

SUSTAINABLE GLOBAL GARDENS [SGG] PROPOSAL FOR A CARBON CAPTURE PROJECT

INTRODUCTION

By April 2023 SGG completed a four-year tree project, during which several hundred small-scale farming households participated and an estimated two hundred thousand trees were recorded. This action was possible through a score of informal partnerships between SGG, Rotary clubs in UK and East Africa, and local community-based organisations [CBOs] in Kenya, Tanzania and Malawi. As African farmers were given a small remuneration in recognition of the tree care work they had done, it is not surprising that they wanted such work to continue.

The overall arrangements of this previous 2019-2022 'Tropical Tree-Planting and Conservation' project needed some adjustments as conditions, costs and needs change. This previous project focussed primarily on agroforestry planting on small-scale farms. SGG will continue to support agroforestry planting, but in the new 2023-2028 Tropical Tree-Planting and Conservation programme there will be much more emphasis on carbon capture.

The viewpoint of SGG is that the climate change crisis represents the biggest threat to humanity in the 21st century, so SGG invites all people to make climate change mitigation a priority. This requires two simultaneous actions. One is to lower our personal carbon footprint through a series of changes in lifestyle as part of a global effort to reduce carbon emissions into the atmosphere. There is a wealth of information available on the Internet about how individuals can reduce their carbon footprint. The second aspect is to remove CO₂e which is already in the atmosphere, causing the climatic disasters we hear regularly in the news. A strategy to achieve this, which is encouraged by most governments but which is also within an individual's control, is tree-planting. This paper concerns this second set of actions.

CARBON CAPTURE IN PRACTICE

One of the weaknesses of planting trees for climate mitigation is that in temperate climates it can take 5-plus years for the tree to grow sufficiently to capture significant quantities of CO₂e. For this reason we are inviting only those African farmers with large numbers of trees at least 3 years old to participate in this scheme. SGG also has adopted a simple measure whereby such a farmer can assess whether a specific tree is acceptable for this carbon capture scheme. See photo on next page.

Internet research suggests that a typical 5-year old tree in USA will 'harvest' or capture about 20kgs of CO₂e pa. That means 50 such trees will capture 1 ton/pa of CO₂e. We are confident that in the humid tropics where SGG is active a cluster of 50 trees which have passed the criteria given below will capture much more than 1 ton/pa of CO₂e. However, we have accepted a wide margin of error in order to benefit from quick and simple action which can be readily undertaken by those with limited formal education. Every IPCC report shows urgency of action is far more important than precision of technique when addressing the threats of climate change. *[those who query the need for urgent action should browse unep.org/resources/reports/climate-change-2023-synthesis-report and watch the accompanying video.]*



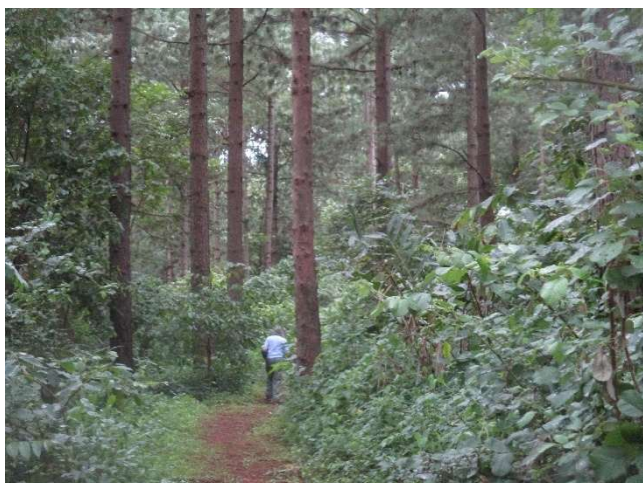
Here Carole [see left] demonstrates the method used to decide if a tree is suitable for carbon capture. At shoulder height, with thumbs touching each other, hands are stretched around the tree trunk. If the fingers cannot touch each other on the other side of the trunk, the tree is counted. This is a crude method, suitable for local conditions, but as the IPCC emphasise, urgent action is more important than a slow scientifically robust methodology. Browse www.undep.org with their 2025 'Emissions Gap Report' indicating that **"Nations remain far from meeting the Paris Agreement goal to limit warming to well-below 2°C "**. The other trees in this photo are not counted for carbon capture using the above SGG method, but it is evident that they add significantly to the carbon absorbed in this forest.

