

COMBINING NATURAL SAVINGS AND PARALLEL PLANTING IN KENYA: A GREEN CURRENCY TO SUPPORT INDIGENOUS FOREST STEWARDSHIP

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Abstract

The work of African Forest Ltd. in pioneering a unique parallel planting methodology in Kenya's Rift Valley province has opened the door to enhancing sustainable indigenous forest stewardship using microsavings and complementary currency instruments based on Hudon and Lietaer's Natural Savings model (2006). The paper proposes uniting the conceptual nature of Lietaer and Hudon's Natural Savings model with the practice of parallel planting to form a combined microsavings and green currency instrument for farmers and communities living alongside forested areas. The instrument would utilise cooperative and complementary functions alongside national money, backed by the non-timber products of standing indigenous trees grown by farmers participating in parallel planting projects in Kenya. Indicators of success would be rooted in objectives which seek to a) advance indigenous forest cover and stewardship, b) provide profitable returns from sustainable forest management, and c) improve economic security for communities dependent on Kenya's forests for their livelihoods.

1: Introduction

The forests of Kenya nurture a bounty of endemic biodiversity (Peltorinne 2004) and gift crucial climatic and watershed services to the Kenyan population (Wass 1995, pp.35-40). Some 70-80% of Kenyans depend upon wood sources for domestic energy (Ludeki et al. 2006, p.18; UNDP and GEF 2007, p.7) and many indirectly depend upon the forests to provide water of ample quantity and quality to produce hydropower, which accounts for nearly 60% of national grid energy (UNEP 2009, p.4).

Despite great human dependence on the environmental services they provide, Kenyan forests have suffered from aggressive deforestation for decades. Indigenous closed canopy forests declined by 8% from 1990 to 2010, sinking Kenya's indigenous forest cover to 1.96% of total land area (FAO 2010, p.8) – far short of the international recommendation of 10% (Ludeki et al. 2006, p.1).

The cumulative decimation of Kenya's forests has an adverse impact on environmental sustainability, human welfare and political stability. The following examples touch on these considerations:

1.1. Environmental Sustainability: the 'edge effect'

Firstly, even if deforestation were to halt completely, the highly fragmented nature of Kenya's forests has already upset their trophic balance and biodiversity (Peltorinne 2004, p.1; Wass 1995, pp.20, 30). The so-called 'edge effect' caused by forest fragmentation increases exposure of the interior to the forest edge. This affects the balance of species' populations, and has been thoroughly corroborated by studies of American forests (Robinson et al. 1995) and some studies on Kenyan forests (Maina and Jackson 2003, Spanhove et al. 2009). In protected areas, such as Nakuru National Park, fragmentation is clearly visible from satellite imagery:



Figure 1: View of Nakuru National Park
Source: Google Earth 2012

What is not clearly visible is the environmental impact of fragmentation and the edge effect. These impacts include: (i) the ‘extinction vortex’, a type of genetic drift whereby ‘small populations can fall into a vortex of positive feedback loops leading to smaller and smaller population size’ (Campbell and Reece 2008, p. 98), (ii) acceleration of land and watershed degradation (UNEP 2009, p.34) and (iii) interference with population dynamics through the curtailment of species’ natural territorial and migratory behaviours (Gichohi et al 1996, p. 296).

It is clear from the above that environmental sustainability requires more than outlawing logging and the application of law enforcement to that end. Forest fragmentation and the edge effect should be a key consideration in the design of a currency instrument to advance indigenous forest cover and stewardship.

