Future Forestry Sector Development in Africa

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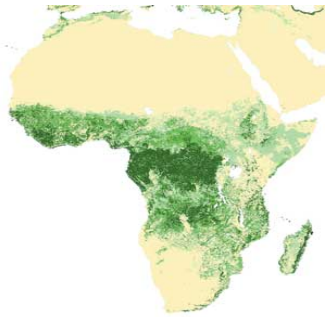
INTRODUCTION

Globally, little is known on African forests beyond the negative publicity about their reckless management. Global reaction is often to rush in and 'save the rainforests'. I feel behoved to use this audience to provide a balanced image of the state of forests in relation to social, economic and environment development, and by so doing leverage greater understanding and interest to invest in forestry in Africa. In a short treatise like this it is impossible to isolate fact from fiction, so I will concentrate on the former and hope that wrong perceptions can be dealt with in the questions and answers session.

Africa's potential to develop has surpassed all predictions in all spheres, from governance and democracy to infrastructure and economic performance. Its weak links with global financial systems has served to spare it the fallout from financial institutions, enabling quite a few countries to grow their economies at over 5% annually. The drivers of change are multiple, but key to them all is a social transformation mediated by better awareness, education, and communication and therefore rising transparency. Not least is the growth in population and incomes which have positively impacted on functionality of local markets (McKinsey & Company 2010).

African Forestry is riding the global wave of climate change, to the point of masking its economic importance. Programmes like REDD have become iconic to the extent of driving forest management goals whereas they should be just the normal actions in the standard processes of forest management. The time for reflection and for Africa to make her choices has come.

AFRICA'S FORESTS, TREES AND AGROFORESTRY



Africa has 650 million ha of forest cover which is 17% of the world's forests (FAO 2011). Major forest types include dry tropical forests and woodlands (most extensive), moist tropical forests in Western and Central Africa and mangroves in the coastal zones. Deciduous woodlands cover about 25% of the continent. Only about 1.5 per cent of forests in Africa have been planted. In the map on the left we can see the

wide range of forests, from deep green representing the Congo rainforests to the Miombo and dry woodlands as we move farther away from central Africa.
(http://www.eoearth.org/article/Forests_and_woodlands_in_Africa).

Due to Africa's small population (relative to the land mass) the per capita forest cover is 0.8 ha while the global average is 0.6 ha. On average, forests account for 6 per cent of gross domestic product (GDP). The figure excludes the direct dependence of the largely rural population of forests and woodlands for daily needs of energy, food, medicine and fibre. Through CAADP (Comprehensive Africa's Agricultural Development Programme) the African Union recognizes forests and woodlands as important resources for uplifting the continent from poverty especially with regard to energy, food, timber, a wide range of non-timber forest products (NTFPs) and environmental services that underpin ecosystem functions in support of agricultural productivity and sustainability. However this goal is far from being reached and country plans are lagging behind. http://www.eoearth.org/article/Forests_and_woodlands_in_Africa.

Africa's forests are highly diverse. They include a number of internationally recognized biodiversity hotspots (Mittermeier 2000) that carry a wide variety of fauna and flora species and are home to some of the largest wildlife reserves, such as the Selous Game reserve in Tanzania which covers an area of over 50,000 km^2 http://www.eoearth.org/article/Forests_and_woodlands_in_Africa. Africa's high dependence on firewood and charcoal for energy is intriguing - about 80% of all wood cut goes to energy, despite the increasing availability of gas and electricity. Most forest products, including fuelwood, fall outside the formal economy and therefore the lack of reliable statistics on volumes and values.

Ownership of natural forests is largely public and in some countries communal. Save for South Africa, primary and secondary forest industries are still weakly developed. The private sector dominates the harvesting and processing of timber in both natural forests and plantations, generally of concessionary arrangements. There are perverse incentives such as unrealistically low stumpage, corruption and poor monitoring of harvesting industrial wood from Africa's forests. Besides, the countries suffer huge losses in jobs and value addition because much wood is exported as round wood. Corrective measures are being taken although the progress is slow.