The above photo and those below illustrate some of the advantages of using tropical trees for carbon capture. Our Malawi partners who manage the above forest have photo evidence that this patch of land was almost devoid of trees in 2019. Trees grow much more rapidly in the humid tropics than in temperate zones. Furthermore they can grow much closer together, enabling much more CO₂e to be captured.



Here are two examples of the trees SGG wishes to use for carbon capture. Usually the carbon capture trees are mixed with others not yet sufficiently large at present. The [see above left] is a photo of Carole [in blue] standing at the base of one of the trees selected. This tree located in Busia County, West Kenya is already 7-8 years old, and the farmer standing next to Carole has a stock of 50 similar trees. The [see above right] photo shows part of the forest surrounding Zomba Forest Lodge in Malawi. Most of the trees here are too thin for this SGG scheme, but ZFL Manager Petal is standing next to a suitable tree and we counted more than 100 such trees in just a small part of the forest which surrounds the Lodge.

You can see from the photos above that there are no eucalyptus or pines, both of which can be damaging on small-scale farms where they can reduce both soil moisture content and fertility. SGG does work with planters with such species, because it is their choice to make concerning which species they wish to plant. Those tree species can be included in SGG's general tree counts as part of the Tropical Tree-Planting & Conservation [2023-2028] project, but they are specifically excluded from the carbon capture scheme.



Present SGG policy is to not include pines or eucalyptus in the carbon capture programme, although they are clearly absorbing considerable CO₂e. Thus the pines growing in Zomba Lodge grounds [see above left] are excluded. In contrast, the farmer here [see above right] has planted a line of mzizi [Maesopsis emini] at the back of his property and next to an excluded eucalyptus plantation. However, the mzizi are suitable for this carbon capture programme.

There are two queries which are often mentioned in discussions of this voluntary scheme. One concerns the fact that young trees do not absorb anything near 20kgs of CO₂e/year. For this reason SGG is trading with tropical trees which are known to be at least 3 years old and often much older and which have sufficient girth to pass the SGG criteria test. The other query is along the lines of ‘what is to stop a farmer from receiving the funds for carbon capture and then felling the tree the next day?’ The SGG solution to this potential problem is that when the farmer first agrees to not fell the mature trees, which of course have significant commercial value, that farmer is paid 20p/tree. The remaining 80p/tree is paid after 5 years for the trees which have been preserved. After 5 years SGG will ask the farmers if they want to continue for another five years for further payment, but this is a hypothetical issue at the time of writing [September 2026] because the earliest farmers have not yet reached the end of their first 5 year period.

There is also usually some discussion concerning the real cost of offsetting CO₂e emissions by tropical tree-planting. It has been pointed out that on the European commercial markets the cost of certified carbon offsetting has been in the region of £75-£80/ton in recent years. On the US markets this figure is much lower. SGG takes the view that £75/ton is excessive, and caused by high planting and labour costs in Europe combined with a verification process being done by specialist commercial firms. SGG already has field experience of being able to plant 10 seedlings in East Africa for the same price as a single whip sapling in the UK. Furthermore, confirmation of the presence of suitable trees is done by simple tree counts undertaken on a voluntary, no-cost basis by SGG. We have good reason to believe that we can implement carbon capture of 1 ton of CO₂e for the cost of £10. **This means that SGG, who have access to hundreds of small-scale farmers wishing to participate in this carbon capture, is offering this climate mitigation service to both rotarians committed to reducing their carbon footprint, and also the general public, at a cost of £10 for each ton of CO₂e to be offset.**

PROPOSAL

Some carbon capture has already been agreed in SGG's previous tree project, but this was very much at a pilot stage. Since January 2023 SGG has been looking to establish a much greater client base for carbon capture by tree-planting and forest restoration in Africa. This involves the following actions:

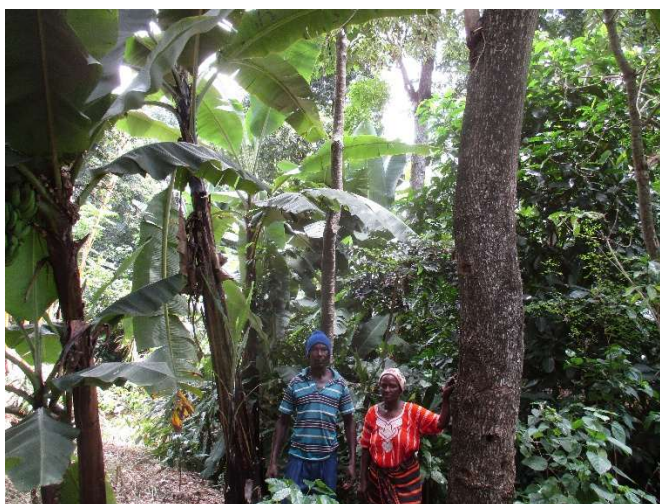
- the farmer, community group or institution grows and cares for at least 50 trees of their own choice. The species grown is the choice of the planters, although SGG is discouraging certain species [e.g. eucalyptus, some fruits]. These trees need to be at least 3 years old and a certain given size before they can be part of this project;
- in Europe where carbon emissions are much higher than in Africa, clients should first calculate their 'carbon footprint'. You need to do this on a regular basis, so that you know whether you are moving towards 'net zero' -something governments have pledged to reach sometime in the next 2-3 decades. There are several formulae and websites available which will enable you to do so, but I suggest that members of a club all adopt the same formula. It is more important to have a simple answer **now** so that **you can take action now**, rather than getting bogged down in complex calculations. A typical per capita carbon footprint in European Union countries would be between 8 and 10 tns of CO₂e/pa;
- when your carbon footprint is known, you need to take action to reduce that figure to net zero in the next two decades. That is likely to require a 5% reduction in emissions every year. There is abundant information which offers practical advice about how to do this, but there is general agreement that this requires a change of lifestyle. If you wish to continue with 'business as usual' you are almost certain to fail. Be courageous: net zero can be achieved! What SGG has found when discussing these issues is that many individuals are already well along this path towards net zero by better domestic heat conservation, reduced car travel by working from home/car-sharing, changing eating habits, reduced air travel, increased use of renewable energy sources etc, etc – so continue on your way to net zero!
- the last two bullet points are not directly about trees, but SGG considers them vital. There is general agreement that tree-planting will make little difference to climate change unless people combine tree projects with a reduction in carbon emissions;
- changing our lifestyle, the habits of a lifetime is liable to take some significant time. In the meantime, you can offset some of your carbon footprint [or even all if you wish] by paying African tree growers to capture carbon on your behalf. Thus, decide how many tons of carbon you wish to offset and inform SGG. Remember the cost is £10 per ton/pa for SGG's carbon capture, which uses 50 already mature trees to capture that ton of CO₂e;
- SGG is aware that many environmentalists are uncomfortable with the idea of 'carbon offsetting' because it has become associated with some large commercial enterprises undertaking 'green washing', pretending to be environmentally responsible when they are not. Where this is the case we would propose that the individual or institution be less concerned about the calculation of their precise carbon footprint but instead simply make a contribution to tropical tree-planting;
- when SGG receives requests for carbon capture, we select a farmer or institution who has the required stock of trees. An MOU will be made with the grower receiving £1 per tree over a 5 year period. At that point the grower will be offered another £1 to keep the tree growing & absorbing CO₂e for another 5 years;

- After that period of 10-plus years it is quite likely that the grower will cut, but SGG is not so concerned about that. We recognise that African farmers have the same right to earn revenue from forestry as wealthy countries, such as Canada, Finland etc. What is important is that trees which are felled are replaced – something which has not happened in the past. Our policy is ‘if you cut a tree, plant at least two and preferably five as replacements’;
- if a Rotary Club, institution or individual wishes to move towards net-zero and offset some of their carbon footprint by engaging an African farmer to care for mature trees, I suggest you contact SGG through sgginfo16@gmail.com to discuss a suitable location for such carbon capture.

SUMMARY AND FUTURE PROSPECTS

In summary SGG asks individuals, clubs and institutions to calculate their carbon footprint, then encourage them to lower that figure by 5% pa. If they wish to offset some of their carbon footprint or simply make a contribution to increase global tree cover, SGG’s new Tropical Tree-Planting and Conservation [2023-2028] Project provides a suitable and cheap mechanism for them to do so.

This carbon capture scheme is just one component within the much broader Tropical Tree-Planting & Conservation [2023-2028] Project, where the target is to have 300,000 trees planted or growing by natural regeneration by December 2028. We hope to have a stock of 10% of those trees suitable for carbon capture, which would mean a stock of 600 tons of absorbed CO₂e available for voluntary offsetting. What we lack at present are sufficient clients from the industrialised economies who are prepared to support this action which will benefit us all in the struggle against climate change.



There are many large indigenous trees within the Chagga farms on the slopes of Kilimanjaro, Tanzania. Surely it is worth preserving such trees as a carbon sink for the benefit of us all? Thus, SGG appeals for your engagement and support in this climate change mitigation project. Our best wishes to all those who are trying to lower their carbon footprint.

Paul Keeley

Sustainable Global Gardens

29th September 2026