1.2. Human Welfare: climate change

The Government of Kenya has dedicated significant political capital to understanding the impacts of climate change upon the country (Kameri-Mbote and Odote 2012, pp. 297-8). The 2010 release of the government’s National Climate Change Response Strategy (NCCRS) acknowledges climate change in Kenya as ‘unmistakeable and intensifying at an alarming rate’, evidenced by the droughts of 1999/2000 when around 4.7 million people faced starvation (GoK 2010, p.5). Since 2000, the increasing climatic extremities have all but

ended traditional weather patterns upon which millions have relied upon for centuries to make a living in arid and semi-arid areas, which define the majority of Kenya’s territory (CSTI and MSDNKAL 2009, p.3). Most recently, in 2011, the consecutive failure of annual rains in the horn of Africa lead to what the UN described as the ‘worst drought that East Africa has seen in 60 years’ (AMREF n.d.). Millions of Kenyans faced starvation.

Advancing indigenous forest cover and stewardship has a significant contribution to make towards community resilience initiatives seeking to protect the most vulnerable from natural disasters caused by climate change. The Government of Kenya’s NCCRS recognises forests as the ‘ultimate climate regulators’ (GoK 2010, p.30) and the work of Wangari Maathai in establishing the Green Belt Movement has spread recognition nationwide of the importance of tree planting in combating desertification (Wilson and Juntti 2005, p.217).

Climate change is a global phenomenon and only so much can be achieved by even the richest countries of the world working with the most dedicated public, private and third sector institutions. Nevertheless, Kenyan forests play a crucial role in national climate regulation and a currency instrument designed to advance indigenous forest cover should also consider supporting climate change resilience through sustainable forest management (SFM).

1.3. Political Instability: 2008 election violence

Kenya is ranked as one of the most politically unstable countries in the world, although its situation has improved somewhat in recent years (Foreign Policy FSI n.d.). Environmental degradation and the ensuing fight for diminishing resources strongly contributed to the 2008 post-election violence (UN FT 2010, p.16) and Médard describes issues of resource poverty and landlessness in Kenya as ‘inherently political’ (2010, p.19). Indeed, it has been argued that the title deed itself is ‘unnatural’; that an institutional exaction of traditional community ownership is the root cause of

the 2008 election violence (Borruso 2005, pp. 5-8; Borruso 2008, p.1).

Whatever the argument as to the precise cause, cases such as the 2008 post-election violence suggest that there is a positive relationship between environmental degradation and political instability. Building a complementary currency instrument to advance indigenous forest cover must also look to these concerns not just hopefully, but strategically, through the lens of economic and environmental security.

2: Government Policy and International Conventions

Given the concerns hitherto outlined, a short exposé on government policy is in order, the substance from which one might determine the political appetite for the intervention proposed in this paper.

The Forests Act of 2005 makes clear the Government of Kenya's commitment to protecting the country's forests. In specific regard to indigenous forests, the policy promotes Participatory Forest Management (PFM) and the 'user pays principle' to encourage those who derive direct benefits from the forests to 'contribute to their conservation and management' (Ludeki et al. 2006, p.15). To this end, forest community residents have been encouraged to organise themselves by registering with the government as Community Forest Associations (CFA) (Ibid., p. 66).

The decentralised and participatory approach set out in the Forests Act is also favoured by UN bodies (UN FT 2010, p.35); there remains, however, considerable discord between the noble intentions of the Government's Forest Policy (GoK 2007) and the level of interest from forest community residents in implementing PFM. This may be related to the level of economic security in the community, given that the benefits of PFM accrue over many years, whereas poverty impresses immediate needs upon forest community residents (Koech et al. 2009, pp.6-7).

Increasing forest cover features in 'Kenya Vision 2030', the government's development blueprint for the country (UNEP 2009, p.1). 'Rehabilitation and Protection of Indigenous

Forests in Five Water Towers' is one of Vision 2030's 'flagship projects' (GoK 2012). Whether the government's environmental aspirations can be reconciled with the pursuit of 10% annual GDP growth – a central pillar of Vision 2030 – is a relevant question, and will be touched upon in Section 3.