Agroforestry systems (involving trees, crops and livestock) are traditional and common, and significant volumes of food, condiments, medicines and woody biomass are generated outside forests. The continent has limited but growing commercial agriculture (both small- and large-scale). Agroforestry production systems with perennial tree/shrub crops such as coffee and tea in Eastern Africa, oil palms, cocoa and rubber in West Africa, gum Arabic in the Sudano-Sahelian

region, date palms in North Africa and a wide variety of fruit trees in eastern and southern Africa are a growing phenomenon. This approach to agriculture is becoming increasingly popular with the emergence of the concept of Climate Smart Agriculture (CSA), but there are barriers to fast developments of this area due to inadequate policies, institutional structures and capacity.

CROSS SECTORAL OVERVIEW

Table 1 presents an analysis of Africa's population in relation to land area in comparison with China and India. Africa has 20.4% of the total global land area and only 15% of the global total population http://en.wikipedia.org/wiki/Africa. Much of the population growth in recent years has been fuelled by internal conflicts and poverty, plus a net immigration (immigration – emigration), the so called mechanical growth! Rising economic opportunities in Africa today are attracting increasing numbers of immigrants from many parts the world. There is no doubt that population growth rates will decline in the coming years as economic prosperity continues to rise. Signs of such decline are already visible in South Africa, Eastern Africa, Nigeria and much of North Africa.

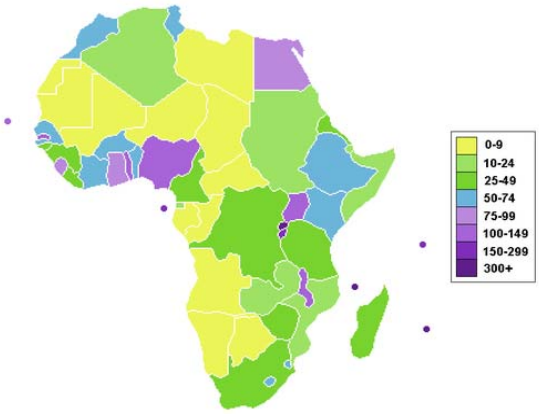
Table 1. Comparative analysis of Africa, with China and India

Parameters	Africa	China	India
Population (million)	1,032	1,347	1,210
Land area (Million Sq. Km.)	30.22	9.60	2.97
Desert area (Million Sq. Km.)	4.73	0.22	0.22
Net potentially productive area (Million Sq. Km.)	25.49*	9.38	2.75
Productive land area per capita (ha)	**2.5**	**0.70**	**0.23**

*Of which 22.5 mi Sq. Km. in Sub Saharan Africa (excluding Kalahari and Namib deserts)

The agricultural sector is dominated by small-scale farming and pastoral systems with about 80% of the production going to direct consumption. Land fragmentation continues unabated in high potential areas, and in some cases (especially in Eastern Africa) it is approaching uneconomic holdings. Hopefully, this will result in land consolidation, and although there are signs of this happening, there are also sensibilities that hold back rapid policy moves in this area. In drier zones, there are large areas of 'public land' extensively managed and easily accessible to local populations.

Africa's population distribution shows a strong concentration of people in sub-humid to semi-arid areas where cereal cropping and livestock production take place.



Forests and woodlands in these areas suffer much degradation from 'slash and burn' agriculture. Rainforests have quite low population densities. However, their margins are under pressure of deforestation and degradation. Also mountain forests are under heavy population pressure due to suitable living conditions and intensive agriculture. Here land holdings drop to below one hectare per family.

Figure 1: Africa's countries by population density classes. Source: http://www.zonu.com/detail-en/2010-01-10-11665/Population-density-in-Africa-2006.html

According to FAO (2012), a considerable proportion of forest area is converted each year to agriculture (750,000km^2 in 2012), livestock production and wildlife parks. It is for this reason that forestry development cannot be dealt with without substantive involvement of stakeholders in agriculture and other related sectors. http://www.fao.org/docrep/016/i3010e/i3010e00.htm.

