



Australia Awards

Volume 18 October 2014

AlumniNews

Africa Newsletter

Australia Awards promotes Australia-Africa linkages in the agricultural sector

Writer: Stephanie Carter
Photography: Solomon Hassen

With agriculture playing a critical role in Africa's development, the Australian Government is an active investor in the continent's agricultural sector, sharing technical expertise through institutions like the Australian Centre for International Agricultural Research (ACIAR) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

In Africa, Australia's agricultural aid program focuses on the adoption of innovative technologies that will improve the productivity and effectiveness of agricultural value chains and markets.

The sector's growth remains a cornerstone of poverty reduction in many African countries. More than 65% of Africans rely on agriculture as their primary source of livelihood, reflecting its importance for food security across the continent. Investment activities are important for raising productivity and contributing to poverty reduction for both commercial and small scale farmers.

With a keen emphasis on private sector activity, Australia partners with national and regional bodies and programs such as the Alliance for a Green Revolution for Africa (AGRA) and the Comprehensive Africa Agriculture Development Programme (CAADP), in an effort to improve livelihoods and build broad-based economic growth in Africa. ACIAR continues to implement Australia's strategic approach to aid and agriculture on the continent, by building on expertise in dryland farming systems management and farming systems intensification.

Australia's commitment to agricultural investment and development assistance in Africa is reflected in Australia Awards. As an investment in human resource capacity building, Australia Awards currently offers African professionals Masters and PhD level scholarships in priority areas, including agriculture and food security. For PhD students selected to undertake research at an

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* Solomon Hassen, PhD student at the University of Queensland, conducting his research fieldwork in Ethiopia



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Australian institution, the Award is an opportunity to not only build their technical skills, but to develop long lasting Australia-Africa partnerships.

In 2014, 50 PhD students are on Award undertaking agricultural research at prominent institutions around Australia. For Ethiopian students Solomon Hassen and Taye Tadesse, both studying at the University of Queensland (UQ), their PhD scholarship and time on Award has provided a valuable opportunity to forge connections with Australian academics and associations in the agricultural sector.

The University of Queensland's agricultural research program draws on an extensive network of practical and theoretical teaching methods and the expertise of industry specialists, who share their knowledge of Australian agricultural techniques and lessons learnt with students. For Australia Award Scholars participating in the Masters or PhD program, this knowledge sharing can be transferred and adapted to their own country context.

Dr Gunnar Kirchhof, a Senior Lecturer and Research Fellow in Soil Science at the University of Queensland, explains the importance of Australia Awards in promoting Australian expertise and support for Africa's agricultural sector.

"Australia has a huge advantage for training in agriculture due to the similarity of African and Australian agro-ecosystems. In other words, we practice what we teach. The Australia Awards is an excellent way to showcase and promote Australian know how. The method used to run the Awards will ensure a long lasting impact in the workplace and the environment of the Awardees."

For Solomon and Taye, their PhD Award at UQ is helping them build Australia-Africa linkages that will benefit the long term sustainability of their research.

Before coming to Australia, Solomon was working on an ACIAR-funded project, Sustainable Intensification of Maize Legume Cropping Systems for Eastern and Southern Africa (SIMLESA), in Ethiopia. Managed primarily by the International Maize and Wheat Improvement Centre (CIMMYT), the partnership encompasses focal countries including Australia, Ethiopia, Kenya, Malawi, Mozambique and Tanzania. Solomon's PhD research focuses on phase II of SIMLESA, and he is positive about building Australia-Africa agricultural networks when he returns home.

"Through this project I have got exposure to working with multidisciplinary teams, learning from expertise from esteemed organisations and institutions and establishing lasting relations and collaborations," Solomon says.

Australia Awards supports Newcastle Disease research

Writer: Stephanie Carter
Photography: KYEEMA

As part of its broader agricultural investments in Africa over the past 30 years, the Australian Government has funded research aimed at controlling Newcastle Disease in village chickens. Newcastle Disease is endemic in much of the developing world, including sub-Saharan Africa. The virus kills millions of village chickens every year and impacts dramatically on farmers' lives and, subsequently, food security in the region.

"Upon completion of my study, I would like to go back and join the agricultural research system in Ethiopia and contribute to the development goals my country is hoping to achieve. I am pleased to hear of the Australian Government's initiative to boost partnerships and business relations with Ethiopia, as through knowledge and experience sharing we could effectively contribute to future Australian and Ethiopian agricultural business activities. I hope to play a greater role in stepping-up future collaborations for Australian-African joint funded agricultural investments."

Taye, whose PhD research examines hybrid breeding in sorghum and hybrid technology in Ethiopia, is also positive about sustaining Australia- Africa agricultural links when he returns home. "I wish to strengthen the collaboration which has already been established between the Ethiopian Institute of Agriculture and organisations like UQ and the Queensland Alliance for Agriculture and Food Innovation, in enhancing the capacity of my country's national agricultural program."

