



Green Growth Opportunities for Businesses and Investors

Greenprint for SAGCOT



Seth A. Shames
Sara J. Scherr
Rachel Friedman

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Green Growth Opportunities for Businesses and Investors:

Greenprint for the Southern Agricultural Growth Corridor of Tanzania (SAGCOT)

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The development of this document was led by a team from EcoAgriculture Partners, reporting to the SAGCOT Centre and the SAGCOT Green Reference Group.

The author team:

Seth A. Shames
Sara J. Scherr
Rachel Friedman



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Contact information:

SAGCOT Centre Limited

Ground Floor, Tanzania Private Sector Foundation
(TPSF) Building
Plot No. 1288, Mwaya Road
Msasani Peninsula

P. O. Box 11313
Dar es Salaam
Tanzania

Tel: +255 (0) 22 260 1024
+255 (0) 22 260 0146
Fax: +255 (0) 22 260 2368

Email: info@sagcot.com

Website: www.sagcot.com

EcoAgriculture Partners

1100 17th Street N. W.
Suite 600
Washington, D. C. 20036
USA

Tel: +1 202 393 5315

Fax: +1 202 393 2424

Email: info@ecoagriculture.org

Website: www.ecoagriculture.org

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The **SAGCOT Vision for Agriculture Green Growth** is described in a set of documents produced in 2013. Follow the hyperlinks in the list below to access any of the documents.

A Vision for Agriculture Green Growth in the Southern Agricultural Growth Corridor of Tanzania (SAGCOT): Overview

Sara J. Scherr, Jeffrey C. Milder, Louise E. Buck, Abigail K. Hart, and Seth A. Shames

A Framework for Agriculture Green Growth: Greenprint for the Southern Agricultural Growth Corridor of Tanzania (SAGCOT)

Jeffrey C. Milder, Louise E. Buck, Abigail K. Hart, Sara J. Scherr, and Seth A. Shames

Green Growth Opportunities for Businesses and Investors: Greenprint for the Southern Agricultural Growth Corridor of Tanzania (SAGCOT)

Seth A. Shames, Sara J. Scherr, and Rachel Friedman

Applying an Agriculture Green Growth Approach in the SAGCOT Clusters: Challenges and Opportunities in Kilombero, Ihemi and Mbarali

Jeffrey C. Milder, Abigail K. Hart, and Louise E. Buck

Six Opportunities to Green Agricultural Production in the Southern Agricultural Growth Corridor of Tanzania (SAGCOT)

Jeffrey C. Milder, Louise E. Buck, Abigail K. Hart, Seth A. Shames, Sara J. Scherr, and Raffaella Kozar



Contents

Acknowledgments	1
1. Introduction	2
The SAGCOT Initiative and Agriculture Green Growth	2
Movement toward sustainability in agri-business worldwide	3
‘Business as unusual’ investment for AGG in SAGCOT	3
2. AGG Investment Opportunities for Companies.....	5
Greening existing investments	5
<i>Conservation agriculture in grains and horticulture crops.....</i>	<i>5</i>
<i>System of Rice Intensification</i>	<i>5</i>
<i>Sustainable intensification of beef production</i>	<i>6</i>
<i>Precision agriculture in sugar, rice and maize production.....</i>	<i>8</i>
<i>Rainwater harvesting for commercial crop production.....</i>	<i>9</i>
<i>Agroforestry and multicropping for soil fertility, fodder and income diversification</i>	<i>10</i>
<i>Commercial biomass energy from agricultural waste</i>	<i>10</i>
<i>Scaling-up available eco-certification opportunities</i>	<i>13</i>
<i>Sustainable commercial and community forestry</i>	<i>14</i>
Opportunities to be developed.....	15
<i>Commercial production of drought-resistant crops</i>	<i>15</i>
<i>Commercial bio-inputs.....</i>	<i>15</i>
<i>Off-grid solar energy.....</i>	<i>16</i>
<i>Pursuing new opportunities for eco-certification and standards.....</i>	<i>16</i>
<i>Payments for ecosystem services.....</i>	<i>17</i>
3. Business engagement	19
Partnering with smallholders in production	19
Benefits for other businesses from a dynamic smallholder sector.....	20
4. Promoting AGG business development: Strategic roles for government and civil society ..	21
Establish goals and guidelines for AGG investment	21
<i>Minimal standards.....</i>	<i>22</i>
<i>‘Green Star’ AGG Businesses.....</i>	<i>22</i>
Attract AGG companies through the SAGCOT Investment Partnership Program	23
Strengthen frameworks for land use and land access.....	23
<i>Village, regional and landscape planning.....</i>	<i>23</i>
<i>Access to land for private investment.....</i>	<i>24</i>
Encourage preferential access to financing for AGG	24
Undertake complementary public sector investment.....	26
5. Next steps to mobilise private investment in AGG	28

Annex 1: Resource materials for businesses..... Annex1-1

Multi-stakeholder initiatives and collaborations.....	Annex1-1
Biodiversity tools and guides.....	Annex1-2
Tools to measure and assess emissions and carbon sequestration.....	Annex1-3
Smallholder production assessment tools.....	Annex1-4
Frameworks for whole value chain assessment and management	Annex1-4

Tables

Table 2-1. Opportunities and actions for scaling-up conservation agriculture.....	6
Table 2-2. Opportunities and actions for scaling-up System of Rice Intensification.....	7
Table 2-3. Opportunities and actions for scaling-up sustainable intensification of beef production	8
Table 2-4. Opportunities and actions for scaling-up precision agriculture with sugar, rice and maize	9
Table 2-5. Opportunities and actions for scaling-up rainwater harvesting for commercial production	10
Table 2-6. Opportunities and actions for scaling-up agroforestry and multicropping	11
Table 2-7. Opportunities and actions for scaling-up commercial biomass energy	12
Table 2-8. Opportunities and actions for scaling-up available eco-certification opportunities.....	13
Table 2-9. Opportunities and actions for scaling-up sustainable commercial and community forestry.....	15

Boxes

Box 4-1. Minimum standards for major SAGCOT agricultural investments (illustrative)	22
Box 4-2. 'Green Star' SAGCOT AGG investments (illustrative).....	23

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1. Introduction

The SAGCOT Initiative and Agriculture Green Growth

The Southern Agricultural Growth Corridor of Tanzania (SAGCOT) Initiative was launched in 2010 by the Government of Tanzania as a public-private partnership dedicated to ensuring food security, reducing poverty, and spurring economic development in Tanzania's Southern Corridor. The Southern Corridor encompasses nearly 300,000 square kilometres (about one-third of the nation's territory) and stretches from the Indian Ocean to the Zambian border, along both sides of the infrastructure backbone of roads, rail, and electrical power that extends inland from Dar es Salaam. Home to roughly 9 million people, the region contains fertile lands, potential for expanded irrigation systems and access to domestic, regional and international markets. It also supports extensive forests, wildlife of major economic importance for tourism and ecologically critical rivers and lakes.

While the Southern Corridor has considerable agricultural potential, it currently suffers from low productivity, low levels of investment, and high rates of poverty. In an effort to unlock the region's potential, the SAGCOT Initiative by 2030 will work to attract US \$3.4 billion to increase annual farming revenues by more than US \$1.2 billion, support the livelihoods of small-scale farmers—90 per cent of farmers in the Corridor—, and establish southern Tanzania as a regional food exporter. To meet these ambitious goals requires a targeted strategy and a realistic action plan to deploy resources, engage partners, and coordinate activities and investments throughout the Corridor.

In 2011, the SAGCOT Blueprint was released, describing where and how investment in the agriculture sector could be scaled-up and better coordinated to establish productive clusters of new economic activity. The Blueprint identified the important issues of climate change, environmental conservation, and natural resource management as critical to the Corridor's long-term economic development, but did not provide detailed plans to address them. Environmental sustainability will be a critical element to the success of SAGCOT as productive agriculture in the Southern Corridor will require sufficient water, fertile soils and resilience to climate change. Currently, the region's farmers are highly vulnerable to climate change, with the vast majority relying on rain-fed agriculture, with inadequate access to reliable input supplies or markets. Where agriculture has been intensified, it has often had severe environmental impacts, undermining not only long-term productivity, but also the development of other important sectors like forestry, wildlife tourism and water.

A Framework for Agriculture Green Growth in SAGCOT (the 'Greenprint')¹ was developed to support the SAGCOT strategy and supplement the Blueprint by identifying current and emerging opportunities for harmonizing agricultural development and regional food security goals with local poverty reduction and ecosystem conservation. The Greenprint introduces the concept of Agriculture Green Growth (AGG) and examines the potential for new agricultural investments in SAGCOT to transition from inefficient or environmentally unsustainable agricultural management systems to those which can marry cutting-edge research and technology with a clear understanding of local agroecological, economic and social conditions.

1 Milder, J. C., Buck L. E., Hart, A. K., Scherr S. J., and Shames, S. A. 2013. A Framework for Agriculture Green Growth: Greenprint for the Southern Agricultural Growth Corridor of Tanzania (SAGCOT). Dar es Salaam: SAGCOT Centre <http://ecoagriculture.org/-ecoagric/documents/index.php?pubID=481>

Movement toward sustainability in agri-business worldwide

For private agricultural companies, business-as-usual investment decisions have typically been informed by standard financial models which do not fully consider environmental and social impacts. But private sector decision-making is now changing as companies come to recognize that environmental and social factors constitute key risks and opportunities for the profitability and long-term viability of their business models. A recent publication from the Landscapes, for People, Food, and Nature Initiative identified 27 cases throughout the world in which agribusinesses are working at the landscape scale to improve profitability while addressing sustainability challenges. Rationales for these activities included needs of local community, operational risks, investor requirements, value chain efficiencies, voluntary standard compliance, corporate social responsibility and reputational risks.²

Many of these companies do not see AGG as an add-on, but rather the path through which they will achieve long-term financial success. For instance, water-efficient agriculture can help companies improve the reliability of their water supplies, and reduce the risk that climate change or drought will result in shortages. Precision application of water and agrochemicals can reduce input costs and increase profits. Engagement of rural communities of smallholders in producer associations and processing and marketing ventures can reduce the risk of local conflict around a commercial farm. Improved social and environmental performance of the agricultural supply chain can translate into product differentiation and marketing advantages that can boost market share or price at the wholesale and consumer level.

Furthermore, international investors and financial institutions have increasingly signed onto new sets of guidelines for good conduct which set minimum standards for the social and environmental impact of investment. For example, the Consumer Goods Forum—whose companies have aggregate sales of US\$3.2 (EUR 2.5) trillion—has agreed to a resolution that aims for zero net deforestation that is driven by agricultural commodities production by 2020.³ Agri-business developers and investors in the Southern Corridor, one of the largest deforestation hotspots in Africa, stand to benefit from new opportunities related to sustainable production, processing, and marketing and avoid losing buyers seeking to comply with these new standards.

The international context of rising interest and experience in agri-business sustainability has helped to set the stage of the development of SAGCOT. Since its launch, SAGCOT has generated widespread interest and hope as a model for African agricultural development that can sustainably increase food supplies, reduce poverty, and stimulate economic development within an ecologically rich region. The initiative has been featured prominently at major international forums including the UN Climate Change Convention Conference of the Parties, G8 Summit on Agriculture, and regional WEF events.