As the main contributor to meeting energy needs, the forestry sector is closely linked to the energy and water sectors, but in many cases the links are informal. There are much more explicit and organized links of forestry to the environment and wildlife sectors, historically due to biodiversity conservation issues and, more recently, due to climate change threats that highlight the role of forests and trees for mitigation and adaptation.

Forests and trees are at the centre of the three conventions on Climate Change, Biodiversity Conservation and Combatting Desertification. Little can be achieved in all the three conventions without appropriate forest and tree-based measures. The following box illustrates this.

Box 1: Roles of Trees and Forests in the Three 1992 UN Conventions.

Biological Diversity	**Climate Change**	**Combatting Desertification**
Trees and forests create the environment for the growth of other flora and fauna	Trees and forests sequester carbon, provide shade and are key to mitigation and adaptation	Trees and forests provide long-term soil stability and serve as barriers to land degradation

One principle involved in the multi-million dollar Great Green Wall for Sahara and Sahel Initiative (GGWSSI) is to meet the goals of the three conventions in an integrated development

programme. Twenty-one countries, from Djibouti on the east coast to Senegal on the Atlantic coast, are involved in this initiative.

Research undertaken by ICRAF vividly elucidates the biodiversity aspect (figure 2a and 2b). It is clear that farms with trees have much more biota than those only carrying crops, especially monocultures. The global state on agroforestry is shown in Figure 3.

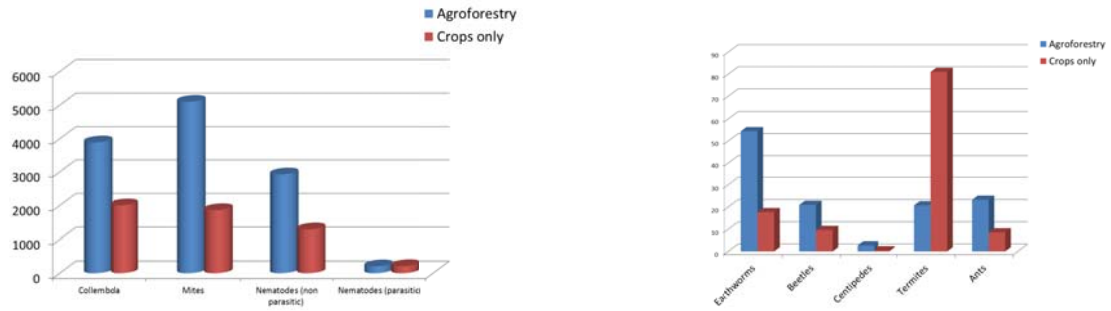


Figure 2a and 2b: Soil biota density under crops compared with agroforestry, No/m2 (adapted from Barrios et al. 2012)

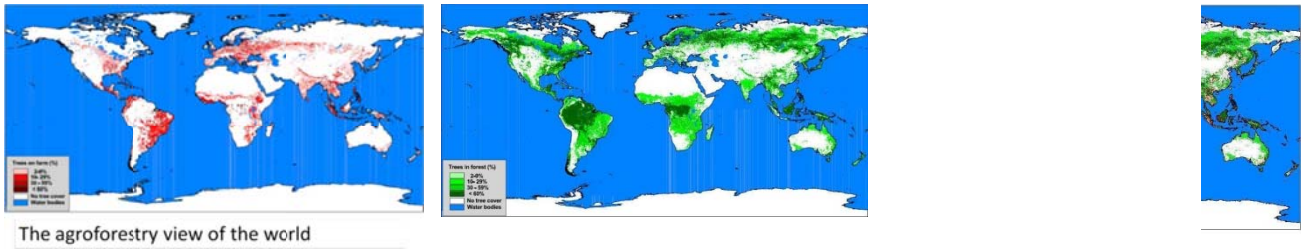


Figure 3 a) Agroforestry 3b) Forestry and 3c) combined agroforestry and forestry views of the world.

