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Trees of Hope Plan Vivo Annual Report

January 2016 – December 2017

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1.0 Background

The effects of climate change lead to decreasing food and water security, soil productivity, crop yields, forest cover, and biodiversity, all of which disproportionately affect smallholder farmers. These issues are further exacerbated by rampant deforestation and poor land management. As a result, these environmental changes are threatening the livelihoods for the majority of Malawians, who depend on subsistence agriculture.

The Clinton Development Initiative established the Trees of Hope Project in 2007 in the Dowa and Neno districts of Malawi to reverse deforestation, mitigate the harmful effects of climate change, and bolster a self-sustaining marketplace by making tree farming profitable and attractive for smallholder farmers. The Trees of Hope project coordinated community led efforts in climate change mitigation and adaptation through agroforestry and reforestation activities, reducing the local community's vulnerability to climate change through benefits derived from tree-based land use systems, while also providing farmers with increased income from the sale of Plan Vivo carbon credits.

Trees of Hope is a certified Payment for Ecosystem Services (PES) project. Plan Vivo supports communities in managing their natural resources by quantifying ecosystem services. Through the Trees of Hope project, rural farmers in Malawi decide how they can best address threats to their local ecosystems by choosing one of five land-use systems that addresses threats to their local ecosystem. These systems represent responsible land management strategies that benefit the environment by reducing soil erosion and increasing soil fertility.

The following report presents a general state of the project during the indicated reporting period. It should be noted that most of these indicators have not changed, as the program has been undergoing an evaluation of its expansion strategy.

It is important to note that during this period the Trees of Hope project was successfully audited by Rainforest Alliance.

Table 1: Summary

Project indicators	Historical (2010-2015)	Added/ Issued this period (2016 - 2017)	Total
No. smallholder households with PES agreements	851	1	852
No. community groups with PES agreements (where applicable) by Dec 2014	24	0	24
Approximate number of households (or individuals) in these community groups	10	0	10
Area under management (ha) where PES agreements are in place	272 ha and 6,602.4 100 meter units	0	272 ha and 6,602.4 100 meter units
Total PES payments made to participants (USD)	$241,257.99 USD and €22,706.13		$241,257.99 + €22,706.13
Total sum held in trust for future PES payments (USD)	$100,539.03 USD	$26,372.08 USD	$126,921.11 USD
Plan Vivo Certificates (PVCs) issued	79,402	3,499	82,901
Allocation to Plan Vivo buffer to date (tCO2)	19,850	875	20,725
Unsold Stock at time of submission (PVC)	0	0	0
Vintage 2015 (after reported transfers/retirements)		0	0
Plan Vivo Certificates (PVCs) requested for issuance this reporting period		**3,499***	

Summary Statistics	
Reporting Period	1st January, 2016 – 31st December, 2017
Technical Specifications in Use	1. Woodlot 2. Boundary Planting (BP) 3. Dispersed Systematic Inter-Planting (DSI) 4. Citrus Orchard 5. Mango Orchard

Payment for Ecosystem Services (PES) Agreements in Numbers			
	Total PES Agreements for Project	Agreements from Current Reporting Period	Agreements for New Certificate Issuance
Individual Smallholders	852 farmers	0	0
Farmer Groups	24 farmer groups	0	0
TOTAL	876 farmers and groups	0	0

**It is important to note that the current issuance request is based on the verification and re-evaluation of the underlying carbon potentials. Due to overly conservative initial estimations of carbon potentials, the project is now able to update these values in line with the audit results. Farmers' payments and the database where annual milestones are to be met, have all been updated based on these new potentials. Farmer payments during this period were halted due to the audit, review of carbon potentials, and re-adjusting farmer payments. Farmers were paid in 2018, which will be reflected in the 2018 AR for Plan Vivo.*

2.0 Key Developments in the Project

2.1 Climate Change Impacts and Loss of Tree

The first of the two years in this report, 2016, was a year of restoration for most of our producers in Neno. Farmers were recovering from 2015 floods that affected most of their nurseries and trees. It was estimated that more than 14,000 trees were washed away in Neno, as such, farmers were encouraged to replant the lost trees. Clinton Development Initiative through its Field Officers worked with farmers to re-establish their nurseries.

Trees of Hope decided to go back to the basics. Our field officers conducted community sensitization meetings, sensitizing farmers on climate change, its effects on livelihoods and ways to adapt to and mitigate its impacts. We emphasized the important roles that trees play, the economic and environmental benefits of trees, and encouraged farmers to integrate trees into their farming systems. The meetings increased understanding among the communities of the climate change issues to enable them to appreciate its impact on their livelihoods.

Trees of Hope also engaged the community in collection and preservation of locally available tree seeds of Plan Vivo-approved species. We had a positive response from farmers, especially in Neno, because they had seen the effects of floods and understood the importance of trees. This integration of programmatic support is critical to the long-term sustainability of not only the work that is undertaken by the farmer in Trees of Hope, but also farmers' understanding of the importance of tree planting in general. If farmers are now able to also identify and properly save seed, they will not have to rely on the markets to buy the seeds. This is a cost saving intervention for farmers. We also anticipate that some of these farmers will be able to sell the saved seeds to other farmers, creating a small business in the remote area of Neno.