Rehabilitation of indigenous forests is also recognised in several international conventions to which Kenya is a party. These include the Convention on Biological Diversity (CBD), the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCCD) (Ndiritu 2009, pp.7-8). Monitoring carbon stocks in forests to establish baselines for carbon offsetting and cap-and-trade schemes has also benefited from international leverage since the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation (UN-REDD) began in 2008; the Kenya Forest Service has demonstrated a desire to develop a national strategy to this end (KFS 2010).

The prospect of REDD/carbon credits in Kenya might find viability for indigenous forests by leveraging market mechanisms within the present monetary-economic paradigm. But it raises questions over how best to adequately value and protect ecosystem services from within a paradigm which environmental economist E.F. Schumacher termed as the 'idolatry of economism' (1999, p.91). With this in mind, the next section will broadly consider (i) obstacles to incorporating sustainable indigenous forest management within the dominant monetary-economic paradigm and (ii) opportunities in 'green' complementary currency interventions to overcome these obstacles.

3: 'Green' Complementary Currencies

3.1. National Money and Economic Growth

Vision 2030's development agenda rests on three pillars, one of which is 'to maintain a sustained economic growth of 10% p.a. over the next 25 years' (UNEP 2009, p.1). The position taken by the Government of Kenya

is that economic growth will bring prosperity for all *as well as* the protection of indigenous forests. However, the argument that economic growth always produces marginal benefits not only does a disservice to the true meaning of ‘economic’ (Daly 2011), but is slowly being vanquished from 21st century economic development theory, which recognises that the economy does not grow into a void, but is instead limited by the fragility and biocapacity of the planet (Daly 2005, Gilding 2011, Jackson 2009, Martenson 2011, Rubin 2012, Zencey 2012).

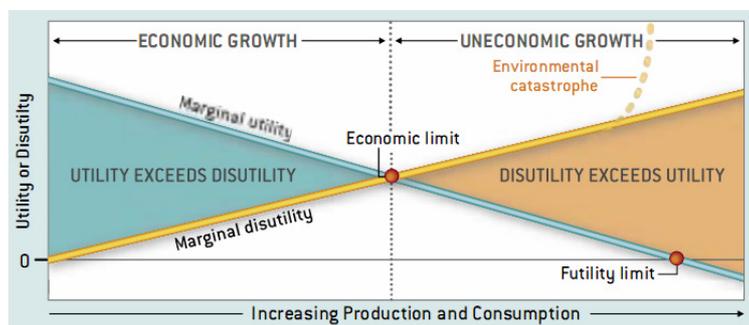


Figure 2: ‘When growth is bad’ (Daly 2005, p.103)

Given the numerous environmental calamities befalling Kenya (some mentioned in Section 1), the target growth rate of Vision 2030 augurs a path of *uneconomic* growth which will do more harm than good to human wellbeing and environmental conservation. It may well be, however, that the growth will never be realised, but falter under immediately pressing natural limitations to growth (Rubin 2012).

Orthodox economic mantra may declare that ‘all growth is good growth’, but GDP growth is more a systemic imperative than a policy option. The decoupling of the money supply from the limits of the planet means that money can grow indefinitely regardless of the ability of the biosphere to replenish its stocks (Turnbull 2012). Further, it *must* grow indefinitely to pay off compounding interest on the money supply which originates from interest-bearing debt. This phenomenon has been described by monetary theorist Greco as the ‘*debt imperative* and the *growth imperative* that derives from it’ because an exponential expansion in the economy is

required to service the debt-based money supply (Greco 2009, p.54, Martenson 2011).

Measuring the existing value of ecosystem services is fraught with difficulties (Chee 2004, p.17). Without an adequate valuation of the foundational services indigenous forests provide to the economy, the dominant economic growth narrative may remain unchallenged at a political level. In any case, any such challenge would be limited, as GDP growth will only count marginal monetary benefits of the forests and not the existing value of standing trees in the form of ecological goods and services (Zencey 2011). A one-dimensional valuation might be realised through Kenya’s Forest Service monitoring carbon stocks with a view to potentially trading carbon credits (see Ndiritu 2009, p.3, for a tentative valuation). Eco-tourism may also make a ‘clean’ contribution to achieving Vision 2030’s target but is limited by finite marginal economic gains to be made from the sector.