CURRENT MACRO TRENDS

Climate Change Vulnerability

Current understanding on climate change predictions for Africa is unanimous – the continent will be much warmer than the rest of the world, by up to 2^{o} Celsius. Extreme weather events such as droughts and floods (whose predictability is elusive) are already being experienced. Given that many rural communities are directly dependent on forests and woodlands for basic needs especially for fibre, energy and animal feed, the threats on their livelihood are real. Changes in plant phenology, threats to species biodiversity, and fauna and flora migration are all likely to have impact on sedentary agriculture. Thus, fortifying Africa's agriculture through climate smart actions as proposed by the African Union is imperative.

Broader landscape management is envisaged where the production systems and ecological functions are examined and monitored simultaneously. The goal is sustainable ecosystem functionality that reinforces human livelihoods and productive landscapes. Among others, the key actions needed include perennial cropping with trees to provide shade, sequester carbon and meet a diversity of farmers need, including food, nutrition and shelter. This is a special opportunity for forestry and agroforestry to manifest their roles in food security, poverty alleviation and environmental sustainability. The roles of trees and forests in climate change mitigation and adaptation become evident here. A whole landscape approach to tree and forest development is implied and highly desirable (FAO 2008; van Noordwijk et al. 2011; IUFRO 2012).

The huge diversity of trees and shrubs is a very important key in the adaptation to climate change effects. Climate analogue research is demonstrating very clearly that for any predicted temperature change in a specific geographic condition, there is already another location experiencing that condition. We can take up adaptation lessons from human, fauna and plant communities living in such analogue areas. Such is the case for much of Africa.

Social and Economic Transformation

Rapid economic growth in many countries, urbanization and a rising middle class are current realities. As a result, local markets for both agricultural and tree-based products have seen a significant expansion recently. At the same time, international trade is opening up new markets especially in Asia. There is a growing international interest in the perceived “land reserves” in Africa and, as a result, increased competition for land (for food fuel and fibre), leading to resurgence of investments in crop and forest plantations. This has also contributed to the infamous “land grabbing” trend in the 2000’s. The market infrastructure is still inadequate but rapidly improving. There is interest in forests for climate change mitigation (REDD programmes), land restoration, and hydrological and biodiversity amelioration, but these are obscure economic opportunities in forest and tree management. From the farming perspective the following facts remain true for Africa, although there are signs of change:

- About 80% of production goes to direct consumption by the producers;
- An estimated 20-35% of produced cereals are lost to insects and fungi due to poor post-harvest handling and weak market-related infrastructure in some countries;
- Emerging small cities and road improvements are already giving birth to supermarkets thus strengthening the local markets; and
- Livestock and fishery are already feeding into export markets.

For much of Africa, the following facts will remain true for the couple of decades:

- Small-scale agriculture will continue albeit with some improvement in specializations and efficiency. Some farm consolidation will begin, initially on voluntary basis;
- Land tenure is increasingly assured and predictable, enabling long-term investments, including attracting foreign capital;
- Forestry will increasingly take a landscape approach, straddling from dense forests to dry woodland and to trees on farms forming a wide diversity of landscape mosaics;
- Wood energy will remain dominant especially for the rural areas, small towns and peri-urban populations where over 50% of the population will reside;
- Wood production for fibre and fuel will grow rapidly, as important enterprises;
- Non-wood tree products will secure greater recognition, spurring many small-scale/cottage industries, especially in the production, processing and marketing of indigenous fruits, pharmaceutical and cosmetic products. Domestication and production of many such products on farm will be the way forward; and
- Bush meat will continue to be important for West and Central Africa, but increasingly meat will come from farms as domestication is already happening.