The historic events of floods and droughts leading to fires, has reinforced the importance of programs like Trees of Hope. The past few years have been a reminder that it is imperative to support the rebuilding after climatic disasters like the ones our farmers endured, and integrate resiliency planning and training into our work, in addition to supporting farmers in their Plan Vivo land use systems.

2.2 Pest & Disease Control for Fruit and non-Fruit trees

Pests and diseases are currently under control. Farmers took the necessary measures as advised by a Pathologist as referenced in the 2015 Annual Report. Where not always advised, it is important to note that in some cases pests are not able to be eradicated via-organic means, and in such cases, the team is there to provide alternative solutions, such as recommendations to farmers for non-organic means of pest and disease control, as well as proper handling and application of the materials. This is particularly true for the fruit tree farmers, who often face many challenges with pests and disease of their trees. Trees of Hope staff work with farmers to select indigenous tree species that are resilient to most known pathological problems. We currently have very few cases of pests and diseases.

2.3 Activating Farmers Bank Accounts and Opening New Accounts

Trees of Hope, with the support of our finance team, worked with First Merchant Bank to verify activation of farmers accounts. Most farmers hardly use their bank accounts as they only use them to receive their payments from Carbon Sales, as such, their banks have been dormant and need to be activated for them to access their payments. Farmers need to be encouraged to develop a culture of saving as this would not only keep their bank accounts active, it would also enable farmers to save and make use of their income wisely. CDI is more broadly supporting this message around savings, and hopes to integrate it into messaging to the Trees of Hope farmers as well.

2.4 Payment for Ecosystem Services (PES) and Payments

Trees of Hope made payments to individual producers and community groups who met their monitoring targets. Some farmers complained that they did not receive their payments. We realized their bank accounts were not active, which is why they did not get paid at the same time that other producers were being paid, which was a clerical error that the staff should have been alerted to sooner. With the support of our Director of Finance, the bank was asked to activate their accounts and all producers then received their payments. The payments helped farmers to take care of their household needs and motivated them to continue meeting their targets.

2.5 Monitoring and Evaluation

During 2016 the M&E team organized an M&E training for all the Trees of Hope staff, a first of its kind, with a view of improving both data collection skills and reporting. This training was well overdue because previously the reports that Field Officers for the Trees of Hope Program were compiling were ending up on the Trees of Hope Manager's desk. This was hence the first time for this program to open up its activities to be monitored by an independent team. A new reporting format was developed which encouraged Field Officers to send their reports electronically, a departure from sending hand-written reports as before. Electronic reporting improved the efficiency in analyzing data coming from the field, and ensures historic records are kept safe, and can be easily shared with others.

The M&E team collected data on the major accomplishments in 2016. The table below shows the number of trees grown and nurseries raised in 2016. These nurseries included project trees such as *Senna spectabilis*, *Senna siamea*, *Acacia polycantha*, to name a few.

Table 2: 2016 Activities by Number and District

STATISTIC	DOWA	NENO	TOTAL
Number of trees planted	100,820	12,193	113,013
Nurseries raised	20	51	71
Farmers trained	749	102	851

The M&E team also trained Local Program Monitors and enumerators in DBH data collection. The exercise was done to enable payments to be processed as most farmers had gone beyond the fifth year of monitoring. Data on survival rates was also collected from farmers who would be getting their first payment. These farmers were taken from the waiting list. Bank accounts were opened for the wait list farmers to enable them to access their payments. M&E team will continue to monitor such farmers, ensuring that they are meeting their targets and confirming their eligibility to receive carbon credit payments.

Based on the audit (further details in Section 3 of this report), we found that the original reporting and monitoring records for the farmers planting trees was linked to the year of certificate issuance rather than the actual year of planting in some cases - the difference owing to some replanting having taken place over this period. After many months, Trees of Hope was able to survey its farmer population, revisit the farmers to confirm what they had indicated in their PES agreements, and restructure the database of farmers according to the year planted, making the tracking of farmers' progress and tree growth accurate, and correlated to payment targets.

During DBH data collection the M&E team made the following observations:

1. Some trees recorded larger diameters within short planting periods than the older stock. Others displayed differences, despite the planting years being the same. It was noted that the spacing in some fields between trees is not uniform. This is one factor seen to affect the DBH.

2. Some trees had been harvested once or twice. In some cases, trees were cut 2 meters above the ground. It was noted that this was done to reduce shading for agricultural crops (Maize, groundnuts, rice, beans, soya etc.) especially in boundary and DSI planting systems. In other cases, trees were harvested less than 1 meter above the ground. In either case, this can lead to reduced DBH of the trees and is not permitted under Plan Vivo standards. This prompted Trees of Hope to take remedial action in re-training farmers on the importance of following the technical specifications of the standards, to ensure targets can be reasonably met and payments made for their tree planting.

3. In rare cases, the performance of some trees was affected because the polythene tubes were not removed during planting. Best silvicultural practice recommends that the tubes (in which the seedlings are raised at the nursery) should be removed during planting in the field as failure to do so affects root development and hence crop development (growth). This discovery prompted Trees of Hope to reinforce proper out-planting procedures.