The challenge for today remains the unsustainable utilisation of Kenya’s indigenous forests, which generate significant monetary and non-monetary gains for state and non-state actors (Ndiritu 2009, pp.2-3). These gains may buttress Vision 2030’s growth target in the short term, but as long as the growth remains uneconomic, the costs borne to the environment and the economy as a whole will become ever more detrimental to the stability of the country.

3.2. Green Complementary Currencies

For human activity to draw sustainably from the Earth’s ecosystems it must do so at a level commensurate to the sun’s energy or, more precisely, the low entropy input of the sun (Jones 2012). To align the expansion and contraction of the money supply to these levels would produce a radical economic paradigm shift. It would shackle growth of the money supply to the ecological economic limits of the planet, thereby disabling the growth imperative of the current monetary-economic system. The result would be a human economy that need not grow indefinitely, and that policymakers need not *want* to grow indefinitely.

Complementary currencies (CCs) are grassroots media of exchange that could

bypass this system to find a solution for protecting Kenya's indigenous forests. Designed with various sustainability agendas and community regeneration objectives in mind, some CCs have a specifically green agenda (Seyfang and Longhurst 2012, pp.8-9). A 'green' CC might, for example, use renewable energy as a unit of value, limited by the low-entropy of current sunlight but maximised by human ingenuity. Rather than tapping 'ancient sunlight' (Hartmann 2004) the currency might begin as renewable energy bonds but ultimately become a self-sustaining local community currency, anchoring monetary and economic expansion to 'real world limits' (Turnbull 2012).

Furthermore, the design of a green CC can and perhaps should consider anthropology and eco-mimicry. For example, lessons can be learned from how ecosystems balance diversity and efficiency for the optimal function of their 'economy' (figure 3) (Lietaer et al 2010). Complementary currencies can add to financial stability by breaking the monoculture of national debt money (Ibid.)

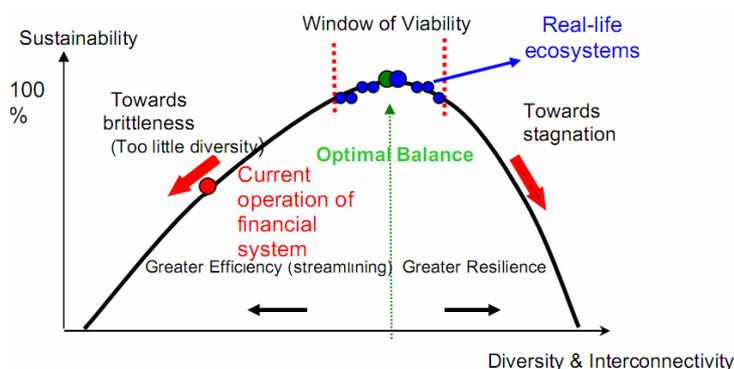


Figure 3: 'Sustainability curve mapped between the two polarities of efficiency and resilience' (Adapted from Lietaer et al 2010, pp.8,11)

In a similar vein, Brakken et al (2012) make the case for 'trophic currencies': a diversity of CCs to build a pyramid of wealth from the bottom (individuals, communities) to the top (national, supranational) in a manner akin to energy flows within food chains. Anthropologically, CCs modelled on traditional or indigenous concepts of value, wealth and economics in Africa have also been proposed (Thompson 2011).

Green-tinged currencies are increasingly at the fore of CC innovation. Some come in the form of loyalty cards, such as the NU card in the Netherlands and the SOL card in France; both incentivise environmental awareness through 'sustainable consumption' (Blanc 2011, p.8). Others have come in the form of a physical medium to encourage young people to clean up the environment, such as in Kenya and Latin America (Ruddick 2011, Brenes 2011). Latin America, in particular, has become a hive of activity for innovative fourth generation CCs many of which have strong green credentials (Blanc 2011, Brenes 2011).