FORESTRY SECTOR DEVELOPMENT AND CHALLENGES

Tapping the biodiversity: Africa has enormous species diversity - for instance, there are over 1,100 tree species in 85 families suitable for timber production (Lemmens, Omino and Bosch 2009). In addition, there are thousands of tree and shrub species suitable for medicines, gums and resins, spices and condiments, dyes and tannins, edible vegetables, fruits, stimulants, fodder, and for improving soil fertility through nitrogen fixation. Current usage is almost entirely extractive with minimal management of these huge resources for sustainable production and utilization. Research is needed on product development. ICRAF's work on domestication of *Allanblackia stuhlmanii* for oil has attracted private sector investment to meet a large perceived demand in Europe (over 200,000 tonnes per year, but current supplies are just over 100 tonnes). There are hundreds of similar products that need to be developed and marketed. Many more tree species are being domesticated through agroforestry.

Research is needed to select and develop the economically valuable species, establish effective management practices and market some of the obscure products at regional and global scales. There are many products for specific niche markets. Recently, the EU market was opened for Baobab fruits, which is a good example of how markets can promote local production.
Many wooded drylands of Africa are highly productive silvo-pastoral ecosystems. These are also the areas that host the majority of Africa's flora and fauna (especially in wildlife reserves and

national parks) and the hubs of livelihood for pastoral communities. With improved management, these areas could supply the bulk of global demand for quality animal products. This particular frontier is least developed.

Forestry Education: This is a crucial aspect of forestry development in Africa. Started in the 1930's, forestry education grew rapidly until the 1980's, and then it started declining in the 1990's as a result of greatly reduced external support. Technician training has been greatly reduced, but degree training expanded in 2000's albeit with greater focus on conservation and environment. Thus, professional and technical capacity for forestry developments is low, so massive forestry training, both in numbers and improved quality, is essential for future forestry and agroforestry development.

There is a growing awareness of the multi-sectoral links of forestry to food and economic development, agriculture, wildlife, water, livestock, energy, climate change and the environment. This awareness is rapidly translating into significant changes in forestry education programmes. Recognition of forests and trees as major carbon sinks is raising the number of stakeholders and influencing the goals, science and practice of managing trees and forests. Reconciling all interests is hard for the current forester and even harder for the forestry education curriculum developer or educator (Temu and Kiyiapi 2008).

The priorities requiring local, regional and international attention are:

- Supporting better planned capacity development and mobilization in forestry;
- Re-orienting forestry education in the context of new regional and global realities and particularly to be more responsive to changing business, landscape and environmental needs, with a special attention to cross-sectoral needs;
- Retooling educators and forestry schools with contextually relevant learning resources, with a special focus on technician training;
- Establishing and managing quality assurance and common forestry education standards across institutions and countries; and
- Coupling research with academic programmes, and stimulating regional and international collaboration and exchange. In this context the visionary programme REFOREST AFRICA (Regional Research School in Forest Sciences for Eastern and Southern Africa) - a proposal developed by six African Universities in collaboration with the Swedish University of Agricultural Sciences (SLU) deserves strong support.

From the above it is clear that the future forester is expected to be quite different from the current somewhat regimented forester seeking to protect the forests. To produce the new

forester will take much more than change of curricula. Current educators require training and re-orientation; new contextual learning resources are needed and broadening of education programmes will be a prerequisite. Proximate disciplines such as agriculture, horticulture, hydrology, land management, wildlife and meteorology must contribute more in shaping the future forestry education and foresters. Investors are needed especially at the technical level training where we need very large numbers of graduates to help transform land use practices and realization of forestry-based development (Temu and Kiyiapi 2008).

STRATEGIES FOR FUTURE FOREST AND TREE PRODUCTS AND SERVICES

Getting the basics right: The needs of the future should focus around demand driven forestry development. With economic growth we are experiencing a surge in the demand for construction wood and many other tree products. Accurate estimates of the demand (for local consumption and for export) are needed. Cross sectoral planning approaches are required. Energy, environment, agriculture, water and livestock/wildlife are critical sectors. Conducive policies for investment, especially land tenure issues require attention. Most of all, restoration of capacity, especially technical training is pre-requisite - massive forestry training is needed at all levels to underwrite future forestry development.

