Session VI: Tapping the Full Potential of Forestry and Tree-Crop Systems (Agroforestry)

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Introductory Note – "Managing Forests for Profit: What Opportunities for Farmers in Southern Africa?"

by

Mafa E. Chipeta

The panel discussion theme specifically refers to "profit" as an objective of forest and tree management. It is not accidental that this is underlined: if profits are not made, SACAU member engagement in forests cannot be sustained, no matter how apparently important the activities can be in terms of their environmental or social gains.

But engagement in forests and trees also may need to fit well with other pressing priorities that agriculture should attend to. An example could be the fact that most countries in Southern Africa continue to face basic-food deficits and rely on heavy and sometimes growing annual commercial imports and food aid. *The question to face here is whether SACAU members should engage heavily in forestry when they are still failing to correct mass hunger through their crop and livestock activities*. This having been said, there is little doubt that trees and forests can offer new opportunities for business diversification, an expansion of revenue streams, and sometimes even increased business profits: some points are made below related to this.

Selected Key Messages on Forests and Trees in the Farming Context

1. It is common to talk about managing forests as if they exist in a sectoral island: in reality, *the most critical element for sustenance of forests and their management is the productivity of agriculture*. If farm yields are low, forests and woodlands are quickly cleared to make room for crops or livestock rearing;

2. *Forestry is dominated by a "hunter and gatherer" mentality which agriculture grew out of a long time ago.* Firstly we rely on natural forests and expect to harvest fuelwood, logs etc from them rather than selecting some tree species to artificially grow and harvest from in plantations and smallholdings as we now do for maize, beans, wheat or rice. There is no reason to perpetuate this;

3. *Forests are multipurpose*: they can yield not just wood but also: habitat for wildlife; beauty; water; medicines; energy etc. Wood is the most known output of forests, for which Box 1 gives indicative

consumption levels in Africa. Some valuable products are non-wood, including medicines, for which Box 2 given an anecdote for Southern Africa;

Box 1: Orders of Magnitude for Africa's Wood Consumption

If we focus on only wood, a recent study by AFF suggests that as of now, every African on average annually consumes about 1 m^3 of wood products, a dominant share being fuelwood, at just over 0.7 million m^3 (70%); a distant next in importance being charcoal (about 0.08 million m^3/annum – 9%), with paper and paperboard third, at perhaps 0.06 – 0.07 million m^3 annually – about 7%.

Source: Chipeta, M. E (2014): Forest Products Trade in Africa: a Subregional Baseline - a Synthesis. Unpublished Manuscript, African Forest Forum, Nairobi

4. But *forests also give environmental protection* to soils, biodiversity, water resources. Any one of these "products" and "services" can be the most important function of a particular forest, including in revenue terms;

Box 2: Southern Africa - Medicinal Plants

Medicinal plant data on production, consumption and trade of medicinal plants are poor. Most use is traditional and informal, which make it a huge challenge to document the economic importance of these forest products.

As wealthy societies increasingly demand natural products, some mega pharmaceutical companies now show greater interest in medicinal plants. The baobab tree and *Aloe vera* of African savanna woodland fame are a case in point. Within Africa - especially in South Africa - there is also a trend towards modernizing presentation of traditional medicines, such as by packaging: companies are processing and packaging herbal medicines for retail shops. From a botanical survey carried out at the Faraday market in Johannesburg, these plants impact about 15 million people per year in South Africa alone, both as primary healthcare and as a source of revenue. Demand can be for leaves, bark, roots or several parts of the origin trees, and it appears to be unlimited while the supply of medical plants is finite, given that there are often no cultivation programmes to replace plants harvested in nature.

A boom resulted when South Africa legalised open trade in traditional medicinal products: for example at Johannesburg's Faraday market alone, the 2004 retail trade in traditional medicine is estimated at R2.27 - R4.72 million per year. A booming market based on mass demand is likely to threaten sustainability of the resource, unless promotional measures are put in place to complement natural growth with planted produce. Some observers claim that plant medicines are now carried into South Africa by migrant labour from Lesotho and Mozambique and Swaziland or further afield: the impact on resources is thus international.

Source: Adapted from Table A3.01 in "Chipeta, M. E (2014): Forest Products Trade in Africa: a Subregional Baseline - a Synthesis. Unpublished Manuscript, African Forest Forum, Nairobi".