CCs which use renewable energy or an organic growth process as a unit of account remain elusive. However, Japan has pioneered a variety of such systems, including the WAT currency (backed by renewable energy generated by citizens' cooperatives) and the 'leaf currency' backed by crops (Lietaer 2004, p.13). The conference proceedings of the 2012 First International Social Transformation Conference, which has a theme of 'energy currency', also provides insights into the ongoing research and development of energy-backed currencies.

3.3. Natural Savings

Natural savings is a green CC concept designed by Lietaer and Hudon (2005). It is a microsavings tool and medium of exchange for marginalised communities in inflationary and environmentally degraded environments. It is backed by the organic growth processes of natural resources. If, for example, the natural resource is forests, communities develop forest plantations on privately owned or community owned or leased land. In return for their labour on the plantation, labourers earn 'tree shares', which grow in value over time as the trees mature and come closer to the time of harvesting for timber. Once harvested, the shares return a monetary profit. The shares may also act as a medium of exchange among community members and, hence, as a complementary currency. The natural savings model seeks to diminish the net present value of deforestation in inflationary environments in favour of long-

term sustainability goals for local communities and the environment.

Natural savings could be suitable for deployment in Kenya. However, to suit the goals of indigenous forest stewardship and advancement outlined in this paper, it would benefit from integration into existing forest conservation projects in Kenya.

4: Planet Positive

African Forest's Planet Positive projects are being planned and implemented near Nakuru National Park in Kenya's Rift Valley Province. The methodology employed includes incentives for local farmers to plant indigenous tree varieties alongside fast-growing exotic varieties presently grown for firewood and charcoal manufacture. The indigenous trees mature into standing trees harvested for non-timber forest products, such as medicinal compounds and essences. Planet Positive provides other non-monetary benefits by preserving the biodiversity of Kenya's forests, increasing rainfall, creating natural springs, decreasing soil erosion and preserving Kenya's ecological heritage (African Forest 2008, AJE 2012).

The process and outcome is as follows:

- 1) Protected indigenous trees are located and used as seed sources for African Forest's nurseries.
- 2) Land owners mix slow growing native trees (e.g. the East African Olive and Uganda Greenheart) with fast growing exotics (e.g. Eucalyptus trees).
- 3) Fast growing exotics are harvested for fuel and timber while the slow growing natives are left to mature.
- 4) Standing indigenous trees generate revenue and produce long term investment instruments from non-timber products; such as sustainable charcoal, medicines and honey.
- 5) Farmers, land owners and local communities profit from the non-timber products of indigenous trees. (Ibid.)

African Forest's approach to indigenous forest stewardship in Kenya is unique because it brings attention to the profitability in sustainable forest management. The profit-making status of the company is an

advantage because the projects do not exclusively depend upon fleeting or unreliable donor funding typical of traditional non-profit planting projects in Kenya, such as those implemented by the Green Belt Movement (see, for an example, UNDP 2007). Instead, African Forest looks to attract funding by creating a variety of revenue streams which 'tap the wealth available in agro-forestry in an innovative and sustainable way' (African Forest 2008, p.2).

Another advantage of Planet Positive's parallel planting methodology is the utilisation of CFAs and the PFM approach with a promise of short and long term monetary and non-monetary benefits to forest community residents, thereby supporting the government's Forest Policy and feeding back vital information on best practices (Live Africa Live n.d.). At present, and as described in Section 1, the lack of immediate financial incentives for forest community residents to take ownership of indigenous forest stewardship through CFAs is a 'major source of concern' for the successful realisation of the government's Forest Act of 2005 (Koech et al 2009, pp.6-7).

