THE CRAWFORD FUND
For a Food Secure World

Africa Australia Research Forum
25-28 August 2013

MINING, AGRICULTURE AND DEVELOPMENT

Bread from stones?

The Crawford Fund

2013 Annual Conference

A joint conference of the Crawford Fund and the Africa Australia Research Forum

Perth, Western Australia

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Editor: Ann Milligan

The Crawford Fund

The Australian Academy of Technological Sciences and Engineering established the Crawford Fund in June 1987. Named in honour of the late Sir John Crawford, the Fund commemorates his outstanding services to international agricultural research. The Crawford Fund is a non-profit, non-government organisation, dedicated to raising awareness of the benefits to developing countries and to Australia of international agricultural research. The Fund depends on grants and donations from governments, private companies, corporations, charitable trusts and individual Australians. It also welcomes partnerships with agencies and organisations in Australia and overseas.

The Fund promotes and supports international R&D activities in which Australian research organisations and companies are active participants. It supports the work of the Australian Centre for International Agricultural Research (ACIAR), the Australian Agency for International Development (AusAID), the CGIAR Consortium and other international research centres.

The annual conference is a key part of the Fund's public awareness campaign, which increases understanding of the importance and potential of international agricultural research, its achievements and needs.

The Fund also runs training programs that fill a niche by offering practical, highly focused non-degree instruction to women and men engaged in agricultural research and management in developing countries.

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The World Vegetable Centre (AVRDC)

Foreword

Welcome to what may be for some of you the Crawford Fund's annual conference on food security, and for others the Africa Australia Research Forum. To explore a topic that covers mining, agriculture and development, we feel we could not have formed a better partnership nor chosen a better timing, just prior to the Africa DownUnder event.

In bringing these two different networks together we aim to address the interaction between mining and agriculture — industries so significant to both Australia and the countries of Africa.

We are fortunate to have here a group of speakers who will broaden our knowledge and challenge our thinking. They will stimulate discussion to identify national and international policies that provide benefit to communities and improve both food security and the outcomes from mining.

Australian exploration and mining companies, we believe, feel a great deal of responsibility for the communities of which they are part, and we know that people in regional and rural areas, in both Australia and Africa, need better outcomes. In the African context, this can mean the difference between hunger and food security, between safety and ill-health, between unemployment and income, and between workable and impaired environments.

During this conference, we want you to think beyond the presentations and discussions to consider new ideas and suggestions for a better future. We hope you will take advantage of opportunities during this conference to provide your input.

The proceedings of this forum will be presented to decision-makers in government and industry in the hope that better policies and practices will eventuate.

I wish to express our appreciation to the many partners, sponsors and volunteers who have been working tirelessly for the past year to make this conference possible. I particularly mention the Organising Committee: David Doepel, Dr James Ridsdill-Smith, Terry Enright, Professor Jen McComb, and Cathy Reade the Crawford Fund's Director of Public Affairs and Communication.

John Kerin

Hon John Kerin AM
Chairman, The Crawford Fund

Welcome Address

His Excellency Malcolm McCusker AC CVO QC
Governor of Western Australia

Hon John Kerin AM, Chairman of the Crawford Fund; Hon Dr Florence Chenoweth, Minister for Agriculture, Liberia; His Excellency Festus Mogae, former President of Botswana; Members of the Diplomatic Corps; Distinguished Guests from around Africa and Australia; Ladies and Gentlemen: A very warm welcome to you, on behalf of the State of Western Australia.

I acknowledge and offer my respects to the original inhabitants of the land on which this building stands and its spiritual custodians, the Mooro Whadjug clan of the Noongar people, whose totem was the grey kangaroo. Each December they used to hold an event — 'Goominingup' — chasing kangaroos to their death over a cliff near here, feasting on them, and using their skins for cloaks.

A bit of history: on this day, 26 August, in 1768, Captain James Cook left England on a voyage which took him to the South Pacific and the east coast of Australia. On behalf of Britain, he claimed it; or some of it anyway. No one had as yet circumnavigated Australia to see if it was actually one continent, until Matthew Flinders did at the beginning of the 19th century. When the French explorer D'Entrecasteaux visited the north-west he reported (correctly) that it was hot, arid and inhospitable. The reason why Western Australia was first occupied in 1827 at Albany was just to trump the French, who had already explored much of the west coast. Captain James Stirling, when he sailed up the Swan River in 1827, reported fertile lands. This resulted in the Swan River Colony's establishment in 1829, with Stirling as its first Governor, but the colonists who followed and ventured north or further inland found that Stirling had been unduly optimistic. People of mainly British stock, they brought farming practices which, in many cases, were unsuitable for this hitherto unknown and unfarmed land; and which by much trial, and often error, had to be adapted by the settlers, to whom dryland farming was a mystery and droughts almost unknown.

The topic of this conference is to consider how the wealth from the extractive industries can be used to benefit the agriculture sector and the broader community, in particular communities in and around mining areas. This is the important question that has brought you together. Any issues in the relationship between the two sectors are best addressed by people of goodwill from each sector working together, with a synergistic, not competitive, approach.

For Australia and, I suspect, the many countries of Africa represented here, there can be few more important topics, and I congratulate the Crawford Fund and the Africa Australia Research Forum on joining together to host this conference during 'Africa Down Under'.

The inter-relationship of agriculture and mining is a very important and current issue: the impact of mining on exchange rates and the availability of skilled labour and, more recently, the impact on sustainable agriculture of the gas mining process known as 'fracking' need to be addressed thoughtfully.

As a boy, I wanted to be a farmer, but my family had no money for even a deposit. So I studied law. But when I became a partner in a law firm I joined in buying a cattle and sheep farm in Gingin, a little way north of Perth. I have been continuously involved in, and fascinated by, farming ever since. My property at Calingiri, also north of Perth, runs cattle and sheep, and currently has a crop still growing of 4500 hectares of wheat and canola. It looks good at the moment — so good I was tempted to show you some photographs which our cautiously optimistic farm manager sent me last week. But I know from long experience the many pitfalls that farmers face: lack of finishing rains, disease, pests, frost, low prices. My manager and I never go to the casino; farming is a big enough gamble! Even if all goes well, which is rare, the return on capital is low. You need to be a true believer in agriculture's future and importance — and I am.

One of the distinguished guests at this conference is Professor David Lindsay, a member of the Western Australian Committee of the Crawford Fund. About 30 years ago, when David was Dean of Agricultural Science at the University of Western Australia, my late father and I set up, with the University and the WA Department of Agriculture, a research project seeking to improve productivity of the dry, deep and highly unproductive sands of parts of the coastal plain of Western Australia. The research benefited many farmers. It was very gratifying when, as patron of Landcare, I presented an award for sustainable farming to a farmer who said 'I owe this award, and the increased capacity of my property, to the research you and your father sponsored'. Dryland farming methods are of great importance to Australia and Africa, and each can learn from the other.

Although it is an Australian body, the Crawford Fund has as its motto 'For a Food Secure World', demonstrating its appreciation that food security is a global issue which demands international co-operation and exchange of information and technology.

The world's population is forecast to be 9 billion by 2050. Its viable agricultural land is diminishing, mainly because of soil degradation, urbanisation and increased drought. It is estimated that, at the current rate of loss of viable farm land, there is likely to be a reduction in global food production. Food producers face an enormous challenge. To meet it, they must use all the expertise and experience available, wherever it may be; and more funds need to be devoted to research, funding for which has, regrettably, been reducing over recent years. Already, more than a billion people lack adequate food and water. Unless agricultural productivity can keep pace with growing demand for nutritious food from an increasing population, even more will go hungry. This is a recipe for civil unrest and instability. Agricultural research and innovative farmers are crucial, if we are to avert that catastrophe.

Australia has always been at the fore of agricultural research and innovation. The impetus was this country's very small area of naturally fertile lands, its low rainfall, and the poor quality of much of its soil. In Western Australia, much of the land on the coast was only rendered productive after research establishing the need for trace elements and nutrients such as zinc, copper, potassium, molybdenum. At present, Western Australia, with 10% of Australia's population, produces close to 50% of Australia's export income. This is very much due to its mineral resources, especially iron ore. Like all countries where the economy is heavily dependent on mineral exports, including a number of countries in Africa, we must ensure that other important industries, especially agriculture, do not suffer from what is called 'the Dutch disease' and are rendered unviable, or destroyed.

The prominence of the mineral resource industry should not obscure the importance of agricultural development — in Australia and globally. Nor, however, should we ignore the importance of the extractive industries to Australia and to Africa. I once observed, on that point, 'you can't eat iron ore', or, as the title of this conference puts it, you can't make 'bread from stones' — directly, at least. It is clear that we must find ways for the mining and agricultural industries to work together, towards a common goal of economic and social development.

Mining revenue might be used to promote agricultural research and development, to help arrest soil degradation, and restore degraded lands by re-afforestation. There is also the exciting potential, when deep mining requires the extraction of underground water, for the irrigation of otherwise unproductive land for cropping — something already under way in part of the north of this State. So the two sectors *can* work together and produce 'bread from stones'.

I wish you well in your deliberations, and hope you will also find the time to enjoy Perth's hospitality and scenic beauty. Those who are visiting this State for the first time, if able to venture outside the metropolitan area, or even just find time to stroll through the beautiful park in which this Visitors Centre stands, will learn why it is dubbed 'The Wildflower State'.

Malcolm James McCusker AC CVO QC became the 31st Governor of Western Australia on July 1, 2011. Graduating with a Bachelor of Laws degree from the University of Western Australia, he was admitted to practice in 1961 and in 1982 he was appointed a Queen's Counsel. As a barrister, Mr McCusker is well known for his successful representation in a number of high profile cases, often pro bono, of wrongfully convicted persons. Among numerous roles, he served as Chairman of the Legal Aid Commission of WA from 1983 to 2011. Mr McCusker was made an Officer of the Order of Australia for his services to law and the community (2005) and a Companion of the Order of Australia for service to the people of Western Australia (2012); and he has received many other significant awards, both professional and for services to the State. Her Majesty The Queen appointed the Governor as a Commander of the Royal Victorian Order (CVO) in October 2011. Mr McCusker is Patron of a number of community organisations including Landcare (WA). He has a strong interest in agriculture and agricultural research.

Personal reflections on Sir John Crawford

Dr Denis Blight AO FRSA
Chief Executive, the Crawford Fund

I knew Sir John Crawford and worked closely with him for the last six years of his life, from 1978 to 1984 when he died, too young, after a brief struggle with a brain tumour. I saw him briefly before an operation that sought to remove the tumour. I arrived in his hospital room equipped with some Board papers so as to make out that all was normal. He welcomed me with a typically dry remark: 'Ah, the Blight of my life!'. The operation was only partially successful and gave Sir John only a few more months of life.

Like many people who happily class themselves as acolytes of Sir John, I had grown quite quickly to respect his compassion, and his quiet but passionate vision for a better Australia and a better world. As did many others, I wept at news first of his illness and then of his passing.

I had first met him in January 1976 when we both arrived in Nairobi. I was there, with my wife and our four-year-old son, to take up an appointment as deputy head of mission at the Australian High Commission. Sir John was embarking on yet another mission for the World Bank and the CGIAR*. My first impression was of a modest, quietly spoken, short man but one nevertheless sure of his purpose. No car was there to meet either of us but Sir John politely turned down my offer to share a rickety cab ride into town.

I met him again in early 1978 after I had returned to Canberra and a job with the precursor of AusAID, the Australian International Development Assistance Bureau. At Jim Ingram's invitation I was to become the Executive Secretary of the Consultative Committee on Research, part of Ingram's strategy to increase the science and technology inputs to the Australian aid program. Sir John had accepted Ingram's suggestion that he chair the Committee.

Over a two-year period I got to know Sir John reasonably well: his far-sightedness, patience — even with a body made up of academics, research leaders and public servants — persistence and powers of persuasion. He had a remarkable ability to sum up views (which had sometimes seemed to me to be a babble of differing perspectives)

into a cogent, simply-put conclusion — a conclusion which he may well have reached in advance of the discussion but one which somehow met no demurral.

* Consultative Group on International Agricultural Research

So Sir John somehow combined his visionary character with an understanding of what was achievable, even by small steps that were persistent and always in a consistent direction.

It is impossible in a few minutes to capture the breadth and depth of Sir John's contribution but I can give you a sense of it by drawing on some of the words of Jim Ingram, another visionary and associate of Sir John who spoke about him at the Crawford Fund's Parliamentary Conference in August–September 2010. In his short oration, introducing a Crawford Memorial Lecturer as I am doing now, Ingram focused on just two of Sir John's achievements in the international sphere:

- First, the conclusion of the 1957 trade agreement with Japan. Crawford was the first to describe as our 'Near North' the region that Europeans call the 'Far East'. He was crucial in the finalisation of a trade treaty with Japan, despite some opposition to any negotiation with that nation which many (including my father who had lost a brother to them in the Pacific War) regarded as a hated enemy. The treaty laid the foundation for Australia's agriculture-based prosperity for the following two decades. In 1957 Australia was as dependent on agriculture, especially wool, as we are on minerals today. We had a wool boom. It would have been interesting, by the way, to have had then the sort of conference that we are about to begin — about the best ways in which agriculture and mining can mutually benefit each other and the national economy.
- Second, Sir John was central to the implementation of the Green Revolution in India. Over time, he persuaded the Indian Government and the World Bank to provide India with the resources it needed to enable the Green Revolution, just in time to avoid ever more devastating famines.

That second achievement Ingram mentioned led to a third. Sir John Crawford became deeply involved with the CGIAR and chaired for many years the Technical Advisory Committee, to great acclaim. He was on CGIAR business when I first met him in Africa some 36 years ago. Part of his contribution was, with Jim Ingram, to persuade the Liberal–National Government of Malcolm Fraser and Doug Anthony to approve the establishment of ACIAR*. Sir John was appointed as the first Chair of the ACIAR Board and it was my privilege to sit beside him during those crucial foundation years.

In his 2010 oration Ingram bemoaned the absence, then, of a full-scale biography of Sir John. I am pleased to say that the Crawford Fund, with the support of ACIAR, took the initiative seeking an author and financial backing for such a biography. As a result, and with an ARC linkage grant, two members of the School of History at the Australian National University (ANU) — Nicholas Brown and Frank Bongiorno — will lead a research team to write the biography of Sir John Crawford. With Stuart Macintyre (the University of Melbourne), David Lee (Department of Foreign Affairs & Trade) and me, on behalf of the Crawford Fund, Brown and Bongiorno will author the first full

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* Australian Centre for International Agricultural Research

study of the life, work and context of this great Australian and internationalist. Sir John, as a leading figure in the history of the ANU, serving as both Vice Chancellor and Chancellor, would be pleased.

Finally, let me say that I am sure Sir John — if he had lived another 39 years — would have enjoyed your company at this conference.

He would be particularly interested to listen to the Hon Dr Florence Chenoweth, for she is some speaker! As her CV shows, she is highly qualified to speak to us: a Masters degree in agricultural economics (like Sir John) and a PhD in land resources from the University of Wisconsin; a life devoted (like Sir John's) to improving the livelihoods and food security of poor farmers. No stranger to political risk, having escaped from Liberia after a violent military coup, Dr Chenoweth walked to Sierra Leone and joined the Food & Agriculture Organization of the United Nations in a leadership position. She returned to Liberia to the Ministry of Agriculture which, under her leadership, has, amongst other things, trained rural women and supported them in other ways.

Please welcome Hon Dr Florence Chenoweth to present this year's Sir John Crawford Memorial Address.

Dr Denis Blight AO FRSA, the Chief Executive of the Crawford Fund, has had a career including positions as an Australian diplomat, public servant and chief executive. His association with international agricultural research began in earnest some 25 years ago. Prior to working for the Crawford Fund, he was Director-General of CAB International, an intergovernmental body in research, training and publishing in the life sciences, and had 15 years with IDP Education Australia, the international development program of Australian universities and colleges, including the position as Chief Executive.

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SIR JOHN CRAWFORD MEMORIAL ADDRESS

Opportunities in the midst of the global food crisis

Hon Dr Florence Chenoweth
Minister for Agriculture, Liberia

The Sir John Crawford Memorial Address has been presented since 1985, in honour of the distinguished Australian civil servant, educator and agriculturalist in whose name the Crawford Fund was established. Sir John Crawford was a remarkable Australian who contributed at the highest levels, and was a passionate supporter of international agricultural research for development.

Hon John Kerin, Chairman of the Crawford Fund; His Excellency Malcolm McCusker, Governor of Western Australia; His Excellency Festus Mogae, former President of Botswana and Chairman of the Coalition for Dialogue on Africa; other high officials from Australia and Africa; ladies and gentlemen.

I am very happy to be here, and am extremely honoured to join the group of sterling persons who have delivered the Sir John Crawford Memorial Address.

When I first received the invitation to join you all at this conference and to deliver the 2013 Sir John Crawford Memorial Address, here in this beautiful and historic city of Perth, the first thought that came to mind was: Can this be for real?

You see, I first learned of Sir John Crawford — the great Australian economist, adviser to the World Bank, Chancellor of the Australian National University, the man declared Australian of the Year, and so much more — many years ago. This happened as I sat in the Memorial Library of the University of Wisconsin, Madison, with a young student, John Crawford from Sierra Leone, who was visiting a friend on campus from his home and had been given a temporary pass to use the institution's library for research purposes. John's friend introduced us and he asked me about his chances of being accepted to participate in the University's annual and popular Summer Institute for Young Researchers from Developing Countries.

Later as I went pass John, I noticed a look of concern on his face as he stared at his computer screen and so I asked if he was having problems with his research. 'Yes Madam, I learned all about you and your impressive work in your home country and abroad, and I learned about four of your colleagues in this Summer Institute simply by typing your names in the web search. With this I decided to type in my own name to see what was recorded, but nothing came up about me. Instead, I saw a list of others carrying the same name: 18 John Crawfords from around the world, but nothing about me.'

I looked over the list on his screen and Sir John Crawford's name was the first. We opened the document and together read about this great man. I visited that same list two weeks ago and I still did not see young John Crawford of Sierra Leone's name on it. I did pray that he was given the chance to remain in school and achieve his goal of becoming an agricultural scientist and researcher.

Today, as I pay homage to Sir John Crawford, Australia's proud son, I would like to express my delight that his memory lives on in so may ways, including this Annual Memorial Address and the Crawford Fund for a Food Secure World. I wish to register my sincere thanks to the organisers of this year's conference for honouring me through their kind invitation to deliver the 2013 address.

In my letter of invitation to deliver this address, I was asked to speak on the topic 'Opportunities in the Midst of the Global Food Crisis', but I was given the option to centre my address on other areas that my research and work have focused on, including the right to food, which is being denied to millions daily; the challenges associated with attaining long-term food security for Africa; resources access rights and gender equality; gender, food security and development. I will attempt to refer to all of the topics because they are all interrelated.

I will start with hunger and food security, which I first learned about in a way that troubled me for the first time in 1962 when I was 17 years old. Before that day, I had not taken seriously my mother's (who was a professional nurse) daily reminder to her children to take only the amounts of food that we could eat and never to waste food because there were people including children who went to bed hungry. I simply had not understood this. The breakthrough for me came when an official from the national Civil Service Agency came to my boarding high school to talk to us about staying in school, going on to college, and selecting our majors carefully, taking into consideration how some fields of employment were so overcrowded and others like agriculture and forestry were so empty. Focusing on agriculture, he said, would help Liberia to fight against hunger — a situation that people could die from — coming to our land.

I do not remember all that he said, but I do remember what he said about people going hungry and possibly dying from hunger. I do remember that nothing about this made sense to me at 17. It was the most outrageous thing that I had heard of, and it troubled me severely. I remember that I made the decision that day to throw out my list of what-I-want-to-be-when-I-grow-up, and to focus on majoring in agriculture, becoming the best scientist that I could, working hard and grabbing every opportunity to support an end to world hunger.

We have all heard the declaration of 2007–08 that informed the world that we were in the midst of yet another world food crisis that was worsening. We were told that we must double global food production to feed a world population currently standing at 7 billion and expected to rise to 9 billion by 2050, and we know now that we were not prepared at the time to meet the challenge. We know now that 200,000 were added to the world food demand; that, with rising incomes and dietary changes, many would shift towards higher meat intake; that meat production is very demanding in terms of energy, cereals and water; that, even then, almost half of the world's cereals were being used for animal feed.

When it comes to the billions who are stuck in the poverty trap, we know that higher and volatile food prices — which seem the 'new normal' — mean that they can only cope by eating cheaper, less nutritious food, which can have catastrophic life-long effects on their social, physical and mental well-being.

A world food crisis does not just happen. We do not just wake up one morning and realise that we are hit with a world food crisis or a global food shortage. What happens, in fact, is that we have warnings, countless warnings, over periods long enough to do something to address the looming hunger crisis in poor countries and in areas with pockets of poverty in rich countries. But we fail to take action until the crisis hits.

A good example of this is what happened around the 2007–08 world food price crisis. Led by the Director General of the Food and Agriculture Organization (FAO) and including world leaders and other world bodies concerned about hunger and food insecurity, calls for action were made starting in mid-2007 to avert the impending world food crisis that could result from rising crop losses in many countries. Specifically, the call was for grants to support farmers in poor countries where conditions for increased production were still possible but where fertiliser, seed and animal feed had risen in price by 90, 72 and 60 per cent respectively. No actions were taken until the destitute and those excluded from the banquets of the rich, as the FAO Director General put it, took to the streets to voice their discontent and despair. Only then did support, in the form of food aid, begin to emerge. Food price rises in 2007 led to an additional 50 million people around the world being classified as 'hungry'.

When we consider the reality of poverty in today's world — a world where there is already enough food to feed every man, woman and child and where we continue to produce more and more food, but yet malnutrition, hunger and famine continue and even increase, placing millions of people in peril; where 1 billion people live in poverty that is closely linked to injustice and exploitation; where the environment is being degraded, not only to support economic growth but also to support the mere survival of the poor — we cannot but wonder what is wrong with approaches used to address the issues.

After all those years of dealing with this subject, I have my list of answers to this question: a list that I know is in no way exclusive.

1. There must be a New Deal for Agriculture where the right to adequate food for all is placed at the centre of the medium- to long-term responses to the current crisis.

Agriculture has been a neglected sector for many years, in the definition of priorities both of official development assistance and of national governments, and in the lending policies of development banks. All actors must agree on the need to massively reinvest in agriculture, in order to make up for the shortsighted policies of the past. Agriculture is the most effective way to combat extreme poverty, particularly in agriculture-based countries.

2. Hunger must be correctly seen as a denial of a basic human right: the right to food.

Hunger is exclusion: exclusion from the land, from jobs, wages, income, life and citizenship. When a person gets to the point of not having anything to eat, it is because all the rest has been denied. This is the desperation facing each and every one of the 870 million people in our world who are hungry today. Incorporating human rights principles into traditional development approaches may supply the 'missing element' which has prevented over 50 years of development aid from overcoming hunger and poverty. The benevolence model of aid has not worked. What works is a sustainable, enabling environment in which people can feed themselves. Empowerment is the key to doing this. A right-based approach can help not only achieve food security, but also meet international poverty-reduction goals, while simultaneously recognising human dignity and the inherent worth of every individual.

3. Investment in agricultural research systems must increase worldwide but especially in Africa. We must support an agricultural research agenda that also focuses on rural women's needs for agricultural technologies, labour-saving agricultural equipment and modern means of communication.

In many parts of the world, Liberia and other countries in Africa being no exception, women work alongside men in the fields that provide nourishment and income for their families. They contribute to commercial agriculture, which includes high value products such as vegetables. They make up over 60 per cent of the total farming population, but, more often than not, women's contributions to the agricultural sector go unrecognised. Few are paid for their labour, and societal views of women's roles restrict their inputs into household decisions. Such beliefs also limit their access to land ownership, farm equipment and credit — all of which are needed, to be economically successful. These barriers ultimately inhibit women's ability to produce, and can make it difficult for them to escape poverty or provide sufficient food for their families.

As I bring this address to a close, I would like to leave you with thoughts with which I end my own day, every day:

- we cannot end hunger by simply sealing off our comfort zones to the suffering and dying of the poor;
- our world must adopt a right-based approach to freedom from hunger and find ways to help solve the problem in a holistic manner;
- we must understand that only by doing this will we achieve food security for all, meet international poverty-reduction goals, and simultaneously recognise human dignity and the inherent worth of every individual.

Tonight and every night we must remember that 870 million women, men and children — human beings just like you and me — will go to sleep on an empty stomach. This will happen as we, the 'food-secured lot', empty perfectly good food into waste bins.