‘Business as unusual’ investment for AGG in SAGCOT

The investment in SAGCOT will come largely from private sources. The SAGCOT Blueprint identifies three main pools of capital that will finance agricultural development and support infrastructure in the Southern Corridor: private sector investment (projected at US \$2.1 billion over 20 years), public sector (projected at US \$650 million over 20 years), and a multi-donor catalytic fund projected to be US \$50 million which will be utilized during the first several years of the SAGCOT Initiative. Dozens of companies are already on board.

2 Kissinger, G., Brasser, A. and Gross, L. 2013. Reducing Risk: Landscape Approaches to Sustainable Sourcing. Washington, DC. EcoAgriculture Partners, on behalf of the Landscapes for People, Food and Nature Initiative. http://landscapes.ecoagriculture.org/global_review/reducing_risk

3 http://sustainability.mycgforum.com/images/sustainability-pic/Board_Resolutions_on_Deforestation_and_Refrigeration.pdf

The SAGCOT Centre is using the slogan ‘business as unusual’ to refer to efforts to facilitate private AGG investment by creating a supportive investment environment and facilitating public–private collaborations that bring together a variety of stakeholders across sectors including farmers, local businesses, international companies, international investors, civil society organizations and government agencies. This report supplements the findings of the Greenprint to describe innovative ‘business as unusual’ opportunities specifically framed for business leaders, developers and investors. It also suggests ways that public institutions and donors might support the conditions necessary to attract private investment in AGG within SAGCOT.

The following section identifies specific AGG business opportunities in the Southern Corridor, open to both foreign and domestic investors, and describes them from the perspective of their business advantages, benefits to the environment, opportunities to engage with smallholders, current investment in Tanzania and ways that the opportunity can be supported by SAGCOT and the public sector more broadly. The third section focuses specifically on the ways that these investments can engage smallholders. This is followed by a section analysing the ways that stakeholders within SAGCOT, beyond the private investors, can help to facilitate AGG investment.



2. AGG Investment Opportunities for Companies

Tanzania's Southern Corridor has significant potential for commercial investment in agriculture, forestry and ecosystems, but few of these opportunities have been developed. Agricultural and production innovations and technologies locally and throughout the world could be scaled up to support AGG. Currently sugar and tea are the only crops grown by large-scale producers in the Corridor, with a handful of medium-size farms producing dairy, meat, sisal, and horticulture crops. New private sector investments are in their early stages for rice, sugar and teak. Industries already present in the corridor can benefit by modifying or expanding operations using production practices that are more sustainable. Meanwhile, entirely new opportunities can be seized that will require additional time and effort in order for their production, processing or marketing systems to succeed. A large and growing body of tools and resources has been developed to aid in the scaling up of private sector AGG activities throughout the world. Some of these have been compiled in the Annex.

Greening existing investments

The opportunities to green existing investments include conservation agriculture, sustainable rice intensification, precision agriculture, intensification of beef production (or holistic range management), rainwater harvesting, agroforestry and multi-cropping for soil fertility and income diversification, eco-certification, commercial biogas and commercial forestry management. For each of these opportunities, the business advantages, the benefits for the environment, the opportunities to link businesses to smallholders and actions to support scaling up the investment are described.

Conservation agriculture in grains and horticulture crops

Conservation agriculture (CA) is a farming system that includes three core practices: 1) minimizing tillage and other soil disturbance, 2) maintaining permanent soil cover, and 3) diversifying crop rotations. By reducing soil disturbance and improving water and nutrient availability to crops, CA can increase yield, improve drought resistance, and reduce environmental impacts. Profitability often increases as a result of lower input and/or labour costs, combined with higher yields. CA can be used for a wide variety of grain and horticulture crops grown in the corridor including maize, sunflower, beans, peas, sorghum, and vegetables. It is readily adapted to both small- and large-scale farms. On large farms, specialised machinery such as tractor-driven direct-seeding planters are used, whereas simple hand- or animal-driven tools and machines are used by small-scale farmers. Although organic or inorganic fertilizers are usually needed to obtain maximum yields, CA is also an excellent strategy for increasing productivity when fertilizers are not available or affordable.

Worldwide, CA has been applied on more than 100 million hectares, and it has already been mainstreamed in diverse contexts, including for smallholder agriculture in Zambia and for large commercial grain farms in Brazil, Eastern Europe, and North America. CA systems are in use in the Southern Corridor, but not at a large scale. If applied at scale across the Southern Corridor, CA could yield hundreds of thousands of tons of additional grain output, while potentially reducing water use and increasing carbon storage in agricultural soils.

System of Rice Intensification

The System of Rice Intensification (SRI) is a method for increasing the productivity of irrigated rice by changing the management of plants, soil, water, and nutrients. Compared to conventional rice cultivation, SRI involves intermittent water application (as opposed to continuous flooding), lower plant densities with regular spacing,

Table 2-1. Opportunities and actions for scaling-up conservation agriculture

Business advantages	• Yields generally increase relative to conventional farming techniques. For instance, across a wide range of settings, yield increases for maize have typically been 20-120%, and often higher. • Reduced need for inputs and lower associated costs. • Labour requirements decrease and are spread more evenly throughout the year. • Less water use per unit of crop produced than conventional agriculture.
Benefits for environment	• Water-use efficiency is improved. • Soil carbon storage and fertility is increased • Erosion is reduced. • Water pollution is reduced.
Opportunities to link businesses to smallholders	• CA can be readily adapted to both small-scale farms with the use of simple hand- or animal-driven tools and machines are used by small-scale farmers. • An excellent strategy for increasing productivity when fertilizers are not available or affordable.
Actions to support scaling-up the investment	• For smallholder adoption, an extension program emphasizing participatory training approaches (e.g., through Farmer Field Schools). • Improve access to inputs including seeds (for rotation crops or cover crops), herbicides and fertilizers and CA machinery (to enable uptake by both small-scale and large commercial farms). • Existing programs to work with agro-dealers on input supply chains could be adapted to ensure that agro-dealers carry the seeds, herbicides, and equipment needed to implement CA. • Agricultural policy related to input subsidies, water, and other factors can shift the incentives for large-scale farmers to encourage the adoption of CA.

and reduced use of chemical fertilizers and pesticides. These practices improve soil structure and functioning, facilitate root growth, and ultimately produce more robust rice plants with higher grain yields. SRI can be applied either as an organic system or with judicious application of agrochemicals.

In 2009, Kilombero Plantations Ltd. (KPL) piloted an SRI program for smallholders in the communities surrounding their Mngeta farm, which provided improved seed and extension services. With support from KPL and USAID, the program expanded to 1,350 new farmers in 2012 and is projected to reach 4,000 total farmers through 2013. In Dodoma, SRI technologies are being implemented through the USAID-supported Nafaka program. Because SRI does not require major capital investment or even access to full-service input supply chains, it is ripe for scaling-up in most rice-growing regions of the Southern Corridor. However, farmers do need access to equitable rice value chains to enable them to benefit from surplus production that is likely to result from SRI adoption.

Sustainable intensification of beef production

Sustainable intensification of livestock includes the production of more meat of higher quality, with less total input of land and water resources. These outcomes can result from a variety of better grazing management practices, including restoration of degraded lands, appropriate stocking rates, improved livestock breeds, improved livestock health, supplementary feeding of grain or fodder crops at critical lifecycle stages, and efficient, humane and environmentally safe slaughter and processing facilities. Holistic range management is one approach to sustainable livestock production that has proven successful in parts of southern Africa. Based on the premise that cattle can be managed (through stocking rates and rotations) to mimic the behaviour of wild herbivores, this system of grazing management can help regenerate native vegetation, increase range productivity, and reverse desertification. In the

Table 2-2. Opportunities and actions for scaling-up System of Rice Intensification

Business advantages	• Compared to conventional cultivation, SRI produces higher yields, more net income, and greater labour productivity. • Unmilled rice usually gives 10-15% higher return of polished (milled) rice because of fewer unfilled grains (less chaff) and more whole grains (less breakage). • Reduced application of water (no flooding for irrigated rice), seed rates, and use of chemical fertilizers and pesticides. • Crops grown with SRI methods are generally more drought-resistant and resilient to storm damage because of better root systems and more robust canopies. • More resistant to pests and diseases • Asian countries have found SRI cultivation to be labour saving over the long-term, and usually women's labour burdens are reduced.
Benefits for environment	• Improved soil structure and functioning, root growth, and soil biodiversity. • Because irrigated rice is grown with a minimum of water or alternate wetting and drying, there is usually considerable savings of water, 30-50%, and much greater crop per drop. • Application of agrochemicals is reduced. • GHG emissions are reduced.
Opportunities to link businesses to smallholders	• SRI is well -suited for small-scale farmers, and these farmers have the potential to be easily incorporated into outgrower schemes
Actions to support scaling-up the investment	• Since SRI practices are usually different than traditional rice cultivation methods, investment in technical assistance is needed from the government and NGO programs for smallholders. • While SRI has been successful in rain-fed agriculture systems, SRI with irrigation can improve the regional average of about 2 tons/ha to 10 tons/ha, so investments in small-scale irrigation could be quite profitable. • Support the provision of credit for smallholders so that they can access the capital needed to purchase farm implements and improved varieties for SRI. • Develop markets for local rice varieties that can be popular with consumers in Tanzania and the region.

Southern Corridor, sustainable livestock intensification is feasible for beef, dairy, and small livestock in the context of large ranches, pastoralism, and smallholder mixed farming or silvopastoral systems.

There is already a precedent for holistic rangeland management in sub-Saharan Africa, with the Africa Centre for Holistic Management in Zimbabwe serving as the primary locus for demonstration and training on these principles. For example, the Centre has partnered with the nearby Wange Community¹ to address severe degradation of land and water by augmenting the herd size and planning a grazing rotation, increasing available forage substantially and restoring the natural water cycles. In another case the implementation of the Hifadhi Ardhi Shinyanga Soil Conversation Initiative (HASHI) in Tanzania brought back the traditional integrated trees-livestock system Ngitili, which intensified production and supplied fodder needed for the dry season while maintaining environmental health and rehabilitating degraded lands.

¹ Holistic Management of African Rangelands is available at: <http://www.achmonline.org/Resource/Holistic%20Management%20of%20African%20Rangelands.pdf>

Table 2-3. Opportunities and actions for scaling-up sustainable intensification of beef production

Business advantages	- Increased yield: Results from a decade of implementation of holistic grazing management on the African Centre for Holistic Management Farm in Zimbabwe include a doubling of meat yields, a fourfold increase in forage yields, a 66% increase in litter cover, a 12% increase in perennial grasses, the restoration of degraded lands, and renewed river flow from improved rainfall infiltration. - Improved meat quality: Investments in abattoirs and other modern processing equipment has the potential to increase production of higher quality meats for both domestic and export markets.
Benefits for environment	- Input use is more efficient. - The land's water holding capacity and water efficiency improves. - Deliberate management of the agroecosystem to increase biological productivity, soil health, and nutrient cycling.
Opportunities to link businesses to smallholders	- The National Ranching Company (NARCO) ranches create potential marketing hubs for small scale producers. - These nucleus ranches could also serve as centres for training and knowledge exchange for small scale producers.
Actions to support scaling-up the investment	- Investment in research and monitoring will be important to test and evaluate specific improved management practices. - This knowledge base can be used to support the dissemination of best practices and management options for livestock producers in different parts of the Corridor.