5. Although at global level forest products account for only about 3% of agricultural trade (because suitable environments for them are fewer than for crops and livestock), *forests and woodlands are not necessarily less important than crops or livestock everywhere*. Depending on ecology, in some countries, the national economy can earn more from forest products (wood, pulp & paper etc) than from agriculture. At sub-national level the local income from game tourism can exceed that from agriculture – farmers should be open to these possibilities and count forests as a potential new area of "farming" if their ecology says so;

6. *Although many forests and woodlands are God-given through nature, their continuation needs human care* – there is no reason why success with crops or cattle should require tending while forests can suffer neglect and yet be expected to yield well;

7. In Africa, natural forests are predominantly in the moist belts (Central and West coastal Africa) while more open woodlands are dominant in Eastern and Southern Africa and in drier West Africa. Yet in value terms, Africa's dominant exporters of forest products are Southern Africa (due to South Africa pulp & paper from fast-grown plantations) and Morocco (also plantation-based pulp & paper). It shows that artificial cultivation of tree crops can reverse the advantages of natural endowment. It also indicates that *even if nature did not give them forests, Eastern and southern Africa can, if they wish, create forests and become a global player in the forest products trade*;

8. *Economies of scale are very important in forest products* because they are generally bulky products (both raw materials such as logs and outputs such as pulp&paper) of only modest value: unit costs decline substantially as scale of processing and transporting increases. Indeed, scale economies are so high that only a few mills of optimally profitable size can supply all of Southern Africa's pulp and paper needs – any ambition beyond this should be for global markets;

9. *In view of high scale economies, although forest industries can get raw materials from scattered local communities or scattered farms, the economics of aggregating the raw materials permanently challenge their competitiveness*. Farmers wishing to grow timber for large industry should realize that there may often be need for a large nucleus estate which they as small-scale outgrowers only supplement.

Opportunities for SACAU's Farmers to Take up Forestry

10. Farmers in SACAU should pay attention to the general points made above. Many opportunities for them to engage exist, because too little planting/domestication of trees is being done. As a result, the supplies of fuelwood/charcoal, sawn timber, pulp, wild mushrooms, wildlife meat etc from "hunting and gathering" in natural forests and woodlands is no longer enough to meet a growing population. The question is, what opportunities can pay the farmer to take up? All the answers will be location-specific and they include the following:

Opportunities in Generic Terms

11. In broad terms, SACAU's farmers should explore engagement in forestry/tree growing as a supplement to their other agricultural pursuits because it diversities their income streams. Being a long-term crop, forests and trees can give stability to long-term income and expenditure, to reduce their annual fluctuation as well as levels of activity. Tree crops, which accumulate value more or less like real estate as they age, can transform farm economics. Among the generic opportunities to consider alongside traditional (seasonal) crop and livestock raising, farmers can consider:

    a. The integration of trees in large-scale sugar farming – taking advantage of irrigation to plant wide-spaced fruit or other trees along canals. Such trees can also provide windbreak benefits that have for long been appreciated in growing tea;

    b. Integration of leguminous trees in swathes or otherwise in cereal farms (to give nitrogen); and

c. Where some woodland remains in reserve on (large) farms, engagement in game farming alongside livestock and crops (subject to disease control protocols at livestock interface) taking advantage of wildlife possibly being more disease resistant, adding new revenue streams, and being probably less sensitive to climate change;

12. In all the above, forests/woodlands should be treated as being multipurpose: *the fact that climate change is the latest fear does not call for going from perceiving forests as "only wood" to seeing them as "only carbon".* Farmers should be pragmatic and sensible and should not go for climate change forestry as the only attractive opportunity.

Specific opportunities

13. Economics is as relevant to forestry investments as for other opportunities. Making forestry investments in an emotional mood – such as simply because green is the fashion - can give forestry and trees a bad name if it than loses money. SACAU farmers should follow their traditional rigorous appraisal of opportunities, including feasibility and financial returns, as they seek to add a forest/tree element to their farming. The investment possibilities below areas of likely specific opportunity right now; they are followed by a tabulation of their key market attributes for both small/medium and large scales of engagement.
    a. ***Supplying domestic fuelwood and charcoal to our cities*** has becomes a preserve of small-scale operators, who have no capacity or interest in growing trees; they cut what they find until it runs out. F*armers especially of near towns should seize the chance to grow trees for fuel and charcoal – Box 1 showed that 70% of wood in Africa goes to this end-use and the volumes are huge to satisfy a fast-growing population*. Farmers should appreciate that it is wishful thinking to treat fuelwood and charcoal as obsolete types of energy –in Africa they remain also fuels of the future, given that electricity reaches less than 10% (in many countries 5% or less) of the people;