With funding of \$10.8 million contributed towards research over this period, ongoing Newcastle Disease control projects continue with the aim to fight hunger and improve livelihoods in rural village areas in Africa. The Australian Centre for International Agricultural Research (ACIAR), responsible for contributing part of overall funding, supports the progressive control of Newcastle Disease in village chickens across the continent.

Given the importance of village poultry in providing family income, particularly for female-headed households, Newcastle Disease prevention remains a vital activity in many African countries. In addition, smallholder poultry provide an essential form of high quality animal protein for families, important for food security at the village level. Sustainable prevention of Newcastle Disease delivers benefits particularly for village stakeholders.

As a key element of Australia's agricultural and human resource investment in Africa, Australia Awards supports and promotes research into Newcastle Disease through multiple channels. Australia Awards currently supports Newcastle Disease research at the Small Grants and PhD levels, and promotes collaboration and networking with likeminded Australian associations such as Australian NGO KYEEMA. Based in Brisbane, KYEEMA works to alleviate poverty and enhance food security in Africa through Newcastle Disease control and prevention.

★ / Combating Newcastle disease in chickens can help with food security

For Alumna Maureen Ziba and PhD Awardee Chrisborn Mubamba, both from Zambia, Australia Awards funding and networking opportunities have enabled their long term research activities aimed at Newcastle Disease control.

After recently receiving a small grant of over \$8,000, Maureen has strengthened her ongoing research with the Central Veterinary Research Institute and National Research Centre for Animal Diseases in Zambia. Focusing on improved diagnosis methods for Newcastle Disease, Maureen hopes to reduce infection rates in village chickens, thus increasing poultry numbers and reducing poverty. Her grant will support funding for essential laboratory resources and reagents. She is cognisant of the need for an active partnership between Australia and Zambia to combat the disease and develop and share new technologies on animal disease prevention.

"I would like to thank Australia Awards for providing the small grants scheme as this is helping us put what we learned into practice. One may gain the knowledge but resources may hinder the use of that knowledge. With the chemical reagents I have acquired for my laboratory, I will now put my knowledge and skills to use."

At the PhD level, Chrisborn is conducting his research at James Cook University, examining Newcastle Disease and the utilisation of social networks and market chains to enhance poultry disease surveillance in Zambia.

"I have been networking with organisations with an interest in advancing rural poultry research such as the KYEEMA Foundation. Maureen, an Alumni who is also running a similar project funded by Australia Awards within Zambia, will also form part of the interest group that will share knowledge and experiences in rural poultry," he says.

Professor Peter Spradbrow from KYEEMA recognises the importance of this collaboration and research sharing between Australia Awards Awardees and Alumni, and Australian organisations.

"With the support of the Australia Awards, researchers such as Maureen and Chrisborn from Zambia can help us answer these and other important questions that will have a significant impact on the control of Newcastle Disease in village chickens and the livelihoods of the people who depend on them. Postgraduate students are one of the better uses of aid funding," Peter says.

"NGOs like the KYEEMA Foundation, although they do not supervise postgraduate students, can be of assistance. They are positioned to indicate research areas that should produce answers suitable for a thesis and of practical use to other scientists."



Beefing up South Africa's emerging livestock sector

Writer: Caroline Nenguke
Photography: Baldwin Nengovhela

Improving the livelihoods of South Africa's livestock farmers, and contributing to food security in the region, is work that Australia Awards Alumnus, Baldwin Nengovhela is proud to be associated with.

South Africa's livestock sector is one of the fastest growing parts of its agricultural economy, driven by income growth and technological and structural change. Globally, the livestock sector contributes to 40% of agricultural output and supports the livelihoods and food security of almost a billion people. Globally, the sector also contributes 15% of total food energy and 25% of dietary protein.

In South Africa, livestock farming is the only viable agricultural activity in a large part of the country. Approximately 80% of South African agricultural land is suitable for extensive grazing. Cattle production has increased by 37,000 heads from 13.5 million in 2004 to 13.87 million in 2011. Eighty per cent of total cattle produced is for beef, with the remaining 20% for dairy.

Aiming to improve production and participation in this growing sector, Baldwin is working with emerging and small scale farmers throughout the country through a project titled the Beef Profit Partnerships (BPP). Initially funded by the Australian Centre for International Agricultural Research (ACIAR), the project is currently supported by the South African government.

The BPP has seen the development of a scheme that supports emerging beef farmers to increase production through performance recording. Including farmer development as part of guidelines, the scheme currently benefits 7,000 emerging farmers, with a combined total of over 50,000 breeding cattle across South Africa.