Currently, the Corridor contains four large, underperforming ranches owned by The National Ranching Company (NARCO). Total stocking on these ranches is about 16,000 head of cattle, but carrying capacity with proper range management, rotation, and animal management is up to 50,000 head for grass-fed production. NARCO owns a total of about 519,000 hectares of land, including eight ranches comprising 230,000 hectares and an additional 289,000 hectares subdivided. These ranches, where land titles are clear but ranch management is suboptimal, provide near-term opportunities for applying these principles of holistic grazing management to simultaneously maintain or enhance range conditions.

Precision agriculture in sugar, rice and maize production

Precision agriculture (PA) uses a suite of tools and technologies to optimize the application of agricultural inputs (e.g., water, fertilizer, and pesticide) to ensure good crop health, improve input use efficiency, and reduce waste and pollution. Farmers who apply precision agriculture conduct real-time monitoring of heterogeneity in water availability, nutrient availability, and pest problems across their fields to ensure that inputs are applied in the right place at the right time. PA usually refers to large farms using modern information technologies such as laser levelling for field preparation, Geographic Information System (GIS)-based yield monitoring and mapping, and Global Positioning System (GPS)-guided farm machinery, and has been widely adopted on large commercial farms with adequate capital to invest in the requisite machinery and technology. However, the basic principles of PA can be equally well applied using simple evaluation protocols (such as leaf colour charts) and technologies (such as drip irrigation) on small farms.

Research on outcomes of PA on Brazilian sugarcane farms are relevant to the Southern Corridor where sugarcane expansion is being targeted. Several studies have found that the use of PA on these sugar farms has been a key factor in enabling Brazilian sugarcane ethanol to be produced less expensively than ethanol derived from other feedstocks, such as corn or sugar beet in the United States and Europe. In Africa, Agricultura Cientifica S.A. is currently developing large-scale mechanized direct seeded rice projects utilizing GPS precision surveys, design,

Table 2-4. Opportunities and actions for scaling-up precision agriculture with sugar, rice and maize

Business advantages	• If the initial investment hurdle of acquiring PA machinery and technology can be overcome, PA can produce long-term dividends in terms of yield and profitability. • When it is applied on commercial farms that already have high yields, it does not tend to increase yield significantly, but it does reduce input use, thereby lowering farmer cost, boosting profitability. • When applied on smallholder farms using traditional practices, significant yield gains may be expected due to improved plant health and the elimination of key water and nutrient deficiencies, with more affordable levels of inputs.
Benefits for environment	• Water needs are lowered. • Agrochemical pollution and nutrient leaching is reduced. • GHG emissions are reduced. • Soil structure improves and mitigates erosion.
Opportunities to link businesses to smallholders	• Rice and sugar are well suited to nucleus-plus-outgrower operations to engage smallholders.
Actions to support scaling-up the investment	• Policies and incentives should be put in place to encourage the adoption of PA technologies which could include the easing of restrictions on import of machinery needed for sustainable production, charging appropriate user fees for water, and instituting AGG guidelines for resource- efficient agriculture. • The Catalytic Fund could help to finance acquisition of PA machinery and technology.

supervision and cultivation of rice fields in East, West, and Southern Africa. Syngenta and Yara and partnering with Sokoine University of Agriculture and the Norwegian University of Life Sciences are conducting field trials on maize and rice throughout the corridor. The objective of this R&D project is to develop a clear understanding of the interaction of agriculture with the environment, and to test if intensification of agriculture through improved agronomic protocols can be compatible with environmental sustainability and reduce greenhouse gas emissions – while also improving the productivity and profitability at farm level.

Rainwater harvesting for commercial crop production

In the Southern Corridor, the vast majority of crops are produced in rain-fed systems, and improved water management is widely acknowledged to be critical to the future of Tanzania's agriculture sector, particularly in light of projected changes in the climate. An estimated 70 per cent of rainfall is lost to surface runoff. SAGCOT and its partners will need to take concerted action to ensure that water supplies for agriculture remain available and reliable for the indefinite future to reduce risk for investors in water dependent crops such as sugarcane and rice, and to ensure adequate moisture during critical growing periods in other crop. Rainwater harvesting (RWH) provides a range of solutions for capturing, storing and redirecting this runoff for agriculture, livestock and domestic use. The most common methods of RWH include contour farming and ridging, the use of pits and bunds in various configurations, and positioning of fields to capture water sheeting off a hillside. These methods are supplemented with built storage units such as dams, pans or larger reservoirs, along with re-vegetation of forest, grasslands, crop field borders and riparian areas with poor vegetative and soil cover. There are abundant field manuals developed for African farming and land use systems, and with investment in local adaptation and training, RWH could be scaled up significantly in the corridor.

Table 2-5. Opportunities and actions for scaling-up rainwater harvesting for commercial production

Business advantages	RWH has been used successfully to improve yields in semi-arid watersheds in northern Tanzania. In the Makanya watershed, for instance, farmers implementing RWH had yield increases of more than 1 ton per hectare.
Benefits for environment	RWH provides a source of water that does not deplete aquifers, draw unsustainably from rivers, degrade wetlands or otherwise disrupt watersheds.
Opportunities to link businesses to smallholders	RWH provides mechanisms to engage smallholders in water-intensive production systems without their being linked to expensive and difficult to manage irrigation systems.
Potential for scaling	There is wide potential to implement RWH throughout the corridor in all agricultural systems.
Actions to support scaling-up the investment	Requires improved technical expertise at field and watershed level to support companies and smallholders to implement RWH practices. These efforts should be linked to watershed management plans.

Agroforestry and multicropping for soil fertility, fodder and income diversification

A variety of opportunities are available for large and small-scale producers to diversify their agricultural production for the purpose of improving the health of their land and developing new income streams. Leguminous plants specifically provide soil fertility benefits and could be utilized on a larger scale within multi-crop systems. In Tanzania, Zambia, and other African countries, farmers use the ‘evergreen agriculture’ system to combine conservation agriculture principles with the planting of the legume fertilizer tree *Faidherbia albida*. Interspersed with maize or other crops, these trees provide an abundant source of nitrogen, but do not compete for light because they drop their leaves in the rainy season. Pods of this tree are also an excellent dietary supplement for livestock.

Soybean, another legume, holds significant business potential for expanded production, input supply, storage, processing oil refining and feed manufacturing. Other leguminous species such as cowpea, pigeon pea, and *Gliricidia* may also be used in diverse agricultural systems to supply nitrogen to the soil as well as produce marketable products. In addition to legumes, other crops, particularly perennial fruit and nut trees, have the potential to simultaneously support on-farm fertility and income diversification. These perennials, along with some vegetables, can take advantage of recent changes in consumer diets. This diversification of production can also open opportunities for new processing industries.

Commercial biomass energy from agricultural waste

Rural communities in southern Tanzania need access to clean and reliable energy. Most of these communities are not connected to the electricity grid, nor are centralized sources of energy likely to become widely available in the near future, even under the ambitious SAGCOT goals. At present, nearly 90 per cent of Tanzania’s energy consumption comes from biomass,² largely firewood and charcoal, that drives deforestation. With anticipated price increases for fossil fuels over the next few decades, even transportable fuels such as diesel and kerosene will become increasingly costly. It is likely, therefore, that biomass will continue to play a critical role in energy provision in

2 Mashauri Adam Kusekwa (2013). Biomass Conversion to Energy in Tanzania: A Critique, New Developments in Renewable Energy, Prof. Hasan Arman (Ed.), ISBN: 978-953-51-1040-8, InTech, DOI: 10.5772/52956. Available from: <http://www.intechopen.com/books/new-developments-in-renewable-energy/biomass-conversion-to-energy-in-tanzania-a-critique>

Table 2-6. Opportunities and actions for scaling-up agroforestry and multicropping

Business advantages	• Reduced expenditures for farm inputs (nutrients, building poles, fodder, etc.). • Yield increases in low-input cropping systems using fertilizer trees or nitrogen-rich cover crops. • Increased farm income where trees are intercropped or on field boundaries, without reducing main crop yield (where tree species and management properly selected) and when high value horticulture crops part of system. • Reduced risk through farm diversification and improved moisture retention in soils during dry periods.
Benefits for environment	• Reduced level of fertilizer required for associated crops. • Carbon sequestered and stored in above- and below-ground vegetation. • Soil structure improves and vegetative cover mitigates erosion. • Habitat niches and networks improved for some wildlife. • Micro-climate moderated.
Opportunities to link businesses to smallholders	• Smallholder agroforestry producers can provide a reliable long-term supply of commercial tree products (e.g., building poles, bamboo, fruits) for processing and trading companies. • Smallholder-operated commercial tree nurseries can propagate and sell preferred species to local farmers and to land rehabilitation/reforestation initiatives.
Actions to support scaling-up the investment	• Improve quality of germplasm for tree nurseries and seed. • Support existing successful community tree nursery programs to expand. • Incorporate agroforestry establishment, management, quality control and marketing into AGG extension programs. • Support value chain development for selected products with high wholesale or retail demand.

Tanzania. However, there is also considerable potential to utilize biomass in a more efficient, environmentally sustainable, and commercially viable manner.

Agricultural residues, such as those resulting from harvesting or processing of maize, sorghum, rice, sugar, and coconut, can serve as possible sources of biomass feedstock in the SAGCOT region. These residues can be an inexpensive source of energy for smallholders or a business opportunity for scaling up electricity production. Additionally, the production and distribution of the bioenergy feedstocks themselves can be a business in its own right in the Southern Corridor. As an alternative to exploiting forests or fuels with large carbon footprints, these alternative bioenergy sources also present a more environmentally sustainable option for energy production. A variety of processes are available to take advantage of the biomass energy resources in Tanzania, and differ in the types of feedstock they can use, the efficiency of converting raw material to energy, and the scale at which they are most feasible.

Anaerobic digestion is one option that is particularly well-suited for small scale energy production. Biogas, produced in a biodigester through the decomposition of a variety of organic wastes, especially those with high moisture content such as manure or vegetable waste, has the potential to be a very important off-grid fuel for the Southern Corridor. It is fully scalable from household to industrial applications and has the potential to result in net GHG emissions reductions. Moreover, the by-product of digestion can be used a fertilizer, recycled back into the farm system. Other methods for capturing energy stored in biomass also present more efficient and sustainable options than the current use of forest fuel sources. Gasification is a process for biomass conversion, which is both flexible in terms of feedstocks and appropriate for scaling up, producing gases to be used in combustion engines or

converted to methanol. Co-generation technology is also establishing itself, producing two products from biomass, such as heat and electricity.

Scaling up of bioenergy is already happening in Tanzania. In terms of business potential, agribusiness producers, agro-processors and smallholders can use biogas to reduce their energy costs and to expand their on-farm energy production capacity. There are already many businesses in the Southern Corridor involved in biogas production at the farm and household levels. In addition, companies that build and distribute biogas systems are becoming interested in conducting or scaling-up business in the Corridor. For example, Simgas is a company producing small-scale biodigesters that are mass-produced in Tanzania which would replace 2000 kg of firewood per digester. Another model, a franchise package known as the EBI Utility Station (EBUS), developed by Emergence BioEnergy, Inc. (an international company not currently operating in Tanzania), provides reliable energy to rural consumers. The EBUS uses cow manure to produce energy in a micro-combined-heat-and-power (micro-CHP) unit, and is available for both individual and village scales.