5: Combining Natural Savings and Parallel Planting

Planet Positive's parallel planting methodology complements the Government of Kenya's policy objectives, whereas natural savings offers a green CC framework to create monetary/financial incentives for the conservation of indigenous forests. Combined, the two could operationalise a formidable tool to realise the following objectives:

- a) Advancement of indigenous forest cover and stewardship.
- b) Provision of profitable returns from sustainable forest management.
- c) Improved economic security for communities dependent on Kenya's forests for their livelihoods.

For the rest of this section, the proposed currency instrument will be referred to as the

Parallel Planting Complementary Currency (PP-CC)

5.1. PP-CC Issuance

In return for contributing to indigenous re-forestation and forgoing lost earnings derived from deforestation or planting exclusively exotic tree plantations, commitment to parallel planting projects would provide a variety of favourable returns for forest community residents and farmers:

- a) Short term: issuance of PP-CC in return for growing indigenous trees and protecting extant indigenous trees.
- b) Medium term: planting, growing and felling of fast-growing exotic tree varieties selectively planted in parallel with indigenous varieties.
- c) Long term: issuance of PP-CC in return for the sowing, cultivation and conservation of indigenous trees harvested for non-timber products.

In the case of (a), above, the amount of PP-CC earned is commensurate with the amount of time put into protecting local indigenous trees. The greater the duration of time a tree or an area of trees is taken care of the greater the number of PP-CC could be issued. For example, one PP-CC could be issued annually per tree which is protected and not felled by forest community residents. The intended incentive is to switch current practices of deforestation to stewardship.

In the case of (c), above, the value of PP-CC earned increases with the growth of trees from saplings to mature standing trees. This is because the first harvest of non-timber forest products comes ever closer. From the first harvest onwards, yields may fluctuate with the seasons but they will be maximised with the careful stewardship of the owner looking after the health of the tree(s). If the tree is healthy, it will continue to generate a long term revenue stream for the owner with minimal input once the tree is matured and established. Regardless of how the economic climate impacts the desirability of harvesting the forest products, an incentive remains in place to protect indigenous trees that are not being harvested (see (a) above). Such an

incentive is important in times of economic volatility when shrinking profit margins might increase the temptation to fell indigenous trees for timber.

Finally, in the case of (b), above, farmers are free to continue the current practice of harvesting exotic tree varieties for subsistence uses of timber or sale. Such tree planting would, however, take place in parallel with indigenous tree varieties in accordance with parallel planting methodology employed by the project implementer.

5.2. PP-CC Functions

PP-CC could be:

- i) Spent on products harvested by other farmers or forest community residents.
- ii) Used as a form of microsavings, since the value of PP-CC would naturally increase over time.
- iii) A medium of exchange to pay for other, non-forest products from local businesses.
- iv) Exchanged for national money by the implementer once the trees' goods are harvested and sold.

In instances of exclusive stewardship of extant trees, PP-CC could be spent in ways (i), (ii) and (iii), but could not be exchanged for national money. This is because standing trees left untouched do not create a revenue stream within parallel planting practice. It is conceivable, however, that a carbon credit scheme could be incorporated into parallel planting. Under such circumstances, it could be permissible for PP-CC originally issued for the sole stewardship of standing trees to be exchangeable into carbon credits, which could then be traded or sold for national currency.

5.3. PP-CC Benefits: environmental and climatic

As mentioned in sub-section 1.1., forest fragmentation and the edge effect should be a key consideration in the design of a currency instrument to advance indigenous forest cover and stewardship. Strategically

implemented parallel planting projects could reduce the edge effect and thereby recover biodiversity and the balance of species' populations. Furthermore, parallel planting makes a contribution to a plethora of ecological services; including climate regulation and watershed management. The crucial importance of these for human welfare has been pointed out in sub-section 1.2. PP-CC creates an incentive for local labourers, farmers and residents to make coordinated efforts to support sustainable forest management and reduce fragmentation.