With a mission to provide the emerging southern African beef industry with professional and internationally recognised recording and genetic improvement services, the scheme also empowers beef farmers for economical and sustainable beef production through continuous improvement and innovation.

"This scheme is about getting farmers to improve their animal and enterprise performance through training and agriculture extension services," Baldwin says.

Without seeing this as an end to a remarkable project, Baldwin's team is also working on a project that aims at linking these same farmers to retail markets.

Viewing the extra effort as a value addition exercise, Baldwin explains: "The project plans to create this link by piloting with retailers and a group of beef farmer cooperatives. The idea is to keep a product on major supermarket shelves from the emerging sector."

Beef from emerging farmers has a very low market-offtake, estimated at about five per cent compared to the commercial sector, which is at around 22%. Thus, any initiative that leads to higher offtake and income generation for farmers is one that Baldwin and his team is keen to develop and implement.

Linking back to his studies in Australia, Baldwin attributes his ability to recognise, develop and implement interventions that assist in developing rural agriculture to the time he spent in Australia as an Awardee studying towards his PhD in Natural and Rural Systems Management at the University of Queensland.

"My studies in Australia have helped me identify systems that can stunt or promote growth of the emerging beef sector in South Africa, as well as identify and recognise the elements that need to be considered to develop interventions that grow rural agriculture," he says.

The project that formed part of Baldwin's studies has resulted in a countrywide initiative that is not only supported by the government of South Africa but has also received funding for scale-up to other parts of southern Africa.

In 2013, South Africa's Agriculture Research Council gave seed funding for Baldwin's team to design similar projects in the Southern Africa Development Community (SADC) countries. This initial funding led to the support and implementation of a Dairy project in Zimbabwe and Botswana.

Baldwin speaks proudly of his project as one that is based on principles that can be scaled-up to support any agricultural commodity and across Africa, as seen from the Dairy project in the two SADC countries.

★ Alumnus, Baldwin Nengovhela, is working to improve food security through livestock farming in South Africa
Far left: An emerging beef farmer in South Africa



Alumni at the forefront of community-based solutions to improve food security in Kenya

Writers: John Otieno & Adriana Abreu-Combs
Photography: Margaret Ndung'u

The Chinese proverb 'Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime' is playing out in Kenya through an innovative government-funded initiative to improve food security and address poverty and hunger in poor areas of the country.

Australia Awards Alumna Margaret Ndung'u, who graduated from Flinders University in 2005 with a Graduate Diploma in Nutrition, is helping drive these initiatives. In her role as Desk Officer at the Ministry of Agriculture, Livestock and Fisheries Department in the Makadara sub-county, Margaret facilitates the screening, assessment and selection of community projects for grant funding under the Njaa Maruufuku Kenya (NMK) Project. The Project, translated from the local language, means 'hunger eradication'.

Small grants to a maximum of KSh 150,000 (approximately AUD1,900) are offered to upscale or initiate successful projects led by community groups. Once selected, groups receive training to help them succeed in project implementation. Training involves a series of half-day sessions carried out over a few weeks. The content is customised to the specific project and it responds to a needs assessment. Since its inception in 2006, 21 groups (eight women groups, six youth groups and seven self-help groups) have received small grants. In all, about 500 people, including family and other community members, have benefited from these initiatives, indicating that benefits have extended well beyond those directly involved in the projects.

Margaret explains: "Immediate family members and the communities who are in close proximity to the beneficiaries have benefitted. This is due to the multiplier effect of the skills impacted



★ / A group funded for a mushroom growing project show off their mushrooms at growing stage

to the group and the supply of their products. For example, in Makadara sub-county, groups funded to grow mushrooms normally start selling their produce to their members and neighbours before taking the rest to supermarkets."

These grants aim to scale-up agricultural activities that focus on hunger and poverty reduction and income generation, and have empowered community groups toward achievement of these goals. Funded projects, seven of which are still to start implementation, have drawn a total of KSh 2,850,000. Initiatives funded include livestock, crop production, poultry and rabbit rearing, tree nursery and a greenhouse for vegetable growing.

About half of these projects were successful in earning income for participating members, improving their diets and increasing their knowledge-base, as evidenced by reports on the results achieved by these grants collected through monthly monitoring and field visits. Most of the benefiting groups were able to expand and diversify their projects, indicating positive prospects for sustainability.

Margaret attributes the valuable skills and knowledge she gained to her studies in Australia while on Award. "In my day-to-day work, I often apply both technical and soft skills I acquired in Australia," she says.