More generally there is movement on biomass energy provision at scale. The state-owned utility TANESCO, which is responsible for the central electricity grid, has utilized several biomass energy production processes. It has also established contracts with power plants to purchase electricity produced from biomass, facilitating the development of rural grid extensions and independent 'mini-grids' that can utilize biomass and will serve much of the population currently without electricity. For example, Ngombeni Power is contracting with TANESCO and using the process of gasification with an agricultural residue, coconut husks, to generate electricity. Similarly, Sao Hill Sawmills use forest waste to generate electricity and steam for drying timber through co-generation. But their wood residues are also used by Mufindi Paper Mills Ltd. in a bio-fuel fired power plant that provides electricity for the mill. Mufindi plans to increase the capacity for generating electricity from biomass to export to the grid, selling energy back to TANESCO. Much of the support for these efforts to build Tanzania's renewable energy portfolio is through the Climate Investment Funds' Scaling up Renewable Energy Programme (SREP) and the Tanzania

Table 2-7. Opportunities and actions for scaling-up commercial biomass energy

Business advantages	• There is high demand for rural energy. • Can produce energy from cheap, variable local materials that can be stored until needed. • There are substantial savings in cash and labour due to reduced need for firewood and charcoal.
Benefits for environment	• Biogas can reduce deforestation by acting as a substitute for firewood and charcoal • GHG emissions are reduced • If 200,000-300,000 rural households were to acquire a Simgas system, the harvest of 25 million tons of wood (the equivalent of about 675,000 hectares of standing forest) would be prevented and carbon emissions by reduced by about 30 million tons of CO₂-equivalent.
Opportunities to link businesses to smallholders	• Smallholders are customers and can benefit through access to small-scale bio-digesters, as well as biomass 'mini-grids.'
Actions to support scaling-up the investment	• Finance is a significant constraint for uptake, but could be provided by initiatives such as the UN's "Sustainable Energy for All" or USAID's "Powering Agriculture". The World Bank and Swedish International Development Cooperation Agency (SIDA) are also providing considerable financial resources to support access and scaling up of renewable energy in Tanzania.

Energy Development and Access Expansion Project (TEDAP). This state of policy, institution and infrastructure development presents an ideal opening for additional private investment.

Scaling-up available eco-certification opportunities

Many farmers and food processors in the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) adhere to high standards for food product quality, environmental management, and social benefit. But in order to benefit financially in agricultural markets from these practices, producers and processors need a way to distinguish their superior products in the marketplace. Markets for eco-certified products can help them do this by linking buyers who seek a steady supply of high-quality products with producers who are able to meet this demand by complying with specific production and processing standards. Increasingly, markets for agricultural goods are differentiating raw commodities and consumer products based on the way in which these goods are produced. The trend toward sustainability certification and standards began with high value export crops such as coffee and tea, but is rapidly expanding to include commodities such as sugar, soy, cattle, and various biofuel feedstocks. While these systems remain most important for export to developed countries, opportunities in developing country domestic markets and south-south trade are now expanding.

In addition to opening up new market opportunities to attain higher prices and preferred market access, adherence to sustainability criteria and agricultural best management practices is often worthwhile in its own right, by assisting producers in reducing waste and increasing efficiency and productivity.

Table 2-8. Opportunities and actions for scaling-up available eco-certification opportunities

Business advantages	• Provides opportunities to receive a price premium for their products. • Increased access to foreign markets or niche markets. • More stable or guaranteed demand for their products. • For large-scale producers and associations of small-scale producers, participation in certification programs can provide the opportunity to access shorter value-chains, resulting in a greater percentage of product revenues being received by producers.
Benefits for environment	• To achieve certification, producers may have to adopt practices that use inputs more efficiently; improve soil fertility, water supply, flood control and on-farm biodiversity; and are more resilient to drought and climate change.
Opportunities to link businesses to smallholders	• Eco-certification can be challenging for small-scale producers, as it often requires upfront investment. By financing the training of small-holders to achieve certification, larger aggregators can more readily meet market demand for these certified products.
Potential for scaling	• Packers and processors are reportedly requesting greater organic production from producers. Given global demand trends relative to existing sector development, there is significant potential for increased organic sector development throughout SAGCOT.
Actions to support scaling-up the investment	• National and regional coordinating entities can be helpful for developing harmonized local interpretations of various international standards. For instance, TanCert serves as an intermediary between Tanzania's organic producers and international standard-setters. • For smallholders, extension support for meeting the specifications of particular certification standards will require additional investment or specialized training for extension workers. • New processing facilities for highly perishable or fragile produce that cannot be transported raw will need to be developed.

Voluntary agricultural eco-standards have grown substantially in Tanzania in the past decade, and producers are using this opportunity to differentiate their products by adhering to standards such as organic and Rainforest Alliance. For example, TanCert was established in 2003 as a national certification body for organics, and now in Tanzania there are nearly 90,000 certified organic producers, managing about 62,000 hectares, or 0.2 per cent of the country's agricultural land. Organic production in Tanzania increased more than five-fold from 2001 to 2009. The Corridor has more than 35,000 hectares of high-value horticulture, coffee, tea, cocoa, and other crops currently under organic production, engaging more than 41,000 farmers, mostly through outgrower schemes. Yet, the sector remains relatively small compared to neighbouring countries. However, there are only two organic food processors in the country: Dubaga in Iringa and Chemi in Dar es Salaam.

The largest organic value chains are for cocoa, cashews, vanilla, tea, and coffee, and the domestic organic value chains are focused on fresh fruits and juice, vegetables, tea, and instant coffee. Rainforest Alliance (RA) provides a framework for eco-certification that allows estates and smallholders to access better markets for their products. In the corridor, more than 50,000 smallholders are certified in coffee, tea and cocoa. One particularly successful case of RA certification in the corridor is the Unilever tea estates located in the Eastern Arc Mountains. Commitments have been made to scale up these RA certification efforts significantly.

Sustainable commercial and community forestry

Planned agricultural and infrastructure investments and income growth will further accelerate a growing commercial demand for forest products in the SAGCOT region. A recent study on Tanzania estimated the annual value of the charcoal business to be US\$650 million and growing³ while the timber value has surpassed US\$700 million.⁴ This demand could either threaten the region's rich forest resources, as is the case today, or become a positive driver of economic growth and poverty reduction. The future trajectory will hinge on whether commercial and community forestry enterprises can be scaled up.

Fortunately, in Tanzania the policy environment for private investment in plantation forestry has improved and has led to the decentralization of control over forest resources. The National Forest Policy approved in 1998 and the Forest Act of 2002 have strengthened the role of the private sector and Community-Based Forest initiatives in the management of forests. While the policy allows for the potential for a scaling up of sustainable private community-led forestry, a lack of investment, market information, infrastructure, and access to modern technologies and tools is hindering the industry's development.⁵ Therefore, there is considerable opportunity for investment, particularly for operations to work with small-scale foresters, and to develop processing facilities.

Pilot investments can help to identify effective business arrangements and provide start-up financing for innovative ideas. Increased investment in technology and market development will improve efficiency and profitability. For example, the Gatsby Foundation⁶ has partnered with the Tanzania Forestry Research Institute (TAFORI), in addition to other partners in Kenya and Uganda, to develop private small-scale tree nurseries, and to support research on tree biotechnology, training, and market development.

Opportunities for Tanzania-based processing are also growing. Small-scale foresters would value collaboration with socially and environmentally responsible forest product companies to improve commercial quality and business management. Sao Hill Industries in southern Tanzania is an example of a company with forest plantations and a processing facility striving to align with sustainable operating practices. A subsidiary of the forest product and

3 http://www-wds.worldbank.org/external/default/WDSPContentServer/WDSP/IB/2012/11/01/000356161_20121101023544/Rendered/PDF/730260REPLACEMENT0Plan06014012web.pdf

4 <http://www.fao.org/forestry/33812-0a6dfa76c5928641d46b18f74b3be5596.pdf>

5 Ngaga, Y.M. 2011. Forest Plantations and Woodlots in Tanzania. Nairobi: African Forest Forum.

6 <http://www.gatsby.org.uk/Africa/Projects/East-African-Forestry-Sector.aspx>

Table 2-9. Opportunities and actions for scaling-up sustainable commercial and community forestry

Business advantages	Improved forest yields in short and long-term.
Benefits for environment	Reduced deforestation and associated environmental benefits such as watershed and biodiversity conservation.
Opportunities to link businesses to smallholders	Forest and tree crop industry companies and investors could partner with farmer and community forest organizations as outgrowers, contract producers, or joint investors.
Actions to support scaling-up the investment	- SAGCOT can enable coordinated investment in crops, livestock and forest resources, by promoting extension systems, credit, enterprise training, etc. that include the full range of land-based commercial enterprises in the Corridor. - Government and civil society actors could help to facilitate business partnerships between companies/investors and farmer and community forest organizations.

carbon offset company Green Resources Ltd., Sao Hill mill is also utilizing co-generation (see section on biomass energy) to power its facility and is exploring methods (including short rotation community forestry) to sequester more carbon on their lands.

Opportunities to be developed

In addition to the aforementioned investable opportunities, other markets are in earlier stages of development and require additional exploration and investment. These areas, summarized in this section, include drought resistant crops, multi-cropping and agroforestry for fertility and income diversification, commercial bio-inputs, off-grid solar energy, new eco-certification schemes and payments for ecosystem services. Additionally, all of the products produced using AGG methods will need to be supported through well-managed postharvest value chains in order for them to compete effectively in the short-term with less sustainable systems.

Commercial production of drought-resistant crops

Climate change in the Southern Corridor will have a significant impact on how agriculture is practiced in the future and what investments are made. As crops and cropping systems change, new processing facilities and access to quality seeds and other inputs will be necessary to support production. Sunflower is perhaps the most promising crop for regions already affected by climate change. It could serve as a source of oil, and its residues could be used for fuel and fodder. The Southern Highlands Agricultural Development Company Limited (SHADECO Ltd.) is a sunflower processing company in Iringa that specializes in sunflower oil and produces sunflower seedcake as a by-product that is beginning to enter this market. By offering value adding services, the company also supports outgrower smallholders who are shifting to sunflower because of climate change. Companies can also create innovative ways to process and market crops, such as SAB Miller, which uses locally sourced cassava to brew its Impala beer in Mozambique. Sesame (simsim) and sorghum are other alternatives in places where maize is no longer viable.

Commercial bio-inputs

Opportunities are likely to grow for small and medium size enterprises in Tanzania to form and partner with companies in India, Brazil and elsewhere that are advancing technologies for the manufacture of bio-inputs for nutrient management, bio-pesticides, bio-herbicides and bio-fungicides principally from agricultural wastes. Experience with some of these products in India indicates that smallholder farmers can save 20 per cent on the cost of inputs over agro-chemical products while increasing yields by 20 per cent and improving soil quality.

Companies that are developing and producing agricultural bio-inputs from agricultural wastes, especially from the sugar industry, are gaining experience with selling to farmers in Uganda, Zambia, and elsewhere in Africa with a view to expansion through partnerships with local enterprises. Biochar, a type of charcoal that is used as a soil amendment to increase soil fertility is now being investigated by scientists to understand the role it can play in supporting sustainable agriculture and carbon sequestration. It increases plant nutrient availability in low-fertility soil, and is considered a promising amendment option for nutrient-depleted soils found throughout much of sub-Saharan Africa. Pyrolysis, the process used to make biochar from wood, results in additional energy products, such as bio-oil and syngas.

Off-grid solar energy

Solar energy could be developed for use in agriculture as well as other rural economic activities. The power generated on Tanzania's central grid is relatively minimal, unreliable, and often does not reach rural communities. Only 10 per cent of the country's population, and 2 per cent of rural households, have access to electricity from the national power company.⁷ Moreover, the expansion of a national grid will likely progress too slowly to meet rapidly growing energy needs during the development of the corridor. Right now, the majority of energy is produced using biomass.

