The interface between resources and agriculture in rural Africa

Assisting Australian miners with a diverse socio-political investment context

The first Parliamentary ‘Inquiry into Australia’s relationship with the countries of Africa’ was released in June 2011 by the Joint Standing Committee on Foreign Affairs, Defence and Trade. The inquiry noted that to distinguish Australia from other ‘Western nations’, a broad strategy comprising aid, development, security, trade, and investment should be implemented through the considerable natural resource investment and experience in corporate social responsibility of Australian companies [1]. This discussion paper outlines areas of significant cross-sector collaborative potential between Australian resource companies and agricultural, environmental, and social elements unique to sub-Saharan Africa.
Complexities of the current status of rural sub-Saharan Africa

As more than half of the sub-Saharan population lives in agricultural areas, the sector is a fundamental cornerstone of economic development [2, 3]. Over the past 50 years sub-Saharan food crop average productivity has become stagnant while the rest of the world’s agricultural productivity has grown to become three times greater [2, 4]. Yet even the poor sub-Saharan average masks the considerable variability in productivity across the region [4]. The region is estimated to represent around 60% of global uncultivated lands, with agricultural productivity potentials at least three times higher than current levels [3]. Therefore, sub-Saharan Africa faces exceptional challenges in relation to rural institutions, infrastructure, and market development [5].

The renewed surge of private industry interest regarding Africa’s landscape as a new source of primary productive wealth [3, 6] is related to global strategic food, land, water, resource, and energy competition [7]. Despite this interest, rural sub-Saharan populations often remain in extreme poverty and endure food and water supply shortages [8]. Agriculture typically represents 20 to 40% of sub-Saharan national GDP [7], and the past several decades have seen $billions in international and national investment aimed at increasing rural sub-Saharan economic development - for very little obvious result [3]. Sub-Saharan food insecurity persists due to poverty, degraded lands, armed conflict, inadequate infrastructure, outdated knowledge and technology, and poor records of attracting international investment [6, 9]. Nevertheless, there remains a significant prospect for co-investing in new rural industrial capability that can spur growth that advances food and water security.

As agriculture accounts for 70% of African total employment (65% of which are women [3]), the political implications of involvement in rural regions are considerable. Clearly, political and legal structures have contributed to the underprivileged profile exhibited by many African states [10], and it is necessary to gather and understand detailed localised politics to avoid implementing inappropriate strategies which misallocate resources [11]. Thus, international private industries seeking to become involved in Africa will gain from access to knowledge, networks and experience of governments and institutions with long-term involvement in Africa. This is particularly crucial for entities seeking to gain political access and to avoid common pitfalls.

Rural rail and road transport infrastructure and supporting technology

A comprehensive understanding of rural infrastructure should assist appropriate sequential involvement in rural areas [11]. The low productivity of African agriculture has been of concern since at least the 1930s [4]. Productivity stagnation is associated with increasingly unpredictable rainfall regimes, limited postharvest technology, low fertiliser use, low irrigation rates, negligible pest and disease control, lack of mechanisation, poor transport infrastructure, and generally low rates of new technology adoption [7]. As such, rural populations tend to cluster around areas with access to services and markets, often near highways and other crucial physical infrastructure which underpin the rural economies [3, 4, 12].

Poor transport infrastructure reduces competitiveness of all industries in a region [13]. Outside of South Africa, sub-Saharan rail lines typically involve an isolated single track line connecting a trading centre or mine with a port, with few branch lines with unreliable signalling, leading to major safety concerns [13, 14]. Historically rural areas of sub-Saharan Africa have been plagued by poor transport infrastructure maintenance regimes, high freight transport costs, and unpredictable railway scheduling [13]. In response, major sub-Saharan mineral projects, ports, and railroads have seen many institutional changes, including major privatisations and foreign investments [13, 14]. Whilst several mining companies have proposed dedicated mineral lines, the benefits of rail for bulk commodity transport such as minerals is less clear for medium-distance general freight requiring road transport to and from railheads. In theory, sub-Saharan railways should be the most economical mode to transport general freight over 500 to 800 km and bulk...
commodities over shorter distances. However, rail lines with less than 250,000 tonnes of annual traffic at USD0.05 per net tonne-km only support routine rail maintenance, yet average rail freight tariffs generally range from USD0.03 to 0.05 per net tonne-km [14].