Australia Awards Alumni contribute to agriculture improvements in Ghana

Writers: Abi Badejo & Adriana Abreu-Combs, Eunice Virginia Appiah-Kubi (University of Queensland) and Caroline Bruce (CSIRO)

Photography: Solomon Hassen

The World Bank has identified agricultural sector development as an essential contributor for sub-Saharan Africa's growth and development. Sixty-five per cent of Africa's labour force is employed in the agricultural sector, which accounts for 32% of its gross domestic product (GDP). And yet, African farm yields are among the lowest in the world, indicating a need for increased agricultural productivity.

For a number of years, the Australian Government's Department of Foreign Affairs and Trade (DFAT) has supported Africa's efforts to harness agriculture for development through Australia Awards. Across Africa, some 600 Awards were provided in the sector between 2011 and 2014.

Australia Awards African Alumni are returning home and applying their cutting edge, Australian-acquired skills and knowledge to achieve tangible, positive outcomes for their respective countries in the agricultural sector.

Bartholomew Sey, a District Agricultural Officer in charge of Crops with the Ministry of Food and Agriculture in his home country of Ghana, is a good example. In Ghana, agriculture contributes around 22% of the country's GDP. This makes agriculture one of the country's largest employment sectors, creating a number of unique challenges, among which is the high proportion of post-harvest losses. According to the Ministry's Statistics Research and Information Directorate (SRID) post-harvest losses countrywide are between 30-35%..

As part of his Australia Award Africa Fellowship on post-harvest management of maize, rice and legumes, which he undertook in 2012 at the University of Sydney in Australia, Bartholomew developed a comprehensive work plan of activities to support his organisation's agricultural development contributions in Ghana, specifically in the reduction of post-harvest losses.

On completion of his Award, he returned to his home base in Kwahu South District, Mpraeso (located in the Eastern Region) where he collaborated with a fertilizer company, International Fertilizer Development Centre (IFDC), to train 54 farmers in two communities in his district on pesticides use in the last quarter of the 2012 farming season.

A progress report involving those farmers who participated in the training, revealed a marked drop in the farmers' post-harvest onion crop losses by a measure of 35% to 25%. Bartholomew attributes the drop to the increased awareness and adoption of new techniques on handling onions by the farmers he helped to train or provided extension services to.

He acknowledges the enabling effect his Australia Award has had on his career and his ability to contribute tangibly to his district and country. "The Fellowship has had a positive impact on my professional life in diverse ways. It has improved my self-confidence and, as a result, I handle assignments more confidently. I have also been assigned to supervise all crop projects and programs in the Directorate and now handle all post-harvest related problems and trainings," he says.

Another stellar example of Alumni using Award-gained skills to improve agricultural practices in their home country is Eunice Virginia Appiah-Kubi, also from Ghana.

Eunice is passionate about helping people in West Africa improve their food security and reduce household poverty.

"Growing up surrounded by crop fields in Ghana, I quickly learned of the importance of smallholder agriculture to the livelihoods of my family and neighbours," Eunice says.

However, there is a big gap between the crop yield actually produced and that which could be produced. Known as the yield gap, this is due to a whole range of technological, socio-economic and policy 'roadblocks'. Crop productivity can increase by up to 30% in West Africa through adoption of higher-quality seeds alone.

"I was keen to explore this issue further – understand the seed delivery system, work out what these roadblocks were and make recommendations on how they could be resolved," she says.

Through an Australia Awards scholarship in 2013-14, Eunice was able to examine barriers in the northern Ghana maize delivery system through researching the mix of various 'formal' and 'informal' delivery systems that characterise the region. She undertook the research through a Masters degree at the University of Queensland, receiving additional support from Australia's national science research agency CSIRO, and CORAF/WECARD and CSIR-SARI through a DFAT-funded project (Strengthening

Seed Systems) to which Eunice's work aligns.

"I found that major constraints included poor infrastructure, unreliable rainfall patterns, inadequate and obsolete machinery and widespread use of sub-standard seeds. But I also found there are opportunities to exploit, such as the potential for development of effective public-private partnerships, the availability of large tracks of arable land which could be sown to maize, and a huge market potential.

"These results are important – addressing the constraints and enhancing some of the opportunities offers huge potential to improve efficiencies of the maize seed system and increase production. This would reduce the yield gap, resulting in more grain available for hungry local mouths and for export."

In northern Ghana, these valuable findings are being communicated to the broad range of people involved in production, distribution and marketing of seed, through regular stakeholder meetings within the 'Strengthening Seed Systems' project. The findings have implications for West Africa more broadly – particularly within the maize seed system, but also in other seed systems which are important to the region.

¹ Ghana News Agency (2014)

★ / Maize and Beans field



Managing Striga infestations - an Alumni success story in Ghana

Writer: Abu Huudu, Australia Awards Alumnus
Photography: Abu Huudu

After completing an Australia Awards Africa Fellowship course on Dryland Farming with Uniquet in 2013 Alumnus Abu Huudu is using his new found knowledge to tackle the challenge of Striga-infestations in Ghana.