But Tanzania has significant potential for solar energy conversion, adequate for small-scale use photovoltaic technologies.⁸ The Government of Tanzania has an Energy Policy in place, which identifies personal solar home and business systems as key contributors to rural electrification. A World Bank funded project, the Tanzania Energy Development and Access Project (TEDAP), is focused on providing renewable energy to rural enterprises and facilities that can distribute electricity to households (i.e. establishment of "mini-grids"), providing grants and other financial and technical assistance to establish off-grid solar power systems (among other energy technologies). In addition, a project being implemented by Camco,⁹ through the Rural Energy Agency, is attempting to reduce the costs of establishing off-grid solar power and engaging the private sector in the solar photovoltaics market. This project has already benefited tea, coffee, and cashew farmers in Southern Tanzania, through subsidies and initial assistance for home panels. Given solar power's potential, the recent expansion of solar home systems, and the limitations of the current central grid, there could be substantial business opportunities for sales, installation, and services related to solar energy.

Pursuing new opportunities for eco-certification and standards

New opportunities are emerging to engage with additional eco-standards and sustainability criteria as they are developed, scaled-up or mainstreamed into sourcing policies for major agribusiness companies. These include:

- additional certification systems
- agricultural product standards imposed by importing countries for internationally traded goods
- requirements of regional or national exporting bodies
- private company standards, such as sourcing guidelines of international food companies
- commodity-specific standards, such as Bonsucro for sugar and the Roundtable for Sustainable Soy.

Standards that are currently successful in the corridor could be expanded into other products. For example, existing certification bodies such as TANCERT could work with buyers, large-scale farmers and smallholders to

7 Bakanga, G. E. 2011. Diffusion Policies for Solar Photovoltaic Application in Tanzania. Dar es Salaam: Government of Tanzania. http://www.academia.edu/1138330/DIFFUSION_POLICIES_FOR_SOLAR_PHOTOVOLTAIC_APPLICATION_IN_TANZANIA

8 Hammer, L. 2011. Distribution of Wind and Solar Energy Resources in Tanzania and Mozambique. Gothenburg: Chalmers University of Technology. http://publications.lib.chalmers.se/records/fulltext/local_150046.pdf

9 Camco Clean Energy. 2013. Solar Electricity in Tanzania. <http://www.camcocleanenergy.com/1287653543176.html>

develop best management practices for rice to be applied as a standard within SAGCOT. Beyond organic and Rainforest Alliance certification, other standards such as GlobalGAP can give producers access to high-value international markets. Parts of the corridor are very suitable for horticultural crops such as tomato, cabbage, onion and carrot, and in cases where producers cannot meet organic production standards for these, GlobalGAP Standards could increase both revenues and yields. For instance, in one case, GlobalGAP-certified producers of baby corn, green beans, and peas increased yields 10-32 per cent while increasing per-kg revenues by 10-24 per cent relative to un-certified producers. Certification systems can also be applied to whole landscapes through a landscape labelling scheme. A landscape label could bring together producers, conservation organizations and investors to develop this marketing incentive for landscape scale planning. Finally, agro-processing systems can also be certified as companies begin to 'green' the postharvest supply chain through more efficient use of water and energy, improved waste management and even sustainable packaging.

Payments for ecosystem services

If land managers are able to improve the value and provision of certain ecosystem services on their land, with the proper market access and policy context, they may have the opportunity to receive compensation from the beneficiaries of these ecosystem services, such as water users and nature conservation organizations. These schemes, often referred to as Payments for Ecosystem Services (PES), have most commonly been applied to four services: 1) maintaining clean water, 2) ensuring regular and abundant flow of water, 3) sequestering carbon in soils or plants or avoiding deforestation, and 4) conserving plant and animal species, or the habitats they use. The opportunities for companies in Tanzania at this point tend to be as the buyer rather than the seller in these transactions. Companies can benefit from PES as a mechanism to secure the flow of ecosystem services required for their operations and also to enhance their reputation. For example a watershed PES scheme in the Southern Corridor is taking place in the Uluguru Mountains in which farmers are compensated to plant trees, install terraces, and conduct other practices to reduce siltation into a tributary supplying water to Dar es Salaam. Also, a major rice estate KPL (Kilombero Plantations, Ltd.) has enlisted a Tanzanian NGO to assist upstream communities in more effectively managing forests, both for income generation and for ensuring clean, abundant supplies of irrigation water.

The most immediate opportunities for businesses to sell ecosystem services could emerge in carbon credit projects for avoided deforestation (REDD+), in mitigation schemes for wetlands and biodiversity, and for tourism.

REDD+

Tanzania is a participant in the REDD Readiness processes supported by UN and World Bank agencies, and Norway has committed \$100 million to developing REDD opportunities in Tanzania. In the Southern Corridor, a series of REDD+ pilot projects are currently being implemented to provide rural communities with payment for carbon credits generated by reducing deforestation and more effectively managing community forests. Currently, opportunities for companies to develop these projects are underway in the Southern Corridor, but they are relatively modest. Most REDD+ activity is confined to voluntary markets which are very small compared to regulatory carbon market opportunities. If international carbon market institutions that include land-based carbon credits were to strengthen, this could change.

Protection of wetland and biodiversity as part of a PES scheme

In areas where companies control land which host wetlands with high ecosystem services values or important habitat for biodiversity, they may have opportunities to receive compensation for the management of these ecological assets. Currently, few mechanisms exist through offset or mitigation/biodiversity banking mechanisms to incentivize the preservation or enhancement of these ecosystem services, the conditions could develop to create the institutions required to support these transactions. Buyers could include conservation NGOs, tourism interests, the Tanzanian government, international donors or other companies with a business

interest in the protection of ecosystem services (e.g. beverage bottling company). As these markets develop, there will also be opportunities for ecosystem service management and consulting firms to provide the technical services companies will need in order to take advantage of these new markets.

Agro-ecotourism

Tourism could be another mechanism for companies to monetize ecosystem services. In the Southern Corridor, there are areas in which important biodiversity hotspots are being managed across the road from large farms. Farms that develop highly 'eco-friendly' operations may attract tourists who may be interested in adding a farm tour to their visit to one of the acclaimed Protected Areas, stay in farm lodgings and purchase food produced from them.



3. Business engagement with smallholders for AGG

In Tanzania more than 80 per cent of the population is dependent on agriculture.¹ Even with SAGCOT's projected investment, in 2030, a large proportion of the land will still be controlled and managed by smallholders and their communities, who will be facing increased land pressure and challenges of climate change, growing water scarcity, and other shocks. Tanzania has a strong history and legal framework for empowering grassroots sustainable development initiatives in the agriculture and livestock sectors, and the Southern Corridor has a dense network of farmers groups, credit cooperatives, and other local associations. A tradition of community-based management seeks to empower and incentivize local management of forest resources for conservation and income generation. However, these groups have limited experience developing partnerships with medium and large-scale commercial companies. SAGCOT is committing to support smallholder producer associations by helping them to negotiate equitable relationships with commercial businesses. While the public and civil society sectors must play a central role in strengthening those capacities (see below), agricultural businesses will need to develop capacities in this area, and secure advisory services and business managers for these relationships.

Partnering with smallholders in production

In Tanzania, international and national companies are already pursuing business opportunities in partnership with smallholders. These companies recognize that the success of commercial agricultural enterprises will, in many cases, hinge on their ability to develop these mutually beneficial business relationships. Moreover, large investments have the potential to significantly disrupt the livelihoods of smallholders by crowding out market opportunities or exacerbating land and water conflicts. Companies need to develop business plans that address these risks. There are a variety of models for engaging with farmer and community groups, including:

- The nucleus farm hub and outgrower model (described in the Blueprint), which provides smallholders access to markets and finance, but also to reduced input costs, agricultural production infrastructure such as irrigation, and value chain infrastructure for processing and storage.
- Farm or forest blocks where groups of co-located smallholders work together with a single contractor who manages the land while individual farmers maintain ownership of their land and a proportional share of the block's revenue. In these systems, inputs and infrastructure such as irrigation can be provided more efficiently than if each farm was operating independently.
- Long-term leasing of agricultural or forest lands from villages, with varying levels of involvement in production and often involving some continued access or use rights for the community (e.g., for collecting fuelwood or accessing water).
- Investment partnership with local businesses, with the company bringing investment resources, business management expertise and market links (including support to achieve certified producer status); and local enterprises bringing access to resources, established businesses and local contacts.
- Agreements in which growers are responsible for their own production, with companies' assurance or guarantee that they will purchase products that meet their standards; growers' organizations may facilitate aggregation for marketing and processing.

There is considerable experience with diverse business-smallholder partnership models in agricultural value chains in Africa, and a number of NGOs have specialized expertise in brokering and supporting such arrangements. Some

¹ <http://www.sadc.int/fanr/agricresearch/icart/inforesources/situationanalysis/TanzaniaSitAnalysisFinalRpt.pdf>

principles for success identified by IIED² include mutual respect for partners' legitimate aims; fair negotiation where partners can make informed and free decisions; an opening to learning for all stakeholders; realistic prospects of mutual profits; commitment over a long period; equitable shared risks, clearly spelled out; partner access to accurate, in-depth and independent information; contingency scenarios explored; relationships based on sound business principles (not exploitative nor public relations exercises); and contribution to broader community development strategies and programs.

Benefits for other businesses from a dynamic smallholder sector

Many other types of business can benefit financially from a dynamic smallholder sector, justifying new business partnerships and collaborative support for public investment in smallholder AGG. Such partnerships (including with urban businesses) have been popular for farmer Landcare programs in Australia and in Korea and Japan. Consumer goods companies benefit from income growth among smallholders, which has very high multiplier effects for the economy as a whole. A high proportion of new income is spent on consumer goods; in particular, demand continues to grow for higher-value and processed purchased food, along with forest products for home improvements and furniture, and today electronics and other goods.

Other business sectors with a strong economic interest in smallholder AGG are agricultural input suppliers, packaging for commercial sales, and equipment manufacturers for innovative systems, including rainwater harvesting, small-scale irrigation, conservation tillage, small-scale biomass, solar and wind energy equipment, refrigeration and composters.

2 Mayers, J. and S. Vermeulen. 2002. Company-community Forestry Partnerships: From Raw Deals to Mutual Gains? London: International Institute for Environment and Development (IIED). <http://pubs.iied.org/pdfs/9132IIED.pdf>



4. Promoting AGG business development: Strategic roles for government and civil society

The SAGCOT Centre, along with its partners, is working to attract private sector investment in the Southern Corridor that is both beneficial to the people of Tanzania and ecologically sustainable. Government and civil society will play a central role in the facilitation and guidance of these investments. In particular, they will promote opportunities for investors, make land available to companies, facilitate access to financing, avoid harmful investment, support water management for agriculture and commit to other supportive investments in AGG such as agricultural research and extension and the implementation of conservation plans.