4. DBH measurements for some tree species such as *Senna spectabilis* were bigger than other species. This is likely due to its adaptability to grow in the Malawian climate.

2.6 Refresher Trainings

Several trainings were conducted in 2016. The trainings were conducted with farmers either directly or through the Local Program Monitors (LPMs) with the support of the Clinton Development Initiative staff.

Climate Change: These refresher trainings focused on climate change issues, its impact on livelihoods and local adaptation and mitigation. The aim was to increase the understanding of producers on climate change issues and influence them to take collective action to mitigate its impact.

Nursery Establishment and Maintenance: Additionally, producers were trained on tree nursery establishment, maintenance and the management of trees in the field. The objective of these trainings was to remind producers of the tree species they were planting and their characteristics as seedling and as mature trees so that they would be able to produce successful nurseries and manage their land use systems effectively into the future.

Silviculture: Training was also conducted on good silvicultural practices such as deep pitting and use of organic manure for increased soil moisture retention, increasing tree survival rates during periods of drought; placement of thorny fences around plantations or individual trees to avoid livestock from destroying seedlings; as well as pest and disease management. These refresher trainings are particularly important for the Trees of Hope farmers as climate change is greatly impacting many of the districts in Malawi, and building resilient landscapes helps not only with the health and productivity of the farmers' trees, but also of their other farmland.

Technical Specifications: When conducting a refresher training (training of trainers) on technical specifications, we noted that it was important to remind Local Program Monitors and Field Officers of the reason why Trees of Hope exists, the Plan Vivo system and carbon finance. The main objective was to reinforce the importance of producers following the guidelines, and meeting their targets, and how that linked directly to their payments over a ten-year period. The targets were explained, as they related to carbon sequestration, and that by meeting the targets for tree survival rates in the first few years of growth, and then DBH growth, this would unlock the payments for each period. Indicators such as planting density were also covered as it was noted over the past few years that some of the trees being planted were not in line with the guidelines in the technical specifications, specifically that some were planted too close together impacting growth and survival, as the trees were competing for water, sunlight and nutrients.

2.7 Profile of Producers, Recruitment and Project Size

Trees of Hope is still getting interest from community members who are not yet part of the program wanting to join. This is attributed to the on-going awareness campaigns that educate communities on the importance of trees and the benefits of carbon sales. Trees of hope, however, has not been able to recruit any new farmers in this period, as the program is working on sustainably and strategically growing in areas where its parent organization, the Clinton Development Initiative, has ongoing programs.

For farmers that have showed significant interest to be part of our project, we encouraged Field Officers and LPMs to ensure that farmers still have sufficient land for crop production for sustainable yields even with tree planting, by proper matching of the land holding size of the farmer and the selected land use system. For instance, producers with limited land are to be recommended DSI or BP technical specifications, which does not affect the planning of crops on their farm land. This also highlighted the value that the project has in the areas we are working.

Trees of Hope continues to explore opportunities to strategically grow the farmer population benefitting from carbon finance, and in the meantime, find ways to support farmers looking for information on how to grow and

benefit from trees growth more generally as the trees help build more resilient farmlands that can withstand floods and droughts that are ravaging Malawi.

3.0 Key Events in the Project

3.1 Highlights of a Baseline Survey Report

The study by Ajai and Aknifesi in Kasungu district (2011) was conducted to determine socio-economic factors that influence adoption of agroforestry practices by small-scale farmers. Adoption of agroforestry in the study area was influenced by socio-economic factors such as land and tree tenure, age, gender, level of education, farm size and ethnicity. The study recommended that programmes should educate women to practice agroforestry, since women play significant roles in farming activities. It also recommended that there should be deliberate efforts to introduce the people in the area to agroforestry technologies and that government should streamline existing tenure arrangements to provide more access and security to land and enhance adoption of agroforestry technologies.

Having known this, building a proper implementation structure for Trees of Hope project and being assured of continuation of the reception of the technology, there is a need to consider the recommendations in developing the plan of action to make sure that target audience is reached. Research was conducted by Akinnifesi et al., (2007) in Malosa Extension Planning Area (EPA), Zomba RDP in southern Malawi. The results presented in logit and regression models showed that 19% of farmers preferred *Sesbania sesban* (Egyptian riverhemp), 26% *Tephrosia vogelii* (Fish bean), and 55% *Cajanus cajun* (Pigeon Pea). Between 2001 and 2003, Sesbania sesban adoption ranged from 3 to 6%, *Tephrosia vogelii* from 16 to 20%, and *Cajanus cajun* from 76 to 100%. *Cajanus cajun* was primarily preferred and adopted for their immediate livelihood benefits as a secondary food source.

With this information, CDI hopes to consider new trees that are approved through Plan Vivo before expanding any further, to ensure that the trees being promoted are ones that are valued by farmers.

The study conducted in Neno, Southern region of Malawi by CDI in July 2015 examined the practice-adoption of improved agroforestry technologies among farmers. Data was collected from 90 farmers selected using a multistage random sampling technique and analysed using descriptive statistics regression analysis and Pearson product moment correlation. The main determinants of the adoption were farmers' educational level, farm size, income and extension contact that positively affected the adoption of agroforestry while age affected it negatively (Lamber and Ozioma, 2011).