Striga (*Striga hemontica*), or witchweed, is a parasitic weed that thrives in the West African Guinea savannahs and has a devastating effect on cereal crops such as maize, sorghum and millet. These cereal crops are among the main sources of food for most West Africans.

Striga produces an abundance of tiny seeds with viabilities exceeding 10 years. With limited options available to control the weed, Striga-infested fields are often abandoned.

Working for the Ghanaian Ministry of Food and Agriculture at Wa in the Upper West region of Ghana, Abu is now addressing the issue of Striga by using a simple method that employs the co-planting of Striga-resistant plants to smother the weed.

Mucuna (*Mucuna pruriens*), velvet bean, is one such Striga-resistant plant that has been used for decades in short fallow stabilisation methods to improve soil fertility and provide ground cover to protect the soil from erosion. Unfortunately the uptake by farmers to use this herbaceous legume in their fields has been low because the leaves, seeds and pods are not edible; it is food for the soil but it cannot be easily consumed by humans or animals.

With the introduction of partly edible Mucuna varieties, farmers are now interested in including Mucuna in their cropping systems.

In his role at the Ministry, Abu has introduced these new Mucuna varieties to control Striga in the region. He has joined forces with farmers and set up pilot demonstration plots in Jirapa. As part of the initiative, Abu worked with a disabled local farmer, Thomas Dooh from Konzokallah, to achieve some remarkable outcomes.



★ Top: Abu Huudu, Dryland Farming Fellowship, University of Queensland
Bottom: Thomas Dooh, a farmer from Konzokallah inspecting his Sorghum crop which has been intercropped with Mucuna

Thomas suffered from polio as a child which left him partially disabled. This did not stop him from getting right behind Abu's idea to use Mucuna to not only suffocate the disastrous Striga weeds but to also add the much needed nitrogen to the sorghum crop in his Striga infested fields.

At the start of this pilot, efforts were hampered by unfavourable weather conditions in Upper West region in the Northern part of Ghana. But the perseverance of both Thomas and Abu paid off, after new planting was followed by good rains and the crops flourished. Mucuna made a big difference when it was intercropped with Sorghum and Thomas is now looking forward to an excellent crop harvest which will provide food security for his family and an income when the surplus is sold.

Awards Alumna: addressing African food security issues

Writer: Adriana Abreu-Combs
Photography: DFAT

It is through her drive and relentless work that Australia Awards Alumna Harriet Muyinza has pushed forward research on post-harvest management of maize in Uganda. Her effort aims to find suitable options to address high post-harvest losses in two communities benefiting from her research, which range from 15-75% depending on the length of storage. Countrywide, post-harvest losses are estimated at 19.5% a year²

Harriet received an Australia Awards Africa Fellowship to study Post-harvest Management of Maize, Rice and Legumes at the University of Sydney in 2012. On completing her studies in 2013, she received a grant from the Australia Awards Small Grants Scheme to conduct research on integrated pest management of maize in two communities of the Masindi District, in Western Uganda.

The project promoted an integrated pest management package for maize at the farmer level. Farmers were trained on proper drying and storage techniques, including solarisation and the use of metal silos and hermetic bags for storage. A metal silo with 500 kg storage capacity was manufactured and set up as a demonstration on one farmer's land.

Farmers benefiting from the project confirm a reduction in crop losses and improved ability to store the grains for a longer period in order to benefit from higher market prices. They report being able to keep their grains for six to seven months, and sell for UGX 800 per kg, as opposed to UGX 450; an income gain of UGX 350 per kg of maize.

According to a farmer who benefited from the project: "We now have bargaining power and can wait to sell at the right time; prices go down when we are harvesting the maize."

The ability to leverage funding is a key feature of Harriet's work in tackling this pressing agricultural issue in Uganda. The research, funded by the Small Grants Scheme, complemented another project that ran concurrently. Together, these two projects resulted in the introduction of the first such technologies in Uganda. Since the completion of the project, Harriet has secured funding from the Ugandan Government to conduct further research.



★ Operating a metal silo for grain storage to reduce postharvest losses

Another outcome of this project is its success in building the capacity and commitment of farmers to implement new technologies and post-harvest management techniques; this is particularly noteworthy considering that change in farming practice is not easy to accomplish. Farmers benefiting from the project are enthusiastic about the new knowledge gained and access to cutting-edge technologies, speaking about them with confidence.

Another farmer notes: "I may not have received the metal silo for my compound, but the knowledge I gained in the training was very useful, and because of that knowledge I am here to thank you for the effort you have made."

Harriet says she is grateful for the grant from the Australia Awards Small Grants Scheme. "It gave me opportunity to conduct research at the farmer level and explore the options best suitable for the Ugandan context in addressing post-harvest losses of maize," she says.