Public and private investments are needed to meet different objectives (conservation and industrial needs respectively, but there must be synergy in their objectives). There is a need to reinstate the paradigm **Forests for economic growth** – this is a reality for Africa. Conducive policies for investment, especially land tenure issues are emerging. Restoration of institutional capacity, including cross sectoral oversight is important.

WHERE THE REAL OPTIONS ARE

Until now, the models for private investment in forestry in Africa have been confined to the acquisition of land rights/tenure and forest concessions. There are many opportunities now to partner with local investors (individuals, communities or corporate bodies) to invest in trees and forestry. In this model, some of the perceived risks can be overcome much more easily. Co-investing is a new and workable approach. Strategic investment is needed in order to achieve higher levels of productivity, efficiency and profitability. Product quality management is another area that needs to be considered. The following investment areas are pertinent.

Industrial plantations: Rapid growth of investments (largely public, save in South Africa) in the 1960's to 1970's, was followed by a very rapid decline of investments in the 1980's and 1990's. There is a resurgence of investments in 2000's, this time largely private. Overall, it is far from

adequate to meet growing needs. Somehow, the preponderance of environment, biodiversity and land regeneration in the 1990's has cast a negative image on forest plantations. The dominance of Climate change and REDD activities from 2000 has tended to obscure the economic potential of forestry sector development! The Food-Fuel-Fibre debates ought to feature more on the economic side of the fibre/forest component!

With the rapid tree growth rates in sub-humid regions of Africa, industrial wood can be produced in 10-15 years for pulp and paper, 20-35 years for sawnwood and panel products. Private sector driven initiatives with adequate diligence on environment conservation and social responsibility has great potential to benefit from this (FAO 2010). Recent experiences show that industrial plantations do not have to be based on a single species and do not have to occupy a single expansive area. Out-grower schemes involving farmers, as successful experience in South Africa show, can complement and reinforce local ownership, thereby underpinning sustainability. Trees in agroforestry settings, either as woodlots or integrated with crops, serve as major income earning assets for smallholder farmers. Examples abound in parts of Kenya, India and Bangladesh, where industrial wood from agroforestry settings have sustained large industrial production. In the Mt Kenya region of Kenya over 70% of sawnwood comes from agroforestry.

For much of Africa the challenges and problems associated with fast wood forestry (CIFOR 2003), such as replacing natural forests, "land grabbing", and using inappropriate genetic material (e.g. "invasive tree species") are easy to overcome. The biophysical conditions are favourable for a large variety of species and products, enabling options for insurance against climate change and other (e.g. pests and diseases) risks. Important social, economic and environment requirements can easily be achieved by application of the criteria and indicators for plantation management developed by CIFOR and FAO. There is adequate knowledge to ensure that we have the right trees, in the right places, for the right communities (current and future) and for the right reasons.

Trees in agricultural production systems: Growing trees on farmland has been a tradition in many parts of Africa. Advancements in agroforestry science and innovations are providing farmers with greater species options and more resilient systems for tree developments on farmland. The trees provide a wide variety of products (fuelwood, charcoal, fodder, fruits, medicines, cosmetic products, gums, resins, local construction wood, stakes for climber crops etc.). Some trees are also able to fix nitrogen and thereby improve soil fertility. Trees provide shades that reduce the scorching of soils by sun rays and thereby stimulating the build-up of biodiversity. With appropriate arrangement of trees on sloping farmland, soil erosion is reduced thereby improving productivity and conservation. Trees in farmland can serve as biological

corridors for certain life forms, including pollinators. The purposes of intensifying trees on farm include but are not limited to:

- Production of goods that are really needed by farmers (as listed above).
- Commercial farming of trees in woodlots (see box below).
- Re-building ecosystem functionality and biodiversity.
- Regenerating/restoration of the land productivity.
- Supporting adaptation to climate change.
- Offsetting carbon emissions.
- Saving natural forests/woodlands from random harvesting to meet local community needs.