Those people will have endured yet another day of having a promise of adequate food for all, and at all times — a promise conceived in the 20th Century — failing to come to fruition in the 21st Century. Tomorrow morning, those that survive the night will go on hoping and dreaming not only that somehow they will find something to eat and the energy to face another day, but also that they will be seen, correctly, as people who face obstacles in fulfilling a fundamental human right — the right to a standard of food security that is necessary for human dignity.

The Hon Dr Florence Chenoweth is the Minister for Agriculture in Liberia, and the winner of the Africa Prize 2011. Dr Chenoweth holds a Masters degree in agricultural economics and a PhD in land resources from the University of Wisconsin, Madison. Her career has been devoted to improving the livelihoods and food security of women farmers in Africa. She joined the UN FAO as its representative in Gambia in 1995, opened the FAO's first office in South Africa, and in 2001 was the FAO liaison with the UN in New York City, serving as the link with the UN General Assembly until 2007. Recently, Dr Chenoweth implemented a Back to the Soil campaign in Liberia that enables rural women in female-headed households to receive at least 30% of needed farm inputs. The significant increase in food production has resulted in the World Food Programme buying rice from that country. Under her leadership, Liberia's Ministry of Agriculture is training rural women so they become self-sufficient in food production. Dr Chenoweth's Africa Prize distinguishes her as a role model not only to women but to all African leaders.

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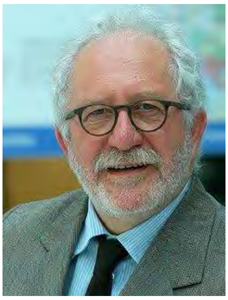
KEYNOTE ADDRESS

Developing opportunities and challenges for mining and agriculture

Mario Pezzini
Director, OECD Development Centre

Abstract



Countries in sub-Saharan Africa have experienced growth in gross domestic product (GDP) averaging 5% per annum over the last ten years. It is a growth rate that outstrips that of many other countries except some in South-East Asia, but unlike in Asian countries the growth has not translated into employment. Very large numbers of young people across Africa hope to enter the workforce with salaried jobs and career prospects, but though jobs have increased it has been at too slow a rate to absorb these people. This is 'the Africa challenge', and it could lead to increasing social tension unless growth can create jobs soon based on the economic advantages that have flowed from Africa's wealth of natural resources. One solution is for African countries to strengthen their existing local economic fabric, such as by focusing support on small to medium-size firms and farms. Structural transformation in Africa cannot rely only on traditional job creation or direct foreign investment: too many thousands of people need work. Mineral and agricultural resources in Africa are actually underdeveloped in comparison to similarly resource-rich countries in other continents which have invested more heavily in exploration and export initiatives. African economies should encourage diverse primary production activities, to take advantage of their resource wealth without becoming dependent on a dominant natural resource: for example, by developing new plant and animal industries as well as mining, and by cross-investment and using revenue to create strong secondary and tertiary sectors. Industrial development needs well-structured public services and business environments which can support mining and agriculture as well as manufacturing and knowledge industries. Such development may require more fiscal revenue as a percentage of GDP than may be available. Government investment in development projects to build local capacity, with or without contributions from foreign mining companies, will have social, environmental and economic implications.

This talk looks at the big picture of development in Africa in relation to mining, as it is seen from the point of view of the OECD (Organisation for Economic Cooperation & Development). The OECD was the organisation that administered aid via the Marshall Plan in Europe after World War II; in 1961 it transformed into a body working on economic issues to assist developing countries. At that time it was decided to restrict the membership to developed countries (note that the 'D' in the name stands for 'development' rather than 'donors'). However, the policy-makers, in particular John F. Kennedy, soon proposed the creation of a centre where both developed and developing countries can sit around the same table with equal voices. This group is called the OECD Development Centre, and its members are countries such as Vietnam, Indonesia and India. Other members include developed countries in Latin America and Africa, such as Brazil, Argentina, Columbia, Costa Rica, Morocco, Senegal, Mauritius, South Africa and others.

The main theme of this conference is the linkages between mining and agriculture in Africa. In that context I will share with you the findings of the *African Economic Outlook* (2013 Edition) that my OECD Development Centre (OECD DEV) prepares and presents every year, jointly with the United Nations Economic Commission for Africa and the African Development Bank and the United Nations Development Programme.

In this report in particular this year we have addressed how agriculture and mining together can be an option for development. I will outline some of the issues discussed in the report. The first is 'the Africa challenge'. Second, the good and bad news recently in Africa for workers in mining and agriculture. Third, what is the potential of natural resources? Are they a curse or are they a resource? Finally I will suggest four topics that need further discussion and consideration in relation to economic development, and not only in Africa.

The Africa challenge

There is an important challenge in Africa. It has to do with transformation.

Africa's recent growth story is well known: there has been approximately 5% per annum growth in average gross domestic product (GDP) in the sub-Saharan area of Africa. Obviously this varies from country to country across the continent, and in fact it is not just a recent result. For ten years, 5% has been the average GDP growth rate. This is a much better growth rate than is occurring not only in developed countries that are in crisis but also in other parts of the globe, such as Latin America where the average growth rate is 3% for this year. The growth rate across Africa is slightly lower than the rate in South-East Asia, which is 5.3%, but nevertheless it is very good news for Africa.

A closer look, however, shows that this decade of growth in Africa has not created enough jobs for Africa: far from it. Only 7%, on average, of young Africans 15–24 years old have what people at this conference would call 'a decent job'. That is, not street vending or unpaid work on the farm but a productive job with a salary and some degree of safety.

Now, without a faster and much more profound economic transformation on a large scale, Africa runs the risk of losing out on the demographic window of opportunity that Asia was able to tap some decades ago. Here is an example. One day a colleague of mine came into the office and said to me: 'Mario, there is a country in North Africa that for ten years has been capable of 5% GDP growth each year. Moreover, its national public sector deficit is 3% — below the Maastricht criterion (for European countries to adopt the Euro); its national public debt is 42.8% — again below the Maastricht criterion. It is a country where the enrolment in primary school is 100%. Which country is it?'. I didn't know. He said, 'It is Tunisia'.

Before the Arab Spring, Tunisia was a country that from every point of view could be considered a success; and yet there was a major upheaval, as we have seen. This is a demonstration of the social tension that is present in Africa. Clearly it is because in Africa there is the highest concentration of youth at present, and this concentration is going to grow after the year 2040.

I am saying the people have left extreme poverty; they have new expectations; but if they do not find a job and if they do not find social services then obviously there is friction and tension such as is reported every day in the newspaper. There is a window of opportunity here that calls for a strong response.

The contrast with most of Asia is evident. In Asia the solution in many cases has been found by addressing those countries' comparative advantage — that is, their cheap, sometimes qualified, labour. In the case of Africa the big advantage is the immense wealth of natural resources. There is energy, there are mines, there is agriculture. Therefore the big question here is: How can African countries create job-intensive growth combined with faster structural transformation? To do that, are mining and agriculture a resource or a curse? That is the debate that is very often encountered in government.

Good and bad news in mining and agriculture

Now, the second point from the OECD report. What good and bad news is contained in the data?

One piece of good news is that since the beginning of 2000 there are signs that Africa's economic transformation is picking up. In the 1980s and '90s African economies were unable to create good jobs. The share of Africans in the most productive sectors such as industry or agro-processing or modern services was declining. Most people found low quality jobs in what economists call the informal sector: remember Tunisia. There was some progress in the productivity of several economic sectors such as energy, but they remained small. There was no rise of new more productive activities. As a net result the economic transformation in Africa in those decades was negative. Then, during the 2000s, Africa's labour productivity increased — and increased by close to 3% — with almost half of this resulting from workers moving to new activities higher in productivity. By contrast, in Latin America, the increase of productivity in the same decades was just 1%.

Another noteworthy fact about African countries' growth since 2000 is that raw materials, for example from agriculture, mining or hydrocarbons, have contributed only about one third of this growth. Africa's 5% growth rate thus reflects a much wider picture than just the commodity boom. Good news.

Now the bad news. First, the pace of that structural transformation has been too slow — too slow to make growth sufficiently inclusive — and primary job creation and poverty reduction did not 'take off' as was necessary.

Let me be clear here about what could be done. One might think the traditional solution is the obvious one; that is, increasing public employment. We calculate, however, that to keep pace with an increasing number of young people entering the labour market every year 10 million jobs should be created. That is not possible. One might think that foreign direct investment could contribute so as to employ the large number of young people entering in the labour market. Again that is not possible given the number, even if you double the amount of foreign direct investment.

The real solution is to strengthen the existing local economic fabric. That means, very often, strenthening the small to medium-size firms and farms.

The second item of bad news is that, contrary to the cry that Africa's growth relies too much on commodities, Africa's natural resources are contributing less than they could. Of the world's agricultural land, 24% is in Africa but only 9% of agricultural production is in Africa. In fact, Africa's share of global resource assets in agriculture and in mining declined during the recent boom, because other regions have invested more in exploration for mining and in agriculture.

At the OECD DEV we have calculated that spending on exploration, on average, in Africa has remained below $5 per square kilometre. In Canada and in Australia and in Latin America the average is $65 per square kilometre. This means that the necessary conditions and incentives for exploration were not put in place in African countries, and the necessary knowledge was not created. Agricultural production in particular was perceived as backwards in African countries, and was actively penalised by policies.

What is the potential of natural resources: curse or resource?

There are two obvious questions from the above. Surely it is conventional wisdom that for development to take off in a country it must leave commodities behind and focus on building factories? Could it be a good thing to leave most mineral resources in the ground and the fields underused? These questions relate to the so-called Dutch disease*, which explains in part the low development of manufacturing and therefore creation of jobs for Africa.

In answer I would say that, if managed well, natural resources can play a crucial role in transforming economies.

There are three important points here. The first principle is that overcoming dependence on natural resources is key, but abundance of natural resources is not a bad thing in itself: the problem is the dependence. A look at resource economies across levels of development shows that many of the developed countries are strong producers of natural resources: the United States, Australia, Canada, and also newly developed countries such as Chile, for example. The point is that it is not the absolute amount of resources that matters; it is the weight on the general economy.

The second principle is that, to diversify beyond natural resources into secondary and tertiary activities, a country must start by diversifying amongst natural resources and building a lively sector of natural resources production.

* 'Dutch disease' is the negative impact on an economy of anything that gives rise to a sharp inflow of foreign currency, such as the discovery of large oil reserves, because the currency appreciation makes the country's other products less price competitive on the export market, and also leads to increases in cheap imports (Financial Times Lexicon, http://lexicon.ft.com/)

Here is where the strong link between mining and agriculture is important — which is exactly the point of this conference. Most of the time, countries that have large reserves of iron will also have gold and other metals or minerals and agricultural production. For example, it is clear that while Chile produces copper they also invest in commodities such as salmon, and also forests and now also wine. Malaysia invests part of the rent they gain from oil into forestry and into palm-oil, building very successful industries. Columbia now is thinking about using the royalties from oil, gas and coal to invest in regional development and build regional infrastructure.

The third principle is that very often the structural matters that need to be addressed in order to further develop mining and agriculture are crucial also for developing other sectors. Good public services are required for mining and agriculture as well as for manufacturing. A good business environment is crucial for natural resources as well as for manufacturing. So instead of putting natural resources aside, African countries should look to them for their strengths and for the opportunities they offer to create a diversified economy.

Thinking forward

To guarantee this connection between existing resources and the greater development which is vital for a country to provide good jobs and therefore face the real challenge (which is the growing tension), requires 'industrial policy'. There is a need to strengthen the natural resources sector so that the country can further develop and build local and national jobs. This is obviously an issue calling for industrial policy. It is also an issue that companies can take on. Many resources projects engage in local development, though not necessarily explicitly as development. Sometimes a company faces the issue of providing food to the local population that is indispensable to the project. Yet the thinking can go a little bit farther — how can this project help to build local capacities?

A second matter for consideration is how to use the capacity accumulated in the resources sector to fertilise other activities, outside the resources sector? Sweden, for example, built knowledge clusters to support the forestry sector and those knowledge clusters were used then to develop information in communication and technology. Those clusters did not appear from scratch for use in technology; they had already been developed for the resources sector. The same can be seen in Finland. The message is that horizontal transfer of skills can be facilitated.

Third: resources are required before action can be taken. How can a government be provided with the necessary resources to intervene? In OECD countries the fiscal revenue as a percentage of GDP is 35%. Now compare developing countries: in Columbia the ratio is 14%, and even in Mexico it is 11.3%. Many African countries have fiscal revenue below 15% of GDP. With this level of fiscal revenue a country cannot guarantee the public goods that are essential for the type of national development under discussion here.

Fourth: even where a government has the resources, there is the problem of building projects. They need to be local and regional projects. How can these projects be built? Is it just a matter of a top-down traditional approach or is it more a matter of a bottom-up approach? If it is bottom-up what are the mechanisms for involving the local community in the decisions about priorities, investment and monitoring of the results? What are the environmental and social implications as well as the economic benefits to be derived?

These questions are under discussion not only in Africa but also in many other parts of the globe, and they are crucial questions in guaranteeing results through effectiveness in policies. This is the big picture, these are the big questions, underlying this conference.

The world has really changed in recent decades. The centre of gravity of the world's economy is moving to Asia and the south. The Government of Australia has produced a very interesting paper about the Asian century; yet Asia is only part of the story. In the '90s only 13 countries were capable of a rate of growth more than double that of the OECD average. In the year 2000 the countries that were capable of a growth rate more than the double the OECD average, including Australia, had grown to 83. The world is changing and we therefore need to recognise and respond to this change, which offers new opportunities.

Let me end this talk with a joke from an economist, Albert Hirschman, who unfortunately died two years ago. It tells how incapable we are of recognising change. Two people meet each other and one says to the other, 'Paul, what's happening to you? It has been ten years. You were tall, now you are small; you were fat, now you are thin.' And the other says, 'Sorry but my name is not Paul'. The first replies, 'You have changed so much! Even your name!'.

Reference

OECD et al. (2013) *African Economic Outlook 2013: Structural transformation and natural resources*, OECD Publishing. doi: 10.1787/aeo-2013-en. http://www.africaneconomicoutlook.org/en/

Mr Mario Pezzini is Director of the OECD Development Centre. The OECD Development Centre is an institution where governments, enterprises and civil society organisations informally discuss questions of common interest. Its Governing Board includes most of the OECD countries but also developing and emerging economies as full members. The Centre helps policy makers in OECD and partner countries to find innovative solutions to the global challenges of development. Before joining the Development Centre in 2010, Mario Pezzini held several senior management positions in OECD. He was Deputy Director of the Public Governance and Territorial Development Directorate and, prior to that, Head of the Regional Policy Division, covering policy analysis on urban development, rural development, regional competitiveness and public governance. Prior to joining the OECD, Mr Pezzini was Professor in Industrial Economics at the Ecole Nationale Supérieure des Mines de Paris as well as in US and Italian universities. Also, Mr Pezzini served as an Adviser in the field of economic development, industrial organisation and regional economics in international organisations and think tanks (e.g. ILO, UNIDO, European Commission and Nomisma in Italy). Mr Pezzini started his career in the Government office of the Emilia-Romagna Region.

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Agriculture and mining in the Beira Corridor

Emerson Zhou
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Abstract

The Beira Corridor of Mozambique is a natural transport corridor between the coast and neighbouring inland countries in the region. It is rich in resources, with very large reserves of coal and agricultural land. More than half (60%) of the Tete region in the corridor is reserved for mining, with two large international companies already operating there. These are expected to develop road, rail and ports in the region, besides employing thousands of workers, though that number will drop considerably when construction is complete. The companies have already resettled hundreds of local people, mainly subsistence farmers, to free up the land for mining. The miners need also to provide houses and social amenities to these displaced people. At present, neighbouring countries produce the food for the companies' employees involved in the mining operations, and there is not always enough. While the mining companies see this as a procurement problem, our institution, the Beira Agricultural Growth Corridor (BAGC), considers that long-term development of agriculture in the region would be a valuable solution. The BAGC is stimulating linkages between mining and agriculture by structuring demand and developing supply chains involving local producers. It is clear that mining offers opportunities for agriculture via improved infrastructure, and the mining companies' need for food gives local farmers a nearby market, especially during the construction phase. The role of the BAGC is to create incentives for local sourcing, and to develop core investment in local agricultural development.

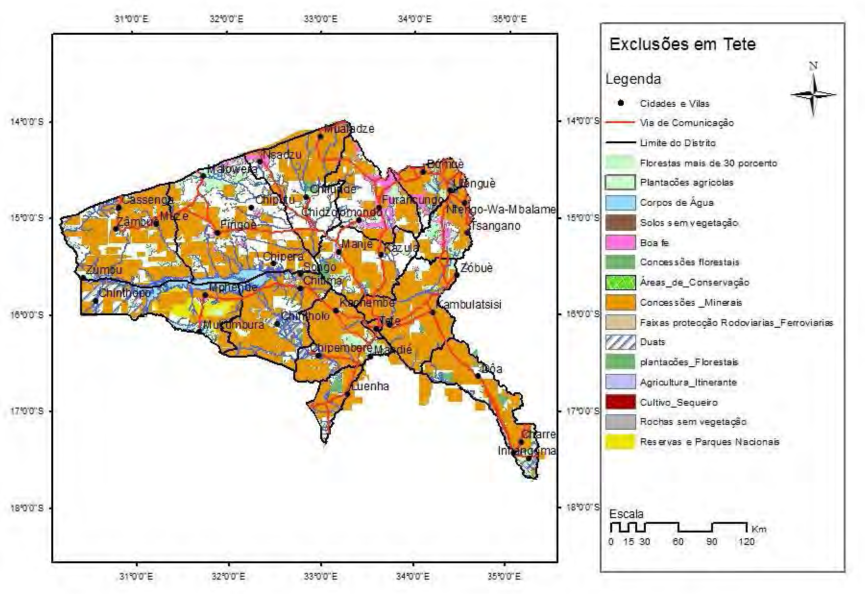
This talk is about the relationship between mining and agriculture in the Beira Corridor of Mozambique, and initiatives to support and improve the ways these sectors could potentially interact.

The Beira Corridor is a transport corridor linking the port of Beira on the coast with other inland countries in the region, particularly Zimbabwe, Malawi and Zambia (Figure 1a). It is an old corridor, and what is interesting about it is that besides its relatively good transport network it also has very diverse microclimates that allow many different types of agriculture to take place.

From a national development point of view, the Beira Corridor is considered a potential breadbasket area for the development of Mozambique as an agricultural producer. Therefore partners in agriculture, including the Government, the private sector and donor agencies, have together formed the 'Beira Agricultural Growth Corridor' (BAGC), an institution which is mobilising resources to invest in improved agricultural services and transport, and to support farmers.

Figure 1a. (top) Map of Mozambique, showing the Beira Corridor, a natural land corridor linking the coast and inland neighbouring countries.

Figure 1b. (below) Land uses in the area of Tete, in the north-western part of the Beira Corridor. Land coloured orange is reserved for mining.



Mozambique is rich in natural resources. These days there is always somebody announcing the biggest of something. The ‘biggest of gas fields’ came on stream recently. For a couple of years now there has been talk about the ‘biggest coal fields’. One of these coal mining resources has been discovered in the Beira Corridor in a geographical area called Tete, where it is estimated there are over 23 billion tons of coal.

The map of the province of Tete (Figure 1b) shows the declared concession areas for mines and mining, mainly coal — that is, all the areas coloured orange. About 60% of the land area has been identified for the purposes of exploration for minerals, and only 40% is available for other purposes, so it is important to have a workable relationship between mining and agriculture in this region.

The relationship between mining and agriculture will probably be different from one part of the world to the other, or from one country to the other. Here in Western Australia, we have heard how mining capital and mining resources are being channelled to develop agriculture; so the miners are investing in agriculture. In our part of the world the issue is that mines are competing with agriculture for space, and therefore the reality is that miners have to work with agriculture.

The two largest exploration projects that are already on the ground in Tete are run by Vale, which is a Brazilian company, and by Rio Tinto. A third, British, project is likely in the future, but Rio Tinto and Vale are there now and have started producing some interesting results.

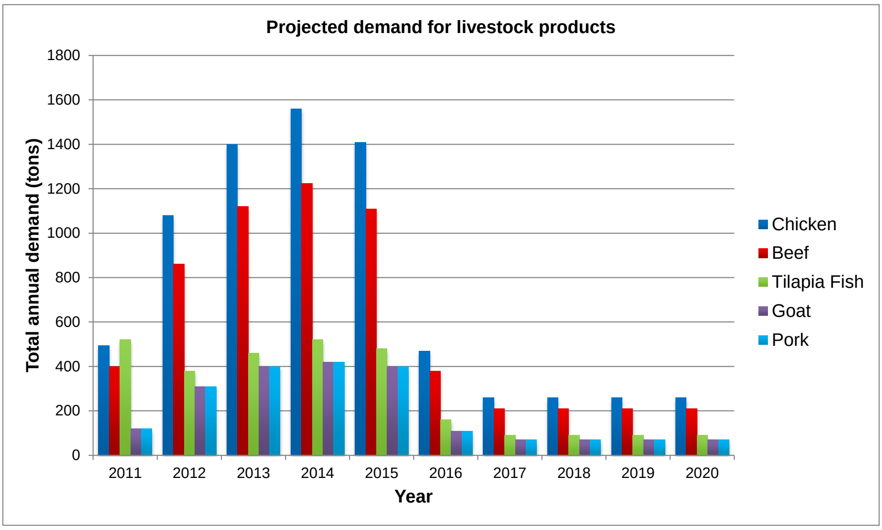
Naturally the Vale and Rio Tinto operations have caused some disturbance; they have displaced people that occupied the areas that they are working on. Between them these mining operations have displaced close to 20,000 families. There is a great deal of debate about the quality of resettlement — in other words, the poor quality of resettlement in terms of the houses that the people have had, and the fact that people have been settled in non-agricultural areas with limited water resources. The companies are addressing these issues, and improving their image.

Potential for benefits from the presence of mining companies

This year these mining companies are expected to begin contributing to improvement of the region's infrastructure. There are discussions about new railway lines running across the countryside linking regions and the port areas, which will bring positive benefits. Also, new road networks are to be built, with contributions from the mining companies which, at the moment, are tending to overuse the few roads that exist!

The mining sector, from the point of view of the BAGC, appears to have potential for creating demand for agricultural produce, and this is particularly so during the mines' build-up phases. Vale, for example, is reporting right now that they have 10,000 workers on the ground in various activities, although once the mine is fully operational this will be reduced to about 2000 workers. It appears there is a significant window of opportunity in the next couple of years as all the various mine projects start up.

According to some estimates, there could be around 1500–1600 tons of various food products required annually, between Rio Tinto and Vale. The graphs in Figure 2 show projected demand for meat and fish products, and also horticultural commodities. There appear to be good prospects in the next three years for tapping into that demand from the mining sector.



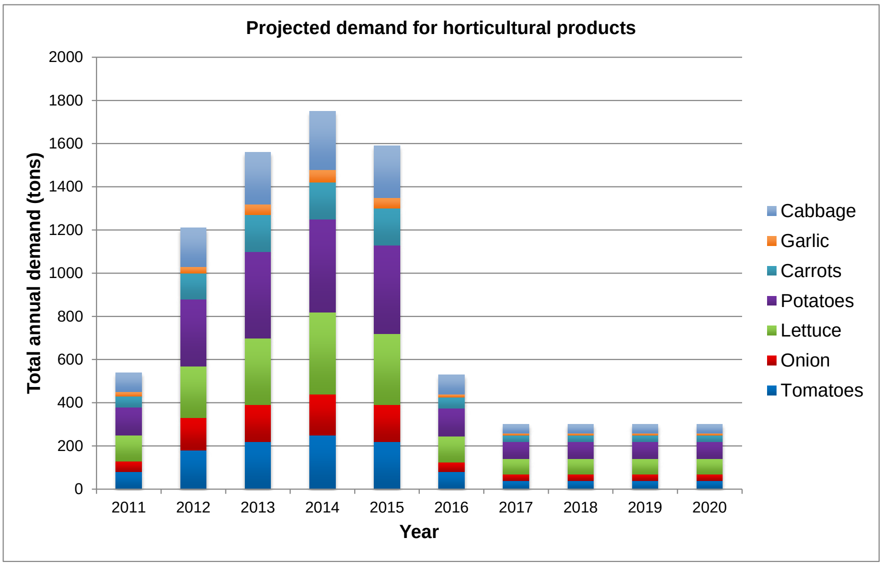


Figure 2. With thousands of workers needed for mine construction, demand for food supplies in Tete is expected to be large until 2015, settling to a lower steady level later.