In Zimbabwe the study by Parwada et al., (2010) to identify factors that affect agroforestry adoption was undertaken. Logit regression results showed that the likelihood to adopt live fence was influenced by land ownership, awareness, training, drought, labour and local institutions. Adoption of trees for nutrition was influenced by belonging to a farming group, awareness, training, land size and local institutions. Adoption of improved fallows was influenced by employment status, belonging to farm group and land size. Factors that influenced adoption of fodder banks were employment status, awareness and training.

From the findings of this study, Trees of Hope realized that many young members of the community are not involved in tree planting as they do not have land and some are just not interested in tree planting. As such, Trees of Hope is looking for ways it can influence youth members to be part of the program and start seeing the benefits of growing trees. The project will continue to conduct awareness trainings, targeting all age groups as such trainings can play a major role in educating them on the benefits of growing trees.

3.2 Integration of Trees of Hope and other CDI Programs

In mid-2016, the Trees of Hope project was linked with CDI's Smallholder Outreach Program (SHOP) in order for Trees farmers to benefit from SHOP projects focused on improved agronomy, food security, increasing crop yields, increasing the quality of production, and connecting farmer groups to markets. CDI through SHOP also has a very strong history of working with farmers in the maize and legume value chains, promoting climate smart agriculture to ensure farmers are resilient to climate shocks. CDI saw it fit to merge SHOP and Trees as this would benefit both Trees and SHOP farmers as Trees farmers would be trained on best practices of agronomy for yield increase and income generation, and SHOP farmers would learn more about the benefits of tree planting in building resilient landscapes and improving food security.

Trees of Hope has since been working with CDI's Smallholder Outreach Program in training smallholder farmers to integrate trees and shrubs with annual crops. Rather than encouraging farmers to grow trees for carbon sales, farmers were encouraged to grow trees for the other benefits that come with them; to provide shade, a steady supply of food throughout the year, arrest soil degradation and maintain soil fertility, enhance use efficiency of soil nutrients, water and radiation. This resonated well with the farming communities we were already working with, and this would be an ideal population to expand Trees of Hope interventions into.

Research in different parts of Malawi has showed that fertilizer tree species especially *Gliricida sepium, Cajanus cajun, Sesbania sesban* and *Tithonia diversifolia* used with cereals especially maize can increase quantity of maize per unit area harvested and thus enhance household food security for the smallholder farmers. With food insecurity a pervasive hardship in the region, farmers rather focused on satisfying immediate livelihood needs evident from high level of pigeon pea adoption, before prioritizing longer-term soil-quality improvement techniques. In trying to improve human nutrition and food security, Smallholder Outreach Program saw it fit to encourage its farmers to prioritize food producing trees and other beneficial functions from the trees. Prioritizing food producing trees will speed up the adoption of the agroforestry technologies, thereby benefitting more households. Many farmers will use the peas from *Cajanus cajan* (pigeon pea) to consume at a household level, and then use the leaves as fodder for their livestock.

With the ongoing relationship between Trees of Hope and SHOP, some of the Trees producers in Dowa benefited from the smallholder outreach program which trains farmers in best practices of agronomy. During the past year, SHOP distributed soya serenade variety seed and inoculant (fertilizer for legumes) to its farmers and farmer clubs in the eight districts that it operates. Some of the beneficiaries were tree farmers in Dowa. Despite the short dry spell that affected the country, most of the farmers are happy with their harvest. We are currently getting requests from tree producers who are not yet part of SHOP asking to be considered to undergo the training and access the seed and inoculant that SHOP provides to its farmers.

3.3 Rainforest Alliance Audit

3.3.1 Overview

The Rainforest Alliance conducted a verification audit beginning in the middle of 2016. Activities included checking farmers files and interviewing staff at the CDI Malawi country office, including the Director of Finance, Director of Community Outreach, and the former Trees of Hope program Manager to name but a few. After this field officers were interviewed about the program and Ms. Esmay Kamowa represented the field officers. To give a few examples of the questions asked, these included: When the tree program stopped registering new farmers under PES? How many farmers are involved in the program? What is the total number of farmers on PES program currently? What are the different types of land use systems involved in the program? And many more. After the interviews the Rainforest Alliance team visited farmers' fields in Dowa to appreciate the achievements of the program. They visited a sample of farmer fields and interacted and interviewed the farmers. The primary purpose of the field visits was to verify that 1) the farmers that were listed in our network

were actually in the places we said, were managing the tree based land use systems as listed in their files, and that they were on track for meeting monitoring targets based on when their trees were planted.

Other stakeholders that were also interviewed were the Dowa District Forestry Officer and one of the Agriculture staff (AEDC) for Dowa District, government officials that work alongside the Trees of Hope team.

3.3.2 Excerpt from Verification

Rainforest Alliance has verified that the Trees of Hope Project is in conformance with the Plan Vivo Standard 2008 Edition. The project is located in Malawi. … The audit team reviewed the validated carbon calculations in detail and have verified the appropriateness of the chosen equations and assumptions. Based on observations, the Terms of Reference for Project Verification (v.12/2013) and more than 40 interviews during the field audit, it is accurate to state that the ecosystem services provided by the project are indeed still additional. To date, there are no government or private projects similar in scope or scale in the region. As a result, the project was verified to be on track to achieving the ex-ante estimated net carbon benefit over the project's 50-year lifetime. The GHG emission reductions and/or removals achieved during the monitoring period were evaluated to a reasonable level of assurance.

