD thesis explored rapidly urbanising cities with a focus on formal and informal settlements in Dar es Salaam.

The PhD training is designed as a “sandwich model” in which the research training is conducted in both countries, allowing the candidates to work on their research in their home countries while commuting between their home university and a host university in Sweden. Most commonly fieldwork and data collection is carried out in their country of origin while course work is done in Sweden.
The collaboration with, and support from Swedish universities, have been key in developing the capacity at ARU. First by training students in Sweden, and more recently through development of curriculum and PhD training at ARU and co-supervision of PhD students. Swedish partners to ARU are Chalmers University of Technology, Royal Institute of Technological (KTH), Swedish University of Agricultural Sciences (SLU) and the Universities of Lund and Stockholm.

**PATENT FOR WATER PURIFICATION**

Research conducted at Ardhi University by Dr Nancy Marobhe has resulted in local technology using plant materials in purifying rural domestic water supplies. The research was completed in 2008 and one of the conclusions was that the natural coagulants could be used in the development of sustainable water supply services in Tanzania. Since then, Dr Marobhe has acquired a patent (2013) and has continued to develop the methods. She is in the process of trying to extend the methodology and local knowledge to industries with the goal to further develop clean water solutions for local rural and urban consumption.
Researchers at ARU find it important that their research reaches decision makers who use the knowledge to form policies and properly address national challenges. In Tanzania, researchers are often called upon by the government to lend their technical expertise to national emergencies, including earthquakes and flooding.

In December 2009, torrential rains hammered down on parts of Tanzania. Kilosa District, approximately 300 kilometres west of the commercial capital Dar es Salaam was subject to severe flooding as the Mkondoa River burst its banks. Around 50,000 people were affected, including 28,000 becoming homeless. Destruction of infrastructure was immense, including roads and connecting bridges. Water sources were damaged and contaminated, causing thousands of families to live without clean and safe water with
a risk of contracting water-borne diseases. The situation was declared a disaster.

Professor John Lupala was the Dean of ARU at that time, and was called upon to prepare an emergency response plan. His team participated in the proposal of a disaster risk mitigation plan in relation to the Kilosa flooding. Since then he has also contributed to a research report on disaster risk management for Msasani Bonde La Mpunga in Dar es Salaam, as part of the country’s Master Plan. After the flooding, Professor John Lupala was summoned by the government to come up with solutions, which involved re-settling large swathes of the population to higher ground.

“The problem in Kilosa was that heavy rainfall upstream, at the foot of a range of mountains, caused a dyke built in the 1940s by the Germans to collapse and flood the entire town,” he said.

**INCREASING SUSTAINABILITY IN RESEARCH**

Apart from carrying out research, many ARU graduates are working in prestigious positions in the government. Others are teaching and transforming programmes within the university. ARU increasingly attracts worldwide funding for its programmes and requests for specialised consultancy work is in high demand.

The research capacity created through the Swedish support has made it possible for ARU to enter into international collaboration with other institutions, which is a very good indicator of the capacity built. At the same time the research programmes are becoming more sustainable. This has led to significant collaborations with notable institutes across the globe, including the Philippines, Germany and Chile. Each year, ARU finds itself attracting more funding.

According to Doctor Hidaya Kayuza, senior lecturer at Ardhi University, there is a lot of focus on land issues on the continent:

“The African Union wishes to develop a land policy initiative for Africa, and it is using Ardhi as a centre of excellence in the region to consult on land administration issues. We have always worked closely with communities and this knowledge is invaluable to this specific project,” she said.
FUTURE CHALLENGES

The current research focuses on effects of climate change, growing urbanisation, real estate, land rights and large-scale investments. But despite impressive achievements the university management at ARU recognises a lot of challenges that have to be met in the future. The population is growing at a rate of 3 per cent annually and Tanzania is expected to have a population of 100 million by 2035.

“To be able to respond to the challenges this expected growth brings to our societies we need to continue to build capacity in research for most academic staff. Junior staff is yet to acquire capabilities to be able to carry out meaningful research, which is needed to impact society for the greater good“ said Professor Gabriel Kassenga.

POLICY INPUT FROM ARU

The National Housing Policy (2014)
The Urban Planning Guidelines and Standards (2007)
The National Housing Programme (2002)
The National Land Use Framework Plan (2007)
The Mortgage Financing Act (2007)
The Unit Titles Act (2007)
The Rating Valuation Tribunal Rules (2015)

RESEARCH COOPERATION IN NUMBERS

• 24 PhD graduates and 12 PhD students being trained
• 18 peer reviewed scientific publications
• 9 national policies and guidelines

Swedish University partners: Chalmers, Lund, KTH, SLU and Stockholm
Peter Mutaraguza, Senior Survey Technician, using instruments for surveying and mapping land.
CONNECTING RESEARCH IN TANZANIA

The Government of Tanzania’s ability to strengthen the research capacity through COSTECH requires relevant guidelines and policies as well as funding mechanisms and linking relevant research to policy makers. Sweden has also supported COSTECH in linking academia with the private sector and government institutions. COSTECH’s work has had a positive effect, improving business revenue, creating new jobs, improving products and adapting them to fit the market better.
Wood carvers in Mwenge, Dar es Salaam have formed a cluster to improve their business together with academia.
The Tanzania Commission for Science and Technology (COSTECH) has the responsibility of coordinating and promoting research and technology development activities in the country. COSTECH acts as the chief advisor to the government on all matters related to science and technology. Innovation, science and technological activities contribute strongly to the socio-economic development of the country.