Smallholder woodlots can be quite profitable.
In the Gondar Zuria District of Ethiopia it was established that 85% of farmers allocate on the average 13% of their land to *Eucalyptus camaldulensis* woodlots to meet needs of fuel and construction wood and to generate income. At the age of five years (optimal rotation age), the trees financially competed favourably with the most common local cereal crops – teff and sorghum. The net present value of the eucalypts was fivefold larger than that of teff and sorghum (Asnake 2006). Obviously, the challenge is to overcome the early 3-4 years when farmers are making initial investment, thereafter coppicing helps to overcome the problem.

In South Africa, private companies are using individual farmers and local communities in contracts to produce pulpwood and timber for other products. Both the companies and the farmers are benefiting from the arrangement.

Trees on farmlands can take many different configurations, as intermixed with crops, in silvi-pastoral arrangements or as woodlots. They may also be multi-species. The concept of many smallholder farmers producing a wide variety of tree products is quite attractive and likely to generate good business in the emerging local towns. It can serve as excellent platform for cottage industries but also big investments (as in India and Bangladesh where there is pulp and panel industries based entirely on smallholder production systems). The potential of such systems to lift farmers out of poverty is enormous.

Reversing forest degradation: The natural forests and woodlands of Africa are foci of huge biodiversity (PROFOR 2012). Continued harvesting is threatening some species and reducing future access to certain products and services. Forests in mountain areas play major roles in conserving water quality and flow regulation. This supports life (human, animal and plant). Such environmental services must be paid for! Conservation must not necessarily be taken as a service. It should be a fully-fledged business area, with private companies and individuals engaged. Attitudes that reinforce the concept of such services as only publicly managed need

re-examining. I strongly believe that for greater efficiency and effectiveness, private companies and individuals can play roles as environmental service providers.

POLICY AND INSITUTIONAL SETTINGS

Are policies and institutional frameworks appropriate and able to support investment? Are there safeguards against unethical practices? What risks can be anticipated and how can they be mitigated? These are prime questions for any investor. I will address these issues briefly.

Rising peace and social stability: Ten years ago the biggest obstacle to investment in much of Africa was social instability, manifested in local wars that were largely internationally sponsored. The sponsorship had to do with greed to grab resources as local groups fought over power. Thanks to huge efforts by the international community and national leaders, many such wars have been halted and countries such as Sierra Leone, Liberia, Mozambique and Angola are now young and stable democracies. Sudan, South Sudan, Somalia and DRC Congo are also on their way to peace and stability. Hitherto stable countries have consolidated their peace and democracy and we can see sustained economic growth rates of up to 11% year on year! Ghana, Ethiopia, Tanzania, Zambia, Mozambique provide stunning examples of economic turnaround. Further, with the arrival of peace, many forest areas locked by fighting forces are now open and accessible for economic development activities. Hitherto unavailable labour, locked out by wars is becoming available.

Policies and institutions: Up-to-date forest policies are increasingly incorporated in regional (African Union), sub-regional (SADC, EAC, ECOWAS etc.) and country policies and development strategies. Forestry is explicitly recognized as a key development sector in CAADP and subsequent country compacts. For instance, the SADC Forestry Protocol gives three objectives to forestry (source: SADC 2002. Protocol on Forestry, SADC Secretariat, Gaborone):

- To promote the development, conservation and sustainable management and utilization of all types of forests and trees;
- To promote trade in forest products throughout the region in order to alleviate poverty and generate economic opportunities for the peoples of the Region; and,
- To achieve effective protection of the environment, and safeguard the interests of both present and future generations.

The regional approaches to forestry are extremely useful as they enable common treatises of trans-boundary forest resources, and provide for effective dialogue among policy makers and professionals across borders. In addition to acknowledged bodies, such as the African Forestry

and Wildlife Commission, there are also emerging independent bodies supporting forestry development on the continent, such as AFF (African Forest Forum) handling policy, climate change, international negotiations, etc.; and ANAFE (African Network for Agriculture, Agroforestry and Natural Resources Education) working on education and capacity development. Their efforts need strong support to rebuild Africa's capacity in forestry.