The BAGC considers that a range of sustainable options can be explored, including irrigated agricultural development. The perennial Zambezi River is not very far away, and with just a few million dollars investment it could supply water for sustainable irrigated agricultural development. The BAGC, the Government and others think that is possible.

The BAGC has also identified other opportunities associated with the mines. At the moment the food requirements of these mines are being carted in from South Africa, Zimbabwe, Malawi and other places, in containers. That reality shows the BAGC that there is an opportunity for providing these products from local sources. However, in the Mozambique environment, because of its history, farming is under-resourced. It requires deliberate action to get funding off the ground, as the BAGC is now trying to do.

Role of the BAGC

We have been talking with the mining companies, with some success, to try to make it possible for local farmers to supply the products that the mine workforces need. The mining companies view the relationship with agriculture as purely a procurement issue, which essentially means that volume, prices, timing and so on are the most important considerations to them.

The BAGC has been trying to get the mining companies to think beyond their fencelines and see how they can use their demand to generate positive procurement, so as to sustain demand for agricultural products through the coming years. What is required is to align procurement procedures to provide incentives for local sourcing. We had made good progress with one company in this regard. Unfortunately, whereas the relationship between mining and agriculture is obvious and real to us, many mining executives do not see it as obvious at all. We were working with a set of mining executives who understood the relationship. Then they were all fired for one reason or another by their company, and we are now back at the drawing table because the new mining executives do not see the relationship with agriculture in the same way.

In the BAGC we do not expect mining companies to develop agriculture. However, we do expect that mining companies can provide opportunities to partner with those whose core business is agricultural development so they can take the opportunities provided by that mining 'window'. There are particular examples where this is happening, for example in horticulture. A big horticultural concern in the Beira Corridor is using its facilities to work with small farmers to grow produce that meets the specific requirements of one of the mining companies (Figure 3): Vale, in this particular case.

There is a need to align procurement procedures, so as to provide incentives for local sourcing. In structuring demand, it is necessary to align payment cycles between mining company, caterers, retailers and farmers, so that there is greater security and smoothness in the cash flow. The BAGC also engages in supply chain development. We identify potential local supply opportunities in the region (including start-ups, early stage agribusinesses, and large-scale and small-scale producers). We involve farmer organisations in capacity-building so as to improve production techniques. We arrange affordable loans and working capital to make production possible; and plan to invest in a food logistical hub to aggregate volume and cold storage logistics.

The BAGC Catalytic Fund helps provide finance to producers of high-quality seed, and of grains, starch and animal feed, and of pork and poultry. These producers in turn then connect with major private-sector purchasers, and nutrition programs. The grain producers also have a market in the beer and alcoholic drinks sector.

Figure 3. With support from the BAGC, Vanduzi (a large-scale horticultural company) has engaged smallholder farmers as its partners in producing horticultural commodities for the mining market. These smallholders are organised into associations which have been producing chillies, snow peas and sugar snap peas as well as fine beans.

The key message is that, yes, mining can offer opportunities for agriculture and improved infrastructure. It can also purchase produce, so long as the executives accept the issue of positive procurement. It is important to work on the relationship, to create the incentives for local sourcing, and also to encourage the investments that are necessary to build up the supply response. I am aware that it has been possible with the United Nations World Food Programme, for example, to 'purchase for progress', and it may be possible to have the mining companies in Mozambique behave in the same way.

Mr Emerson Zhou is the Executive Director of the Beira Agricultural Growth Corridor (BAGC), a Public Private Partnership that aims to promote investment in the agriculture sector in central Mozambique by facilitating entry by socially responsible investors who are willing to develop business models supporting smallholder farmers. Mr Zhou is an Agricultural Economist with over 25 years' experience in managing 'inclusive' agribusiness support initiatives in Africa. A recent initiative involves promoting linkages between the emergent coal mining sector and farmers within the Beira Corridor of Mozambique. Mr Zhou holds agricultural economics degrees from University of Zimbabwe (BSc) and University of London (MSc) as well as an advanced Diploma in Accounting and Finance.

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Bread from stones: no single recipe

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Abstract

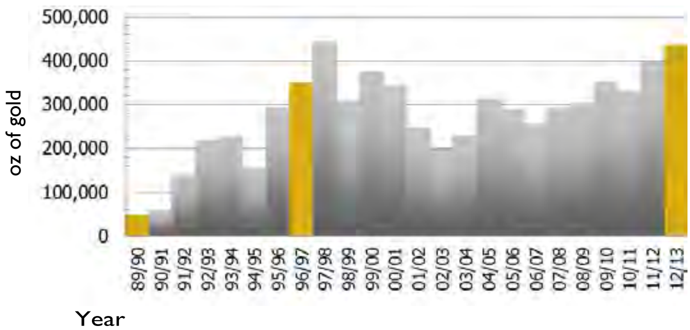
Mining companies' main business is to focus on their core expertise — best-practice mining development and operation. Resolute Mining Limited has over two decades of expertise, and is one of the largest gold producers listed on the Australian Stock Exchange. In Africa we mine, or have mined, in Mali, Tanzania and Ghana, and have explored in Côte d'Ivoire. We have an underground operation at Ravenswood in Queensland. Mining companies often need to focus on community development in the region of a mine because that forms a key plank of harmonious operations, and Resolute has a strong history in this respect also. Agriculture is only one of the important components in partnering with communities. Health and education are other examples of community development that can be advanced through mining company inputs, both in the local area and via taxes and royalties to the country's government. There are multiple opportunities for mining companies in Africa, depending on the country and area of operation. Although it takes persistence and effort to be successful with these opportunities, mining companies offer a cost-effective platform for others to continue and build on.

My company, Resolute Mining, has been mining in Africa for 15 or 16 years as a gold producer — and exploring, developing, operating and closing mines for around two decades. Our production history covers development, operation and closure of some seven gold mines, in Africa and Australia. Our first African mine was in Ghana followed by Tanzania in the late 1990s — so we have a fair bit of experience of mining in Africa.

Currently our main asset is Syama, a mine in Mali. We are about three years into what is probably a 10–15-year operation there. In Tanzania, we operate the Golden Pride Mine, which is near the end of its 15-year life. Before Golden Pride we operated the Obotan Mine in Ghana, which we closed in around 2004. The company also has an operation in Australia, in Queensland (Figure 1).

The context in this talk, about gold-mining companies, can be applied to mining in general. Essentially we are in the business of producing gold (or other metals) in the most efficient way we can, to deliver the best returns we can for the stakeholders in that particular resource. Stakeholders are not only the shareholders and the financiers of the mine; they also include the employees and the host countries where we are operating. The key to running an efficient mine is the ability to maximise the return on the resource, so revenue can flow through to the host country. Our operations are geared around ensuring

Figure 1. Resolute Mining currently has mines in Mali and Tanzania. Resolute's production of gold in Africa since 1996–97 is included in the graph below.



that we have a safe workplace, that we have a workforce that is engaged, being trained and improving, coupled with an environmentally responsible operating plan, and trying to minimise our impact and our 'footprint' in the countries or in the areas where we operate.

In addition, we work with a sensitivity to the communities that surround our mine, and we do the best we can in terms of assisting those communities so that we can be seen as a company that would be welcome in any country in Africa.

Dispelling some expectations

There is often confusion between what is expected of mining operations internal to countries, versus the reality of what a mining enterprise is. There are some points that have to be understood about mining operations in African countries. First, a mining company is not an arm of the government. We do not want to be seen as an arm of government, nor to be operating at the behest of government. We like to focus on our own work so that taxes and royalties that are paid on mining can flow to government. Then it is the government's responsibility to redistribute that wealth, as they are elected to do: it is not for the mining company to decide how that distribution should occur. That is the general philosophy. Second, a mining company is neither a charity nor an aid organisation. Investors and bankers provide the funds that back the ability of management and expert teams to go in and develop gold mines — and mining can be a very dangerous and difficult and technical operation to conduct successfully. Those shareholders are looking for returns, as is normal in the commercial world we operate in, and so we are not at liberty to distribute, on their behalf, the returns that they might otherwise be expecting, as if we were a charity or an aid organisation.

There is also a view that mining companies have plenty of money and you can use them to further whatever cause may be current in a particular area. Again, that is a situation that we try not to get involved with.

We also have to be careful in finding a balance between the funds we invest into local communities to assist those communities, which we rightly do as operators in those areas, and the contribution that the nation receives from mining. We have at times faced comment and pressures from people saying we may be doing too much in a particular area relative to the rest of the country. There is a limit to how far a mining company can go in this without actually generating ill-will from further afield; we can only sensibly contribute in an area confined to the surroundings of our mine.

Resolute's programs in local communities

I will now explain how we operate in a community, and the nexus of that with agriculture. Essentially our community programs (e.g. Figures 2–5) are driven from the bottom up. We have consultative groups that operate within the various communities around our mines. We ask them to determine the key things that they would like to build in their communities, and we ask them also to make contributions to those particular selected projects.

In our experience the key issues where the local communities want assistance are health, education, water and agriculture, and so we focus on helping in these matters. Mostly we put infrastructure in place that will be sustainable over the long term.

Mining companies bring infrastructure and expertise to an area; we are there, on the ground, and while we get on with our own programs there is an opportunity for others to perhaps use our systems to adapt the way their programs are administered and conducted in communities. We have assisted a number of groups that felt the company systems could facilitate a more efficient way for them to deliver their particular projects.

The 'footprint' of company activities in support of a mine has its own impacts, and this is another situation where we have to work within the local communities. When a mine is established we have an influx of employees into an area that otherwise may not have had that development. Those new people can put pressure on the existing community, and of course we have to help to ensure that pressure is not unreasonable. We also have to deal with

Agriculture	Water	Environment	Training & Education	Health
Improved livestock & dip	Open Pit (closure)	Fuel efficient stoves	Agriculture & environment	Surgery theatre & sponsorships
Cattle, pigs, poultry	Uchama water Treatment	Tree Seedlings	Health practitioners & awareness	Donations - Paediatric cancer
Seed & Seedlings	Bores	Mine-site & Community Nurseries	Schools & ablutions housing	Malaria control
Beehives	Pumps		Desks, materials	Patient transport
Cattle troughs	Maintenance		Fees & sponsorship	Clinics & Dispensaries
Runoff dams			Small business	Generators

Figure 2. Some community programs Resolute Mining has run in Tanzania.

employment issues in communities. There are only so many jobs at a mine, and in African communities where we have worked there may be far more people looking for jobs, and keen to take up jobs, than we have opportunities to employ. Managing the people who get jobs or do not get jobs, from a range of catchments, is a difficult process; it is another situation that we have to administer with the communities.

We have conducted a matrix of general activities. Figure 2 shows what we have done in Tanzania over the 15 years: not only in agriculture but also with water and the environment, and with health and education. Over time we have been involved with some activities that have been successful, and others that have not. It is difficult to be prescriptive about what you should or should not do.

At our Ghanaan asset, now closed, we ran some interesting agricultural projects. We spent a fair bit of time prior to closure engaging with the communities and with the various authorities in Ghana to get some sort of structure around ensuring this was able to be a continuing sustainable development. There was planting vegetables, animal husbandry, fish farming (Figures 3a, 3c). We developed fish farming in a number of the mining pits that filled with water. We also helped the communities develop the general skills of being able to propagate the stock and harvest it, and to go about the process of selling it into their market places.

Another project at Obotan was citronella cropping. We helped them by funding an extraction plant for the citronella oil (Figure 3b), and the set up of cooperative arrangements so that they could grow the citronella to take to the extraction plant and then market it.

Figure 3. Ghana.
(a) (top three photos) Initial success came via early stakeholder participation to adopt and adapt for agricultural production, involving the Department of Cooperatives, Ministry of Food and Agriculture, District Assembly, and Farmers Resource Centre; 25 Cooperatives formed to produce citronella, fish, oil palm, vegetables, cassava, snails, pigs, bees.

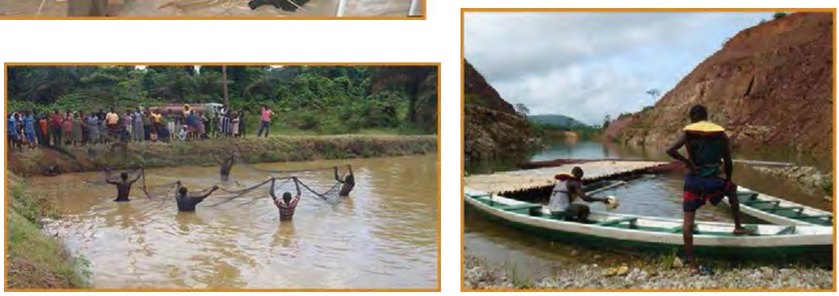


Figure 3b. (middle two photos) At Obotan, Resolute has helped with a fish-farming program: open pits and community ponds have been dug, and 79 ponds have been stocked. This program involves 39 communities. Stakeholders include the Regional Fisheries Directorate.

Figure 3c. (bottom three photos) The citronella program includes oil extraction; the communities produce perfume, soap and insect repellant for the local market; there is a Business Development Committee and Plan, a Union of Citronella Farmers Cooperatives and Management Committee, and support from a Rural Enterprise Project loan.

Figure 4. Tanzania. Top three photos: The Uchama water treatment plant and distribution kiosks responded to the town's growth as a result of mining. The program built community capacity and capability, and meant the company left a positive legacy.

Below, with insets: The Bundomo creek diversion project to create a permanent water enclosure.

The biogas project (2002–06) at Isanga (below) provided cooking and lighting for two school houses and was a demonstration unit for other communities. It required group effort and commitment.

In Tanzania, the company put in a water treatment facility at Uchama (Figure 4) to service Nzega, which is a relatively big town near the mine site. The town experienced quite a large influx of people as a result of the mine. We wanted to create a potable water facility there so the town could sustain itself with fresh water, and so we put in a treatment plant. The water is reticulated from that plant to various kiosks around the town which then charge a fee for the water. That saves people walking or carting it long distances. That was a self-sustaining program where the funds were to be used to maintain and continue to have that facility operating long-term.

At our Golden Pride Mine, one of the things that we will be doing is filling that pit with water. This part of Tanzania in particular is very dry. It has a wet season but the weather is very dry for much of the year, so we will be putting in a major water source there for that community to see how they can best use it. It will be a permanent water source for that area, and it will be interesting to see what programs could flow from that.

The school at Isanga, also in Tanzania, was a project where we helped the community in conjunction with an AusAID program. In this case they put in a biogas facility (Figure 4). It only lasted from 2002 to 2006 and then was discontinued for a number of reasons. But it was an interesting project in the sense that we helped AusAID disburse program funds into that part of Tanzania.

Our latest initiative is in Mali, and it is only in the early stages. We have introduced bee-keeping to enable the communities to produce honey (Figure 5a). We have helped the local women with equipment to use karité nuts to create shea butter and soap from the oils, and edible material as well: it is a food base as well as a cosmetic (Figure 5b). That project has had a very successful start. Of course we also have market gardens created in the villages near our mine sites which sell vegetables to the mine (Figure 5c), and that program is well underway.

Figure 5a. Beekeeping training, a typical hive and honey, in Mali.

Figure 5b. (above) Production of shea butter and traditional soap in Mali.

Figure 5c. (below) Resolute Mining has helped communities in Mali to grow vegetables to generate income and supply the mine, providing seed and training, such as to the Lolé women's group, and the Dieu village vegetable garden.

Overall, we have had many successes, and a number of failures. I think there are a few key requirements — training, competency and governance — that are critical components, both in starting projects and in enabling them to be sustainable. These are vital, and we find any of these can upset projects so they do not last. Also, overdependence on machinery — it needs maintenance and consumables, and these are economic costs which can be difficult for communities to meet, which affects a project's sustainability.

We conclude from our support of community development projects that success beyond the closure of mining is underwritten by several factors. A family unit will be free and want to support a project if they can see a direct and ongoing benefit that is worthy of their time and effort. Participants will achieve the competency to independently run their project from being coached through repeated work cycles before handover. The scopes and designs of projects need to cope with possible changes in weather and markets, or the departure of community members who have acted as project champions. And fundamentally the robust projects are typically 'low tech'.

In summary, we are a mining company first, but we are also community oriented. We work to do the best we can so the communities can have a harmonious existence. Agriculture is just one part of the program for us. It is an important part and I think there is a lot of opportunity for development.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Minister of Energy and Minerals

Peter Sullivan is Chief Executive Officer of the Australian/African gold producer Resolute Mining Limited. He was appointed CEO in 2001 and during his tenure has overseen a corporate restructure of the group and a resurgence in its gold mining activities. Prior to joining Resolute Peter specialised in providing strategic corporate, financial and investment advice to predominantly resource sector companies. Peter is qualified as an electrical engineer and has completed an MBA.

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Picks and ploughs: revitalising local economic development in rural sub-Saharan Africa

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Abstract

For decades, the rural development and poverty alleviation agenda in sub-Saharan Africa has emphasised support for smallholder farming and little else. Foreign large-scale miners and other industrial operators have complied, establishing agriculture-support services and programs for communities located near their activities. However, these interventions have yielded mixed results, largely because millions of rural African families have, over the course of the past two decades, diversified their income portfolios away from agriculture. One of the more popular destinations has been artisanal and small-scale mining (ASM) — low-tech, labour intensive mineral extraction and processing. This is a rapidly-growing informal sector of industry that provides a range of job opportunities; it has played an important role in nourishing debilitated smallholder farming activities, economically, over the past decade. In this era of globalisation, subsistence farming and rural non-farm activities such as ASM have taken on very different roles: the latter have become, in most cases, a principal source of income, including in many rural sections of sub-Saharan Africa; increasingly, the former has taken on more of a food security role for the rural household. This paper proposes measures for supporting and formalising ASM in rural sub-Saharan Africa.

Artisanal and small-scale mining, known as ASM, is generally recognised as all 'low-tech' labour-intensive mineral processing and extraction activity in the developing world. Its operators are engaged primarily in the extraction of precious minerals and stones.

This paper is about the linkages between ASM and agriculture in sub-Saharan Africa. I suggest that the ASM sector is mainly driven by poverty, that its growth is linked largely to the diminished viability of subsistence agriculture, and that it should be able to play a greater role in the poverty alleviation strategies of sub-Saharan Africa.

There is a general preoccupation with the sector's negatives — the child labour, the environmental impacts, the health and safety issues — which fails to recognise that these negatives are in fact expressions of the sector's perpetual informality. If it were formalised, many of these problems would certainly go away. Preoccupation with the negatives overshadows the positives of ASM: the fact that 20–40 million people are employed directly in the sector in the region, and six times that number depend on the sector's existence for their livelihoods;

and that the sector makes important contributions to national mineral outputs. Why, then, is the policy space so small for this sector?

This paper critically reappraises a 'farm first' approach to rural development in sub-Saharan Africa, and in that context it explores the potential for a more integrated approach with special emphasis on an expanded role for ASM in the region. Against that background, it identifies ways in which to formalise ASM in sub-Saharan Africa.

Does a policy focus on agriculture help reduce poverty?

Countries in sub-Saharan Africa are in desperate need of innovative solutions to pressing poverty problems, particularly in rural areas. For short-term solutions to poverty I suggest there is much to be learnt from studying the informal sector, rather than condemning it, because in many respects it has formed as a reflection of prevailing economic conditions.

Globalisation has brought powerful global forces that have had marked impacts on trade, industrialisation and lifestyles in every corner of the globe. Yet, rather surprisingly, development policies and poverty alleviation strategies in sub-Saharan Africa, and in many other parts of the developing world, have not changed or responded very dynamically to these impacts.

Study of the dynamics of the informality that exists in rural sub-Saharan Africa can demonstrate how best to alleviate hardship.

In this region there is a flourishing ASM sector, which in fact is now the most important rural non-farm activity in Africa. This industry is not understood, nor do researchers care to study its dynamics. Mining companies hate it because ASM operators encroach onto their concessions. Governments hate it because it interferes with development plans, and NGOs hate it because they only seem to see the negative sides of the sector.

However, actually studying its existence reveals that its growth is simply a product of prevailing economic conditions: more specifically, a deteriorating farming sector. Hundreds of thousands of rural farm families have moved into ASM because fertilisers are no longer subsidised and farm-support structures have been dismantled. There are large companies which now control the agricultural market, and people producing devalued cash crops cannot compete with these large enterprises.

Initially ASM became popular as a seasonal vocation, but it has since become more permanent, to the point where it is now the more important source of income in a great number of rural households in the region, for example in Ghana, Sierra Leone, Liberia, Tanzania and Malawi. Agriculture now has more of a household food-security role, instead.

These two activities — ASM and agriculture — are now inseparable, with capital and labour flowing between the two over time, but governments cannot adopt a more integrated holistic approach which fosters support for both activities because of limitations in the 'machinery' of development policy. The world's poverty alleviation strategies for the region are nearly entirely farm-focused. The term 'policy machinery' in the case of sub-Saharan Africa refers to high-profile donor-driven regional development initiatives and programs. Examples include the New Partnership for Africa's Development (NEPAD), Poverty Reduction Strategy Papers (PRSP), and the Millennium Development Goals.

Employment is the problem, because it is the rationale, in most cases, for intensifying support for farming as a solution to world poverty in sub-Saharan Africa despite the obvious limitations of such a strategy. Here are some examples. Ghana's first Poverty Reduction Strategy Paper, *An agenda for growth and prosperity, 2003* (IMF 2003) notes (p. 37) that 'Ghana is predominantly an agricultural country' with over 40% of the population employed in agriculture, and that (p. 36):

> The change of the archaic, near-subsistence agricultural economy into a progressive, dynamic, entrepreneurial and profitable business will bring about structural change and change to the spatial organization of the rural environment.

In Tanzania it is much the same. The second PRSP Progress Report (IMF & URT 2000, p. 6) says: 'the poor are concentrated in subsistence agriculture…', leading policy-makers to subsequently note, in that country's third (PRSP) Progress Report (IMF & URT 2004, p. 6), that:

> Constraints facing agriculture require expeditious actions with regard to financing mechanisms, investment and provision of support services.

In Mozambique, the initial PRSP (RoM 2001), *Action plan for the reduction of absolute poverty*, cites (p. 2): 'low productivity in the family agriculture sector' as a principal cause of poverty in the country. It outlines ambitious plans to expand activities through (p. 4):

> the support of rural extension programs based on specific crops and technologies, as well as improvement in the financial system,...

Much like Tanzania, in Mozambique it is said that at least 50% of the population is employed in agriculture.

Are these actual *employment* percentages, as is believed? A friend of mine in Ghana once said to me, 'Gavin, everyone in Africa is a farmer'. The implication is that vast sections of the world's population engage in farming to produce food but not necessarily to generate income, and it is likely that the same could be said of a number of areas in rural sub-Saharan Africa today. Employment is something which is misdiagnosed, leading to sweeping generalisations, such as this statement in the World Bank's World Development Report in 2008, *Agriculture for development* (TWB 2007, p. xiii):

> In much of sub-Saharan Africa, agriculture is a strong option for spurring growth, overcoming poverty, and enhancing food security. Agricultural productivity growth is vital for stimulating growth in other parts of the economy. But accelerated growth requires a sharp productivity increase in smallholder farming combined with more effective support to the millions coping as subsistence farmers, many of them in remote areas.

This misdiagnosis has huge implications for corporate social responsibility. Companies are forced to be creative and go beyond what is being said in policy to ensure that effective interventions are made. In, for example, Ghana, Tanzania and the Democratic Republic of Congo, such a misdiagnosis has caused community-level frictions which have made expanding operations elsewhere difficult because communities have become sceptical.

When development policy says 'farm first' is a solution, then mining companies implement local economic development projects to promote agricultural activity, because in that way they are following the policy 'guidelines'. Yet many of the activities they are promoting are the very activities that individuals in the area are abandoning in favour of ASM. There are a million small-scale gold miners in Ghana, over a million small-scale miners in Tanzania, and in Mozambique over 500,000 small-scale miners, the vast majority of whom are rural inhabitants who have branched out of farming. These dynamics are not captured anywhere in policy, and ASM is barely even mentioned in Poverty Reduction Strategy Papers. If ASM were to be mentioned, how receptive is policy to promoting ASM as a vehicle for development in rural sub-Saharan Africa? Not very.

About 15 years ago the International Labour Organization (ILO) published its landmark report *Social and labour issues in small-scale mines* (ILO 1999), which effectively explains how we are creating informality in the sector, and all the problems identified at the beginning of this paper. It says:

> Small-scale mining is bedevilled with too many regulations that are mostly designed to constrain it…There is therefore little incentive for small-scale mines to conform, particularly if the risks of being caught and of sanctions being applied are minimal. If small-scale mining is to be encouraged to operate legally, legislation must be (at least) even-handed in allowing small-scale miners access to suitable land for prospecting and mining activities. It must be 'user friendly' as far as the issuing of permits and the granting of licences are concerned — permits that provide clear security of tenure for a reasonable period so that small-scale mining can become established.