These objectives will be built in part on the current foundation of Tanzanian public policy supporting social and environmental development. At the highest level this policy is guided by the National Strategy for Growth and Reduction of Poverty (MKUKUTA) which advocates a strong focus on sustainable natural resource management and inter-sectoral coordination to achieve broad-based, lasting growth. The relevant Tanzanian policies are reviewed in depth in the Greenprint and the World Bank's SRESA.¹

Establish goals and guidelines for AGG investment

If SAGCOT is to achieve 'business as unusual' and a transformational development strategy, its key stakeholders must deepen the ongoing dialogue to reveal and seek to reconcile the diverse perspectives around Agriculture Green Growth. One focus for these discussions is the goals and guidelines for AGG investment. Guidelines serve as an outward-facing statement that the Southern Corridor is a place that attracts innovators and best-in-class businesses to invest in agriculture and ecosystems. With such guidelines in place, SAGCOT will be known as an initiative that encourages companies to apply Green Growth principles and work towards positive outcome targets. For companies, abiding by national or international investment guidelines will not only provide a 'right to operate', but will also demonstrate their commitment towards the larger mission of AGG within SAGCOT. This will be the responsibility they take on in exchange for the public and philanthropic resources from which they will benefit by operating in partnership with SAGCOT.

Guidelines will include the environmental and social safeguards already embedded in national laws and regulations and through the relevant policies of the SAGCOT Environmental and Social Management Framework (ESMF).² The Catalytic Fund will require relevant recipients to conduct Environmental Impact Assessments (EIA) with approval from the National Environmental Management Council (NEMC). In addition to the applications of these policies, SAGCOT might also consider an additional framework to ensure investments meet AGG objectives. One approach is to define three categories of investment for the Corridor: investments that are clearly environmentally and socially harmful and thus not permitted (if international) or seriously regulated (if national); mainstream investments that meet minimum standards and are accountable for minimizing any negative impacts on the environment and nearby communities; and 'Green Star' investments that have major positive social and environmental, as well as economic, benefits. These standards would be harmonized with existing law and policy and would be developed and managed by a diverse group of SAGCOT stakeholders.

1 ERM. 2013. Southern Agricultural Growth Corridor of Tanzania (SAGCOT): Strategic Regional Environmental and Social Assessment – Revised Draft Final Report. http://www.sagcot.com/uploads/media/Interim_Report_-_SAGCOT_SRE-SA_Final_12_02.pdf

2 Tanzania. 2005. Tanzania - Agricultural Development Program Project : environmental and social management framework. S. I. : Government. <http://documents.worldbank.org/curated/en/2005/08/6231087/tanzania-agricultural-development-program-project-environmental-social-management-framework>

Minimal standards

Concerns about severe environmental degradation, uncontrolled land-clearing, ‘land grabs’ of resources held under traditional tenure regimes, and serious labour exploitation in some agricultural enterprises has led to growing interest around the world in setting ‘minimum standards’ for investment. International lending institutions increasingly apply sustainability screening criteria in their lending processes. Therefore, some investors may already be motivated to fulfil criteria related to social and environmental performance. For example, in The Equator Principles initiative international banks voluntarily commit to not invest in tropical deforestation.

AGG Investment Guidelines for SAGCOT would encompass current national policy and regulations as well as issues highlighted in the Strategic Regional Environmental and Social Assessment (SRESA) process commissioned by the World Bank. Many of the topics identified in the Assessment relate to equitable land access and community impacts, such as best practices related to free, prior and informed consent and resettlement. The guidelines could also be informed by the international Principles for Responsible Agricultural investment that Respects Rights, Livelihoods and Resources (PRAI), and FAO’s recently agreed upon Voluntary Guidelines on Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security. They could also follow the “Guidelines on Responsible Agricultural Investment” that are currently being negotiated in the Committee on World Food Security, expected to be ready by 2015. The International Finance Corporation (IFC) has also developed substantial guidance material on sustainability for agri-business that could be used as a resource.

For SAGCOT, a set of ‘do no harm’ baseline investment criteria would serve as minimum standards that would need to be met in order for any projects within the corridor to move forward. To a large extent these minimum standards are already required through the aforementioned national and international policies and guidelines. To meet the ‘do no harm’ criteria, investments would demonstrate that they will not have significant negative impacts on ecosystems or communities and are consistent with village land use plans. However, the enterprises in this category would not be providing substantial improvements. Box 1 provides an illustrative list of potential Minimum Standards for Investments.

Box 4-1. Minimum standards for major SAGCOT agricultural investments (illustrative)

1. Free, prior and informed consent for land leasing from communities;
2. An environmental and social assessment of potential impacts on water supply, water pollution, wildlife habitat and movement, deforestation and indirect effects of any displacement of existing resource users;
3. Compliance with minimum environmental regulations;
4. A sustainable intensification plan indicating the types of practices that will be adopted to achieve a
5. minimum level of water use efficiency, minimize erosion, sustain soil health and fertility, protect high-value conservation areas, minimize water pollution and reduce greenhouse gas emissions; and
6. A plan for mitigation and/or compensation for major impacts identified through the assessment process.

‘Green Star’ AGG Businesses

SAGCOT could develop voluntary Guidelines for companies seeking to be awarded ‘Green Star’ status who support ‘green growth’ by not only contributing to production and economic development, but also to positive social and environmental outcomes. Companies meeting (or making major strides towards) the ‘Green Star’ standards would gain the benefits of market access and media exposure. They might also be eligible for additional benefits such as preferential financing and accelerated administrative processes. The specific elements for this standard, and easy-to-use metrics, would require further dialogue. Awarding the ‘Green Star’ could also reinforce SAGCOT’s image as an AGG supporter. An illustrative set of guidelines is shown in Box 2.

Box 4-2. 'Green Star' SAGCOT AGG investments (illustrative)

1. Compliance with minimum standards (e.g., Box 1);
2. Major business involvement of smallholder farmers (in a number proportional to the size of the enterprise) through mechanisms such as outgrower schemes, extension services, access to reliable input supplies, guaranteed product markets, or payments for ecosystem services;
3. A community benefit-sharing plan that includes sharing of future revenue streams and supports gender equity, whether through an equity stake or another mechanism;
4. Investment and management activities that improve or restore land and water resources, increase the flow of ecosystem services, and/or reduce or sequester total greenhouse gas emissions; and
5. Active collaboration with other stakeholders to address environmental challenges and social and economic opportunities in the landscape

In addition to efforts from the companies themselves to meet these guidelines, and government regulatory bodies to ensure minimum standards, civil society can play a valuable role through responsible, independent monitoring. International initiatives such as ForestWatch and local community water monitoring can play a role through real-time tracking.

Attract AGG companies through the SAGCOT Investment Partnership Program

To attract investment of the desired quality, the public sector in Tanzania will need to create a clear and predictable procedural roadmap for investment and address key policy and administrative areas. The SAGCOT Centre in collaboration with the GoT is already pursuing these goals through its SAGCOT Investment Partnership Program, which is focusing initially on cereals, sugar, livestock, power, and transport as priority sectors. This program is being implemented through investor outreach by representatives of the SAGCOT Centre and GoT together with their consultants. To move forward, the program could organize 'road shows' actively seeking out the best-in-class companies with experience, capacity and corporate commitment to implementing AGG projects. Once these companies are identified, SAGCOT could work with them to figure out what it could do to make investment attractive and to streamline the investment process for them.

Strengthen frameworks for land use and land access

One of the most challenging areas for AGG is land and water governance. Stakeholders need to find ways to negotiate and balance the many different values that these resources provide for food, fibre, fodder and forest production; for wildlife and tourism; for household, industrial and agricultural users of water; for biodiversity and long-term ecosystem health. Clarifying systems of resource rights, improving land use planning and opening space for creative local solutions could spur investment and streamline processes by which investors can engage with local communities.

Village, regional and landscape planning

Harmonizing future village level and regional land-use planning with investment strategies and infrastructure plans by the central government will be an important step towards making land available. For landscapes with high ecosystem values, such as watersheds being managed to support irrigation or areas managed as wildlife corridors, these landscape management plans will need to be synced with the village and regional land-use planning processes. This coordination will need to happen across ministries and government agencies. The Rufiji Basin Development Authority (RUBADA) coordinates the multi-sectoral development of water resources in the Rufiji Basin. RUBADA and related institutions will need to ensure that sufficient coordination guides land use planning, including designation of high conservation value 'no-go' areas for agricultural investment or 'sensitive' areas where only eco-certified production or AGG management practices are permitted.

The development and enforcement of public conservation plans, particularly for the most ecologically sensitive areas of the corridor, will need to continue. For Protected Areas to be well-managed in areas where companies are operating, companies and government and civil society land managers need to share technical expertise to ensure privately operations manage their land to support ecosystem services.

These government and civil society actors could support landscape-wide management by facilitating collaborative planning and action platforms for the private sector to join. Examples of such platforms are already operating in Tanzania, in the Maasai Heartland, Mbeya and other landscapes, using diverse institutional models. Cross visits, videos and other methods can accelerate knowledge-sharing about AGG solutions.

Access to land for private investment

Access to land for production has been a significant bottleneck for private sector investment in the Southern Corridor. At present, 60 per cent of all land in the Corridor is classified as village land, 2 per cent general land and the rest is held aside for wildlife and water conservation. New village and district planning processes and a functioning land bank will ensure a predictable, efficient process for acquiring suitable land for agricultural investment and maintaining clear, enforceable rights and obligations. SAGCOT will work with other Tanzanian institutions such as the Tanzanian Investment Centre to guide investors to locations where strong land use plans are already in place. Even when land can be accessed, lengthy and costly administrative processes have sometimes delayed projects if not halted them altogether.

The Government of Tanzania has defined a clear process now and is providing useful guidance for businesses in negotiating the process. This involves six steps: Participatory Village Land Use Plans, identifying available land not needed for crop, fuel, pasture woodland or wildlife for the next 10 years; a detailed land survey; transfer to the category of General Land; provision of a derivative title or lease or equity; and final transaction. Once the village Land Use plans are completed, land can potentially be provided in 6-12 months. But there is still a backlog of work, as only 20 per cent of the Village Land Use Plans have been completed and many of those are in areas with large conservation reserves.

Encourage preferential access to financing for AGG

In addition to clear avenues to secure land, both business investors and smallholder farmers aiming for commercial production will need access to financing for AGG development. Where public resources are available, these can be preferentially used for AGG investments and private sources can also be encouraged to do so.

While Tanzania is experiencing unprecedented growth in private agricultural, forestry and related investment, agricultural financing is still very difficult to access for many businesses operating in Tanzania. Only a few banks make significant agricultural loans, as lenders and investors have faced barriers including difficulty securing suitable land, unreliable market infrastructure, longer time frames for returns, and a perceived threat of future export bans. In 2008, total domestic lending for agriculture was approximately US \$360 million, and 92 per cent of this went to agricultural trading. When banks do provide loans for agriculture, these come at very high interest rates and are usually available only on a short-term basis to support working capital. As a result of this lack of bank financing, agricultural support in Tanzania comes primarily from the public sector Agricultural Sector Development Programs (ASDPs) through the District Agricultural Development Plans (DADPs). Of the private, public, and donor-supported financing streams which currently fund agricultural development in the Southern Corridor, few explicitly favour AGG co-benefit objectives including rural development, poverty reduction and protection of ecosystem services and biodiversity. Current sources of finance available for AGG in SAGCOT include:

Tanzania's Agriculture Sector Development Programme (ASDP)

Agriculture Sector Development Programme (ASDP) is a basket fund established by several international partners along with the Tanzanian government to boost the development of the agricultural sector. Funds are distributed based on District Agricultural Development Plans (DADPs), which help to guarantee local participation and invite investments that are tailored to local conditions. This program has an overall budget of US \$1.78 billion over 8 years, of which about 75 per cent is earmarked for irrigation development. Opportunities exist to more effectively leverage this funding with private co-financing; design water-saving irrigation investments; and increase funding support for AGG agricultural extension.