Verification Registration Code: *RA-VER-PV-021711* | ***Effective Date:*** *26 July 2017*
The validity of this statement is contingent upon the project's continued implementation of the Plan Vivo Standard 2008.

The audit was finalized in late July 2017 when the project received notification that verification to the Plan Vivo Standard 2008 Edition was achieved by Trees of Hope.

3.3.3 Verification Highlights

As a consequence of the verification, the Trees of Hope project has revised the carbon estimates, as the original project estimates were overly conservative. This decision came about after revisiting the original PDD and technical specifications, and having a conversation with the verifier.

This adjustment resulted in a small increase in carbon sequestration levels across the farmer population, and as a result, has triggered an additional issuance in this report. The decision was made to amend the database and based on the recalculations, pay farmers an additional sum of money based on the revised carbon sequestered by their land use systems, in the next payment period in 2018.

3.3.4 Corrective Action Requests (CAR) to Forward Action Requests (FAR)

Two corrective actions were converted to Forward Action Requests due to the time it would take to implement the changes and corrections. The timeline for conformance is noted as prior to next verification, five years from the date of the verification notice in 2017.

NCR 01/16 identified that "A combination of inadequate equipment and lack of oversight has led to deviations in project implementation from the technical specifications." The Plan Vivo Foundation or the audit team of the project's 2nd verification audit should evaluate the results of the action plan described by the project to verify whether issues in implementation according to the technical specifications have been identified, fixed, and/or prevented.

This issue continued to be highlighted by staff members. Trees of Hope staff have recognized this, but unfortunately as most of these land use systems are well established at this point, making changes has been difficult. Trees of Hope staff has worked to re-train farmers on the specifics of the land use system, and thin or replant trees, where appropriate.

NCR 06/16 identified that "The project has not followed the monitoring schedule, and monitoring of tree growth has not occurred." The Plan Vivo Foundation or the audit team of the project's 2nd verification audit should evaluate the results of the action plan described by the project to verify whether the backlog of project monitoring has been completed according to the approved monitoring schedule.

One of the primary delays in the submission of this Annual Report is directly related to this FAR. The verification process unveiled that an early point when the project was first set up, farmers were grouped by issuance, not by year that the trees were planted. The team has had to reorganize the database by year that each farmer planted their trees, re-monitor based on that information, and then calculate payments where necessary.

3.4 Visits to Trees of Hope Farmers

Selected producers in Dowa were visited by ZeroMission and Max Burgers on different occasions. ZeroMission is one of the retailers of the Trees of Hope carbon certificates, based in Sweden. They have been great partners for the project for many years, and we welcomed their site visit to see the farmers that are generating the certificates they sell to climate-conscious businesses in Sweden and beyond. Max Burgers is a climate-friendly fast food company from Sweden that have purchased Trees of Hope certificates in the past. Both parties were interested to see all the land use systems that Trees of Hope has in place.

The team decided to showcase the entire lifecycle of our engagement with the farmers and community groups, starting with education, and then nursery establishment, all the way through tree planting according to the technical specification documents. We looked at three main activities:

- **Nursery establishment:** We selected two community nurseries where producers showcased how they plant trees and care for them. Producers mentioned of the things they consider when selecting a nursery location i.e. their proximity to a water source, and a protected area. They also mentioned of the different soils to be used when planting seeds in order for them to germinate, how to put the soils in the polythene tubes, how to cut the seeds for them to germinate, when to water the seeds and the quantity of water required.

- **Out-planting:** Producers also demonstrated how they plant seedlings when they are ready to be transferred from the nursery to the field. They dug holes and planted them basing on the trainings they received from their Field Officer. It was interesting to see how producers could learn quickly on how to produce seedlings. At first seedlings were produced by CDI in central nurseries and later distributed to producers but the technology was transferred to producers who now produce seedlings in community nurseries, they take turns to care for the nursery and share the seedlings amongst themselves when they are ready to be planted in the field. This step to decentralize the nurseries empowered the farmers and made the work most sustainable, enabling farmers to have the knowledge and tools that they needed to continue to grow their trees planting work beyond Trees of Hope.

- **In-field mature land-use systems and sharing impact stories:** Additionally, the visitors were taken to farms of our two producers, one used dispersed planting system and the other one used boundary planting system. A community woodlot was also visited which is at an elementary school and provides shelter to students. Some producers shared how their livelihoods have transformed through the payment for ecosystem services. They also shared how they are looking forward to get income from the sales of tree products including timber and poles through controlled harvesting in the years to come. Women also shared how they would easily access firewood, saving them time they spend walking long distances to fetch firewood through approved small-branch harvesting from their woodlots. One producer who chose Dispersed Systematic Inter-planting (DSI) land use system shared that this system has increased the soil fertility on his farm which has increased crop yields for his maize. He pointed out the shade that

the trees provided, the benefits of the leaves falling for green manure for the soil, and that the roots helps hold in water when there were few rains.