Current backhaul loads in sub-Saharan Africa are often cement, petroleum products, and general freight [14]. New large rail backhaul loads may be fertiliser imports, as existing commercial fertilisers are of limited type and availability in many regions [12]. At present current backhaul loading rates rarely leaves rail lines fully-loaded in both directions. It is common for the high cost of sub-Saharan road haulage between the rail lines and ultimate destination to negate any advantage from using rail. This has resulted in an increase in inter-modal transport competition for industrial-scale transport services [13, 14]. From an economic perspective, the lower capital costs of road construction relative to rail for smaller loads would preclude rail investments from annual traffic below 2 to 4 million tonnes [14]. Such empty backhauls and small journeys create a transport market open to higher cost manipulation [15], and road freight in rural areas tend to backhaul at marginal cost, outcompeting rail for such services [14].

In general, the cost of moving the same tonnage per km in rural Africa is generally around an order of magnitude higher than in the African cities, even with the same vehicle [15]. Road infrastructure in Africa in general has slightly improved in recent decades with 80% of the arterial roads being in good or fair condition [16]. However, the quality of the trunk road is often not the primary constraining factor in rural transport, as feeder roads often have a disproportionate bearing on transport costs [15]. Initial prioritisation of investment in feeder roads would be most beneficial in connecting rural areas with high agronomic potential with large populations located near major trade routes and markets [13, 15]. Rural roads in agricultural areas are clearly inadequate with only one-third of inhabitants living within two km of an all-season road, yet road financing is a major challenge [16].

Whilst transport infrastructure is fundamental, the market structure of the transport industries heavily influences road transport costs [15]. Whilst investment in such 'hard' infrastructure requires attention, the primary aim is to ensure cost-effective, reliable and safe transport services [16]. The cost of transporting goods in sub-Saharan Africa is highly sensitive to local competition among transport providers at varying scales and diversity [15]. At present, rural communities are exploited by transport monopolists and commonly pay dearly for transport services [16]. This is despite sub-Saharan trucking operational costs being comparable to the rest of the world, even when 'informal payments' are included [17]. Therefore, a multifaceted and collaborative approach for rural road and rail investments will be required to have the largest influence on regional productivity and market access [16].

**Transfer of postharvest and irrigation technology in rural areas**

Farming technology in many regions of sub-Saharan Africa is well behind modern nations with little mechanised production, processing and transport [3]. Introducing postharvest technology in developing countries is a major opportunity. The limited access to suitable knowledge, storage technologies and transport infrastructure often require simple investments and transfer of existing technology [3, 7, 12, 13]. Many postharvest technologies are public goods (pest management, water harvesting, vegetation management, etc.) and can be relatively inexpensive to provide [5]. Without such technology and knowledge many rural agricultural producers may not be able to meet quality, reliability, safety, and consistency standards even when market access exists [13]. Currently, around 50% of sub-Saharan ‘bumper’ crops may be lost due to lack of market and postharvest handling technology which even limits trade to nearby villages [3].

In addition to food security, recent droughts in Sub-Sahara expose the massive water insecurity and associated water storage deficiencies [14]. Only 7 million ha of the total 197 million ha of cultivated land in sub-Sahara is currently equipped for irrigation [2]. Sub-Saharan agriculture has a very low surface water utilisation (2-3%) when compared to other nations [5]. This is despite the higher profitability of irrigated lands accounting for around one quarter of the value for sub-
Saharan agriculture, produced from only 3.5% of cultivated lands [2]. With best practice water infrastructure investments, a further 5-7 million ha are agro-ecologically and economically viable for small-to-medium scale irrigation schemes [2, 14]. An additional 1.4 million ha are amenable for large-scale irrigation schemes that may be retrofitted to existing hydropower stations [2, 14]. However, much existing irrigation land (1.7 million ha) has fallen into other uses due to infrastructure maintenance issues [14]. Experience has shown that irrigation and regional water infrastructure investment decision-making should be as decentralised as possible and focus on economically sustainable operators able to install and maintain water infrastructure, which often precludes small-scale farms [2, 14, 15]. Irrigation projects funded by international donors dropped dramatically (~90%) in the 1990s [2]. As a result, poorer regions are unable to pay for commercial irrigation water as distribution component costs are between USD2,000 to 3,000 per irrigated ha for small and large-scale operators, respectively [2, 15]. The production of higher value crops, including horticultural products, will likely be required to cover additional costs of irrigated lands [2].