The problem is that there is not much of a policy space for ASM anywhere. There are formalisation frameworks, but regulations are difficult to comply with, and are designed by people who are not in tune with the realities on the ground. Licences are costly for these people. Governments recognise that artisanal and small-scale miners are driven by poverty, and then it charges them large fees to get licences. There is a bias towards prioritising the development of large-scale mining, in mining policy. Governments tend to turn to ASM only after the requirements for large-scale mining have been sorted out. Competing local-level actors, such as chiefs, make things very difficult, demanding miscellaneous payments in the informal economy, but because ASM is disconnected from the regulatory frameworks these things cannot be readily rectified by the authorities. There are delays with licences and decisions on licences, and in the end people simply forget about getting a licence and decide to take their chances in the informal economy. These situations ultimately *create* informality, and it is baffling to see how governments in Africa fail to recognise or address it.

Can the situation be improved using existing formalisation frameworks? The following measures are proposed for supporting and formalising ASM in rural sub-Saharan Africa.

(i) Be more proactive in demarcations of areas where ASM can be formalised, such as the alluvial areas that mining companies are not interested in using.

(ii) Rather than waiting for the mining companies to release land, pressure them to free up areas of their concessions that they are not using. Africa has 21st Century mining legislation, and most African countries have transferrable mineral titles, so land release is a possibility.

(iii) Simplify the licensing system for the small-scale miners. Although these people are labelled 'poverty driven', the complex systems involved in licensing suggest that governments really do not recognise that poverty.

(iv) At the same time, relax the focus on agriculture. Agriculture is part of the solution, but not the whole solution to poverty.

(v) Look at agriculture as a path to food security for subsistence farmers, and less as a way of earning an income to alleviate poverty.

(vi) Study the synergies between ASM and food production so they can be developed, as the most effective way forward.

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Mining and agriculture for development: exploring the nexus

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Abstract

Can agriculture and mining work together to improve food security? How can policy, investment and research provide for benefits? Agriculture and mining rely on similar inputs, outputs and externalities. In both Africa and Australia the relationship between the two industries can be symbioitic or competitive, depending on the situation. Mining makes profits from its mined products. Agriculture also needs mined products such as potash for soil improvement. Mining requires upgraded or new infrastructure, for transport and export, and may open up new areas, and these can benefit agriculture and other aspects of a country's economic development. Mining uses less land and leads to less degradation of water and land than does agriculture, but both do good if done well. In terms of corporate social responsibility, mining companies have to answer to shareholders. Nevertheless, there is evidence that multiplier effects improve income and employment opportunities in the regions around mines. However, Africa is challenged by non-inclusive growth despite resource development. There are perceptions in society and the media that mining takes rather than giving back, although there is evidence of the reverse. It is recommended that the huge knowledge gaps around mining and its nexus with agriculture be tackled through research into the true impacts of mining on food production and poverty. There is an urgent need to build better awareness of the realities, and to engage with affected communities.

This talk outlines interactions between mining and agriculture for development and the nexus between them. It also touches on practices and policies that can enable mining and agriculture to work together to improve food security: how policies and investment, and also research for development, can be used to provide for benefits in this sector.

I represent the African Technology Policy Studies Network (ATPS). Its mission is to build Africa's science, technology and innovation (STI) capacity for sustainable development. The ATPS is represented in most continents and many countries (Figure 1), including Australia.

Mining and agriculture: similar but different

Agriculture and mining have features in common, in inputs and in outputs. These industries are mainstays of the economies of most countries in Africa and strong contributors also in Australia: what externalities do they have in common?

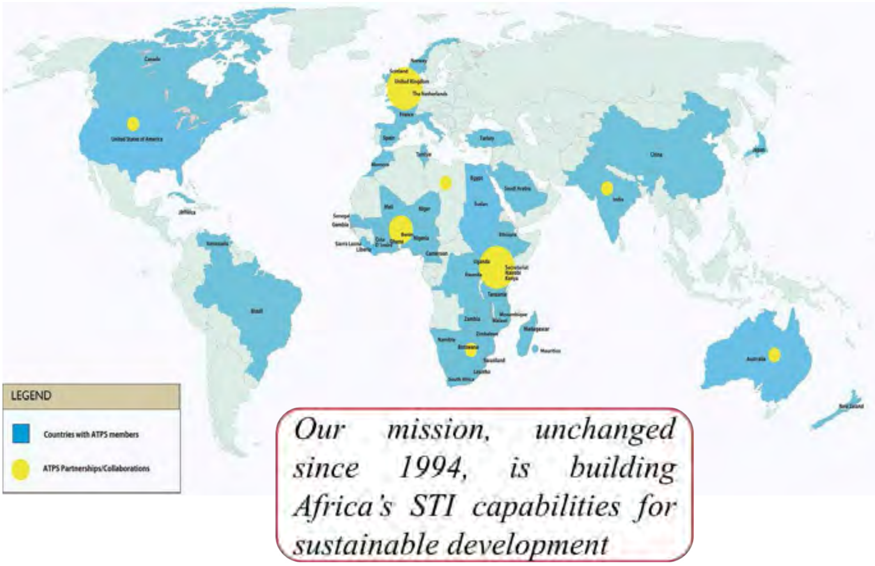

Figure 1. The African Technology Policy Studies Network (ATPS) has members in many countries, and partnerships or collaborations in the countries that include yellow on the map. The ATPS considers that the missing link in Africa's industrial development effort is not resources but lack of technological capacity to innovate and add value to products.

Both mining and agriculture depend on mined inputs, whether for producing food or gold or iron ore. The whole human race mines nature to provide for human sustainability and livelihoods. Inputs to mining and agriculture include land and water resources; there is also human capital — the labour that is put into both industries. The common output is food security. In mining for gold you get money — to do what? — to eat food and continue to survive; that is part of what we do as humans. So it can be said that mining and agriculture have the common feature of trying to address food security and human livelihoods.

The externalities of both are social and environmental. Both industries deprive some humans of basic human rights; that is, access to food or access to a good environment or access to a good living. These common features mean there is a mixed outcome in that there is either a symbiotic relationship between the two or competition between the two.

In Australia there seems to be a growing symbiosis, where the miners are investing in agriculture and rehabilitating soils in order to ensure that agriculture can continue to survive. In Africa, as we are hearing at this conference, the case is a bit different. It is more of a competition with, in some cases, eviction of farmers and actual displacement of agricultural investment in favour of mining. On the other hand, the literature about research that has been done shows that in fact the evidence is a bit mixed, even in Africa.

Agriculture itself depends on mined minerals. One of the major problems of agriculture in Africa is the small use of inputs for improving soil fertility and productivity. Many of the minerals needed for soil improvement, such as potash, are mined, and so mining is actually delivering some of the minerals required for the fertilisers that are much needed in Africa to increase our agricultural output and food security.

Mining also can deliver infrastructure development. Opening up new mines may also open up new land for agriculture in places that were not accessible before. Deliberate development of infrastructure along mining corridors may also favour agriculture eventually.

Land taken over for actual mines is often discussed, but on examination you find that in fact mining is using very much less land than agriculture in many areas, and it is causing less harm to land and land resources than agriculture does. This is something not generally mentioned in the public domain, especially the media.

Displacement of human settlements for mining is an issue that occurs in many places, because you have to move people. Moving people, in many countries in Africa, is not just about equality of the land or the resettlement homes that you build; it is actually about people's cultural access to the land that they want. It is about origins: 'This is my land; this is my culture; this is where my grandfather was buried and I want to live there; so even if you put me in a skyscraper in New York I will prefer this particular place'. Such cultural preferences are very deep in many African countries and also in parts of Australia, and they need to be considered in the resettlements that happen.

Water use and water pollution are also very much discussed, but in at least some of the literature the evidence is less negative for mining than it is for agriculture. In many cases we think that mining is causing more harm to water resources, but agriculture also does a lot of harm, such as through eutrophication and nutrient pollution which happen in many areas. In both cases this depends on how it is done. Mining done well will cause less harm and more good. Agriculture done well will also cause less harm and more good.

Figure 2 gives some information on the amount of land being used by mining in several countries. It is less than 0.1% of land in many countries, and less than

Figure 2. Percentages of countries' total land used in mining; comparing countries.

0.26% in Australia. In contrast, agriculture in the United States occupies about 54% of the land, and it will be much more than that in many African countries (though we do not have measures). So mining is actually not using as much land as agriculture and is not causing as much harm as agriculture. However, where mining is being done by companies that are foreign, we often hear protests.

Potential for benefits, compared to challenges

Improving infrastructure is something that is imperative for mining — opening up roads and creating corridors for growth.

Corporate social responsibility is also a requirement, even though (as we have heard from the miners at this conference; e.g. Sullivan 2013, this volume) mining is a business and business is meant to make profit. I am not a strong believer in corporate social responsibility. In countries where enforcement is weak because of poverty, because of poor institutions and so on, it behoves this same mining company, which is there to make a profit, to instead use funds from financiers and stakeholders' goodwill to apply corporate social responsibility.

Mining revenues are expected to improve food security, through multiplier effects, providing bread from stones indirectly by improving incomes and employment and creating other opportunities for income generation by rural households living around the mines. In mined areas the evidence is always that incomes are better: this is often so wherever industrial activity is happening.

However, in Africa there is a long list of challenges which need to be managed.

Where the policy environment and law enforcement are problematic — and this is a general problem not only for mining — there can be non-inclusive growth, as has been discussed by the first keynote speaker (Pezzini 2013, this volume). In Africa in the last few years we have seen a commodity boom and growth in gross domestic product (GDP), but in many cases there has also been deepening poverty for many people. Such non-inclusive growth is not sustainable. It does not leave either the mining companies or their rural people happy, because in the end it will only lead to protests and major problems.

Artisanal mining is an aspect of mining that is causing more harm in Africa, and probably other places, than large-scale mining, because of its informality and the poor regulations in those areas. People leave agriculture, because it is becoming less profitable to do agriculture and more profitable to do artisanal mining. That creates more food insecurity in places where small-scale agriculture is the source of livelihood for many people.

Capacity for science and technology and also innovation is a fundamental challenge, implicit in the recommendations and policy pointers below.

Marketing imperfections and lack of perfect information can be major problems. When a government representative says: 'We are told that there's this quantity of this mineral in my country', it can mean the government does not itself have a good estimate of the size of its resource. It is relying on the company — the company that is coming to sign contracts with the government to mine for minerals and make profits and pay good dividends to its shareholders — to tell the government the size of that mineral resource. For a government, that information asymmetry is a major issue that really needs to be addressed.

Government institutions also need to deal with historical perceptions being very strongly against mining. Many in civil society, non-government organisations and local communities think that large-scale mining will only take their resources and not give them back. There is not very much evidence in the literature of that: in fact, the evidence shows the opposite, with mining producing benefits for the rural communities where they are operating. Linked to this is what I call 'media hype' or fake criticism of large-scale mining, as against even artisanal mining.

Linking mining and agriculture will be a challenge in countries where cross-ministerial collaboration is a challenge. People tend to think of their own areas of work, and of 'my budget', 'my policy', 'my …', 'my …', 'my …', and that kind of attitude makes it very difficult to bring about effective collaboration between these two major industries.

Last but not least is the challenge of education. The type of education we have in Africa needs help. It needs to have a changed mindset, from just studying to gain certificates to studying to be able to do things. Much can be shared between Australia and Africa about how to educate better, with universities forming collaborations.

Media

Increasingly I am beginning to believe in the power of the media, especially after the 'Arab Spring' and seeing how attitudes are spreading.

I have just read about Sierra Leone's Deputy Minister for Agriculture Marie Jalloh. She says,*

> Getting agriculture and mining [to] work together in that part of the country that I'm coming from is difficult. I've never seen it happen.

This reflects the sentiments of other speakers at this conference.

In Australia you also have this problem. For example, the Australian media on 22 August 2013 reports that coal and gas mining sparks protests and people are on the streets protesting against that. If you look at Africa you can see the same thing from, for example, rural Sierra Leone where the chiefs are complaining about displacements and major problems created by mining impeding agriculture. I know that in the media things may not be completely true, but they may also not be completely false. So we need to think about that.

Knowedge gaps, policy pointers, recommendations

There are challenges in trying to make any conclusive recommendations for discussion in this area.

First, there are huge knowledge gaps. We do not really know clearly the impacts of mining on agriculture and poverty alleviation in Africa, though there is much anecdotal evidence. Research needs to be done so that we can look at the whole value-chain and gain a clear understanding of what is happening in these

* http://www.abc.net.au/news/2013-08-22/nrn-africa-mining-ag/4904602

sectors, and the important interactions. Then it may be easier to see policy pointers and make recommendations for going forward.

At the ATPS we think there is a need for independent research and documentary evidence. Normally when a company is telling you what it is doing for you, you 'take it with a grain of salt' because the company is highly likely to say something positive about itself. We need independent research instead.

Africa also needs to go beyond environmental impact assessments, which are required for establishing mines and also for mines closures. We need to think more in terms of social and economic assessments for both new and closed mines in Africa.

Policy pointers

(i) One currently important policy pointer is the need to *create awareness*. I have recently increased my knowledge of large-scale mining, and found it is not really as bad as we used to think. We all need better awareness about the realities of these sectors.

(ii) *Community participation* is another policy pointer. Engaging local communities, before, during and after the contracting and development of large-scale operations, is a pre-requisite for sustainable mining.

(iii) *Research for development* is also required, especially to document the good and bad practices and to learn lessons for policy-making.

(iv) We need *integrated community development*. It is important not to view mining differently from agriculture and other industries, and instead to identify and develop agricultural opportunities in mining corridors. Let us think about how to use the resources we have to deliver what we want.

(v) *Environmental policies, regulations and standards and certification* are important, as is the *strengthening of indigenous technology capacity*. For example, mining contracts could include a needs-assessment of indigenous technological and innovation capacity along the value-chain.

(vi) We need to support *incubation centres for sustainable mining innovation*, and also *policy coordination*. I have written about this in 'Africa Up Close' (Urama 2012), a forum for perspectives on issues affecting Africa, run by the Wilson Center in Washington, DC.

Conclusion

Here is a quote by Michael Spence, Nobel Laureate Economist, which I found on the Crawford Fund webpage for this conference. It is something we need to think about:

> In developing countries resource wealth should make it easier to make investments that underpin steady growth, and with less short term sacrifice than is normally the case. However that is not how it usually plays out.

In summary, the African Technology Policy Studies Network recommends in-depth research to develop a more holistic perspective on mining systems for development, including: creating capacities for green industrial policy, innovation portfolios, low-carbon policy instruments, educational reform, international cooperation, and technology transfer for green energy and economic development. The ATPS has been developing a proposal around these points, in liaison with African stakeholders.

Overall, there is a need to look at how to reverse the 'resource curse' in Africa, turning it into a resource blessing, because without that the continuing commodity boom and increasing commodity prices will increase GDP but not deliver growth or food security or alleviate poverty.

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Professor Kevin Chika Urama is an economist specialising in agricultural, resources, environmental and ecological economics. He has received many awards and prizes for academic and leadership excellence at various scales. He is the Executive Director of the African Technology Policy Studies Network (ATPS), and the Inaugural President of the African Society for Ecological Economics (ASEE) — the African chapter of the International Society for Ecological Economics (ISEE). Professor Urama serves on the boards of international organisations, scientific panels and research programs, including the High-Level Panel on Global Assessment of Resources for Implementing the Strategic Plan for Biodiversity 2011–20, the International Panel for Sustainable Resource Management (as Chair of the Water Working Group), the OECD Green Growth and Poverty Reduction Task Team, and the UNESCO Governing Board of the International Research and Training Centre for Science and Technology Strategy (CISTRAT), among others. He is a member of the Editorial (Advisory) Boards of a number of international journals.

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KEYNOTE ADDRESS

The roles of agriculture and mining in pro-poor sustainable development in Africa

His Excellency Festus G. Mogae

Former President of the Republic of Botswana,
Chairman of the Coalition for Dialogue on Africa

Abstract

Africa has an abundance of energy and mineral assets and agricultural land. In spite of the variety of outlooks across its numerous countries there is a common understanding that these natural resources need to be used carefully and thoughtfully if there is to be sustainable development across Africa as a whole, especially pro-poor sustainable development. Botswana has poor soils and climate for agricultural production, but it has developed some of its other resources. That development, combined with far-sighted policy, has taken Botswana from being one of the world's least developed countries in 1966 at independence, to a middle-income economy now. Agriculture makes a small contribution to economic growth, while mining, manufacturing, construction, trade and hotels contribute much more. Botswana currently has mines for diamonds, copper, nickel, coal, gold and various industrial minerals used in the construction industry. Its mineral policies enable many international companies to prospect for and mine these minerals. Competitive mining laws, low sovereign and social risks, relatively good infrastructure and easy access to land, security of tenure, and low levels of corruption, are among reasons for Botswana having a favourable reputation with international investors. Still, the country's climate and soils make agriculture challenging, and Botswana focuses on food security rather than food self-sufficiency. It remains heavily dependent on mineral revenue.

This is an important forum on mining and agriculture — particularly because of the variety of stakeholders present from all over Australia and from at least 20 different African countries. The different perspectives and different approaches present here should enrich our dialogue and our understanding and can also inform our policy-making and our practice.

Within that variety of perspectives we are also united in the common understanding that careful and thoughtful utilisation of Africa's natural resources will be a critical component of sustainable development on the continent. This applies equally whether that natural resource is the fertility of the soil, the health of the forests, the quality of the waterways or the vast mineral deposits and energy resources. I also know that the experiences of many African countries with regard to the exploitation of their mineral and energy resources, in particular, have historically not led to sustainable development and have certainly not been pro-poor.

We are absolutely:

> determined to put an end to that history so that Africa's endowments can become a source of developmental transformation that benefits its peoples.

That is what we said with one voice at the Eighth African Development Forum (ADF-VIII) in Addis Ababa last year on 'Governing and Harnessing Natural Resources for Africa's Development'. I both addressed the assembly and listened very hard to my African brothers and sisters as we worked together to frame a vision for the use of our natural resources. I was also very pleased that Australia was present formally at the meeting and spoke of the Australian experience of mining and expressed a strong desire to partner and to contribute lessons learned here.

We discussed at some length the Africa Mining Vision and Action Plan and the creation of the African Minerals Development Centre (which Australia is supporting); we spoke about the Comprehensive Africa Agriculture Development Programme (CAADP); we talked about fisheries, land use and forestry. We also crafted a consensus statement from which I quoted above.

In grand African tradition we finished with a concert. There was even a song written for the forum which was played at the concert. It captured the mood of that forum and the theme of this one. The song goes like this:

> In the midst of plenty the people are suffering;
> In the midst of plenty my people are hungry.
> We have iron, gold, diamond and aluminium,
> And we don't utilise these resources to full economic development.

I am sure that it might be the only song in all of history to have the phrase 'full economic development' as part of the lyrics! It does, however, have a great catchy, very African tune.

Africa is a continent of plenty — an abundance of mineral and energy assets, an abundance of agricultural land. Yet in this land of plenty there is enormous need, and some would say we have been cursed by this abundance of resources. I would say I do not believe in curses and I especially do not believe in a resource curse. I gave a speech in 2008 to the African Development Bank and some of the ideas from that talk have been picked up more recently in a publication from the Chief Economist Complex of the African Development Bank, where they asked this question: How did Botswana escape the pitfalls of the resource curse, ensure stable growth, and save its wealth for use by future generations?

In trying to answer that question, I will also explore the role of natural resources (in this case, agriculture and mining — bread and stones) in sustainable pro-poor development.

Botswana's development

For those of you who are not familiar with Botswana's story I will quickly share with you Botswana's background which I think will help you appreciate why we are so proud of our achievements, and also why we acknowledge that our transformation is an on-going and continual challenge.

Most African countries had agriculture as the mainstay of their economies, especially before independence, and Botswana is no exception.

Botswana is a land-locked country sandwiched between South Africa to the south, Namibia to the west, Zambia to the north and Zimbabwe to the north-east. The country relies heavily on South African seaports for its access to the sea. The country has a total area of 582,000 km^2 divided into three main land tenure systems. These are the communal or customary, the State, and the freehold land, which occupy 70%, 25% and 5% of the country's surface area respectively. Its location in the subtropical high pressure belt means low rainfall and long dry spells, mostly influenced by the Kalahari type of climate — which is desert. Botswana has thus been disadvantaged in terms of agricultural production because of its Kalahari type of climate where three-quarters of the country is in fact covered by the Kalahari sands.

At independence, in 1966, Botswana was one of the poorest countries in the world with its gross domestic product (GDP) per capita well below the regional average at $70. The country relied on the British Government for its development expenditure and to some extent the recurrent expenditure. Agriculture contributed 40% of total GDP and it was mostly subsistence. During that era agriculture was the dominant economic activity, contributing 96% of total exports. Exports from the agricultural sector were dominated by beef, mainly to South Africa and the United Kingdom and later the European Union.

The majority of the population, which was estimated at 600,000 people, relied on subsistence agriculture for their livelihood. The major food crops at the time were sorghum, maize, millet, beans and peanuts. These still comprise the most-consumed food crops in the country. The yields from these crops are, however, far from satisfying the country's food needs. Although sorghum and maize constitute 90% of the country's cereal production, the country produces only 30% of its cereal needs in a normal year.

The contribution of agriculture to economic growth has been stable but very low compared to the other sectors such as mining, manufacturing, construction, trade and hotels. It should be noted however that the low performance of agriculture compared to other sectors does not translate into the dismissal of agriculture as less important in value-addition to human livelihoods. The agricultural and pastoral sector is an important area where a significant percentage of people make a living. We continue to invest in this sector even though we know the returns are low. Through this sector we are able to reach even the most remote and poor households.

The mineral sector is one of the important drivers of the economy in Botswana, with strong dominance from diamond mining. Mining commenced in the 19th Century with the discovery and subsequent mining of gold in the north-eastern part of Botswana. Modern mining of copper, nickel, diamonds and coal began in the early 1970s. Botswana currently mines the following minerals: diamonds, copper, nickel, coal, soda ash, salt, gold, and various industrial minerals to supply the construction industry.

Diamond mining in Botswana started in the early 1970s and Botswana became a significant world producer after 1982 following the opening of the Jwaneng Mine.

One of Botswana's mineral policies is to create a competitive environment to stimulate private sector investment in mineral exploration and exploitation, through efficient administrative services and provision of geological information to investors, free. This policy has yielded positive results; many international companies have discovered mineral deposits, some of which have resulted in mines being opened. This has called for the enactment of laws and regulations to provide for the granting, renewal and termination of mineral concessions, to provide for the payment of royalties and for matters incidental and connected thereto.

As a result, the right to prospect for, retain and mine minerals may be acquired and held only under and in accordance with the provisions of the Mines and Minerals Act. The mining licence is valid for a period not exceeding 25 years and is renewable. Upon issuing of a mining licence the Government has an option to acquire up to 15% interest in the equity of the proposed mine.

The Mines and Minerals Act further provides for, among other things, restrictions on acquisition of mineral concessions, power of entry by certain officers to enter upon prospecting areas, and the recovery of fees, dues, rents, royalties or payments which may become due in respect of any mineral concession or as provided for under the Act.

As I have indicated above, all revenues from minerals are for the Government of Botswana and are appropriated into public revenues by Parliament, together with revenues from other sectors of the economy, and spent equitably and in accordance with the National Development Plan.

Botswana has for many years been rated favourably by various international institutions, due to factors such as competitive mining laws, low sovereign and social risks, relatively good infrastructure and easy access to land, security of tenure, low levels of corruption, upholding the rule of law and honouring agreements. This favourable investment climate is not limited to the minerals sector but prevails in the wider economy. For instance, Botswana continues to receive very favourable sovereign-risk ratings by both Standard & Poors and Moody's investment agencies for the general economy, and Fraser Institute of Canada and Resource Stocks in mining.

Botswana's success in capturing mineral wealth to convert it into economic development is facilitated by the fact that all mineral rights vest in the State. This is intended to ensure that the utilisation of such resources is for the benefit of all the inhabitants of Botswana irrespective of the land on which the minerals are found.

Prudent management of minerals revenues over the years made it possible for Botswana to transform from one of the poorest countries to a middle-income economy. Revenue from mining has been used to develop physical and social infrastructure such as roads, water supplies, power supplies, telecommunications, health facilities, free education, and free health care including the provision of anti-retroviral drugs.