Through the Small Grants Scheme, the Australian Government provides funding for initiatives that are led by Alumni with a clear and demonstrable development benefit.

²(African Post-harvest Losses Information System, 2012).

Australia-Africa partnership drives mining and agriculture cooperation

Writer: Adriana Abreu-Combs
Photography: DFAT

“Agriculture cannot be a curse, it can only be a driver to development,” Hon Tress Bucyanayandi, Ugandan Minister of Agriculture, Animal Industry and Fisheries stated in his opening remarks at the Mining and Agriculture Symposium hosted by the Australian Government in Kampala, Uganda in early October.

★ / Top: His Excellency Geoff Tooth, Australian High Commissioner to Uganda

★ / Below: Mining and Agriculture Symposium: From Resource Curse to Development Driver. 8 - 10 October 2014, Kampala, Uganda



Agriculture and mining are closely aligned – they utilise natural resources to create wealth, their products are inextricably linked, both share a demand for physical, capital and human resources and together have the potential to impact significantly on the economy, environment and society.

In recognition of the potential benefits from stakeholders in both sectors working together, the Australian Government brought together approximately 150 experts, representing public and private sectors, academia and civil society, to discuss ways to maximise the development benefits of mining and agriculture in Africa. These included nearly 100 Alumni from Australian Government-funded programs from over 20 African countries, and another 50 researchers, decision-makers, activists, and officials from governments, NGOs and international research institutions.

The three-day symposium themed ‘From Resource Curse to Development Driver’ provided an opportunity for participants to



★ / Alumni participants share their ideas.

reflect, exchange ideas, share expertise and best practice on ways in which agriculture and mining can be harnessed for development in Africa.

Officially opening the event on 8 October, HE Geoff Tooth, Australian High Commissioner to Uganda, spoke about the strong relationship between Australia and Africa and the similarities in experience they share. He also outlined Australia’s support to Africa in harnessing the potential of these two sectors and emphasised the need for synergies between them.

“Thanks to our Alumni and our strong relationship [...], the Africa-Australia relationship is going from strength to strength. Agriculture and mining are key to that relationship and critical to the health of economies in sub-Saharan Africa,” High Commissioner Tooth said.

In the course of the three-day event, participants discussed in an open space issues for which they have a passion for and would like to contribute toward improving. Topics discussed included how policies can support transformation so that the very poor, vulnerable smallholder farmers are not reliant on subsidies or caught in the poverty trap. Participants also reflected on opportunities for using mining infrastructure such as rail, water and power to leverage agricultural development. Further, they examined the challenges facing these two sectors as well as the synergies between them that can support broader socio-economic development in Africa, among others topics.

Poster presentations showcasing the work Alumni are doing to effect positive change in Africa added another dimension to the symposium. From Angola to Zimbabwe, these are initiatives that are making a real difference.

In Uganda, the Knowledge Bank project is gathering critical information that is being made available to communities regarding recently started oil explorations in the country. In Cameroon, a

partnership with artisanal gold miners is transforming abandoned mining pits into pools for fish farming is benefiting local communities. In Kenya, a government-funded program targeting small scale horticulture producers in selected areas has benefited 5,820 farmer households from 2008 to 2014. These are just a few examples of about 80 posters presented by Alumni in the symposium.

Apart from the rich discussions that unfolded and the networking opportunities, the symposium was all about results. Participants were invited to propose projects they would like to take forward based on the discussions and networks established. They put forward 14 projects covering critical topics such as climate change, engaging youth in agriculture, community participation in mining policy and regulation, to name a few. Further, participants were encouraged to form communities of practice post-symposium to continue to share and learn from each other.

“The event was an incubator of ideas and opportunities,” said Davina Boyd, Researcher from Murdoch University attending the event. “It will be interesting to follow up on the projects that were crafted in this event to learn of their successes in the months to come.”

Since the 1960s, the Australian Government’s aid program has funded activities to share Australia’s experiences in mining and agriculture with African nations and support African Government’s efforts to harness these sectors for development. Australia Awards – Africa, the Australia-Africa Partnerships Facility (AAPF), the Australia Development Research Awards Scheme (ADRAS) and the International Mining for Development Centre (IM4DC), have all included activities to build relevant skills, establish sound governance and promote productive linkages between the industries. Alumni and researchers from all these funding mechanisms were represented at the symposium.



Empowering women in Africa is the key to economic wealth

Writer: Temana Mabula
Photography: DFAT

“Unleashing the economic dynamo of Africa’s female labour force would both sustain and accelerate growth. Women and girls are Africa’s greatest untapped resource, and it is they, not diamonds or oil and minerals, that will be the foundation for solid, sustainable and equitable progress - Mozambique’s former president Joaquim Chissano.