The African Development Bank and IFAD

International development banks (e.g. African Development Bank) and donors (e.g. the International Fund for Agricultural Development) are providing approximately US \$155 million for marketing infrastructure, value addition, and rural finance support programs. All of these types of investments are critical to support AGG, but would need to be structured to favour businesses undertaking sustainable intensification (based on its anticipated higher profitability and lower risk profile) rather than businesses that rely on high-external input approaches that do not incorporate water and soil conservation practices.

AGRA/Standard Bank and AGRA/NMB

The Alliance for a Green Revolution in Africa (AGRA) has established a US \$25 million loan guarantee facility to support Standard Bank and the National Microfinance Bank with the goal of supporting established and commercially viable agriculture businesses that incorporate smallholder farmers. These could be allocated in SAGCOT to AGG businesses.

Domestic lending to agriculture/Tanzanian Investment Bank

In 2008, domestic lending to agriculture in Tanzania was TzSh 540 billion (approximately US \$360 million). However, less than 8 per cent of this finance flow (US \$29 million) supported primary agricultural production. Within Tanzania, a potentially catalytic funding source for AGG is the Tanzania Investment Bank (TIB), a recognized leader in development financing. It serves as a bridge between producers and investors and assists producer organizations to develop business skills that will enable them to expand markets and value for their products. By focusing explicitly on AGG, TIB can draw upon its service-oriented approach to become influential in pilot testing and eventually the mainstreaming various AGG models.

Microfinance

NMB, AGRA, and the Financial Sector Deepening Trust (FSDT) are providing US \$6.3 million for an agricultural loan program for outgrower input finance that could be adapted to AGG.

Private Agricultural Sector Support (PASS)

PASS is a facility to support small businesses with technical assistance (e.g. business plan development, feasibility studies, and organization of farmer groups) and financial services (e.g., loan guarantees) focused on agricultural production and processing businesses.

In some cases, these businesses may need to supplement these existing finance sources with others in order for AGG investments to access sufficient capital. Financing institutions may view unfamiliar AGG opportunities as even more risky than conventional agriculture investment which are already under-financed. New streams of funding coming online could help to fill the AGG financing gap. Indeed, the intended role of the SAGCOT

Catalytic Trust Fund (CTF) is to strategically supplement current financing to promote AGG.³ Through the CTF and its other AGG promotion activities, SAGCOT can attract additional investors into the Corridor. Some financial institutions, both public and private, are beginning to dedicate specific funds to investments in sustainable agriculture, while other focus on climate change adaptation, which can support many AGG innovations. For example, the International Finance Corporation has developed a number of windows for private sector loans to support the expansion of eco-certified agricultural commodities, improved water management for agriculture and sustainable forestry. Rabobank, the world's largest agricultural Bank, has established a Sustainable Agriculture Guarantee Fund. These new finance sources, attracted by SAGCOT and the CTF have the potential to meet a variety of AGG financing needs.⁴

Undertake complementary public sector investment

In addition to the public sector investments in transport, energy and other infrastructure identified in the Blueprint, other complementary public sector investments are essential to achieving AGG.

Agricultural extension

Substantial investments are needed in agricultural extension to train and facilitate knowledge sharing among smallholders so that they can implement soil and water management which can not only improve their yields and resilience to ecological shocks, but also open opportunities for them to participate in eco-certification systems or outgrow schemes consistent with AGG objectives. Detailed suggestions, involving diverse types of organizations, are provided in the Greenprint document.

Water, irrigation and watershed management

On water management specifically, in addition to public investments in developing technologies and extension systems for rainwater harvesting, public support is needed to develop irrigation systems. Irrigation is not widespread in the corridor, but supports some of the most important commercial crops, including rice and sugarcane. The irrigation systems that do exist are often very inefficient and poorly governed. In most cases, only 20-60 per cent of the water diverted from the stream will remain in the field. Recently established water users associations (WUAs) had been given the authority to manage local water resources. Many show promising ability to leverage local activities to increase water use efficiency, but they will need access to additional financing for technical assistance, and must be part of a broader basin management strategy that addresses water allocation issues that transcend individual farms.

Support smallholders and communities to be business partners

The government of Tanzania has begun to provide proactive pre-site preparation work to develop lands that can be leased to private investors. In addition, more technical assistance, capacity-building and access to specialized services (legal, accounting, et al) are needed for community and producer organizations to prepare and negotiate adequately for a business partnership. Having more such intermediaries, whether provided through government, NGOs, farmer federations, or consultants can facilitate negotiations and reduce business risks.

Monitoring and research

Adaptive management is critical to accelerate learning from the innovative processes that SAGCOT is seeking to promote, and move towards Agriculture Green Growth. Learning by doing, and improving by learning is essential. Public-private-civil society collaboration is needed to develop and implement monitoring tools and systems that track the positive and negative impacts of various agricultural and land use practices across

3 SAGCOT Appendix II: The SAGCOT Partnership and Financing Mechanisms. http://www.sagcot.com/uploads/media/Appendix_II_-_SAGCOT_Partnership_and_Financing_Mechanisms.doc_02.pdf

4 For more depth on the potential finance sources, consult The SAGCOT Greenprint.

agricultural, ecological and social indicators, and share this information with all stakeholders. Tanzania can draw more on its excellent university-based experts to mobilize relevant research on AGG, mobilize students to collect data, and draw in expertise from around the world. A range of monitoring approaches are being piloted in the country (and around Africa), including Vital Signs, African Soil Information Service (AFSIS), Forest Watch, participatory water monitoring systems, and Knowledge Systems for Sustainability (KSS) can be supported.



5. Next steps to mobilise private investment in AGG

The next couple of years will be critical to the development of AGG business opportunities in Tanzania's Southern Corridor. As laid out in this report, there are a range of avenues for businesses and investors to engage, and government and civil society will need to play an important role in attracting this investment. To jumpstart this process, eight strategic 'next steps' are proposed here. These ideas are deepened and supplemented by the TOR document which provides additional details and proposals for public, private and civil society sector investment to mobilize AGG in the Southern Corridor.

1. Stimulate stakeholder dialogue about Agriculture Green Growth in SAGCOT at national and cluster level

Dialogue is needed across business groups, government ministries and agencies, NGOs, producer organizations and others, assisted by skilled facilitators experienced in working with diverse sectors. The goal would not be to achieve consensus, but to refine, enrich and revise the vision in the AGG Greenprint (which is based on first-round consultations), discuss its practical implementation, generate excitement about some of the proposed innovations, and deepen commitment to collaborative learning. What are different perspectives about a 'Green Star' investment standard? What kinds of investors should qualify for preferential financing? What kind of 'unusual partnerships' can move the venture forward? Such Dialogues are needed at national scale, and also in all of the SAGCOT Clusters.

2. Recruit proven AGG companies

SAGCOT needs to identify and recruit innovative companies in Tanzania or in similar contexts from around the world to replicate their business models in the Southern Corridor. The SAGCOT Center has learned that an effective means of stimulating the interest of prospective investors in exploring business opportunities in the Southern Corridor has been to package and showcase descriptions of sector-based infrastructure and production through the SAGCOT Investment Partnership Program. Publically available investment opportunity case studies summarize the context and rationale for spearheading growth in the respective sectors and specify ways that prospective investors might profitably target their financial capital. A similar approach for showcasing AGG investment opportunities will be to hold an AGG investment trade-fair in Dar es Salaam to expand and focus interest in the AGG approach and create a business and popular media buzz. A corresponding road show would carry well-designed and illustrated presentations of AGG investment opportunities to general and targeted audiences in the respective Clusters, and also occupy a prominent place on the SAGCOT website. While up-front costs for these events may be substantial, they can be designed so that costs are covered by participants and to generate additional modest revenue.

3. Integrate Green Growth into the Catalytic Trust Fund and SAGCOT Investment Partnership Program

The SAGCOT Center and partners have developed the Catalytic Trust Fund (CTF) and the SAGCOT Investment Partnership Program as strategic vehicles for jumpstarting the formation of productive public-private partnerships for agricultural expansion in the Corridor. These two key institutional mechanisms for operationalizing the SAGCOT blueprint, which remain in formative stages of development, were initiated prior to the preparation of the SAGCOT green growth framework. With the Greenprint now in hand, and key leaders and stakeholders in SAGCOT having become familiar with prospective benefits of a green growth approach to development in the Corridor, the time is ripe to review, revise and expand design elements of the Catalytic Fund and provisions of the SAGCOT Investment Partnership Program to ensure they optimally enable and promote green growth opportunities.

4. Use small grants and loans to stimulate business planning for AGG opportunities

To demonstrate and build confidence in the business viability of the AGG approach in Tanzania, there is a need to move forward quickly to scale up some of the opportunities to ‘green’ existing agricultural activities and investments. However, small domestic businesses have difficulty accessing grants or low interest loans for business planning. They need these funds to develop viable business plans and position themselves to take advantage of investment opportunities in AGG. A competitive grants and low-interest loan program could be developed and monitored by an independent review board, to support promising entrepreneurs and current business-owners to ‘green’ their businesses by providing funds to advance their business plans and attract partners and investors. The grants and loans could also support businesses to develop plans and mechanisms for connecting with smallholders. This program could be embedded within the SAGCOT Catalytic Trust Fund, as its objectives overlap with both the Matching Grants Fund (MGF) and the Social Venture Capital Fund (SVCF). Alternatively, for the loan element of the program, the Tanzania Investment Bank (TIB) could be a partner.

5. Implement collaborative spatial planning for Green Growth innovation in 4-8 SAGCOT Clusters

Map-based, spatially explicit planning tools have been effective in enabling people from diverse sectors to efficiently and energetically identify, locate and discuss important issues and advance promising technical and institutional innovations at the nexus of agricultural development, nature conservation and livelihood security. SAGCOT stakeholders have called for these tools to be applied to planning at the Cluster level. This approach would help to engage more farmers, entrepreneurs, women, prospective investors and other local stakeholders in advancing promising innovations. They called also for the availability of competitive mini-grants that would enable groups to initiate the implementation of their innovation action plans.

6. Streamline integrated land use allocation and planning in two SAGCOT Clusters

Only 20 per cent of villages in the Corridor have land uses plans. Without these plans, village and national lands are poorly differentiated, and there are no existing principles for the allocation of national lands. Strengthening the participatory process of village land use planning (VLUP) is crucial to guarantee that SAGCOT investments respect the rights and livelihoods of current residents. While the VLUP process developed by the Village Land Use Planning Commission is an important starting point, scaling up the implementation of village land use planning in a priority Cluster will require a non-partisan team to raise awareness on the VLUP process, guarantee that all stakeholders are given the opportunity to negotiate for their interests, and provide technical expertise. Successful land use planning will also need to tie together currently disparate streams of planning into one cohesive and coherent plan for addressing the major challenges and providing space for new investments. Therefore, Clusters will also need to develop planning bodies and processes at scales larger than the village level to coordinate planning activities with adjacent communities and national lands. Once entire Clusters have developed land use plans it will be possible to meaningfully discuss the potentials for concentrated investment in respective parts of the Corridor.