COSTECH started out in 1968 as the Tanzania National Scientific Research Council (UTAFITI), and became the Tanzania Commission for Science and Technology (COSTECH) in 1986. Sweden began supporting in 1977 with funding for research projects during a limited number of years until it was initiated once more in 2009. The cooperation has significantly increased COSTECH’s capacity for successful implementation of its mandate and increased visibility of the organisation that has attracted other partners.

FUNDING RESEARCH

An important part of a vibrant research system is to provide funding for research. When the Government of Tanzania, in 2010, decided to fund research through the National Fund for Advancement of Science and Technology (NFAST), Sweden also decided to support COSTECH to strengthen its capacity to make open calls for competitive research grants. Sweden has also provided funding for 28 research projects since 2010, bringing the total number of funded COSTECH projects to 88, including the government contribution.
KNOWLEDGE TRANSFER - INFORMED POLICY DECISION

To enhance informed decision making among policy makers and other stakeholders is part of COSTECH’s activities. Policy briefs have been developed; new national research priorities for Zanzibar and the Tanzanian mainland have been articulated in a National Research Agenda (NRA) for 2015-2019 and a number of scientists and politicians have been trained to advance the uptake and use of research outputs in policy and decision-making. COSTECH opened a local office in Zanzibar followed by a workshop for politicians and civil servants in the ministries to sensitise them on the importance of research based knowledge for decision makers. As a result of the workshop the Government of Zanzibar established a department for policy, planning and research at each ministry to develop evidence based policies.
Seaweed farmers in Jambiani, Zanzibar.

Isihaca Abdul, Chairman of the Wood Carver Cluster.
GENDER PERSPECTIVE

Developing policy to improve research is part of COSTECH’s task. COSTECH has reviewed its research grant manual to allow for female researchers to be more actively involved in research.

“In the past, research had been gender blind, not being able to consider the needs of men and women, but rather taking them as a homogenous group. We are expecting with more females participating in research, it would mean that the needs of women in society will also be met and this will reduce the gender limitations observed in research,” said Dr Joyce Nyoni, Director of Social Sciences at COSTECH.

KNOWLEDGE TRANSFER - LINKING ACADEMIA WITH BUSINESS

Since 2006 the University of Dar es Salaam and later COSTECH have, through the Swedish cooperation, supported more than the 57 clusters involving 6871 firms of which 57 per cent are headed by women. The training of 140 cluster facilitators has been instrumental in cluster mobilisation, establishment, facilitation and development of viable business plans. Many clusters have been linked to academic institutions for knowledge transfer in order to develop and improve the quality of their goods and services. The majority of the clusters have improved both revenue and employed more people.

“COSTECH is a think-tank, which has partnered with Sida to spearhead the cluster development concept in the trinity of government, the private sector and academia, “said Dr Dugushilu Mafunda, Director of Innovation, Entrepreneurship and Competitiveness.
The support consists of training facilitators and self-employed entrepreneurs, who are geographically located in clusters. The aim of the collaboration is to increase the market opportunities.

On Pemba, Zanzibar, the Fish farming cluster partners with the Institute of Marine Science to conduct a study on how to effectively dry fish in order to increase sales. Research is conducted on cultivating the fresh-water fish Tilapia in the Indian Ocean. If successful this could generate employment and inspire fishers to shift from harmful fishing practices.

Another important cluster is the Magugu rice farmers cooperation with Dakawa Research Centre who developed a rice variety that is more resistant to drought.

The Fruit and Vegetable Cluster in Zanzibar cooperates with Karume Institute of Science and Technology carrying out research to develop a usable solar dryer for the cluster’s products. They are now trying a prototype that could generate income.

Since the cluster project began in 2006, seaweed farmers have grown from ten women in one village to a staggering 23,000 women seaweed farmers on Zanzibar. They make a living from farming and processing seaweed into toiletries, cosmetics, food products and flour for local markets. From exporting the raw material, the women farmers have been able to add value to the product by processing seaweed on the island to generate increased income.

Wood craftsmen at Mwenge in Dar es Salaam sell a variety of wood products, from wooden sculptures, traditional art, to crafted boxes and chairs. After experiencing a decline in sales, the craftsmen formed a cluster group which received seed funding from COSTECH who also linked them to two institutions at the University of Dar es Salaam; the Department of Fine and Performing Arts and the Entrepreneurship Centre.
With a business plan, market study and crafts innovation the wood carvers improved the quality as well as the market value of their products and have been able to increase their income with an average of 14 per cent since they joined.

“The wood carvers only used wood from one tree making them dependent on the supply. Academia convinced the wood carvers of using different trees for their products”, said Dr Furaha Kabuje, Research Officer at the cluster department of COSTECH. Isihaca Abdul, Chairman of the Wood Carver Cluster, said the most valuable lesson for them was that they convinced the craftsmen to work together, both in production and marketing.

“We learnt how to use different wood, use better techniques and to sell our products to hotels and tourist gift shops”, continues Mr Abdul.

“The difference between developed countries and developing countries is in terms of application of technologies and innovations. Sweden for example, has taught us a big lesson in the way it has utilised the potential of cluster initiatives to advance economically,” Dr Dugushilu Mafunda added.

FUTURE CHALLENGES

The challenges are many: funding research, making it accessible to a wider audience and promoting collaboration between researchers and other actors for the use of research in society. In collaboration with Swedish partners, COSTECH is focusing on access to scientific information and communication as well as funding both research and innovation through the development of an innovation fund.

“Research and training have been integral to our work with Sida support. But we crucially need to build further institutional support. In the past we didn’t have researchers, so it’s now our intention to build a critical mass of researchers who can train other researchers. With institutional support, COSTECH can have a strong impact on national research.” said Dr Dugushilu Mafunda.