★ / Participants in the ‘Australian Alumni: Empowering Women in Africa’ event

African women are faced with many challenges and their resourcefulness often remains untapped. In highlighting the importance of African women in decision making, 28 Australia Awards Alumni from Southern and Eastern Africa gathered for the ‘Australian Alumni: Empowering Women in Africa’ event, which took place on 11 September 2014 in Pretoria, South Africa.

The purpose of this event was to demonstrate the challenges of empowering women in African organisations, as well as to identify ways in which Australian Government activities can better facilitate women’s participation in ongoing initiatives, including Australia Awards.

The event coincided with the visits of the Australian Foreign Affairs Minister, Julie Bishop, and the Ambassador for Women and Girls, Natasha Stott Despoja. Other guests included Dr Auxilla Ponga, Representative at the United Nations Women Multi Country Office, South Africa; and Alice Kanengoni, Manager at the Gender and Human Rights, Open Society Initiative for Southern Africa.

Apart from building relationships and laying the foundation for a mutual support network, Alumni had the opportunity to engage with the Australian Foreign Minister and the Ambassador for Women and Girls. Discussions focused around the constraints to career progression for women in Africa and participants developed a framework to progress their own professional development. They also explored current barriers which impede the effective participation of women in Australia Awards. The Minister outlined the current Australian Government’s focus on empowering women and girls, a cornerstone of all Australian Aid initiatives.



★ / Mapaseka Prudence Tshiwa receives her prize from the late Graeme Wilson’s family

★ / Hon Julie Bishop MP, Australian Minister for Foreign Affairs

“I found inspiration in the life experiences shared by the Australian Foreign Minister, the Ambassador for women and girls, and other guest speakers, particularly when they spoke about ‘unleashing the leader within, leadership not being about a position and education being a good equaliser’. As women progress, we need to learn certain cultural concepts/perceptions which are holding us back”, explained one Alumni participant.

Cultural expectations of women, uneven power relationships, and limited opportunities were some of the obstacles cited. They recommended amongst others, increased access to information, support for married women and women with children, in order for women to participate in the Awards program and other Australian Government activities.

The presence and participation of the Australian Minister for Foreign Affairs lent the occasion a gravitas which contributed to the Alumni’s confidence in being capable of making a difference through their professional contributions in their home countries.

The event ended on a high note, with the Minister presenting Certificates of Appointment to the three Alumni Ambassadors from Botswana, Mozambique and South Africa, all of whom are women. She further presented the inaugural Graeme Wilson Leadership Prize to Mapaseka Prudence Tshiwa, a 2015 intake Awardee from South Africa. The Graeme Wilson Leadership Prize has been established in honour of the late High Commissioner to South Africa, Mr Graeme Wilson.



Improving food safety in Kenya

Writers: Larelle McMillan and Vincent Were
Photography: Vincent Were

Vincent Mbashira Were was born in Kakamega, Western Kenya. He spent his childhood on a subsistence farm run by his mother.



★ / Vincent Mbashira Were, from a smallholder farm dwelling to improving lives of Africans through safe agricultural produce

Vincent attended a national secondary school in Nairobi, Kenya. In 2010, Vincent was supported through a Fellowship from the Africa Biosciences Challenge Fund (BecA) to analyse maize grain samples for signs of fungal contaminants (mouldiness, rot and discoloration) and to test for aflatoxins and fumonisins. Aflatoxins and fumonisins are carcinogenic. Aflatoxins also cause hormonal imbalance and stunted growth in children. An estimated 25% of food consumed worldwide is contaminated with aflatoxin.

Vincent says the work he completed during his BecA Fellowship helped him to gain an Australia Award to study a Master of Biotechnology at the University of Queensland.

While Vincent believes that many challenges exist for African scientists to advance research, he singles out what he believes is the greatest hurdle:

"I believe the biggest challenge facing young African scientists is a lack of funds and facilities to pursue education and research. The Australian Government has provided me the opportunity to learn more advanced molecular biology techniques and to return to Kenya to continue my work on aflatoxins and food safety," he says.

Vincent's Masters research was not only for educational purposes, it has contributed to the broader Australian-funded project on aflatoxin contamination of maize in Kenya and Tanzania.

In East Africa, approximately 132 million people depend on maize as a staple food. Maize crops are susceptible to accumulation of toxic fungal metabolites (mycotoxins). Given the technologies required for detection, these invisible toxins are under-recognised threats to the health of African populations and barriers to development and trade.

Optimistic about the work he has embarked on, Vincent says he can only hope to see progress in ensuring that food produced by smallholder farmers is, and continues to, be safe for consumption.

"I hope that with continuing work on this project, we can help to ensure that the food grown by smallholder farmers like my mother, is safe to eat."