During the visit, Trees of Hope staff helped facilitate a tree planting training to commemorate ZeroMission's 30th birthday. More than 20 trees were planted with a community in Dowa. This gave the visitors an opportunity to discuss directly with the community about the benefits of the program, explaining what they had been able to purchase including metal roofing and chickens, and how grateful they were for the project.

Due to the limited time the visitors had, we could not take them to Neno to see the Mango/Citrus Orchards.

4.0 Key Challenges the Project Faces

4.1 Climate Change

Malawi faced erratic rainfall and some parts were greatly hit by drought in 2017/2018 season. Some of our producers lost their seedlings due to the drought and the ones that survived wilted. Trees of Hope will be encouraging producers to establish new nurseries to replace the lost trees. There is also a need for refresher trainings on digging bigger planting holes in order to increase the water holding capacity within the rooting zone and to allow easier proliferation of roots. They will also be trained in the making and use of compost manure to improve water retention in the root zone, as well as mulching to help keep in soil nutrients and water as the climate changes. Farmers will also be reminded of the importance of early planting to take advantage of the full rainy season which would increase the tree survival rate. For early planting to be possible, farmers need to establish nurseries with plenty of time, in order to have seedlings ready and start watering to encourage root establishment ahead of the season.

4.2 Delays in Payments to Farmers

Trees of Hope has delayed farmer payments due to the untimely collection of data which resulted in the late submission of the report. One of the major causes of this was that the Project Manager, Caroline Limuwa, left Trees of Hope when her contract ended. ToH had to rely on other CDI staff members to monitor progress on activities of the project.

This was compounded by the aforementioned issues brought to light during the audit regarding monitoring targets. The reorganization and re-verification of all of the farmers and their land-use systems into the database has taken time. Thankfully, through the audit by Rainforest Alliance, this issue was brought to light, and the project took the opportunity to re-organize the database more logically to ensure that farmers were paid according to the correct indicators as outlined in the Plan Vivo 2008 Standard.

Staff members have been meeting with our farmers and communities to keep them informed on the process and to assure them that they will be paid as soon as possible. Farmers have understood, and encouraged us to keep communicating the challenges we faced on the administrative end. As this began in the middle of 2017, and is still on-going pending verifying information on each farmer in the database, payments are ongoing, and thus will be reflected in the 2018 AR for Plan Vivo.

4.3 Farmers Abandoning their Fields

Approximately 30% of farmers in Neno stopped taking care of their tree stands – predominantly the citrus tree farmers – due to delays in payment in the early years of the program. As a result, the areas where trees were planted became bushy - , some were exposed to fire and died, but most have stunted growth due to disease and

weeding issues in the early years of the project. This will affect the number of farmers that will be paid in Neno as many have failed to meet their monitoring targets which would enable them to get paid because replanting had to occur for this same population. DBH data is consistent with trees planted 5-7 years ago. Trees of Hope has realized the need to continue encouraging farmers to grow trees not just for the carbon sales benefits but also for all the other benefits that comes with tree-planting.

Geographic distance of the Neno farmers compared to the rest of the population, coupled with a limited emphasis on the importance of weeding to ensure normal tree growth, has led the Trees of Hope program to explore options to minimize instances of this occurring the future. CDI is exploring partnership with other non-profits in the area to support trainings on tree growth and the additional livelihood and food security benefits that fruit trees can have. Project farmers are paid over a period of ten years, at which point the other benefits of these multi-purpose trees should be sufficient to ensure sustainability of these systems. This nevertheless requires additional monitoring and training to ensure the needs of the farmers are met.

5.0 Project & Participant Overview

Producers in the program are engaged in one or more of the five land-use systems described in the table below. For more information please explore the Trees of Hope technical specification documents on the Plan Vivo website. The graphic below explains the environmental and potential income generating benefits of each of the land use systems.

Producers registered with the program, each with a single *plan vivo*, are either individual households or communal groups. Producers can opt for more than one land use system and this is common among individual producers, while communal groups are typically engaged in woodlot land use system. Table 5 below shows producers and community groups with registered PES agreements. These numbers have changed slightly since the last report as two farmers have consistently not met their targets.

Table 3: Profile of Producers with Registered PES Agreements

STATISTIC	VALUE
Total Number of Producers	876
Number of Community Groups	24
Number of Individual Producers	852

The total area coverage for the project is shown in Table 6 below, broken down by system, in addition to the total carbon sequestered by the land use systems.

Table 4: Area Coverage for the Land-Use Systems

LAND-USE SYSTEM	UNITS	AREA COVERAGE & CARBON TOTALS
Project Area	Woodlot	102.5
	DSI	154
	Mango	4.33
	Citrus	11.79
	100 meter units	6,602.4
Total tCO_2		**82,900.94**

5.1 Carbon Recalculation

As noted above, a revision of the carbon potentials with the auditors and verifying body has taken place. Below is a summary of the changes that occurred broken down by land use system.