An analysis of most policies reveals rather strong production, conservation and environment biases. Weak treatment is given to the important links between forestry and some key sectors such as agriculture, energy, water and health. These aspects are being recognized and addressed. An excellent example is Kenya's new policy requiring all farms to have minimum of 10% tree cover.

Professional and technical capacity: It is not enough to have good policies. Effective interpretation and implementation of policies require properly established institutions and capacity. This is where Africa really needs strong support. Work is underway to reform/transform current forestry institutions but the progress is rather slow. Part of the challenge is the inertia to abandon old practices and embrace new principles and modus operandi. However, the biggest hurdle is capacity at both individual and institutional levels. With the decline of support for agricultural and forestry education in the 1990's and early 2000's we are experiencing a serious shortage of both professional and technical foresters. This requires redressing. A new cadre of foresters is needed to strengthen both public and private sector investments in forestry.

CONCLUSION

Never before have needs and opportunities for investments in trees and forestry as a whole by farmers, communities and the private sector been so explicit and promising for Africa. Forestry and agroforestry have a much greater potential role in Africa's economic development than has been realized until now. A mix of out-dated myths with scanty facts (such as tropical timbers as mahoganies take long to grow!) has led to unnecessarily negative analyses of Africa, resulting in reduced interest and investment. However, the prevailing image of Africa as an unproductive wilderness inhabited by poor communities is slowly but surely evaporating as the economic engines have started to significantly transform Africa. Investment in forestry on the continent today is not only potentially lucrative, it is imperative. A paradigm shift is taking place and let us be part of the change!

References

Asnake A. 2006. Yield and economics of growing *Eucalyptus camaldulensis* by smallholder farmers in Ahmara Region in Ethiopia. ETFRN News 47-48/07 p63-65.
Barrios B, Sileshi GW, Shepherd K and Sinclair F 2012. Agroforestry and Soil Health: Linking Trees, Soil Biota and Ecosystem Services. In Wall et al (eds.) Soil Ecology and Ecosystem Services Oxford p315-329.

Cossalter, Christian and Charlie Pyre-Smith 2003. Fast Wood Forestry: Myths and Reality. Center for International Forest Research (CIFOR), Bogor, Indonesia. 50p

FAO 2008. Forests and Energy Key Issues. Forestry Paper 154, Rome

FAO 2010. Planted forests in sustainable forest management. A statement of principles. FAO, Rome. 16 p.

FAO 2012. State of the World's Forests 2011. FAO, Rome.

IUFRO 2012. Making African Forests Fit for Climate Change –A Regional View of Climate Change Impacts on Forests and People and Options for Adaptation. Policy Brief Vienna.

Lemmens RHMJ, EA Omino and CH Bosch (Editors) 2009. Timbers of Tropical Africa. Conclusions and Recommendations based on PROTA 7(1) 'Timbers'. PROTA Foundation Nairobi Kenya 84p.

McKinsey & Company 2010. Lions on the move. The progress and potential of Africa's economy. The McKinsey Global Institute.

Noordwijk M. van, Neufeldt H, Öborn I, and Yatich T. (eds.) 2011. How trees and people can co-adapt to climate change: Reducing vulnerability through multi-functional agroforestry landscapes. Nairobi: World Agroforestry Centre (ICRAF).

PROFOR 2012. Forests, Trees and Woodlands in Africa. An Action Plan for World Bank Engagement. World Bank, Washington DC. 112 p.

Temu AB and J Kiyiapi 2008. Restructuring Africa's Forestry Education. In: Temu AB, Chamshama SAO, Kung'u J, Kaboggoza J, Chikamai B and Kiwia A (eds.) 2008. New Perspectives in Forestry Education. Peer reviewed papers presented at the First Global Workshop on Forestry Education, September 2007. ICRAF, Nairobi Kenya. 47-64.