Vincent attributes his career advancement to the linkages been formed through Australian institutions to ensure that his dream of assisting smallholder farmers is realised. These linkages and skills development are some of which Vincent is eternally grateful for.

"I take this opportunity to thank the Australian Government, CSIRO and BecA for their assistance, advice and encouragement. It is because of you that I managed to be where I am right now, having completed my masters and now undertaking my PhD, all of which will see an improvement in food production for smallholder farmers in Kenya."

Women Alumni building linkages in Australia aim to improve African food security

Writers: Robyn McConchie, Kim-Yen Phan-Thien and Emma Walters (Faculty of Agriculture and Environment University of Sydney)
Photography: University of Sydney

Improving grain storage for rural women in Cameroon and reducing the risk of aflatoxin in groundnuts in Malawi are projects that two outstanding women Alumni of the Australia Awards Africa Fellowships are currently pursuing at the University of Sydney.

★ / Martha Masango of Malawi (right) discussing postharvest problems with a farmer in Limpopo, South Africa



Esther Obi Oben, an Alumna of the 2012 Australia Awards Africa Fellowships in Post-harvest, and a postharvest entomologist lecturing at the University of Buea, is focusing on techniques to improve grain storage for rural women in Cameroon, to allow them to effectively store grain between seasons and provide food security for the family.

It is estimated that up to 80% of the harvest in Cameroon is lost each year due to weather and pests, resulting in 96% of the rural population being affected by food insecurity. With women responsible for more than 90% of food crop production, the country's women farmers are caught in a cycle of poverty due to lack of farming knowledge and access to resources.

After completing her Award, Esther was then awarded an Australian Award Fellowship (AAF). This opportunity enabled Esther to learn analytical and experimental techniques at the University of Sydney for three months.

Esther is testing natural plant products that may have insecticidal or repellancy properties that could be used at the village level to improve postharvest storage of maize in Cameroon.

Having undergone laboratory safety training for working with chemicals, Esther learned how to extract active ingredients from insecticidal plants, and how to use high performance liquid chromatography (HPLC) to analyse chemical composition. Esther says: "My Work Plan on Return has been enhanced substantially as a result of the training and skills development I have undergone in Australia which has strengthened my ability to promote change for improved postharvest in Cameroon amongst rural women; an intervention that will see an improvement in food security in the country."

Martha Masango from Malawi, another Awardee from the 2012 Australia Awards Africa Fellowships in Post-harvest, has a strong interest in the problem of aflatoxin contamination in groundnuts.

Having obtained her MSc from Leeds University in the UK, and working as an academic in food science, Martha always dreamt of pursuing further studies to promote food security in Malawi.

In 2014, Martha was awarded an Australia Awards PhD Scholarship to study at the University of Sydney. "My PhD studies focus on understanding farmer practices that contribute to aflatoxin contamination and reducing the risk through climate prediction modelling and improved postharvest practices in the supply chain," Martha says.

Aflatoxin contamination, naturally occurring mycotoxins that are produced by species of fungi, has been a problem and a threat to Malawi's trade development, particularly the groundnut export market, which was once a pillar of the Malawian economy.

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The detection of aflatoxin contamination beyond acceptable limits imposed by importing countries has played a large role in the collapse of groundnut exports from Malawi. In 2005, 42% of Malawi's groundnut exports were rejected in the EU due to aflatoxin contamination. Malawi still supplies 64.5% of the South African groundnut market, but exports to the EU have drastically reduced.

"Today, over 60% of groundnuts in Malawi are sold on poorly regulated local markets, exposing the population to high levels of aflatoxin which cause hormonal imbalances. This undermines all the efforts in promoting food security and good nutrition," she says.

Malawi is among a number of countries which have been heavily affected by the effects of climate change, mostly because of the country's reliance on rain fed agriculture.

Martha is using the Agricultural Production Systems Simulator (APSIM) that was developed in Australia to calculate the aflatoxin risk index (ARI) and predict periods of risk in the key groundnut production regions in Malawi. If she is successful, the model could be used to inform decision-making and strategies to minimise the risk of aflatoxin contamination in Malawi.

As an Alumna, Martha assisted with the orientation of the latest batch of Awardees in the Australia Awards Africa Fellowships in Post-harvest while they are undertook their course in September at the University of Sydney.

"It's really fulfilling to help this next group of African postharvest Awardees here in Sydney who are set to improve agricultural practices in Africa. It reminds me of how much I got out of the course in 2012 and how far I've now come."

* Esther Obi Oben of Cameroon taking part in a tree planting program at Tingha Public School, an indigenous primary school in Australia



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Contact Details

enquiries@australiaawardsafrica.org / www.australiaawardsafrica.org