I would say that the transparent and accountable management of the mineral policy and practices has been the essential glue that has held the policy framework and its implementation together. We are mindful of the fact that diamonds — and indeed all minerals — are not forever. The only way we can sustain our national development and create employment is through economic diversification. We have provided a future generations fund, withdrawals from which have to be sanctioned by Parliament. Sovereign funds consisting of cash in the bank are a temptation to spend, even for Parliaments; in developing countries, I would say especially for Parliaments.

One of the initiatives we have taken to diversify the economy is some local processing of diamonds. We have licensed 18 cutting and polishing companies, two of which actually manufacture jewellery. We aspire to develop into a Diamond Trading Centre along the lines of Antwerp and Mumbai. The existing cutting and polishing activity, although it accounts for a small fraction of total diamond production, is currently providing around 3000 jobs. I would hope that as our people gain proficiency, the activity will expand and grow.

We have also established the Botswana Export Development and Investment Agency (BEDIA) to lead the campaign to lure investors to Botswana. We have seen some positive results particularly in the tourism industry where there is significant investment by foreign investors.

Although we have positive examples such as this, agriculture in Botswana is challenging. Our focus is not on food self-sufficiency but food security, and we are using economic diversification to ensure that people have the economic means to procure sufficient food of high nutritional value.

The journey from the least developed and one of the poorest countries of the world, to a developing middle-income country was not easy. Deliberate and sometimes painful decisions had to be taken, thanks to our principles of consultation, cooperation and accountability.

Previously I have indicated that the contribution of agriculture to economic growth has been very low. On the other hand, the contribution of mining to economic growth has been, and is, the largest. We are excessively dependent on mineral revenue. More than 50% of government revenues are derived from minerals, of which 95% comes from diamonds. Therefore mining has now become our bread. When we cannot produce enough for our daily needs, mining — or stones — becomes our food.

Our second President His Excellency Sir QKJ Masire said as much, and much more eloquently:

> …our new nation, economically poor, but developing, with our four objectives of rapid economic growth, social justice, economic independence and sustained production. We are dedicated to improving the lot of our people in rural areas and we are dedicated to creating more employment for our people. But we intend to conserve our resources wisely and not destroy them.
>
> Those of us who happen to live in the 20th Century are no more important than our descendants in centuries to come.

His Excellency Festus Mogae is one of the world's few winners of the Mo Ibrahim Prize for Achievement in African Leadership. He trained as an economist at the Universities of Oxford and Sussex. His Excellency served in Washington, DC, as Alternate and Executive Director, International Monetary Fund for Anglophone Africa, then returned home to take up the position of Governor of the Bank of Botswana, and was Permanent Secretary to the President, Secretary to the Cabinet and Supervisor of Elections. He was appointed Minister of Finance and Development Planning in 1989 and became Vice President in 1992, until 31 March 1998 when he became the Third President of the Republic of Botswana. He was also a Member of the Commonwealth Parliamentary Association, Member of the Parliamentarians for Global Action and the Global Coalition for Africa. His Excellency was Governor for Botswana for the International Bank for Reconstruction and Development, Member of the Joint Development Committee of the World Bank and the International Monetary Fund on the transfer of real resources to developing countries. He was also involved in community oriented organisations which include the Kalahari Conservation Society, Botswana Society (Research Organisation), President of the Botswana Society for the Deaf and Patron of the Junior Achievement Botswana. He is also involved in a range of organisations involved in leadership, governance and the fight against HIV and AIDS, tuberculosis and malaria. His Excellency has received many awards including the highest honour of the Republic of Botswana, Naledi Ya Botswana — Gaborone, and the Presidential Order of Honour of Botswana.

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Strengthening Africa's capacity for innovation in animal agriculture: the agriculture–mining conundrum of grass or brass, bread or stones

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Abstract

In spite of its abundant mineral resources and the activities of many mining companies extracting those resources from only a very small part of the total land area, much of Africa is still in penury. Animal agriculture is a major contributor to the economy of many African countries, especially in the arid and semi-arid areas where it occupies about 80% of the land. The sector employs some 50% of the total agricultural labour force, contributes about 10% of the gross domestic product (GDP) and accounts for 40% of agricultural GDP. An estimated 100 million people work in the pastoral economy alone. Yet the livestock sector receives less than 2% of the national budgetary allocation for development, in spite of facing changing conditions and needing innovative thinking. African governments need to find the will to insist that mining companies contribute to country revenues, so that development of mineral wealth can provide financial resources to support agricultural development and innovation. Through their sense of corporate social responsibility mining companies already contribute to improved infrastructure and local community well-being. African governments need to adopt an 'Innovation Platform approach', to understand how to use mineral-derived revenue to overcome technological and institutional constraints in dealing with the ever-changing needs, environments and advances in agriculture, including the livestock sector, to achieve economic benefits.

This talk is about African agriculture, particularly animal agriculture, focusing on the agricultural and mining conundrum of grass or brass, bread or stones.

To start with, here are a few guiding principles and thoughts about agriculture and mining. The first is credited to the late former President of the Republic of Malawi, His Excellency Dr Bingu wa Mutharika, who said: 'Africa cannot, and *must* not, live in the past. Africa must look to the future.' He said this when he was the Chairman of the Assembly of the African Union (2010–11), when he gave his vision of a food-secure Africa.

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*This paper was co-authored by Dr Adewale Adekunle (Forum for Agricultural Research in Africa) and Dr Jimmy Smith, Director-General, International Livestock Research Institute, www.ilri.org, and presented by Dr Yemi Akinbamijo.

Figure 1. Mining and agriculture both create work so that people can afford to eat. Agriculture also produces the food.

The second principle is by Jacques Diouf who said, when he was Director-General of the UN Food and Agriculture Organization (FAO), in 2009:

> There is need for a high political leadership to take bold decisions and follow up with the required actions to eradicate hunger, so that all people in Africa can enjoy the most basic and fundamental of human rights — the right to food and thus to existence and life.

I also want to share the thoughts of Dr Jacqueline Sultan, the former Minister for Agriculture in Guinea. She said:

> It is a challenge for the two sectors to co-exist. Given the choice between a sector that employs 100,000 people or the capacity to feed 12 million people, I prefer the latter.

Agriculture and mining in Africa

This conference has heard a little about the Africa Mining Vision. In brief, it aims at having 'Transparent, equitable and optimal exploitation of mineral resources to underpin broad-based sustainable growth and socio-economic development'. However, Africa, and especially its agriculture, is an interesting mix of challenges and opportunities (e.g. Figure 1).

For example, in many African countries, agriculture is still largely 'backward', engaging about 70% of the population, largely employing minimal mechanisation and instead using archaic and primordial tools, experiencing large gaps between scientists' and farmers' yields of strategic crops and livestock, and high variability in input use, access to markets, infrastructure and agricultural lending. Besides, the farming populace is largely ageing.

It is also very clear that the agricultural 'landscape' in Africa is changeable rather than plain: there are no 'level playing fields'.

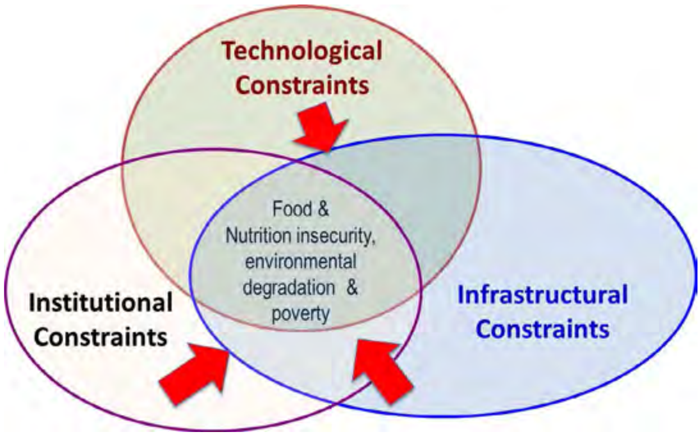


Figure 2. The concept of the Innovation Platform approach.

For all of these reasons, the agricultural sector is in urgent need of innovative thinking, such as via an 'Innovation Platform' approach (Figure 2).

In the Innovation Platform approach, you take a particular problem — in our example, agriculture versus mining — and then you look for the key elements that can contribute towards a solution so that economic benefits accrue to the community. The diagram shows a scenario with technological constraints, institutional constraints and infrastructural constraints. Governance is an overarching factor. Innovations are required in all three distinct areas — technological, institutional and infrastructural — and all of these need to be encouraged in an integrated way.

For effectiveness and sustainability, innovation must be based on capacity-strengthening in three dimensions. In the first dimension are not only the research scientists but also the extension officers and private sector players who are directly involved. The second dimension includes the support staff and supervisors working with the people in the first dimension. In the third dimension is capacity-building at the level of the community and community organisations, focusing on natural resource management capabilities in the people on the land, whether smallholders or large landowners.

As an example, with NERICA, a new type of rice for Africa, the elements of the Innovation Platform approach came together, overcoming technological and some institutional and infrastructure challenges. This specially bred rice is tailored to African environmental conditions and also needs less field labour, which gives people including children more time for other occupations and schooling. At present 23 or more countries grow NERICA, despite a major bottleneck preventing access to sufficient seed. There has been important capacity-building to reach this point.

An Innovation Platform approach is urgently needed in the livestock sector in Africa. Livestock are a major contributor to the economy, especially in the arid and semi-arid areas where this sector occupies about 80% of the land (Figure 3).

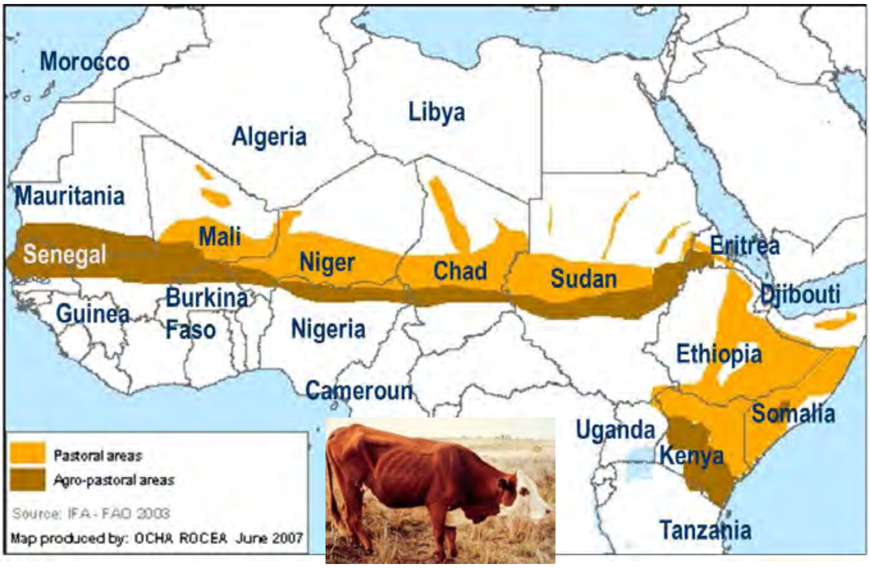
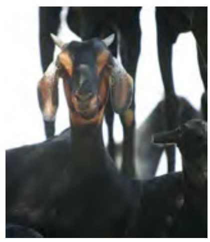


Figure 3. Pastoral and agropastoral areas occupy large areas of the arid and semi-arid Sahelian belt across Africa.

Animal agriculture employs some 50% of the total agricultural labour force, contributes about 10% of the gross domestic product (GDP), accounts for 40% of agricultural GDP, and — this is very important — supports more people per hectare (functional capacity) than other types of agriculture. Yet, the sector receives less than 2% of the national budgetary allocation for development.



In land use and expanse it cuts across the whole continent. Looking at the Sahelian belt alone, comprising so many countries, tells you how important the livestock component is to the economy of the continent — in fact it has been estimated that about 100 million people are involved in only the pastoral economy in Africa. However, conditions for livestock systems are changing, and we need to understand that they are changing all the time, and apply innovative thinking to deal with that.

An Innovation Platform approach would enable us to look for the key elements that will allow economic benefits to accrue to the community. For example, we need to design a more coherent and dynamic research and policy agenda that benefits the poor. We need to target investments more adequately, and to bridge the technology–adoption gap, and to recognise the key drivers, which are:

- population increase,
- urbanisation,
- market access,
- shifts in demand, and
- climate change.

Grass vs brass; bread vs stones

Africa is very well endowed in mineral resources (Figure 4), but mining occupies a very small part of the total land area, just as in other countries of the world (Table 1). The unpalatable oxymoron here is that our continent, which has about ten countries ranking up in the top ten producers of mineral resources in the world, still is in penury, and this is expressed in an Ethiopian proverb: 'The child of the Nile is thirsty'. This is the 'grass–brass' land challenge.

Conflicts arise where mining is perceived to compete for agricultural and grazing lands ('grass vs brass'), and where comparable land cannot be purchased for farmers displaced by mining companies, or farmers have abandoned their lands near mines, and turned instead to artisanal mining ('bread vs stones'). The Fraser Institute (Canada), at its 'Mining Facts' website, lists these and other negative and positive aspects of competion between mining and agriculture.

Figure 4. Africa has huge mineral resources. Countries shaded brown are among the top 10 countries globally for quantities of a mineral resource produced; orange shading means that country has more than one resource-holding in the top 10.

Table 1. Mining use of land, as a percentage of available land mass

Country	Mining land use (% of available)
USA	0.02–0.01
Canada	0.01
Peru	0.01
Brazil	<0.45
Australia	<0.26

From: Paulo Riveiro de Santana, Ombudsman, Department Nacional de Produção Mineral, December 2011.

'Mining Facts' (Fraser Institute 2012) says that there can be conflict between mining and agriculture over water resources, in relation to quantity — particularly where fresh water is scarce — and water quality. Water quality is regulated by environmental legislation, but developing countries generally have weak capacity to enforce this legislation. It seems, however, that

> the current best practices of large-scale foreign-owned mines in Africa are less damaging to the environment than subsistence farming, poverty-related deforestation and communal pasturing.

In contrast, livestock production, especially of ruminants, has been accused of being one of the biggest contributors to climate change. Although water pollution by large-scale mining has been alleged, it has not been confirmed by reputable studies.

Mining in an area brings in better infrastructure, such as roads, electricity, water supply and sanitation. Agriculture benefits from an effective rural road network, with potentially fewer harvest losses, higher wages, lower transaction costs. Water, sanitation and electricity support local food processing. 'Mining Facts' gives as an example of corporate social responsibility the Ahfo Agribusiness Growth Initiative of Newmont Ghana Gold, which 'has provided training to 1368 farmers to increase agricultural productivity and farm business skills' (Fraser Institute 2012).

'Mining Facts' also cites an International Council on Mining & Metals study that found mining complementing agriculture, giving an example from Argentina where there was an increase in the area of cultivated land around a mine during the years 2001–07 (Fraser Institute 2012).

It is encouraging to see that mutual support and synergies are possible.

Looking forward

In 1862, the American Congress passed a land-grant bill whereby land was to be made available in each state for use in developing agriculture, via training colleges. In relation to mining versus agriculture in Africa, the question is, 'Do we have the will?' Can we insist the company operators in the mining sector contribute a percentage of their revenues, even as little as 0.05%, to promote agricultural development in their host countries?

In the context of unrelenting climate change and competition for natural resources we are presented with the clear choice of maintaining the jobs of 100,000 or keeping 12 million people food secure! I choose the latter.

The Forum for Agricultural Research in Africa (FARA) believes in the maxim 'Africa feeding Africa'. For Africa to do this, and to resonate with the African Union's vision of a food-secure Africa where no child is allowed to go to hungry, a viable option would be to develop home-grown Innovation Platforms in agricultural research for development.

Closing a few policy gaps will also help Africa's mining–agriculture interactions.

1. We need transfer of knowledge and sharing of success stories — how can we hear from communities and learn from their experience?

2. We need more effective and indigenous assessment of vulnerability and adaptation, and we need to retain experts.
3. We need to strengthen national institutions so they develop and use multi-stakeholder and all-inclusive policy formulation and implementation, as well as information for decision-making, at appropriate scales.
4. We also need to improve the institutional framework for environmental impact assessment and its implementation.

Concluding remarks

The livestock sector in Africa deserves to receive greater attention than it is currently given. Systems are changing continually, and we need to understand and predict how systems will change in the future, so we can determine the outcomes we want. We need to engage in foresighting and visioning, which my institution, FARA, is now beginning to embrace. FARA has been proposing the Innovation Platform as an integrated mechanism to improve agricultural innovation required to upgrade African agriculture and make it a veritable driver of the economies of African countries.

There is a dearth of information about the actual impacts of mining on agriculture, especially in the livestock sector of Africa. Major studies and 'the will' on the subject are required.

Finally, you should not 'give the fish' where corporate responsibilities are concerned. That is, African countries must not rely on the community inputs of mining companies, because those inputs — 'the fish' — are limited to the region and operational life of a mine. Rather, the aim should be to 'teach how to fish'. In other words, empower African communities by building capacity for resilience and by investing revenues from mining into public goods, looking to the future.

I leave you with the statement of Jawaharlal Nehru, India's Statesman and first Prime Minister, who said: 'Everything can wait, but agriculture cannot wait.'

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Dr Yemi Akinbamijo has an agriculture background with specialisation in animal production. As an agricultural expert who has served in various capacities over the last 28 years, he is passionate about agricultural development issues in Africa. Dr Akinbamijo was recently appointed Executive Director of the Forum for Agricultural Research in Africa (FARA), having served the African Union Commission as head of the Agriculture and Food Security Division until June 2013 at the Headquarters in Addis Ababa, Ethiopia. Dr Yemi Akinbamijo holds a PhD from the Wageningen Agricultural University, The Netherlands.

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Industry and infrastructure can contribute substantially to African economic growth

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Secretary-General, COMESA

Abstract

Africa has potential for economic growth from agricultural production as well as from mineral exploitation. Currently, the continent's economic growth is unbalanced: some countries have much higher average growth than others. With the population expected to double by 2050, much more focus is needed on not only export earnings but also on food production and jobs creation. Industry policy and infrastructure development can change the balance and ensure jobs for Africans across all groups. Mineral resources exported as raw materials bring in income and lead to economic growth, but by value-adding before export Africa could not only earn much more income but also create many times more jobs. For example, one ton of raw iron ore may be worth USD140, but partial processing will not only multiply its export value but also provide five times as many jobs, or 100 times as many jobs if the iron is manufactured into semi-finished goods before export. Africa can go part of the way in value-adding. First it needs to have a policy environment that supports industry and trade. COMESA (Common Market for Eastern and Southern Africa) is working towards facilitation of trade across borders, and improved infrastructure, transport and transit of goods. There is potential for transport corridors and industry clusters to play important roles in future exporting based on the minerals industry.

This talk addresses the issues of infrastructure and development and growth in Africa, and relates those to agriculture. First, it gives some background about the growth trends in Africa, particularly in relation to mining. I will also mention transport corridors and relate them to the mining activities that are taking place, and to how mining and agriculture go together.

Economic growth in Africa is widely predicted to average 6.2%. Obviously there are countries that are achieving higher average growth than that, including Nigeria, Ethiopia, Tanzania, Mozambique, Zambia, Malawi, Rwanda and Democratic Republic of Congo. Some of this growth has been as a result of the abundance of commodities, but for how long that growth will continue is not known. We saw what happened in the 1970s after the OPEC oil crisis when everything collapsed: commodities-based growth is unpredictable.

Africa's potential in agriculture and food production is growing, partly because agricultural land is becoming a more scarce resource in the rest of the world, and partly because as Africa's population grows the local African market becomes more important. Investors are coming from outside of Africa, with investments geared towards exporting African agricultural produce to the Middle East and beyond. In Africa some families are huge, so the question is not really whether Africa will experience economic growth, but how that growth will take place and what its impact on Africa's population will be.

Africa's economic growth is expected to benefit from expected increases in commodity prices over the next 30 years or so. Many observers expect Africa to follow the current model where economic growth will likely come about through commodity exports. Some would argue that there is nothing wrong with this model — that in fact it is precisely what Australia does, and that Australia is well endowed with minerals which it exports primarily as raw materials. Africa and Australia are also similar in that China is a major destination for raw materials from both continents.

However, there are significant differences between Australia's and Africa's 'economic models'. The Australian economic model contributes a high proportion of gross domestic product (GDP). For instance, mining in Western Australia contributes over 70% of the Western Australian economy's export earnings. Also, Africa does not have a strong manufacturing and services sector, unlike that sector in Australia.

The prognosis therefore for Africa is that it will experience economic growth from commodity exports. However, if this is to be the case then this economic growth will not be for the benefit of the African population as a whole.

Industry and value adding

It is commonly agreed that added value and employment opportunities from commodities are realised along the value-chain. Take the example of iron ore. As ore moves up the iron ore value-chain the employment opportunities from each ton of iron ore increase — and this is not a linear increase. The value at production of one ton of iron ore is about USD140. There are a few processes adding value between the production of iron ore and the casting stage, and by the time that ton goes through the hot rolling and cold rolling stages of manufacturing its value has increased to USD700 and USD800 respectively. The value addition in semi-manufactured goods is about USD1000 per ton, and when this one ton of iron ore that was worth USD140 is used in the manufacture of white goods the value addition reaches about USD6000 per ton, or about USD15,000 per ton when the iron is used to manufacture heavy equipment such as for mining.

The biggest benefit of keeping as much as possible of the value-chain in Africa comes from the employment opportunities offered. Continuing with this example of one ton of iron ore, the number of jobs generated at the cold rolling stage is five times the jobs created at the production stage of the iron ore. The biggest increase in jobs comes during the manufacture of the semi-finished products, where we are looking at about a 100-fold increase in jobs compared to the jobs created in the production of iron ore. In the manufacturing of finished products there is about a 400-fold increase in jobs compared to the number of jobs in producing iron ore.

I wish to emphasise here that I'm not advocating that Africa should aim to capture the whole value-chain for minerals and metals, but I am suggesting that the future economic development of Africa lies in moving at least a few rungs up the value addition ladder.

There are opportunities to add value and then export the product and reimport it after it has been modified overseas, and there is nothing unique in this. For example, Australia exports alumina to Japan and Dubai and imports the aluminium metal which it uses to manufacture finished goods.

Africa's population is growing at an exponential rate, and the population is expected to double from the present figure of about one billion people, by 2050 — that is a doubling of the continent's population in only 40 years. Therefore it is important for Africa that not only should there be economic growth, but that the economic growth should be translated into jobs for Africans and raise the standard of living of Africans. That should not be just for the small elite that will become extremely wealthy, with the majority kept in poverty, if the current trend, to export or reproduce and import what we consume, is maintained.

The question, then, becomes how can Africa capture the value-chain especially in commodities? To capture this value-chain, by keeping as many processes in the value-chain in Africa as possible, there needs to be an environment that is conducive to both industrial production and trade. This will depend on improvements in infrastructure, including roads, railways, ports and airports, and also on improving trade conditions and efficiency and facilitation generally. Although at the moment Africa as a whole has a low standing in regard to trade, infrastructure, trade policy and trade facilitation, the various economic communities are now addressing these issues.

Infrastructure

There are transport corridors running from the landlocked countries to the coast. In relation to these, the Common Market for Eastern and Southern Africa (COMESA), working with the East African Community (EAC) and the Southern African Development Community (SADC) within the Tripartite framework, is addressing market integration, infrastructure and industrialisation. For instance, we are focusing on the issues of investment in infrastructure and also trade facilitation, including initiatives which have reduced trucking delays in some cases from an average of four days to three hours.

Large-scale mining investments taking place in Africa are also having a positive effect on the development of infrastructure. For example, coal and oil exports are driving both investment in and upgrades of railways and ports in particular. To give an example, in Mozambique the mining companies are investing in a rail line from Moatize to the port of Nacala via Malawi, and they are financing the bulk coal terminal carousel. Mining companies are also underwriting investments in and upgrade of the railway line from Moatize to Beira, and investing in port upgrades. Similarly, oil deposits in the Albertine Basin in Uganda and Southern Sudan are partly driving the investments in the Lamu Port–Southern Sudan–Ethiopia transport corridor.

What is interesting is that traditionally the mining companies have not been involved in infrastructure; they would expect governments to deal with infrastructure. Now we are seeing a different situation develop. I sat in one Presidential Commission — I will not tell you which country — listening to the discussion among all the major mining companies. There were mining companies that had not worked in Africa before, asking the other mining companies: Why are you not involved in infrastructure? Why are you not involved in agriculture? It was quite an interesting debate. As His Excellency Festus Mogae said, African countries would not decree that companies should do that, but it would be in their interest because they need to be able to feed their workers. To import food from outside the country costs more than supporting local agriculture to establish a local supply chain.