7. Pilot the development and delivery of an AGG extension curriculum

Extension is critical for transferring the benefits of many of the investments proposed by SAGCOT to smallholder farmers, and transforming smallholder farms into viable and profitable businesses. Supporting AGG extension will require a mix of public, private and civic sector resources, as well as some important changes to the current extension model. First, many AGG practices will be unfamiliar to farmers and require a significant knowledge base to implement. Additionally, AGG extension avoids a cookbook approach and would adapt the services, technologies and practices extended to the local context. AGG extension systems should link existing models such as farmer field schools, farmer-to-farmer networks and outgrower schemes, as well as engage farmers in actively experimenting with new technologies. AGG extension would also strengthen producer organizations’ own innovation and learning efforts. Such a system would require significant investment by the public and private sectors, therefore it is necessary to demonstrate its effectiveness in extending AGG technologies and practices, and transforming smallholder agriculture through pilot testing in priority clusters.

8. Develop a SAGCOT Eco-standard for SRI rice

Growing farmer demand for training and technical assistance in SRI production methods, as a result of recent pilot-testing and demonstration initiated by Kilombero Plantations Ltd., is expected to increase rice production and productivity, while minimizing environmental damage. This type of production system needs to be married to specific guideline for water use and quality management, and protection of conservation values of wetlands in rice-growing areas. Moreover it is now accepted practice to incorporate social criteria into standards as well. It is likely that most households will be able to sell the additional rice on their own into local markets without additional premiums. But developing eco-standards for rice could in some cases generate market advantages that would further encourage adoption by paddy producers and rice processors of production and milling methods that conserve water, land and energy. NGOs, farmer cooperatives, and private companies working with SRI producers could take advantage of increasing consumer demand-- especially in urban areas and by tourists--for foods grown with minimal chemicals, using methods that conserve biodiversity and ecosystem services, and that promote fair trade in the case of international markets. The sustainability standard for rice can become an emblem for Agriculture Green Growth in the SAGCOT region, and become a preferred source of supply by regional buyers. It may also be possible to connect rice farmers who implement SRI and other water and nutrient conserving systems to markets for rice varieties that are unique in taste, texture, appearance or history for niche markets.



Annex 1

Resource materials for businesses

There are a growing number of initiatives and partnerships seeking to support sustainable agricultural production and sourcing, which can provide lessons and experiences to nascent business efforts in the SAGCOT region. Many of these examples are models of how multi-stakeholder processes operate in practice. Recently, new tools to facilitate incorporating principles of sustainability into agricultural supply chain have proliferated. Detailed below, these tools and guides range from whole value chain assessments to carbon sequestration measurement to high conservation value area prioritization.

Multi-stakeholder initiatives and collaborations

Commodity Roundtables

There are a growing number of roundtables focused on sustainable production of agricultural commodities, including sugar, soy, palm oil, and biofuel. The roundtables provide a platform for dialogue and consensus-building among the various stakeholders – farmers, processors, retailers, NGOs, certifiers, and intergovernmental and governmental organizations – and promote a common standard of sustainable and responsible production.

<http://www.bonsucro.com/welcome.html>

<http://www.rspo.org/>

<http://www.responsiblesoy.org/>

<http://rsb.org/>

Finance Alliance for Sustainable Trade (FAST)

FAST is a non-profit association representing financial institutions, producers, and others along the agricultural supply chain, who are trying to bridge the financing gap in small and medium enterprise while achieving sustainability. The association develops joint projects, high-level advocacy, shared strategies, and enhanced transparency.

<http://www.fastinternational.org/>

Grasslands, LLC

Grasslands is a partnership between the Savory Institute, which promotes sustainable livestock management methods, and the impact investors Armonia, LLC and Level 3 Capital Advisors, LLC. This collaborative effort aims to identify and acquire ranch properties to implement long-term sustainable management contracts. Eventually planning to develop a “ranch real estate fund”, the partnership is currently looking for properties that have the potential of meeting a triple bottom line for sustainability: ecological benefits, financial viability, and stability for rural communities.

<http://www.savoryinstitute.com/what-we-do/healing/>

Landscapes for People, Food and Nature Initiative Business Working Group

The Landscapes for People, Food and Nature Initiative together with private and non-private sector collaborators aims to document key principles of business engagement for an integrated landscape approach. This will contribute to strengthen and support existing landscape initiatives' business engagement activities in the field, and cultivate a set of innovative business leaders for new partnerships in landscape-scale action.

http://landscapes.ecoagriculture.org/action_and_advocacy/engaging_business

Sustainable Agriculture Initiative (SAI) Platform

As the main food industry initiative to support sustainable agricultural development, the SAI Platform operates globally with over forty members in the food industry. It is a non-profit organization established to promote knowledge sharing, building capacity on sustainable agriculture through research and development and communicating about sustainable agriculture for stakeholders at every stage along the food chain.

<http://www.saiplatform.org/>

Sustainable Food Laboratory (SFL)

The Sustainable Food Laboratory is a consortium of business, non-profit, and governmental organizations that is trying to shift towards a sustainable food system. It capitalizes on the strengths of the partnership to foster innovation along the supply chain, incubate partnership projects, and support market-based solutions to issues concerning soil, water, climate change, and poverty alleviation. Annually, the consortium hosts a leadership summit to bring together members and various stakeholders to address key challenges. Three priority areas for the Lab are 1) agriculture and development (new business models); 2) climate change and sustainability metrics; and 3) regional, local and sustainable food.

<http://www.sustainablefoodlab.org/>

World Business Council on Sustainable Development (WBCSD)

A member-based organization, the WBCSD harnesses the energy of forward-thinking businesses to work towards a sustainable future. While WBCSD works across a suite of sectors, many of its members are active along the agriculture supply chain. The Vision 2050 publication, setting a new business agenda, explicitly states an objective as 'doubling agricultural output without increasing the amount of land or water used'. Of particular relevance, the Sustainable Consumption and Value Chain program seeks to identify new business models, solutions, and opportunities that contribute to sustainable levels of consumption and activities along the value chain.

<http://www.wbcds.org>

Biodiversity tools and guides***Business and Biodiversity Offsets Programme (BBOP)***

BBOP developed a set of principles and standards to guide developers, conservation groups, communities, governments, and financial institutions in efforts to achieve no net loss of biodiversity. These standards are used by a growing number of companies in their operations, and were developed over seven years of experimentation and negotiation among more than 90 private, government, and civil society stakeholders.

<http://bbop.forest-trends.org>

http://www.forest-trends.org/documents/files/doc_3319.pdf

Good Practice Guidelines for High Conservation Value Assessments

This document produced by ProForest, sets out good practices for identifying and managing High Conservation Value (HCV) areas. It details the assessment process, including six steps: preparation, planning, HCV identification, management, monitoring, and reporting. This can be helpful in that it lays out the type of data and expertise that is needed to carry out each step. The assessment should be used in conjunction with the HCV Toolkit, which outlines what are HCV and the different types.

<http://www.hcvnetwork.org/resources/folder.2006-09-29.6584228415/HCV%20good%20practice%20-%20guidance%20for%20practitioners.pdf>

<http://www.proforest.net/objects/publications/HCVF/hcvf-toolkit-part-1-final-updated.pdf>

Integrated Biodiversity Assessment Tool (IBAT)

A version of IBAT was developed specifically for businesses, and is designed to facilitate the access of accurate and current biodiversity information relevant to business decisions. The decision support tool includes an online database of information and a mapping tool to help screen potential investments, develop biodiversity management plans, assess risks, and report on corporate biodiversity performance.

https://www.ibatforbusiness.org/kbas_and_hcvs

Tools to measure and assess emissions and carbon sequestration***Cool Farm Tool (CFT)***

For measuring the carbon footprint of crop and livestock products, the Cool Farm Tool calculates greenhouse gas emissions based on management scenarios. It includes soil carbon sequestration in its estimates, and also identifies hotspots for alternative management.

<http://www.coolfarmtool.org/CoolFarmTool>

Pantropical National Level Carbon Stock Dataset

Woods Hole Research Center generated a dataset of aboveground carbon stocks in tropical countries. Maps are available by countries, and provide reference levels to compare future forest change and carbon emissions estimations.

http://www.whrc.org/mapping/pantropical/carbon_dataset.html

Smallholder production assessment tools

Sustainable Commodity Assistance Network (SCAN) Tools

SCAN is a capacity building platform to provide technical assistance for those transitioning to sustainable practices or trying to enter sustainable markets. A Management System Training Tool, specifically aimed at those working with smallholder coffee producing groups in Tanzania, focuses primarily on risk management. This is increasingly required by third-party sustainability certifications.

<http://scanprogram.es/>

http://sustainablecommodities.org/files/SCAN_TZ_RBMS_for_Coaches%20Final-2.pdf

Sustainability Performance Assessment (SPA)

This three-stage process analysed existing tools and indicators to help farmers assess their sustainability impacts and progress over time. A dozen tools deemed particularly useful are included in the report, and encompass a variety of environmental issues, target audiences, and geographic regions. Version 1.0 is currently under pilot testing, an updated and revised report will be published in 2014.

<http://www.saiplatform.org/activities/alias/sustainability-indicators/SPA>

Frameworks for whole value chain assessment and management

Business Ecosystems Training (BET) and Corporate Ecosystem Services Review (ESR)

Two tools developed by WBCSD and partners address ecosystem function as it relates to business operations. Business Ecosystems Training is a capacity building program, composed of four modules, which develop an understanding of links between business and ecosystems. The Corporate Ecosystem Services Review helps businesses manage risks and opportunities that arise from dependence and impact on ecosystems. Types of risks and opportunities include those pertaining to operations, regulations, reputation, marketing, and finance. Both are particularly relevant to agricultural production activities, which both impact and are heavily influenced by the health of ecosystems.

<http://www.wbcds.org/bet.aspx>

<http://www.wri.org/publication/corporate-ecosystem-services-review>

COSA Measurement Tools

The Committee on Sustainability Assessment (COSA) has developed a common framework and indicators to understand the costs and benefits of sustainability in the agri-food sector. The measurement tools analyze the social, environmental, and economic effects of agricultural systems. Indicators include household demographics and economics, labor conditions and human rights, and resource management and soil health.

<http://www.thecosa.org>

Innovations for Healthy Value Chains: Cases, Tools, & Methods.

This document consists of five case studies and a toolkit to bring about change. Case studies focus on partnerships between businesses and NGOs or research centers that sought to achieve social and environmental sustainable within a supply chain. These cases feed into an in-depth look at the tools and processes to take those steps, including: strategizing, building partnerships, analyzing the supply chain, making decisions in a participatory manner, and changing institutional and value chain structure.

<http://www.sustainablefood.org/images/stories/pdf/hvcn%20innovations%20master%20document%20v15.pdf>

The development of the SAGCOT Framework for Agriculture Green Growth was led by a team from EcoAgriculture Partners, reporting to the SAGCOT Centre and the Green Growth Reference Group.

About EcoAgriculture Partners

EcoAgriculture Partners is a non-governmental organisation that works internationally to support the integrated management of rural landscapes to simultaneously improve rural livelihoods, sustainably produce food and fiber, and conserve healthy ecosystems. The organisation does so by providing training, research, policy solutions, and support to farmers, communities and organisations at the local, national and international levels.

Contact

Sara J. Scherr, President
sscherr@ecoagriculture.org

About the SAGCOT Centre

The SAGCOT Centre seeks to improve the economic performance of the Tanzanian agricultural sector and secure a place for Tanzania farmers in global value chains by coordinating, supporting and facilitating activities in the Southern Corridor and fostering an environment where innovation can thrive and dedicated leaders can make a real difference.

Contact

Jennifer Baarn, Deputy CEO
jennifer.baarn@sagcot.com