Table 5: Updated Carbon Potentials

Technical Specification	Net benefits		
	Subtracting Baseline (tCO2/ha)	Contribution to PV Buffer (20%) (tCO2/ha)	Tradeable (80%) (tCO2/ha)
Woodlots	181.2984	36.2597	145.0387
Boundary Planting	*212.8167*	*42.5633*	*170.2534*
B. Planting (per 100m)	10.6408	2.1282	8.5127
Dispersed Interplanting	87.2276	17.4455	69.7821
Mango Trees	103.3753	20.6751	82.7003
Citrus Trees	67.1537	13.4307	53.7229

6.0 Sales & Issuances of Plan Vivo Certificates

Issuance Summary

Issuance One and Two (2010 Vintage)

Total Number of Beneficiaries: 294
Certificates Issued for Issuance One: 20,000
Certificates Issued for Issuance Two: 2,550
Number of Farmers: 277
Number of Community Groups: 17

Issuance Three (2013 Vintage)

Total Number of Beneficiaries: 205
Certificates Issued: 20,000
Number of Farmers: 201
Number of Community Groups: 4

Issuance Four (2014 Vintage)

Total Number of Beneficiaries: 376
Certificates Issued: 36,852
Number of Farmers: 373
Number of Community Groups: 3

Issuance 5 (2016 Vintage)

Impact: All beneficiaries
Certificates Requested: 3,499
Rationale: Carbon Re-calculation

Table 6: Sales Summary

Feb-16	ZeroMissionAB -160	1000
Jul-16	ZeroMissionAB -176 (replaced #175)	5169
Sep-16	COTAP - 6	588
Sep-16	United Bank of Carbon	840
Feb-17	ZeroMissionAB	1426
subtotal		**9,023**

7.0 Summary of Monitoring Results

The current monitoring targets are based on farmers meeting minimum numbers of live trees on plots shown as (MT – Monitoring Target) in the appendices which are then compared to the actual number of trees on that plot designated as (MR – Monitoring Result) in the appendices. The project does not experience serious challenges to the monitoring process because it has over the years built enough community-based capacity for this exercise through involvement of Local Program Monitors (LPMs) based in the communities.

In some limited cases, producers get monitored unsuccessfully where they fail to meet the set targets for specific monitoring periods. Such cases are attributed to factors outlined in Table 7 below where corrective remedies are also presented for producers to implement ahead of the next monitoring period. Trees of Hope has determined a framework for suspension of farmers that fail to meet their monitoring targets, which result in temporary holding back payment for that monitoring period.

Table 7: Summary of Reasons for Target Failure and Recommended Corrective Actions

NUMBER	REASON FOR TARGET FAILURE	RECOMMENDED CORRECTIVE ACTIONS
1	Drought, where young seedlings perish due to water stress	• Digging planting holes of the recommended size for adequate water capture. • Use of compost manure to enhance water retention within the rooting zone of the tree. • Early planting to take advantage of the full rainy season. • Introducing tree species that are more tolerant to drought.
2	Termite attack, which kills young seedlings	• Application of inorganic termicides. • Use of organic termicides like *Tephrosia vogelii* extracts. • Keeping grass mulch clear of the tree base.
3	Late planting	• Early land preparation for tree plots to avoid competition for the limited labour with arable crops later in the season. • Timely establishment of nurseries to have seedlings ready for planting at the beginning of the rainy season.
4	Fire	• Clear brush during dry seasons. • In particularly prone regions, plant “fire breaks” of trees not particularly susceptible to burning.
5	Planted less than the target number of trees	• Early land preparation to avoid crisis planting • Establishment of enough seedlings for the planned planting
6	Passing on plot ownership to next of kin	• Criteria for who qualifies as a next of kin should be drafted by LPMs and farmers to avoid selection of unsuitable next of kins

2007 (ha)		100 meter segments	tCO2
woodlot	29.59	0	4,291.70
DSI	12.31	0	842.96
BP	0	202.23	1,721.51
Mango	0	0	0.00
citrus	0	0	0.00
total hectares	41.9	202.23	0.00
total carbon	0	0	6,856.17
total value	0	0	30,167.13
Individuals	42	0	0.00
Groups	11	0	0.00
Total	53	0	0.00

2008 (ha)		100 meter segments	tCO2
woodlot	27.2116	0	3,946.74
DSI	25	0	1,744.55
BP	0	581.25	4,947.97
Mango	3.47	0	286.97
citrus	9.8	0	526.49
total hectares	65.4816	581.25	0.00
total carbon	0	0	11,452.71
total value	0	0	50,391.94
Individuals	159	0	0.00
Groups	8	0	0.00
TOTAL	167	0	0.00

2009 (ha)		100 meter segments	tCO2
woodlot	19.05	0	2,767.20
DSI	16.36	0	1,125.58
BP	0	1371.08	11,671.51
Mango	0.86	0	71.12
citrus	1.99	0	106.91
total hectares	38.26	1371.08	0.00
total carbon	0	0	15,742.32
total value	0	0	69,266.21
Individuals	169	0	0.00
Groups	1	0	0.00
Total	170	0	0.00

2010 (ha)		100 meter segments	tCO2
woodlot	14.0408	0	2,036.46
DSI	50.305	0	3,499.55
BP	0	2088.41	17,777.88
Mango	0	0	0.00
citrus	0	0	0.00
total hectares	64.3458	2088.41	0.00
total carbon	0	0	23,313.89
total value	0	0	102,581.12
Individuals	226	0	0.00
groups	4	0	0.00
Total	230	0	0.00