Mineral clusters have good potential, for example in Mozambique. When there is a cluster a company does not just take away 50 million tons of coal, as the Brazilian company Vale wants to do. Instead the mine becomes part of an industrial cluster that uses that non-coking coal to produce gas; and from gas, via the Fischer–Tropsch synthesis process, a number of liquid hydrocarbons and also urea (African countries currently import millions of tons of fertiliser). Establishing a cluster at Moatize, close to the Zambezi waterway, also opens the possibility of linking mining in a cluster with agriculture. An example of success for minerals is the diamond cluster set up in Botswana, which has stopped selling raw diamonds in Antwerp and Mumbai. The buyers now come to Botswana.

In conclusion, the future for Africa is bright, but only if Africans can use the resources we have to build mineral clusters and then ensure that they attract value-addition industries. It is in this way that Africa will be able to create jobs, create original markets and create equitable and strong economic growth.

His Excellency Sindiso Ndema Ngwenya is the third Secretary-General of the Common Market for Eastern and Southern Africa. He has over 27 years of service in industry, the public sector and quasi-government institutions. Before his current appointment, Mr Ngwenya was the Assistant Secretary-General of COMESA, responsible for overseeing the development and implementation of COMESA programs including the Leather and Leather Products Institute, the Clearing House and the Regional Investment Agency. Industry involvement includes the design and implementation of transportation projects. At the regional level, Mr Ngwenya was instrumental in the formation of COMESA, culminating in the launch of the COMESA Free Trade Area on 31 October 2000. His personal mission is to contribute to sustainable social and economic development, and uplift the living standards of Africa's populace through regional cooperation and integration to transform and modernise economies of COMESA member states individually and collectively, with the ultimate objective of realising the African Economic Community under the auspices of the African Union.

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Integrating mining into the economies of Africa

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Abstract

Africa's abundant mineral resources offer opportunities for its countries' governments to work with mining companies so that minerals exploitation can benefit both company and country. Well-managed mineral exploitation can underpin broad-based sustainable growth and socio-economic development, in the words of the Africa Mining Vision (AMV) of 2009. An *Action Plan for Implementing the AMV* (2011) has set out strategies for developing mineral management systems and institutions through which Africa can benefit from its mineral resources, and it is now being implemented by the African Minerals Development Centre which has begun work in Addis Ababa, Ethiopia, within the UN Economic Commission for Africa (UNECA). The Centre's task is to build strategies and policies to support sustainable development. Stakeholder relations, both with investing companies and affected communities, are critical, as also is careful forethought about social and environmental impacts, legislation, infrastructure and adaptation of technologies to bring modern tools and practices to African agriculture.

This talk first gives a little background about the mining sector in Africa, and then a few observations about sustainability and community development.

In the mid-1990s we started looking into the question of why Africa is not benefiting from its mineral resources. In 2009, the Africa Mining Vision was crafted and adopted. The Africa Mining Vision simply stated that you need transparent, equitable and optimal exploitation of mineral resources to underpin broad-based sustainable growth and socio-economic development.

An international study group studied the opportunities offered by the mineral resources of Africa, and also how Africa was positioned and its development problems. The group's report was entitled *Minerals and Africa's development* (UNECA 2011). It is available on the Internet.

Based on that report the Africa Mining Vision (AMV) had to be translated into an action plan. I had the privilege of participating in the drafting of the *Action Plan for Implementing the AMV* that was approved and adopted in 2011 (AUC et al. 2011). The Action Plan has nine themes:

(i) Mining revenues and mineral rents management;

(ii) Geological and mining information systems;

(iii) Building human and institutional capacities;

(iv) Artisanal and small-scale mining;

(v) Mineral sector governance;
(vi) Research and development;
(vii) Environment and social issues;
(viii) Linkages and diversification;
(ix) Mobilising mining and infrastructure investment.

All these nine issues are also being discussed at this conference.

Narrowing these issues down to a few words, what was acknowledged as coming out of the Action Plan was that Africa needs to develop mineral management systems and institutions in order for it to benefit from its mineral resources.

A new institution, the African Minerals Development Centre, has been set up to drive and implement the Africa Mining Vision and the Action Plan. The Centre is within the United Nations Economic Commission for Africa (UNECA) and the Organization of African Unity (OAU) in Addis Ababa, Ethiopia, and is currently recruiting staff. The theme of this conference session, 'Strategies and policies to support sustainable community development', reflects some of the Centre's roles.

The Centre understands the roles of investors in the concept of corporate social responsibility. Different investors have different approaches, but in general governments do appreciate and understand the roles that they are playing and are appreciative of their contributions. In fact, relations have progressed from a completely business attitude to a stakeholder–partnership attitude. This does not mean that governments will devolve their responsibilities; it does mean that governments should provide a clear mandate to investors, showing what is expected of them. Communicating to communities is also important because there is often a very big breakdown in communication between the various stakeholders. The Centre must also work at integrating the mineral sector into the local economies.

Another matter that relates specifically to sustainable community development is the management of impacts of the mineral resources sector on communities. As is acknowledged by the AMV, it is important that the benefits be deliberately considered and pursued, from the start of the project. In other words, consider the project long before it begins: after all, exploration takes five years or thereabouts, so everybody is aware of where the mining project will be, and therefore there is no reason why everybody should not start preparing early for eventual negotiations.

A critical item, which normally receives little serious attention, is how to address the environmental and social impacts — right from the start of the project until after its closure. This is where we stand at the moment, at a cross-roads, because we are promoting mineral resources development in Africa, and the effects of our efforts in promotion will be seen 15 or 20 years in the future. If we can think through and act decisively now, right up front, then we will be doing ourselves a great service. We specifically need to think with reference to strengthening legislative frameworks, and also about the capacity of institutions to implement decisions.

What is at issue and where we need to move forward is in critically integrating mineral policy with the overall development policy of the country. As is being said over and over again, we are thinking in silos and not integrating the minerals sector with the other sectors of the economy, including agriculture. We need to look at the whole value-chain upstream, the inputs to the value-chain downstream and sideways, and lateral migration.

Lateral migration involves moving technologies from the mineral sector to agriculture and other sectors of the economy: can that be done? We need R&D and this is where training is very important. Surely there must be technologies that can move from mining to agriculture? There are farmers who are still using the hoe in a number of places in Africa!

The sideways direction includes energy and transport. Regional integration through corridor development is under discussion. In terms of infrastructure, energy and transport, we need to see how we can configure mining projects and the energy and the transport that are specifically for the mineral sector. The mineral sector is able to generate sufficient revenue to pay for the infrastructure, and surely the level of infrastructure can be configured on a slightly larger scale in order to take care of the other sectors of the economy including agriculture — with that extra, that larger-scale infrastructure, being paid for by donors or by government.

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Dr Hudson Mtegha has worked in the southern African mining industry for over 30 years and is a qualified mining engineer and mineral economist. He has held senior positions in the private sector, and has spent over 10 years in public mining administration where he has been employed by Malawi government and regional mining bodies. He was Chief Mining Engineer with the Malawi Government and Mineral Economist with the Southern African Development Community (SADC) Mining Coordinating Unit. He has also acted as independent mining consultant at various points in his career. Hudson was with Johannesburg-based Mineral and Energy Policy Centre for five years. He was a senior mineral economist at Mintek in its Mineral Economics and Strategy Unit for two years. He has worked extensively on policy issues of the mineral sector of the SADC and the African continental Mining Vision. Currently he is a senior lecturer at the University of the Witwatersrand in the School of Mining Engineering. His area of specialisation is mineral policy.

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Synthesis of the Q&A panel discussion

Dr Denis Blight AO FRSA
Chief Executive, the Crawford Fund

The Crawford Fund's Conference on Agriculture and Mining, which was held in Perth in the context of 'Africa Down Under', concluded with a panel discussion moderated by Max Bankole Jarrett. The panel comprised: Florence Chenoweth, Minister for Agriculture of Liberia; Festus Mogae, former President of Botswana, Chairman of the Coalition for Dialogue on Africa; John Kerin, Chairman of the Crawford Fund and for many years a minister in the Government of Australia in portfolios in agriculture, mining, development assistance and trade; and Ann Harrap, an independent consultant and formerly an Australian diplomat with a most recent posting as High Commissioner to South Africa, accredited to six other countries in Southern Africa.

The discussion embraced several key topics.

- The best policy and practice mix or recipe which might be deduced from the discussions, on how we can make 'bread from stones'.
- The roles of government, governance and enabling policy, especially in terms of coordination, issue of mining licences, taxation and community consultation.
- The roles of mining companies, recognising their responsibilities to their shareholders but also to the countries and communities in which they mine.
- The shared and opposing interests of miners and agriculturalists, especially where mines are dug on ground that has been traditionally farmed or grazed, and in terms of shared benefits of infrastructure investments.
- The priority of research.

The imperative for action was set by the example of Liberia seeking to recover from the awful consequences of 24 years of conflict as described by Chenoweth during the discussion: to rebuild 'our broken country' which at the end of the conflict had no seeds to plant (zero germplasm), and no animal life because during the years of conflict 'anything that moved became dinner'; electricity and road networks had been destroyed; trained professionals had been brutally killed. It is a country where 40% of children are stunted and 40% of people are malnourished.

A recipe for government policy and practice

No single recipe for government policy or practice is possible but some ingredients emerged from the discussion, which need to be mixed in the right proportions though those might vary from country to country.

- An enabling policy environment through a whole of government approach, recognising that this is neither straightforward nor easy given the competing needs of political constituencies, communities and economic sectors.
- Consultation, which in Liberia and Botswana, we heard, is inherent at inter-ministerial level in forms of Cabinet processes through draft Cabinet memoranda, and in traditional community decision-making approaches. Mogae and Chenoweth pointed out that ministers in their countries are compelled to consult, and that even hostile discussions eventually resolve into 'some kind of consensus'. The earlier and the better informed those discussions the more likely a sensible outcome. Ministers try 'to help each other', rather than treating defined activities in agriculture and mining in isolation: activities in both sectors may be 'good' but may conflict with the interests of the other sector (for example, where miners 'dig for whatever is below the ground and leave').
- An understanding of the importance of engaging the community, especially where questions of traditional land use arise: the minister for agriculture, the minister for lands and the minister for mineral resources may have to go to the community together. Otherwise, people can 'feel that a lot of the decisions that affect real lives, their land, everything about them, are made in the capital'. The land tenure issue for Africa is 'a can of worms' that most people do not want to touch but a land tenure reform program is essential.
- Recognition that ministers need to be well advised, in legal, financial and technical terms, in negotiations with mining investors who are usually well resourced and backed up in discussions across the table. Experience from past mistakes can teach valuable lessons for governments that wish to sustain and encourage long-term foreign investment.
- Clear legislative prescriptions that define criteria the prospective investor has to meet and how the consent of relevant community has to be obtained.
- Harrap added that 'economic, social and environmental impact assessments right at the very beginning' were important.
- A balance between the demands of governments, communities and mining investors; gentle persuasion and insinuation might be better than unreasonable demands 'especially as we still really need more and more investment'. Certain things however may be 'firm obligations by law … including making provision for mine closure'.

Governments are transient. Politicians in Botswana may have a five-year term, at least at the level of President; individual members of Parliament can be elected 'as many times as they are lucky'. A mine might last for 60 years; a mining licence 25 years. A mining concession once it is approved and becomes law is renegotiable after the 25 years. No one can guarantee that a country will think the same way 25 or 30 years hence, but in Botswana 'generally there is consensus … between all parties'. Developing 'the institutions and the practice and the culture of evaluating a situation and building consensus' is therefore paramount.

The private sector

As Kerin pointed out, both agriculture and mining are populated by private sector enterprises that deal with world markets. To the Crawford Fund, a greater involvement of the private sector in its programs and in Australia's official development assistance program makes sense, and this conference has illustrated how the mining sector 'can show the way' in many areas. Mining companies are 'on the ground for much longer than many ... groups delivering aid', giving them time to understand communities, and to devise new ways of assisting in a real-world 'market-commodity environment'. Harrap added that 'often the need is not about money but about sharing stories, sharing ideas' about best practice and experience.

In this regard, Mogae was not 'aware previously of mining companies directly supporting agricultural activity' in the way he had seen here. He knew, however, that 'in some African countries the company itself makes promises to the community [but] in Botswana that is not the case'. There, 'it is the government that makes the promises to the community' and 'the people hold the government accountable'. Chenoweth said that in Liberia they would like to see 'mining companies taking some responsibility for making sure that they do not just leave a hole in the ground; that some activities are carried on to benefit the people rather than displace them completely'. Liberia does 'not have on the ground an agriculture program for any of the mines', but she recognised that to do so is a good thing and her agency 'is pushing it', including for people who are not directly involved in mining activities and who want to continue that way of life.

Best practice examples of strengthening the partnership between mining companies and the rural community were addressed at the conference (and in the field trip that preceded the conference), and further examples of best practice were sought during this panel discussion. Kerin cited an example from India where 'they have been farming for 3000 years'. ICRISAT* had 'sat down with the local people, learnt the processes of their farming systems, how the villages worked together … how the whole community functioned'. Giving as another example the situation at the Porgera gold mine in Papua New Guinea, he added that a mining company being on the ground had time 'to understand and develop what the communities really wanted that was feasible and sensible'. He added that not all mining companies do that but there are other examples where it has occurred, and that it needs to occur more often.

The priority of research

In response to a question from the floor, both Mogae and Chenoweth stressed the importance of agricultural research. The priority of research and knowledge has followed 'a shift in thinking' and they are now recognised as important by the African Union, across the whole continent including the countries of southern Africa. In Liberia agricultural research is back on the agenda after the devastation of the past. This is about rebuilding human capital, rather than just making a physical place for the research. Research is needed to put food on the table;

* International Crops Research Institute for the Semi-Arid Tropics

and to enable agriculture and mining to co-exist productively so families that are involved in mining and also engaged in agriculture can keep together.

Concluding thoughts: bread from stones

Asked for thoughts on the next steps, panel members highlighted the following points:

- a big role for government in ensuring integrated planning at the start of major investments;
- government taking the lead to ensure outcomes are in the interest of people of the region;
- the vital role of international agricultural research: 870 million people will go to bed tonight hungry;
- knowledge-based planning.

In thanking participants, Denis Blight, citing the Gospel according to Saint Matthew and confident that there are equivalent quotations in other good books, asked: 'Who amongst you, if your children ask for bread, would give them stones?'. He added another quotation, from the Egyptian Ambassador to Australia, who had told him: 'During the Arab Spring what the people were chanting was "bread, freedom and justice"'. Blight interpreted that, in the context of the discussion just completed, as agriculture and mining in cooperation with the community and with clear, transparent and good governance.

Dr Denis Blight AO FRSA, the Chief Executive of the Crawford Fund, has had a career including positions as an Australian diplomat, public servant and chief executive. His association with international agricultural research began in earnest some 25 years ago. Prior to working for the Crawford Fund, he was Director-General of CAB International, an intergovernmental body in research, training and publishing in the life sciences, and had 15 years with IDP Education Australia, the international development program of Australian universities and colleges, including the position as Chief Executive.

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Q&A panel discussion

Panel members: Hon Dr Florence Chenoweth,
His Excellency Festus Mogae, Ann Harrap, Hon John Kerin AM
Moderator: Max Bankole Jarrett

The panel readies for Q&A. *Right–left:* His Excellency Festus Mogae, Hon John Kerin AM, Hon Dr Florence Chenoweth, Ann Harrap, Max Bankole Jarrett.

Max Bankole Jarrett: Today's conference, attended by over 300 participants, has brought together many accomplished experts in the mining and agricultural sectors, both here in Australia and in many many African countries. In rich and insightful discussions they have exchanged ideas, experience and best practice on issues related to mining, agriculture and how the two could or should be working much closer together.

In this panel discussion we now would like to tease out some perspectives on the way forward, particularly regarding collaboration between African countries and Australia in this important field. As an ice breaker, I would like to direct a big broad question to Minister Chenoweth.

We have talked much today about making 'bread from stones'. Is there really, as far as you are concerned, Minister, a viable recipe on the table for making bread from stones?

Florence Chenoweth: I don't think there is a recipe, I think some of us like to believe that we have a recipe, but I think whatever that recipe, whatever the different ingredients in that recipe, it is about time something happened. But I don't think we have all of the ingredients yet.

I think we ran these two areas for much too long as independent activities. The miners went in and did their thing, which was to dig for whatever was below the ground and leave; and the agriculture teams went in to produce the bread; and they were distinct for too long. But I think some of the degradation that was left behind from mining has pushed this item onto an agenda. Much of it has come from the people themselves who once had a community and land from which they got bread. Then that land suddenly was not there and there was a big hole.

Ann Harrap: I think also that although we might have had some of the ingredients, we have not necessarily mixed them together very well. In part, this conference is all about bringing together many different stakeholders from both the agriculture and the mining sectors, and also from different parts of government and finance ministries, to actually start that mixing process, and to see whether a proper recipe can come out of that.

One of the take-outs from today's conference, it seems to me, is that we really need to get different ministries, different government departments, to begin talking together much more as whole-of-government, to come up with the sort of relevant policies to establish the enabling environment that would allow the two sectors to mix better together.

In Australia we have not necessarily got that recipe right. We talk about whole-of-government but it is something that we still need to work on, particularly in our federal system. I know that in African countries it is a particular challenge as well, with individual ministries working in their own 'silos'. So mixing these groups together I think is really a fundamental element of getting a recipe right.

Max Bankole Jarrett: Your Excellency Festus Mogae, when you were President, when you were in Cabinet, you had ministers from all sectors. What is your perspective on this?

Festus Mogae: In our system, when the minister responsible for a sector wants to make a recommendation he is required to write what is called a Draft Cabinet Memorandum, and circulate this to other ministries; and also in particular to find out what the Minister for Finance and Development Planning thinks. When he has got those comments, then he finalises it and writes it as a Cabinet Memorandum, making recommendations. That then is distributed to Cabinet ministers on a Thursday for discussion the next Wednesday; and Cabinet is presided over by the President. So although when the decision is made it will be said the minister responsible has decided this, it actually has been compulsory to involve the views of his fellow ministers. So that is how we work.

I think we have acknowledged today here, all of us, that there is the need for better coordination in our actions. And we have recognised the fact that we have taken these two sectors — agriculture and mining — as just being separate and have dealt with them in isolation, instead of treating them as activities both of which are good, but which could conflict. They have to be reconciled and the community must be involved.

What we do, if for instance something is going to happen in a particular area, the government minister will go to the Chief. First, he has to convince the Chief. Then they will go together to the community and hold a public meeting. They will explain what it is intended to be done and what the benefits and disbenefits are supposed to be; and the people comment. And if it turns out they are hostile to the idea, the discussions with the community will go up and come down again and again until you have some kind of consensus. In our traditional system we have not used the vote but rather we use the consensus, public consensus, and that is how we proceed.

I agree very much with the consensus from today that we ought to start consultations as early as possible. That we should acknowledge that since government, in particular, exists for the benefit of the people, we should ensure that from the beginning we manage the interaction between these two activities that are meant to benefit the people, to avoid possible conflicting outcomes.

Max Bankole Jarrett: John Kerin, you were for many years in government and now you chair the Board of Directors of the Crawford Fund which organised this conference. What is your perspective on this?

John Kerin: My background includes both agriculture and mining. Both sectors involve private enterprise and deal with world markets; they are very pragmatic sectors in Australia. We can assist people in developing countries by sharing our experience, involving the private sector in the way we deliver development assistance. What this conference has brought out is that the mining sector can show the way in many areas. Mining companies — which are private sector working in a market-commodity environment — actually are 'on the ground' for much longer than many of the other groups delivering aid. That means that they have time to understand the communities they are working in, and see new ways of assisting, as long as they involve the people concerned.

Max Bankole Jarrett: I might be wrong in this, but it seems to me that often cooperation doesn't happen because people don't foresee direct benefits from it happening. In this particular case, both the mining and the agriculture sectors are influential in the countries they are in. Who from your point of view, Minister Chenoweth, needs the most persuading to do this 'dance', from agriculture and mining? Is it your sector, agriculture, or is it the mining sector, in Liberia?

Florence Chenoweth: In Liberia our practice is like that outlined by President Mogae. We may write a Cabinet note but after that no sector minister makes a decision unilaterally. We have the public investment institute or organisation, which invites us, as sector ministers, to the table. There is a core group that consists of the Minister of Finance, the Minister of Justice, the legal adviser to the President, the head of that investment institution's commerce; they are statutory members. The sector ministers are invited when the discussion is about their sector. Mining and agriculture are there together in many cases because of the interaction of the two together, but not necessarily. So the decision is not made by a sector. When the decision is made by that national investment committee, it becomes law. Before investors go out, it has to be ratified by our legislation, that concession agreement. While that is going on, the sector ministries are on the ground (and they include wellness as part of the ministry of lands and mines) and we have a land commission that is also on the ground with the local head of that area which we call a superintendent. All of these groups meet those communities together. So you see you cannot just put the blame on one sector at any point because the approach is integrated.

Max Bankole Jarrett: Yes, I see it is not a case of putting blame. Rather, who is it now who needs to take the most responsibility for driving forward this agenda, which we all agree is an important agenda?

Florence Chenoweth: Agriculture and mining, the two, with the lands commission, need to go and talk to, and work with, the communities. Because if ever there is a problem we have to return to that spot.

Max Bankole Jarrett: President Mogae?

Festus Mogae: Yes, in our case the whole government will be held accountable. So in fact the ministers really need to help each other if they are going to be meeting a community where questions of land use arise, or traditional uses, or investment. There you might have the Minister of Agriculture, the Minister of Lands and the Minister of Mineral Resources. They all go together, but as I say, the ideas of the government as a whole are brought together via the Cabinet meeting on the issue.

I think Minister Chenoweth said that in Liberia a decision is made, then a law is enacted. We do that slightly differently. The law exists, and procedures are prescribed including criteria the prospective investor has to meet and how the consent of the community has to be obtained, etcetera. Those may be slight differences between our practices.

Florence Chenoweth: Let me just clarify: when a concession agreement is given to anybody for long-term investment, to protect the concession and the government the legislature ratifies that concession.

Ann Harrap: My sense, from today's discussion, is that there are actually a lot of players in this that have a responsibility for influencing better development outcomes from greater collaboration between the agriculture and mining sectors. The governments obviously must be the drivers of that, but clearly the mining companies have a role in actively undertaking their corporate social responsibility activities, including in the agriculture sector, and in actively promoting that and demonstrating what they do. Communities need to be actively involved as well; they need to be appropriately empowered, and then there is a role for donors.

I think there is a clear role for the Australian Government in helping to empower those communities, in helping to build capacities in agriculture and mining public services in African countries. It is a role that we are already playing in response to direct requests for assistance from many African governments. I think there is also a responsibility or a role for the Australian Government in working more closely with the private sector, provided that the enabling environment is right in African countries.

There is also a role for the Australian Government in helping to support better research into some of these issues. A big question emerging from today's discussion is how can governments make informed decisions about granting mining licences, for example, if they do not have the right information; if they do not have the appropriate research that tells them what is going to be the development benefit for their citizenry?

Max Bankole Jarrett: Is it just a one-way street in this relationship between Australia and Africa, or are there things that maybe Australia can also be learning from Africa in a sense?

Ann Harrap: Certainly we can learn from Africa. I think that has been a real theme today: that there are many things in Australia that we have not necessarily got right, and that it is about partnership. I heard someone talking today about farming in Australia, where the average age of an Australian farmer is 55. It is not 'sexy' to be in farming these days in Australia, so how do we make it more attractive? What can we learn from Africa in terms of encouraging young people to stay in agriculture?

Max Bankole Jarrett: I am curious about the timing of this conference, this conversation. John Kerin, why is it noteworthy that we are having this rather unique conversation right now?

John Kerin: Well I can only answer that from the Crawford Fund's perspective. We thought it was about time we extended our conversation to other sectors. The Crawford Fund and many of Australia's aid agencies, the whole web of the way Australia delivers development assistance, are very much focused on technical constraints to development. We thought maybe we could learn some lessons from the experience of our miners in Africa, particularly.

Africa is a gigantic challenge to Australia. There are over 50 countries in Africa. Each is different, but perhaps through conferences like this, with so many students and eminent people, we will gain some lessons and we will gain better ideas for the aid projects that we do, and also possibly those of AusAid, ACIAR, CSIRO, and other agencies such as the non-government organisations and the private sector, in delivering assistance. We can all do our bit from different points of view. We are a small organisation but there were willing partners and I think we have all learnt a lot from each other.

Max Bankole Jarrett: President Mogae, from your long experience in quite a few discussions, is this conference unique?

Festus Mogae: It is unique in the emphasis it has created in coordinating treatment of the two sectors. I think the importance of agriculture has always been recognised; the importance of mining has always been recognised; and the potential conflict is occasionally recognised.