The private sector, corporate social responsibility, and governance

In response to growing community demands and strategic commercial incentives, international companies are assessing social impacts and benefits both during project operations and also after project decommissioning [16]. While corporate social responsibilities are usually associated with philanthropy [17], private sector returns must be sufficient to justify investment in social programmes [18]. Such programmes often involve institution building, capacity strengthening, education and training, regional health, and local infrastructure development [19]. As such, collaborative partnerships are often required between companies, stakeholders and governments to meet economic and social needs beyond direct employment, business opportunities, royalties, taxes, and community sponsorships [20]. However, international corporations’ understanding of social impacts are around one decade behind their environmental management practices [16]. While social impact and engagement can be rewarding, it is also challenging [20], as private-sector transparency is fundamental in such approaches [4]. Such engagement can be particularly delicate when social issues such as health, governance, official requirements, and corruption is less straightforward as environmental requirements [21].

Broad stakeholder participation is essential to ensure effective social programme decision-making with subsequent implementation monitoring to determine efficacy [11]. However, to date many enterprises’ understanding of social research is mixed, with some suspicion as to how researchers may ‘take sides’ and potentially hinder development approvals [16]. Common gaps in understanding how a ‘social licence’ operates in sub-Sahara includes: corporate social approach towards human rights; community and regional development; governance and government relations; careers and training of workers; and proper working conditions including safety, fly-in fly-out, and shift-work arrangements; the participation of women generally (both as workers and as partners of workers); and general social cohesion [11, 16]. Particularly in sub-Saharan Africa, international companies are increasingly required to build regional capacity, identify best practice, transfer knowledge, and facilitate effective public-private partnerships prior to, during, and after an individual projects’ operational lifespan [11]. Clearly, to date, generating an appropriate level of public and private sector investment to accelerate sustainable rural development in sub-Saharan Africa has been a major challenge [19]. While the development of African Union has enabled much progress in member nations, decision-makers continue to possess little information regarding the nature of poverty, and incomplete knowledge of the diverse processes that affect it [11]. Yet, effective governance is a precursor to successful public good provision and market development [4].

Even resource-rich sub-Saharan countries often lag behind other comparable nations in their basic infrastructure and industry standards. In terms of political reform in sub-Saharan Africa, it is telling that successful implementation has predominantly occurred in sectors that were not strategically important at the time and arose in parallel with government fiscal crises [22]. Thus
international investments and policy can facilitate both reform and the transfer of best practice procedures. One example is the mine closure legislation recently developed by the WA Department of Mines and Petroleum. This legislation may be appropriate for companies involved in WA resources sector to transfer into their African operations. As local African programmes are often under-resourced, private sector investment must be enabled to assist the transfer of best practice and/or reform. Adequate regulatory reform is also required to prevent control by monopolistic behaviour (by both government and private) [11]. Therefore, sub-Sahara exhibits commensurate opportunities, and also challenges [3]. Crucially, where government accountability, capacity, co-ordination, and ownership of a programme do not exist, the private sector should reassess involvement [11].

Conclusions

The mixed results of either state-only or market-based policies to support rural development requires a detailed understanding of locally appropriate options for public and private collaboration [19]. Sectoral-focused development programmes have the ability to improve the quality of government activities, yet the sectoral approach then becomes conditional on governmental strategy, accountability, capacity, and co-ordination [11, 23]. Therefore, national governments and their private (national or international) industries should align resources to gain efficiencies in African involvement in development strategies [1]. However, a clear definition of the time-based objective of an investment or intervention is crucial (such as increase food production volumes, reduced food spoilage, increased yields, reduced transport costs, etc.) over a specified period of time [24].

The central question for rural development policy in Africa is how to support various national governments and businesses to make critical institutional and infrastructural investments that stimulate development of the major regional sectors [22]. In the recent past, the private sector in Africa was inexperienced and undercapitalised [6]. It is now becoming apparent that a closer public sector engagement in political and economic affairs would support a greater private sector investment in Africa. For Australian private sector interests involved in Africa, the opportunities of proximal European and north African markets is a strategic opportunity that will likely require assistance to secure over time. Therefore, a two-way communication and understanding between Australia and African institutions are required at several levels (governments, private sector, etc.) for mutual benefit, particularly for local rural communities. However, infrastructure, education, and agricultural extension investments have long lead time horizons [4], and a corresponding long-term (>20 years) perspective is necessary [3]. As new investment is central to sub-Saharan development [4, 5, 14, 19, 22], an active focus on a balance for private and public partnerships is essential for the region [5].

References