5.4. PP-CC Benefits: socioeconomic

PP-CC works as both a green CC and a microsavings instrument to inject additional liquidity into local economies among forest communities. It monetises indigenous forest stewardship accounted for in the form of PP-CC issuance, which is fully backed by the organic growth and energy of indigenous trees. PP-CC has validity and circulation within a select circle of businesses and individuals, and furthermore has fungible properties which make it highly liquid for exchange into national money and locally produced goods and services.

PP-CC also introduces a relatively stable and predictable local currency to function alongside the Kenyan Shilling. For instance, it encourages holding savings in a country with high currency and price inflation (Cf. KBNS 2012). This is made possible by the value PP-CC accumulates over time, whereas the purchasing power of national money, the Kenyan Shilling, depreciates, sometimes dramatically, over time. PP-CC is, however, a complement to national money and does not impinge upon the ability of forest community residents to continue earning Kenyan Shillings from growing and felling fast-growing exotic trees for timber.

5.5. PP-CC Benefits: political stability and government policy

The major obstacle to the formation of CFAs to protect indigenous forests has been identified as a lack of financial incentives for forest community residents (Koech et al 2009, pp.6-7). PP-CC creates an economic

incentive for the formation of CFAs earned in their dedication to indigenous forest stewardship. PP-CC further supports the Government of Kenya's Forest Policy and makes a direct contribution to the government's National Climate Change Response Strategy.

A positive relationship has also been previously identified between environmental degradation and political instability. This gives reason to believe PP-CC projects could buttress political stability by, for example, reducing the number of environmental refugees created by climate change and desertification in Kenya.

5.6. PP-CC as a Green CC

The green nature of PP-CC plays a pivotal role in the combining of natural savings and parallel planting. Natural savings tethers the issuance of the natural savings instrument to the limits of some organic growth process, like indigenous forest rehabilitation. It therefore models an energy-backed financial instrument. The advantage and perhaps necessity for the coupling of money to the ecological regenerative capacity of the biosphere has been previously discussed.

Parallel planting's success rests on generating adequate revenue from its profit-making conservation methods. The methodology it uses to attract investment in its agro-forestry products requires sustained growth in product value over time and growing consumer markets to satisfy the compound return on investment. A stable macroeconomic milieu is, however, out of reach because of economic instability provoked by the global monoculture of debt-based money. The long term success and contribution of parallel planting therefore begins with an appreciation of how the monetary-economic paradigm further drives socioeconomic and environmental instability. It then becomes relevant to incorporate the natural savings framework into parallel planting because natural savings brings a micro monetary-economic paradigm shift to parallel planting through the introduction of a green CC. This allows PP-CC to be designed with ideals pertinent to sustainable forest management while simultaneously making the project more

financially resilient and sustainable. By comparison, eco-tourism, for example, aims to advance sustainable forest management from *within* the present monetary-economic paradigm. As a consequence, since the money supply must grow exponentially, marginal growth in production is necessary in eco-friendly industries, such as eco-tourism or carbon cap and trade schemes. In reality, of course, eco-tourism could not grow exponentially even it were desirable. Growth in the supply of PP-CC does not need to be exponential because issuance is commensurate with the growth and stabilisation of Kenya's indigenous forests.

6: Conclusion

Combining natural savings with parallel planting equals a green savings, investment and currency instrument adequately issued and circulated among forest community residents to advance indigenous forest cover and stewardship in Kenya. PP-CC could provide profitable returns from indigenous forest stewardship and improve economic security for communities dependent on Kenya's forests for their livelihoods.

The successful realisation of PP-CC would create competing and differing methodologies for its deployment by project implementers; this paper has only sought to outline PP-CC as a concept and not delve into unique project planning and implementation enquiries. Furthermore, there are many other considerations to be made regarding the harvesting, marketing and selling of forest products. PP-CC would be but one component in a parallel planting project, no more than an instrument intended to engender structural economic incentives that work for Kenya's indigenous forests rather than against them.

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