Where this conference is significant is in the emphasis on the importance of dealing with these issues together at the very very beginning. Acknowledging that they are both good but there could be potential conflict. That in the case of mining, normally agricultural activities are already on the ground and the miner comes and prospects and discovers something — and then wants to bring about change that is going to affect those who are already in possession of the land. That therefore you should involve the community from the very beginning in an appropriate way — I only know the ways we have used in Botswana. Also, that there should be appreciation of all the consequences of impacts of the activities for the life of the mine, over time. All these things must be made explicit and discussed and accepted as such, and to the extent that government has the responsibility it is government's duty to make the community understand them.

Even when the community is being very enthusiastic about the activity you are persuading them to accept, you have to turn around and say: 'Do you realise this is what will happen in this, and some of us may not be there?'. I think that is the importance of this meeting. Also I was not aware previously of mining companies directly supporting agricultural activity the way I have seen today. I also know that in some African countries the company itself makes promises to the community. In Botswana that is not the case: it is the government that makes the promises to the community, and for anything that happens the people hold the government accountable.

Max Bankole Jarrett: John Kerin?

John Kerin: Both our distinguished African speakers have mentioned coordination and planning in government. We found that coordination is one of the biggest problems in government policy development. And this brings into play the institutional constraints: you can have all the policies in the world, all the plans, but you have to have the capacity to implement them. In this context all Australia can do with our African friends and people in other parts of the world is share our experience, but then when you can get the agreed government policy you need to have the capacity to implement it and that means you need functioning bureaucracies. Now all that is very hard to achieve very quickly.

Max Bankole Jarrett: Now talking is important but often you want to go somewhere and leave with something, something tangible. Minister Chenoweth, yesterday was yesterday, today is today. You're going back to Liberia: what do you take away from the discussions today that's going to help you and influence the future direction of the links between the mining agricultural sector and your own country?

Florence Chenoweth: First let me go back to what President Mogae has said, because in Liberia also we do not have mining and agriculture actually working together in the same place. We are all learning. What we have had is a mining concession taking over land that was once agricultural land, and degrading it and leaving. What we would like to see now, what we are talking about, is mining companies taking some responsibility for making sure that they do not just leave a hole in the ground; that some activities are carried on to benefit the people rather than displace them completely, which is what has happened before. We are talking about it. We actually do not have on the ground an agriculture program for any of the mines that you can talk about; it is still at the talking stage. But that is a good thing and my agency is pushing it also because it means livelihoods for people who are not directly involved in mining activities, for people for whom this is their way of life and the way they want to continue. We have a serious food security problem having come out of over 24 years of conflict. So any time we can have people engaged in farming to provide food for themselves, and hopefully have surpluses to sell, we push that activity.

So that is where we are in Liberia. We are here to learn from Australia about mining and agriculture coexisting.

Max Bankole Jarrett: Now it is time to take a couple of questions from the floor. The first is from Dr Yemi Akinbamijo who is from the Forum for Agricultural Research in Africa.

Dr Yemi Akinbamijo: Your Excellency and distinguished members of the panel, I direct my question to both President Mogae and Minister Chenoweth. As a representative of the research component of the African farming community I would like to know from both of you what role the government is really playing, or supposed to be playing, in these new developments of agriculture with mining. How can governments further assure equitable trickledown effects to the farmers, in terms of driving long-term public good in the agriculture and mining contexts?

Max Bankole Jarrett: President Mogae?

Festus Mogae: This is why as governments we are participating in this conference. Unlike in the past, where policies were diminished by political rhetoric, there is acknowledgement now by most African countries that we need to understand and better appreciate both the technicalities and also the necessity to carry the people with us in the decisions we make for their benefit. There has been a shift in thinking, and research; the importance of research and therefore knowledge is now recognised. Through the African Union, the whole of the African continent including southern Africa is now aware of the importance of research, and also of learning not only from the more advanced countries like Australia but also from one another.

Max Bankole Jarrett: Minister Chenoweth?

Florence Chenoweth: I think I do not need to convince you that I am not a politician. I am an agricultural scientist, and you know that all along I have advocated for more agricultural research because we need research to drive this sector. When we returned to rebuild our broken country we found no germplasm, zero, not a seed to plant. We met no animal life, because for 24 years anything that moved became dinner. We have had to restock animals; we have had to do breeding; and that is why people like myself are back, because our greatest loss was human capital. If you were a trained professional you were caught and killed — brutally killed.

So while we are trying to train our young people to take over, we are also trying to rebuild our agricultural research institute, not just to have a physical place but also to have agricultural research back on the active agenda.

Why we are interested in agriculture and mining? Mining is an important sector for our economy, but right now when it comes to meeting our food security needs — 40% of our children are stunted, over 40% of our people are malnourished — agriculture, and people producing food, has to be our priority. So when we have a large area taken into a mining concession we want to make sure that the population in that area can still carry out activities that will feed them. We do not have the luxuries of, say, Australia or even Nigeria, where you have all of your roads. Every road network in Liberia was destroyed. Every piece of electricity was destroyed. Every water system was destroyed. Our people are stuck in enclaves, and when they are there they need to live; they cannot eat stones. They need to buy food with the money they make from working at mining, or produce it themselves. Another thing is, because mining took over so holistically before, there were migrants that went to the mines, and families were separated. By having agriculture and mining together, we can keep people together. The agriculture part of that family is producing food and the mining part of that family is involved in mining. So my colleague, the Minister of Mines, is my buddy. We work together very closely because we want to see this happen for both sectors; we are not in conflict.

Max Bankole Jarrett: Minister, you mentioned conflict there and I think that something avoided in today's discussions has been aspects of conflict. Both sectors, in many parts of Africa, are not necessarily the drivers of conflict, but conflict is somehow related to those sectors. Issues of land use, land access, land degradation — there is conflict around that, and issues with conflict management, and with natural resources and minerals. While we are looking forward, to see how we can be more synergistic in terms of mining and agriculture, how do we deal with the conflicts that already exist in both, and is there a win–win that can help us solve those conflict issues?

Florence Chenoweth: You know in Liberia we have a Ministry of Lands, Mines and Energy. The proposal now is to delink land, the conflict part. Delink land and leave mines and energy as one. We also have to deal with land tenure issues, which all African countries have, but it is such a can of worms that most people do not want to touch it. We have a land tenure and land reform program going. When we change the ministry, land may come under the Ministry of Justice, because yes, you are right, there are conflicts. People feel that a lot of the decisions that affect real lives, their land, everything about them, are made in the capital. That is why they insist that we have those dialogues and those meetings with them. Not only with the Chief. With them. After almost 25 years of conflict we know now that we have to talk to the people as well as the Chiefs.

Max Bankole Jarrett: What about Australia? You have similar issues, to a certain degree, in terms of Indigenous groups and access to minerals, and conflict around that. What can we as Africans learn from you, and what maybe can you learn from us, on this aspect?

Ann Harrap: I think it comes back to the point that His Excellency made early on, about the need to have economic, social and environmental impact assessments right at the very beginning of any process. Those potential conflict areas, whether over access to land, or labour mobility issues, or access to water, need to be resolved early on in the process. As I said before, we are still learning in Australia and we do not necessarily have a recipe, but we can share best practice and experience. We talked before about using the Australian aid program in a whole range of areas, but often the need is not about money but about sharing stories, sharing ideas. We can share how we have had successes and failures, and how African countries may be able to avoid going through those same sorts of failures.

Max Bankole Jarrett: The next question from the audience is from Mellissa Wood of the Australian International Food Security Research Centre.

Mellissa Wood: My question is to Minister Chenoweth and any others who are interested to respond.

Yesterday, when we were on the field trip, we saw evidence of making bread from stones at the mine site. However, I am interested in the future and in sustainability. There are many young talented students and potential leaders in the room, so my question is about how mining can contribute to the long-term sustainable development of Africa. Specifically, what concrete opportunities can mining contribute to the agricultural sector and the communities the sector resides in, to ensure that communities are in better shape and more productive and profitable when the mining companies leave — as they all do? The communities and their agriculture will remain. How far does corporate social responsibility extend?

Florence Chenoweth: I mentioned that any concession has to be ratified. When a concession agreement is put together the licences will be issued by the minister, the Ministry of Lands and Mines, but the whole concession cannot be activated until that concession is ratified. What people look for, even when the discussion is going on at our level, is to make sure that the agreement has social benefits, and whether the land is for an agricultural concession or mining or anything else, that there is a land renter fee. A part of that fee goes to the community. There is also the social benefit sector that makes sure that there will be a school, cleaning, clean water, as part of the concession holder's social responsibility. All of those aspects are included before we send the concession to the legislature. They are discussed with the people in the area. You see in Liberia ministers are not politicians. We never were. The politicians are in our legislature. They have their constituencies. We do not have constituencies. We consider the implications for the country, from the national level and at the local level. Those law-makers are the ones making sure that their constituents have been considered in all of those aspects.

Ann Harrap: In relation to Mellissa's question about what can mining companies do in relation to agriculture, I am wondering further about the scalability and extent of mining company responsibilities. As we have heard today, mining companies can certainly serve as models in the way in which they might engage with the agriculture sector. We have seen lots of examples of that in Australia and in some parts of Africa as well, but the scalability then becomes the responsibility, in my view, of the agribusiness sector or the broader private sector. The government's responsibility in those circumstances is to create the enabling environment that allows the private sector to come in and actually develop agriculture, either at the commercial level or, if that is not appropriate in the circumstances, to enable smallholder farming to really grow to the appropriate capacity.

Max Bankole Jarrett: President Mogae, I have a question for you that is linked to something you mentioned when you spoke earlier today and quoted the second President of Botswana, about intergenerational equity, and making sure that future generations benefit. How important is it to take the transformative approach to the mining and extractive industry sector now, and link that with agriculture? How really important is that, in ensuring that enough wealth is created or generated so that future generations can actually benefit?

Festus Mogae: Elected politicians in my country have a five-year term, at least at the level of President, but individual members of Parliament can be elected as many times as they are lucky.

In our case, as I said, the mineral concessions once they have been approved — actually, there is quite a lot of similarity with what is done in Liberia in the sense that when a concession has been granted a licence it must be submitted to Parliament for approval, and once approved it becomes law — a mine might last 60 years, but the mining licence in Botswana is for 25 years. So it becomes possible to renegotiate. In fact, we have already had to renegotiate two concessions and we used the opportunities to improve certain areas which we thought were in need of improvement. We also have a sovereign fund which is supposed to be a future generations fund but which can be used in emergencies. You have to rely on developing the institutions and the practice and the culture of evaluating a situation and building consensus. Generally with our mining practices and laws there is consensus on them between all parties, so that irrespective of which party comes into power they would still continue.

The criticism whenever a concession is approved is not necessarily only from the opposition. Sometimes there is strong support from some opposition people. I think that is the best you can do. You cannot guarantee that the nation will still think the same way 25 years later or 30 years later. I think you try to do the best, on the basis of the knowledge and expertise available to you, and discuss transparently, and debate the issues and reach some agreement which appears to attract the majority of people there at the time.

Max Bankole Jarrett: Thank you Your Excellency. The third question from the audience is from Fatimata Soumare of Papillion Resources.

Fatimata Soumare: My question is for Mr John Kerin and Ms Ann Harrap. How can partnerships between mining companies and rural communities be strengthened? Do you have some examples for us, please?

John Kerin: I think there is a general lesson on partnerships to be learnt from agricultural extension, even in highly developed agriculture sectors such as in Australia. It is that unless you understand the sociology of the farm sector they will never adopt a lot of your research. That is even though you are often dealing with people who adopt research findings very quickly. Outside Australia a lesson comes from the people at ICRISAT* in relation to the Deccan plateau of India where they have been farming for 3000 years: what could the experts teach them? The research team sat down with the local people, learnt the processes of their farming systems, how the villages worked together, how the women worked on the farms, how the whole community functioned. And then the research team could see a quicker way to benefit the people. One example was the way they found that if you let the sorghum wilt when it was growing you stopped a weevil coming up, and then you turned the water back on. It took only a little change in the irrigation system. That was a really great lesson to me.

With respect to mining, I learnt from the Porgera gold mine in Papua New Guinea. There, before the mine was developed, the mining company discussed in great detail with the people, right down to the clan or family level, what was going to be involved and what the benefits would be: roads and power, infrastructure and the opportunity for people to get to markets. Then the company and the people could discuss what they thought they would like. For the mining company, being on the ground gave them time to understand and develop what the communities really wanted that was feasible and sensible. Mining companies are very practical.

*ICRISAT = International Crops Research Institute for the Semi-Arid Tropics

Now I am not saying all mining companies do that but we do have examples where this has occurred and I think it needs to occur more often.

Ann Harrap: I agree absolutely with John: to build partnerships you need communication — and understanding that the communication can take some time. It is not only explaining the benefits that will happen but also explaining what will not happen. It is about managing expectations. Whether your business is in agricultural industry or mining, it will not be a 'cash cow' for ever. You need to explain to local communities what can and cannot be done, giving them time to understand.

Max Bankole Jarrett: The final question from the floor is from Ian Satchwell of the International Mining for Development Centre.

Ian Satchwell: My question is first to John Kerin and it is about engagement of the private sector. We have heard about the role of mining companies and their relationship with local agriculture; we have also heard a lot about the role of government and the need for an integrated whole of government approach. But if African agriculture is really to reach its potential, which it is a long way short of right now, mining companies and government can only do so much. A lot of other private sector engagement is required with, for example, financial institutions for financing agriculture, large-scale and small-scale agribusiness institutions and cooperatives, electricity, water and infrastructure service providers, marketing and distribution organisations. What lessons can be learned from Australia in ways of activating the private sector and getting the private sector involved with agriculture, to take it to the next level? Then perhaps President Mogae might like to comment on experience to date?

John Kerin: It depends which country you are dealing with; it depends on the structure of the economy; it depends on the resources available; it depends on the level of population; it depends on the competence of the government you are dealing with; it depends on other private infrastructure that exists in that country. In relation to Australia's experience, I know a little bit about Papua New Guinea, the Philippines and Indonesia. In Indonesia, extensional electricity was the main thing that transformed that society — and it is still under transformation, with its 260 million people, right on our doorstep. After that, most of the aid we contributed went into bridges. In the Philippines, it was a road. These are big projects that our aid agencies could engage in, and from that you might better develop a dialogue between private sector people. Trade plays a very strong role in that because once you have a trading relationship with a country you then have people who actually talk to each other and know each other, and understand where the problems lie and where they may be resolved.

There are no short answers in private sector engagements. First, the firm concerned needs a board that understands that this is a very complex issue. From that, if you get really sensible management and if there is a competent government to deal with, you can make quite rapid progress, in my opinion.

Max Bankole Jarrett: President Mogae?

Festus Mogae: There are limits to benchmarking. You cannot simply transpose a solution from one country to another even though there may be similarities, but you can still learn and appreciate the principles that were involved and the practices. Obviously the priorities also differ, as Mr Kerin says: bridges in Indonesia and a road in the Philippines. From our point of view in Botswana, from day one we considered that mining would save us.

There were disagreements with mining companies at the beginning. In one case, the diamond mine that we were going to open was in the middle of nowhere, and they were going to have to provide everything: water, accommodation for the workers, transport, an airstrip, a road and everything. We asked how long it would take them to recover their capital; they said about seven years. Then we agreed we would attach our people at every stage. This was one of the things that was agreed, that we have to train our people in running mines and in the associated skills, even accounting. So we attached people to them and in the end they recovered their capital in 18 months. We celebrated and drank toasts to each other, and at the end of toasting we said, 'Oh by the way, now that you are no longer at risk we'll have to talk about the distribution of benefits between us and yourselves…'. They were horrified! Now we know better and we negotiate. We form a team mostly of officials and we include experts from abroad who advise us for the period of negotiation. That is why I said we are learning from experience. We did not want to be vindictive. We still wanted to attract more investors to prospect in our country, and at the same time we did not want to be cheated. And so the provisions in the Act are intended to be balanced to take account of all additional conflicting considerations.

The government has not leaned on companies to support agriculture, but I suppose if we were to do that we would try gentle persuasion, and insinuate that they might do something. We do not want to make unreasonable demands on companies, especially as we still really need more and more investment. But certainly they have firm obligations by law — certain things that they have to do, including making provision for mine closure. One of our mines, a copper–nickel mine, was operated by a partnership between a company in America and a company at that time of South Africa but now British. A lot of things went wrong, and sometimes they would accuse each other, but when in our presence they would close ranks. So we always dealt with them using consultants because we knew they knew better. Ultimately one company left (which also reduced a series of other complications), but they had to pay their contribution for the mine plus the costs.

Max Bankole Jarrett: Thank you very much President Mogae. We have covered a lot of ground in this hour, and throughout the whole day. Now I want to hear from the panel, very briefly, your sense of the way forward; where we go from here in terms of making bread from stones.

Ann Harrap: There is a big role for governments in ensuring better integrated planning at the start of major investments, whether in the agriculture sector or in mining.

Florence Chenoweth: I agree with that. Government needs to take the lead. In our case we have to make sure that whatever the outcome it is especially in the interest of the people of the region.

John Kerin: Many people have mentioned that the right to food — thus, the right to existence of life — is what we are really dealing with. My point, which is relevant to the Crawford Fund and many of Australia's aid agencies, is that the 870 million people who will go to bed tonight hungry need to be able to produce their own food. The role that international agriculture and research can play in that is absolutely vital.

Festus Mogae: The way forward is based on knowledge. That is why research is important, and knowledge-based planning.

Max Bankole Jarrett: Thank you very much, President Mogae, John Kerin, Minister Florence Chenoweth and Ann Harrap. Thank you very much for this session.

Hon Dr Florence Chenoweth is the Minister for Agriculture in Liberia, and the winner of the Africa Prize 2011. Dr Chenoweth holds a Masters degree in agricultural economics and a PhD in land resources from the University of Wisconsin, Madison. Her career has been devoted to improving the livelihoods and food security of women farmers in Africa. She has also served the UN FAO (1995–2007) in Gambia and in South Africa, and in New York City where she was the link with the UN General Assembly until 2007.

Ann Harrap, now an independent consultant, was formerly Australian High Commissioner to South Africa, also accredited to Angola, Botswana, Lesotho, Mozambique, Namibia and Swaziland. Previously she had been Deputy High Commissioner in Papua New Guinea, and also served in other senior roles in South Africa, London, and Baghdad, as well as in Canberra.

His Excellency Festus Mogae was the Third President of the Republic of Botswana, appointed in 1998. Trained as an economist at the Universities of Oxford and Sussex, he has worked with the International Monetary Fund and the World Bank, to benefit Africa and developing countries, and with the Government of Botswana in a range of roles at the highest levels. He continues to work with organisations focused on community health, leadership and governance. His Excellency is Chairman of the Coalition for Dialogue on Africa.

Hon John Kerin AM is a former Australian Treasurer (1991) and Minister in the Australian Government (1983–93) responsible for, variously, primary industries, energy, trade and overseas development, transport and communications. Since leaving politics he has served in leadership roles with a range of natural resources research bodies. John is Chairman of the Board of Directors of the Crawford Fund.

Max Bankole Jarrett is a member of the African Union Support Team at the United Nations Economic Commission for Africa. He has 23 years' professional experience in political and socio-economic affairs as an international civil servant and international broadcaster, writer and analyst in the media sector, including 11 years editing, producing and presenting programs concerning Africa for the BBC World Service.

Delegates and Agricultural Student Scholars 2013

Delegates to the 2013 conference, listed below, included representatives of a range of African countries. Among the delegates were 19 higher degree students from Africa, studying in Australia and sponsored by AusAID (Australian Agency for International Development) to attend the conference. The Crawford Fund also sponsored 13 young Australian agricultural scientists (asterisked) to attend. This initiative supports the Fund's aim of increasing young Australian agricultural scientists' involvement in international agricultural development.

ABASS, Maimouna Saidi	AusAID Africa Phd students
ABBOTT, Lyn	The Crawford Fund WA Committee
ABDOUSSALAMI, Aichatou	Curtin University
ACHIKE, Anthonia	University of Nigeria, Nsukka
ADAMSON, Joanna	Australian High Commission, Ghana
ADEBA, George Hilary	Ministry of Petroleum and Mining
ADU-GYAMFI, Paul	AusAID Africa Phd students
AGYARKO-MINTAH, Eunice	AusAID Africa Phd students
AHMAD WALIYAR, Farid	International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
AJA FAUZIAH, Cut	Western Australian School of Mines
AKINBAMIJO, Yemi	Forum for Agricultural Research in Africa
AL-DENNIS, B.	Natural Resources Tax Unit
AMAEFULA, Adanma	AusAID Africa Phd students
ANDERSON, Kym	Australian Centre for International Agricultural Research (ACIAR)
ANDREWS, Mark	Paydirt Media Pty Ltd
ANGUS, Leecia	Grains Research & Development Corporation
ANTHONY, Vivienne	Syngenta Foundation for Sustainable Agriculture
APPIAH, Andrew Sarkodie	AusAID Africa Phd students
ATKINSON, Sallyanne	The Crawford Fund
ATTEBIYA, Simon	Ministry of Lands and Natural Resources
AUSTIN, Nick	Australian Centre for International Agricultural Research (ACIAR)
AWANGE, Joseph	Curtin University
AZUBIKE, Obiora Chikwuka	Mines Inspectorate Department, Ministry of Mines and Steel Development
BAIDOO-WILLIAMS, Joseph	Ministry of Food and Agriculture
BAMALLI, Umar	Mines Inspectorate Department, Ministry of Mines and Steel Development
BANKOLE JARRETT, Max	Coalition for Dialogue on Africa
BARRY, Mamadou	Curtin University
BARTY, Grame	Australian Trade Commission (Austrade)
BATT, Peter J.	Curtin University
BEHRENS, Petra	Centre for Social Responsibility in Mining, The University of Queensland
BENSON, John	Australia-Africa Partnerships Facility
BERGIN, Anthony	Australian Strategic Policy Institute
BISLEY, Charlotte	Bisley & Associates Development Consulting Pty Ltd

BITTISNICH, Dennis	Australian International Food Security Research Centre, ACIAR
BLANCHARD, Chris	Grains Research & Development Corporation
BLIGHT AO FRSA, Denis	The Crawford Fund
BLIGHT, Sharon	
BOADU, Frank	Continental Gold Resources Ghana Ltd
BONAGLIA, Federico	OECD Development Centre
BORSHOFF, John	Paladin Energy
BUITENDAG, Isak	FMG
BURDON, Jeremy	Grains Research & Development Corporation
BURNS, Craig	Rural Industries Research & Development Corporation
BUTCHER, Hayley	Golden Rim Resources Ltd
CAIRNDUFF, Michael	Aspermont
CHABA, Freddy	Limpopo Economic Development Agency, South Africa
CHADWICK, Cleo	Australia-Africa Partnerships Facility
CHAGUTA, Grace	Ministry of Finance
CHENOWETH, Hon Florence	Liberia
CHIKOTI, Mphatso	Ministry of Natural Resources, Energy and Environment
CONROY, Gordon	Unity Resources Group
COOK, David	Australian Agricultural & Resource Economics Society
*COOK, Melissa	The Crawford Fund
COPLAND, John	KYEEMA Foundation
COUGHLAN, Kep	The Crawford Fund
CRANE, Andrew	CBH Group
CRASWELL, Eric	The Crawford Fund
*CREELMAN, Zoe	The Crawford Fund
CROFT, Graham	Syngenta Foundation for Sustainable Agriculture
DAMA, Dama	Ministry of Environment and Forests, Madagascar
*DAS, Bianca	The Crawford Fund
DELANE, Rob	Department of Agriculture and Food, Western Australia
*DELLA PORTA, Berenice	The Crawford Fund
DEMBELE, Bassidy	Western Australian School of Mines
DESIATNIK, Bob	Australia-Africa Partnerships Facility
DIALLO, Madani	Western Australian School of Mines
DIARRA, Mohamed	Western Australian School of Mines
DIFIE BOAKYE-MENSAH, Adwoa	Ministry of Finance and Economic Planning
DIXON, John	Australian Centre for International Agricultural Research (ACIAR)
DLAMBULO, Nyakallo	Department of Mineral Resources, South Africa
DOEPEL, David	Africa Australia Research Forum
EGAN, Adrian	Australian Academy of Technological Sciences and Engineering (ATSE)
ELALA, Alemayheu	Curtin University
ELIYASI, Charleson	Ministry of Natural Resources, Energy and Environment
EL-LAITHY, Hassan	Embassy of the Arab Republic of Egypt
ELLIS, Jeanne	Australia-Africa Partnerships Facility
ENRIGHT, Terry	The Crawford Fund WA Committee
FERGUSON, Allan	Independent Consultant
FINKEL, Alan	The Crawford Fund
FINKEL, Elizabeth	Cosmos Magazine
FISCHER, Tony	The Crawford Fund
FISH, Warren	Citic Pacific