    b. ***Supplying fuel for essential industries***: especially for brick-making – an industry that has till now sourced its fuel by hunting and gathering from natural forests/woodlands. In some countries agriculture (e.g. tobacco) or fisheries also require forest/tree fuels to cure their products;

    c. ***Logs for sawn timber***: not all countries have adequate plantations for sawn timber and panels (such as plywood and particleboard). Large scale mill production can be supplemented by raw logs from farms if farmers take this up seriously. In Bangladesh, almost all sawnwood comes from scattered trees on farm smallholdings;

    d. ***Domestication of forest vegetation***: for food (some not trees, e.g. mushrooms) fruit, vegetables and fibre. Even more potentially profitable could be growing of selected medicinal plants (see Box 2);

    e. **Integration of game in farming**: for large farms near cities to meet a demand for people to know nature (Zimbabwe has some good examples).

Investment Opportunity	Market attributes	Scale and other considerations
Fuelwood for domestic use	Dynamic market proves that it can be lucrative. Market is not threatened by electricity or any other "modern" fuels since their penetration rates remain below 10% in most countries To thrive, market requires abolishment of the legal sanctions imposed mindlessly by governments on fuelwood and charcoal: instead incentives for growing wood for them. Essential to mount aggressive campaigns against perception that fuelwood and charcoal are "backward" fuels and are for history: in Africa, they can also be fuels of the future – and not only because they can be climate-change compatible.	Can succeed at both small and large scale – scale economies not steep Currently small-scale operators but can also engage large enterprises, including farms that have spare land Can be in closed planting (e.g. woodlots or plantations) or by integration into cropping and livestock systems.

Fuelwood for essential industries e.g. brick-making	More specialised market – risky for general farmer or smallholder.	Better done by the brick-making or other specialised industries themselves or in advance contracts with them to reduce market risk. Can be at small to large-scale.
Charcoal	Mostly used for domestic cooking. Seems to be profitable despite harassment by law enforcement agents and growing distances to market. Suffers from aggressive bans and controls by governments: mindless because the demand is too strong for legal measures to work and simply discourages legal investment into sustainable industry. Essential to mount aggressive campaigns against perception that	For long will be preserve of small-scale Open to large-scale but social pressure against displacing small producers could lead to political discouragement of large farms engaging in it.

	fuelwood and charcoal are "backward" fuels and are for history: in Africa, they can also be fuels of the future – and not only because they can be climate-change compatible. Can be industrial, e.g. in Brazil, the steel industry uses Eucalyptus charcoal instead of coal.	
Logs for sawn timber	Demand will continue as much small-scale construction cannot use/afford alternative materials, sometimes because too difficult to handle or sold in minimum sizes too large to handle or afford (e.g. plywood, other panels, steel products etc). Mills are few and so distance to reach them is an important consideration in deciding to invest. If reliance on relatively large mills continues, larger farms will be better	Not a scale-sensitive industry but Southern Africa has kept it relatively "formal" which is not essential. Processing logs on-farm into sawn wood is potentially a viable diversification enterprise and investment costs are manageable.

	placed to invest in plantations and woodlots. If a new type of industry similar to that in Bangladesh emerges (small-scale, perhaps chain-saw splitting or cutting to sawn timber at site of each log) than can be supported by agroforestry and small/medium holder farmers can engage.	
Domestication of forest vegetation	Medicinal plants may be a key area of opportunity, provided legal recognition of traditional medicines expands (as in South Africa) or contracts can be negotiated with modern pharmaceutical industries (cures, cosmetics) relying on natural vegetation. Food plants could also be an opportunity – best done soon before an urbanising population loses the knowledge of and taste for traditional forest/woodland vegetables.	Research needed on which plants could deserve focused attention as potentially profitable in farming context or alongside it.

Integration of game into farming	In dry areas, this may pay better than livestock. Urban demand for exposure to “nature” is a likely growth sector – promotional efforts may nevertheless be needed.	As climate gets even drier, the viability of domesticated livestock only may be under threat: consider diversification. Southern Africa is a leader in this (Namibia, South Africa, and Zimbabwe) – why not build on an area of global excellence?