FITZPATRICK, Noel	
GARBA, Moussa	Curtin University
GARNETT, Helen	The Crawford Fund
GEORGE, Anna	Chatham House, London
GODWIN, Peter	IntierraRMG
GOSE, Kedir Washo	AusAID Africa Phd students
GREGSON, Tony	The Crawford Fund
GRIERSON, Laura	Stellar Recruitment
HAGA, Abdourahman Omar	Ministry of Energy and Natural Resources
HALL, Steve	Curtin University
HALSTED, Annie	Australia-Africa Mining Industry Group
HAMERSLEY, Rebecca	Australia-Africa Mining Industry Group
HANNINGTON, Mike	IMX Resources Ltd
HARRAP, Ann	AHC Ann Harrap Consulting
HART, Jeff	Australia-Africa Mining Industry Group
HAYES, Ted	The Crawford Fund
HICKEY, Lee	The Crawford Fund
HIGGOTT, Richard	Murdoch University
HILSON, Gavin	The University of Surrey, UK
HISCOCK, Tony	Alcoa Farmlands
*HO, Gabrielle	The Crawford Fund
HORAK, Doug	Deloitte
IDLEH, Mahdi Robleh	Ministry of Energy and Natural Resources
*IRVINE-BROWN, Stuart	The Crawford Fund
ISBISTER, Jamie	AusAID
ITOUA-NGAPORO, Christian Freddy	Ministry of Mines and Geology
JACKSON, Phil	The Crawford Fund
JALLOH, Hon Marie Marilyn	Ministry of Agriculture, Forestry and Food Security, Sierra Leone
JOHNSON, Mary	RMIT University
KALIMA, Jeannot	Ministry of Industry and Mines
KANE-POTAKA, Joanna	International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
KARUKU, Charles	Nairobi University
KARUKU, Jane	Alliance for a Green Revolution in Africa
KAVISHE, Heavenlight	IMX Resources Ltd
KAWAYE, Floney	AusAID Africa Phd students
KEATING, Brian	CSIRO
KERIN AM, Hon John	The Crawford Fund
KERWICK, Bridey	Australia-Africa Partnerships Facility
KHATAZA, Robertson Richards Bisani	AusAID Africa Phd students
KOBE, Motlatso	Department of Mineral Resources, South Africa
KOMUGISA, Juliet	Curtin University
KONDO, Kodjo	AusAID Africa Phd students
KORTLANG, Ian	africapractice
KUMBURU, Joseph N.	Western Australian School of Mines
KURIA, Stephen	Accelerate to Excellence
LANGLEY, Helen	International Mining for Development Centre
LAWRENCE, Janet	The Crawford Fund
LILLYWHITE, Serena	Oxfam
LINCK, Ieuan	International Mining for Development Centre
LINDSAY, David	The Crawford Fund WA Committee

LLOYD, Bruce	The Crawford Fund
LLOYD-SMITH, Juliann	Rural Research Consultancy
LUND, Judy	The Crawford Fund
LUZZI, Michela	AusAID
MACHEPHA, 'Manthatisi Margaret	Ministry of Mining
MacKINNON, Ian	The Crawford Fund
MAGAYANE, Alex	Ministry of Energy and Minerals, Tanzania
MAJIWA, Eucabeth	AusAID Africa Phd students
MALOKA, Sam	Limpopo Economic Development Agency, South Africa
MAMPHITHA, David	Limpopo Economic Development Agency, South Africa
MANTEIT, Joseph	AusAID
MARAIS, Conrad	Hunt & Humphry
MARRIOTT, Andrew	AusAID
MASEKOA, Nkhesani	Department of Mineral Resources, South Africa
MBAYO, Yei	Revenue and Tax Policy Division, Ministry of Finance and Economic Development
MBUZI, Joe	Griffith University
McCOMB, Arthur	Murdoch University
McCOMB, Jen	The Crawford Fund WA Committee
McCUSKER AC CVO QC, His Excellency Malcolm	Governor of Western Australia
McKEVITT, Michael	High Commission of the Republic of Uganda
McLEOD MILLER, John	Centre for Exploration Targeting, The University of Western Australia
MDITI, Henry James	AusAID Africa Phd students
MEADOWS, Neil	IMX Ltd
MELITSIS, Katherine	Australian Government Department of Agriculture, Fisheries and Forestry
MENDHAM, Neville	The Crawford Fund
MENDHAM, Robyn	NJ and RL Mendham
MENSAH, Robert	Australian Cotton Research Institute
MENU, Felix	Western Australian School of Mines
MIEHE, Julie	Oceanie Lawyers
MIKALA, Serge	Ministry of Industry and Mines
MILLIGAN, Ann	ENRiT: Environment & Natural Resources in Text
MKWAWA, Saidi	AusAID Africa Phd students
MOGAE, His Excellency Festus	Coalition for Dialogue on Africa
MONAKEDI, Motalane	Limpopo Economic Development Agency, South Africa
MONEKE, Anene	University of Nigeria, Nsukka
MOOMEN, Abdul-Wadood	Western Australian School of Mines
MOROLO, Tryphosa Mmathapelo	AusAID Africa Phd students
MORRISON, David	Murdoch University
MOSS, Kim	Future Directions International Pty Ltd
MOSSES, Mosses	Curtin University
MPANGANE, Zanele	Department of Agriculture, Rural Development and Land Administration
MTEGHA, Hudson	University of the Witwatersrand, South Africa
MULBAH, Fahnseth Buggie	Ministry of Lands, Mines and Energy
MWARE, Benard Ouma	AusAID Africa Phd students
MWENDIA, Solomon Waweru	AusAID Africa Phd students
NAIRN, Malcolm	Australian Academy of Technological Sciences and Engineering (ATSE)

NAMALIMA, James	Ministry of Finance
NAPI WOUAPI, Herve Alain	Curtin University
NATAI, Shakwaanande Roland	Ministry of Agriculture, Food and Cooperation, Tanzania
NDUBUISI OKOLO, Bartholomew	University of Nigeria, Nsukka
NGALANDE, Joshua	AusAID Africa Phd students
NGWENYA, His Excellency Sindiso Ndema	Common Market for Eastern and Southern Africa
NINNES, Peter	Ninnes & Associates
NITSCHKE, John	IMX Resources Ltd
NTENGE, Alain Joseph	Geology and Mines Department, Rwanda Natural Resources Authority
NYANGANYI, Lister	Development Services Company, Diocese of Central Tanganyika Dodoma Tanzania
OBEL, Simon	Curtin University
O'DONNELL, Tony	The University of Western Australia
OGBU, Osita	University of Nigeria, Nsukka
OGUTU, Liz	Australian International Food Security Research Centre, ACIAR
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OLIVER, David Batali	Ministry of Environment
ONOJASUN, Evans	Western Australian School of Mines
ONYANGO, Tom	AusAID
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PATTIARATCHI, Tesni	National Measurement Institute
PEACOCK, Tony	Cooperative Research Centres Association
PECK, Kymette	Energy and Minerals Institute, The University of Western Australia
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PEZZINI, Mario	OECD Development Centre
PHILP, Kate	Rio Tinto
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PRINGLE, Catherine	Sustainability Pty Ltd
RABEDAORO, Rijaharimanana	Curtin University
RADCLIFFE, John	The Crawford Fund
RAGGI, Filippo	Department of State Development
RAJOELINA, Cedric Lucas	Curtin University
RAKOTOARY, Jean Chryostome	Ministry of Mines, Madagascar
RAKOTOTAFIKA, Gerard	Ministry of Mines, Madagascar
READE, Cathy	The Crawford Fund
REID, Hon Margaret	The Crawford Fund
*REINEKER, Nicole	The Crawford Fund
REPARD, Bill	Paydirt Media Pty Ltd
RIDLEY, John	C-Logic Holdings Pty Ltd

RIDSDILL-SMITH, James	The Crawford Fund WA Committee
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SCOTT, Janne	C-Logic Holdings Pty Ltd
SCOTT, Murray	C-Logic Holdings Pty Ltd
SCOTT-ORR, Helen	The Crawford Fund
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SOUMARE, Fatimata	Papillon Resources
SPARROW, Ashley	CSIRO
SPOORS, Claire	Oxfam – Publish What You Pay
STAJDUHAR, Jill	Energy and Minerals Institute, The University of Western Australia
STRAUSS, Jessica	Farming Ahead
STURMAN, Kathryn	Centre for Social Responsibility in Mining, The University of Queensland
SULLIVAN, Peter	Resolute Mining Limited
SULTANBAWA, Yasmina	The Crawford Fund
TARAWALI, Matthew	Ministry of Mines, Sierra Leone
TARINDA, Revai Clara	Curtin University
*TAVAKKOLI, Ehsan	The Crawford Fund
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UMAR, Idris Jimoh	Mines Inspectorate Department, Ministry of Mines and Steel Development
UMEH, Rich	University of Nigeria, Nsukka
UWIZEYE, Emmanuel	Ministry of Natural Resources
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VAS, Christopher	Murdoch University
VERMEY, Abbi	Stellar Recruitment
VERRIER, June	
VINEY, Didier	DTOS Ltd
*WALKER, Rachel	The Crawford Fund
WANI, Suhas	International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
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WENG, Lingfei	James Cook University
WILKIE, Jeff	Rio Tinto
*WILLIS, Reanna	The Crawford Fund
WILSON, Peter	AusAID
WINTER, Simon	Rural Industries Research & Development Corporation
WOOD, Mellissa	Australian International Food Security Research Centre, ACIAR
WOODS, David	Unity Resources Group
WRAY, Mark	Craig Mostyn Group
*YEAP, Simon	The Crawford Fund
YEATES, Rick	Middle Island Resources Ltd
YOUL, Rob	Australian Landcare International
ZARLEE, David	Ministry of Lands, Mines and Energy
ZHOU, Emerson	Beira Agricultural Growth Corridor, Mozambique
ZUMBENE, Nelson	Curtin University

Media coverage 2013

TV

ABC TV News – interviews with Mogae, Chenoweth, Pezzini

PRINT/ONLINE

AAP: Pezzini

The Australian http://www.theaustralian.com.au/news/breaking-news/oecd-to-discuss-africa-outlook-in-perth/story-fn3dxiwe-1226703827106

SBS Radio http://www.sbs.com.au/news/article/2013/08/26/oecd-discuss-africa-outlook-perth

News.com http://www.news.com.au/breaking-news/national/oecd-to-discuss-africa-outlook-in-perth/story-e6frfku9-1226703827106 Ad Hoc News (Germany) http://www.ad-hoc-news.de/oecd-director-mario-pezzini-will-address-two-conferences-in--/de/News/31523277 The Africa Report http://ewn.co.za/2013/08/26/The-Africa-Report-26-August

Bigpond News http://bigpondnews.com/articles/National/2013/08/26/OECD_to_discuss_Africa_in_Perth_900095.html

Herald Sun http://www.heraldsun.com.au/news/breaking-news/oecd-to-discuss-africa-outlook-in-perth/story-fni0xqi4-1226703827106

Business Top News http://business.topnewstoday.org/business/article/7453560/

Nine MSN: http://finance.ninemsn.com.au/newsbusiness/aap/8712221/oecd-to-discuss-africa-outlook-in-perth

AfricaSTI http://www.africasti.com/lead-stories/africa-australia-shares-knowledge-on-extractive-industries

Modern Ghana – Yemi http://www.modernghana.com/news/485127/1/focus-on-agricultural-innovation-the-way-fo.html IM4DC News http://www.swiftpage6.com/CampResource/2Y13DL5JI9B6LPHS/bio/IM4DC_August_2013_Article_7.pdf The Nation, print publication Malawi

AFK Insider – Doepel : http://afkinsider.com/18791/can-south-africas-mining-infrastructure-help-farmers/#sthash.lMiQTvXx.dpuf

Green Lifestyle Magazine http://www.greenlifestylemag.com.au/4133/bread-stones-conference-food-security

APN – Pezzini (national regional print) – interview completed The West Australian – Oxfam op ed

Border Mail - Pezzini

SciDevNet - http://www.scidev.net/global/agriculture/scidev-net-at-large/missed-opportunities-at-an-africa-australia-research-meeting.html

Farming Ahead http://farmingahead.com.au/articles/1/8935/2013-08-27/news/mining-agriculture-to-go-hand-in-hand

Mining News - Pezzini http://www.miningne.ws/2013/08/27/africa-needs-to-up-tempo/

Mining News – Hilson http://www.miningne.ws/2013/08/27/more-support-needed-for-small-scale-mining/ Mining News – Overview http://www.miningne.ws/2013/08/26/australian-africa-mining-investment-to-continue/ Mining News – Mogae http://www.miningne.ws/2013/08/27/diversification-key-for-africas-growth/

Farm Weekly – Field Day http://www.farmweekly.com.au/news/agriculture/agribusiness/general-news/mining-benefits-for-ag/2669358.aspx

RADIO

SBS – Pezzini http://www.sbs.com.au/news/article/2013/09/02/china-working-future-social-risks-oecd SBS – Mogae http://www.sbs.com.au/news/article/2013/09/02/welcome-africa-conditions-miners-told Radio National Breakfast – interview done with Hilson

ABC Rural News http://www.abc.net.au/news/2013-08-27/making-bread-from-stones-in-africa/4915494

ABC News http://www.abc.net.au/news/2013-08-22/nrn-africa-mining-ag/4904602

RN Big Ideas – Fireside Chat recorded RN Bush Telegraph – Chenoweth profile

RN Bush Telegraph – extended piece (30.8)

SBS News – Mogae, Chenoweth interviews (2 stories)

RN Saturday Extra – Mogae http://www.abc.net.au/radionational/programs/saturdayextra/festus-mogae3a-african-leadership/4921234

Newsradio – Hilson http://www.abc.net.au/newsradio/listen/?site=westernvic&ref=front-page-slider-westernvic-regional-landing

ABC Canberra 666 – Chenoweth

Radio Australia – Pezzini http://www.radioaustralia.net.au/international/radio/program/asia-pacific/can-mining-and-agriculture-be-mutually-beneficial/1182445

ABC Perth 720 Drive – Chenoweth

TWITTER

A selection of Tweets on #AfricaAusRF sent during the conference, conveying aspects of the presentations and discussions.

The Crawford Fund @CrawfordFund 26 Aug
Governor McCusker welcomes delegates to WA #africaausrf
pic.twitter.com/MSz70115rH

Dr Lee Hickey @DrHikov 26 Aug
Governor of WA Malcolm McCusker welcomes everyone to the state #AfricaAusRF
@crawfordfund pic.twitter.com/iOmW116lZ1

The Crawford Fund@CrawfordFund 26 Aug
'Ag research crucial to avert catastrophe' Governor McCusker before Sir John Crawford address #africaausrf

The Crawford Fund@CrawfordFund 26 Aug
Denis Blight @CrawfordFund CEO makes personal reflection of Sir John Crawford prior to memorial address #AfricaAusRF pic.twitter.com/GuT4ENd6lb

Dr Lee Hickey @DrHikov 26 Aug
The world needs more people like Dr Florence Chenoweth, Minister for Agriculture, Liberia #AfricaAusRF #Ag4Dev pic.twitter.com/RPnU1J89Im

federico bonaglia @FBonaglia Aug 26
Min Flo Chenoweth calls for a new deal for agriculture: govt & donors must reinvest to revert shortsighted policies of the past #africaausrf

The Crawford Fund @CrawfordFund Aug 26
'Bread frm Stines' breakfast - broad issue of #foosecurity doesnt rank for mining companies in Africa #africaausrf pic.twitter.com/gBjAabaAmJ

federico bonaglia @FBonaglia Aug 26
At @CrawfordFund #africaausrf: example of how mining started Ag project to feed miners then became sustainable agric system around mine

OECD Development Ctr @OECD_Centre Aug 26
How can Africa use extractive industries to fuel its development? Mario Pezzini delivers keynote at @crawfirdfund #AfricaAusRF

OECD Development Ctr @OECD_Centre Aug 26
Mario Pezzini on #Africa's opportunities: how to harness extractive industries at @crawfordfund #africaausrf pic.twitter.com/5bPzWHzehU

OECD Development Ctr@OECD_Centre 26 Aug
The Africa's challenge: a decade of strong growth did not create enough employment, esp for #youth #AfricaAusRf

Jill Stajduhar @jillstajduhar 26 Aug
#AfricaAusRF small business is the backbone of an economy - encouraging&supporting the youth to build businesses around mining & agric?

OECD Development Ctr @OECD_Centre Aug 26
Pezzini: good news: some structural transformation has happened in Africa. Bad news: not enough job creation. SME sector key #AfricaAusRF

Jill Stajduhar @jillstajduhar Aug 26
#AfricaAusRF is the employment expectation set too high in regard to mining- supporting services are where jobs are more likely to reside?

OECD Development Ctr@OECD_Centre 26 Aug
Pezzini: If managed well, natural resources can play a key role for transforming economies. #africaausrf @CrawfordFund

IM4DC@IM4DC 26 Aug
Check out the programme of events at today's @CrawfordFund Conference: https://www.africadownunderconference.com/resources/AARF-Final-Web-Programme.pdf … #africaausrf #IM4DC

DomPiperPaydirt @DominicPiper Aug 26
#africaausrf Africa can't afford to miss opportunities presented by demographics #MarioPezzini #oecd

DomPiperPaydirt@DominicPiper 26 Aug
#AfricaAusRF Mario Pezzini, OECD: Africa still doesn't benefit from same level of exploration spend as Australia pic.twitter.com/cN9mAHbfxI

DomPiperPaydirt @DominicPiper Aug 26
#Paydirt_Media chairman Bill Repard opens #AfricaAusRF #ADU2013 pic.twitter.com/FK0pcEMyHU

Tesni Pattiaratchi @TesniPatti Aug 26
Very interesting prespective from Dr Gavin Hilson #africaausrf

BlueRayBlue @FurlingBird Aug 26
Mining companies go along with the informality in poor countries thus propagating the very thing they try to prevent #africaausrf @G.Hilson

DomPiperPaydirt @DominicPiper Aug 26
Q. For Peter Sullivan: Does investor attitude to CSR change when markets/gold price is down? #AfricaAusRF #adu2013

Rachel Walker @AgEnviroStdnt Aug 26
kevin Urama: can corporate social responsibility be relied upon in areas where enforcement is weak or corrupt #mining #ag #AfricaAusRF

federico bonaglia @FBonaglia Aug 26
#africaausrf table 14: major issue: how to ensure a positive econ/social/env legacy after mining site closes? @crawfordfund

max bankole jarrett@mbankolej 26 Aug
#Africaausrf: Making Bread from Stones? There is a need to have multiple actors around the table and incentives for each of them to act.

Claire Spoors @claireespoors Aug 26
#africaausrf: #Mining = a new industry in #Kenya but need to build capacity of local population to ensure employment benefits

Helen Garnett @dlhmg Aug 26
#africaausrf Ag and resources need to work together at policy level,at regional and local levels. Involve local people across the chain

Helen Garnett @dlhmg Aug 26
#AfricaAusRF put yourself in the other parties shoes and how they see the value chain

Helen Garnett @dlhmg Aug 26
#africaausrf optimal local procurement is not compatible with centralised procurement offices where saving dollars is their raison d'être

denis blight@denis_blight 26 Aug
#africaausrf Joint Crawford Fund Australian African Forum delivers on Australia's promise to share its experience in mining and agriculture

Helen Garnett @dlhmg Aug 26
#africaausrf need successful case studies of ag and mining cooperating written by local beneficiaries as well as from company perspective

federico bonaglia @FBonaglia Aug 26
Festus Mogae explains how policy framework for mining helped Botswana development and move from poor to middle-income status #AfricaAusRF

federico bonaglia @FBonaglia Aug 26
Festus Mogae: Diversification wanted! 90%of Botswana gvt revenue from mining. It is not sustainable #AfricaAusRF --> http://www.africaneconomicoutlook.org

Helen Garnett @dlhmg Aug 26
#africaausrf growth clusters along infrastructure pathways an interesting concept

federico bonaglia @FBonaglia Aug 26
Prof Mtegha explains the Africa Mining Vision at #AfricaAusRF- here the ISG report http://www.africaminingvision.org/amv_resources/AMV/ISG%20Report_eng.pdf … @CrawfordFund

Tesni Pattiaratchi @TesniPatti Aug 26
#africaausrf Could you design transformablle sites to suit both mining and ag?

Rachel Walker @AgEnviroStdnt Aug 26
Stones don't make bread, but stones can buy bread #bread from stones @crawfordfund #AfricaAusRF

Claire Spoors@claireespoors 26 Aug
Govs and industry need to communicate w communities about life span of mining projects from the start #africaausrf

federico bonaglia@FBonaglia 26 Aug
#AfricaAUsRF T14: what's the role of regional organisations such as COMESA in strengthening Govt capacity to deal with mining companies?

IM4DC @IM4DC Aug 26
@IanSatchwell speaks at @CrawfordFund Conference #africaausrf #mining #agriculture #development #IM4DC pic.twitter.com/kaQtBbbOKu

denis blight @denis_blight 26 Aug
#AfricaAusRF policies should be based on evidence and data that reveals relative impact of mining CSR and Ag investment and tax receipts

Gabrielle Ho @Gabrielle_w_ho Aug 26
Gov policy to focus on post mining boom initiatives to ensure aus' long term economic viability? #AfricaAusRF

Kodjo KONDO @kkondo33 Aug 26
#AfricaAusRF Table 2: There is a need for governments to define policies for a fair sharing of benefits derived from mining activities.

Kodjo KONDO @kkondo33 Aug 26
#AfricaAusRF Table 2: How can the American experience of royalties sharing with landowners be implemented in Africa?

Kodjo KONDO @kkondo33 26 Aug
#AfricaAusRF Table 2: Need for governments and mining companies to develop close-up and rehabilitation strategies before activities start.

Kodjo KONDO @kkondo33 26 Aug
#AfricaAusRF Table 2: mining companies may provide access to energy, clean water and irrigation to boost local ag and economic activities.

The Crawford Fund@CrawfordFund 26 Aug
'Fireside chat' at 'bread frm stones'- @mbankolej AnnHarrap, FlorenceChenoweth, JohnKerin, FestusMogae #africaausrf pic.twitter.com/4X8eDmRArt

Jessica Swann @JessicaSwann Aug 26
I've finally decided how I'll vote. The party who can legislate REAL policy that takes food security seriously. Who is that? #AfricaAusRF

Gabrielle Ho @Gabrielle_w_ho Aug 26
Policy is only effective if it is properly implemented. Achieving this is a marathon, not a sprint. #AfricaAusRF

Jessica Swann@JessicaSwann 26 Aug
"You need functioning democracies" John Kerin [to implement genuine, effective policy that brings real food security] #AfricaAusRF

The Crawford Fund@CrawfordFund 26 Aug
All enthralled with 'fireside chat' at Bread from Stones final session #africaausrf pic.twitter.com/tlzZCCHFkq

federico bonaglia@FBonaglia 26 Aug
Key question! RT @Padilla_macabeo: Can Africa Industrialize? http://brookin.gs/bhCR via @BrookingsInst #africaausrf @CrawfordFund

Jessica Swann@JessicaSwann 26 Aug
We need to think how to combine the mining AND dining boom. The either/or approach is detrimental to sustainable food security. #africaausrf

IM4DC @IM4DC Aug 27
Great day at @CrawfordFund Conference! #africaausrf

Emmie Kio @emmiewakio Aug 27
As in?????? RT @AgEnviroStdnt: Stones don't make bread, but stones can buy bread #bread from stones @crawfordfund #AfricaAusRF

Mining in Malawi @MiningInMalawi Aug 27
@Hscottorr NGOs in Malawi would be unlikely to agree that Paladin is "great" example. See, for example, http://mininginmalawi.com/2013/07/06/malawis-mining-stakeholders-divided-over-new-report-on-lost-tax-revenue/ … #AfricaAusRF

The Crawford Fund @CrawfordFund 27 Aug
'Bread From Stones' speaker Hudson Mtegha positive about mining & agriculture http://www.abc.net.au/news/2013-08-27/making-bread-from-stones-in-africa/4915494 … #africaausrf

Kelly Ryan @kelguest83 27 Aug
A great range of topics covered @ the Crawford Fund Ag Research Day 4 students & scholars #africaausrf @CrawfordFund pic.twitter.com/P4WcxGI08s

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For a Food Secure World

Africa Australia Research Forum
25-28 August 2013

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