2011 (ha)		100 meter segments	tCO2
woodlot	6.2028	0	899.65
DSI	21.72	0	1,515.67
BP	0	632.88	5,387.48
Mango	0	0	0.00
citrus	0	0	0.00
total hectares	27.9228	632.88	0.00
total carbon	0	0	7,802.79
total value	0	0	34,332.29
Individuals	78	0	0.00
Groups	0	0	0.00
Total	78	0	0.00

2012 (ha)		100 meter segments	tCO2
woodlot	1.0408	0	150.96
DSI	4.77	0	332.86
BP	0	652.62	5,555.52
Mango	0	0	0.00
citrus	0	0	0.00
total hectares	5.8108	652.62	0.00
total carbon	0	0	6,039.34
total value	0	0	26,573.08
Individuals	68	0	0.00
Groups	0	0	0.00
Total	68	0	0.00

2013 (ha)		100 meter segments	tCO2
woodlot	4.1516	0	602.14
DSI	12.725	0	887.98
BP	0	669.75	5,701.34
Mango	0	0	0.00
citrus	0	0	0.00
total hectares	16.8766	669.75	0.00
total carbon	0	0	7,191.46
total value	0	0	31,642.43
Individuals	78	0	0.00
Groups	0	0	0.00
Total	78	0	0.00

2014 (ha)		100 meter segments	tCO2
woodlot	1.2	0	179.11
DSI	10.25	0	731.13
BP	0	404.22	3,592.02
Mango	0	0	0.00
citrus	0	0	0.00
total hectares	11.45	404.22	0.00
total carbon	0	0	4,502.26
total value	0	0	19,809.92
Individuals	32	0	0.00
Groups	0	0	0.00
total	32	0	0.00

SUMMARY BY LAND USE SYSTEM							
Woodlot		**DSI**		**Mango**		**Citrus**		**BP**	
hectares	102.49	hectares	153.44	hectare	4.33	hectares	11.79	100m segments	6,602.44
tCO2	14,873.95	tCO2	10,680.27	tCO2	358.09	tCO2	633.39	tCO2	56,355.23

GENERAL SUMMARY	
Total farmers	852
Total groups	24
Total participants	876
Total hectares	272.05
100 m segments	6,602.44
PV Buffer Contribution	20,725.23
Total saleable tCO_2	**82,900.94**
Issuances to date	79,402.00
Available for issuance	**3,498.94**

8.0 Breakdown of Operational Costs

Expense		
Personnel		
	Total Personnel	$67,137.38
Program and COGS		
	Total Program and COGS	$77,606.44
Office		
	Total Office	$58,158.93
Travel		
	Total Travel	$13,218.39
	Total Expense	**$ 216,121.14**

9.0 Appendices

Appendix I: PES Agreement Form

CLINTON DEVELOPMENT INITIATIVE

TREES OF HOPE PROJECT

LILONGWE, MALAWI

PAYMENT FOR ECOLOGICAL SERVICES AGREEMENT

THIS AGREEMENT (the "**Agreement**") is made this _____ day of _____in the year____ _____between the **Clinton Development Initiative** ("**CDI**"), an initiative of the Clinton Foundation, located off Chayamba Road on Kambuku Street, Area 43/2/24, Private Bag 68, Lilongwe, Malawi, hereinafter referred to as the "**Project Manager**."

AND

_____of Village Head_____ _____, Group Village _____Head__Traditional_____ _____ Authority _____ in _____ district, hereinafter referred to as the "**Producer,**" which shall admit and include their respective successors in title and/or assignees.

WHEREAS the Clinton Foundation is a not-for-profit organization which operates CDI in Malawi to support the government in rural development, environmental rehabilitation and livelihood improvement, and runs the Trees of Hope Project, a Plan Vivo-certified project, to coordinate sales of carbon certificates;

AND WHEREAS the Producer is the owner of the piece of land described in Appendix I;

AND WHEREAS the Producer has agreed to produce the estimated volume of carbon credits by planting, using and maintaining the land herein described under the land use system(s) shown in Appendix II, Table A;

AND WHEREAS CDI has agreed to coordinate sales of carbon certificates generated by the Producer by way of the Carbon Emission Reduction Process under the Trees of Hope Project at the price and conditions herein appearing below, and based on meeting the monitoring targets annually as outlined in Appendix II, Table B;

AND WHEREAS both parties are committed to reforestation of rural Malawi through the promotion of tree species to improve the environment, the food security of rural communities and a source of income aside from traditional staple crop agriculture;

NOW THEREFORE it is agreed that the purpose of this Agreement is to provide terms and conditions between the parties for the sale of carbon under the Carbon Emission Reduction Process pursuant to the Plan Vivo project. It applies to all sites registered by the Producer with the Trees of Hope Project for the provision of carbon sales.

1. Producer shall:

a. *Meet monitoring targets*. Meet monitoring targets, as outlined in Appendix II, Table B, over the first ten year period of growth as set under the Plan Vivo standard.

b. *Maintain land use system.* Maintain the specified land use system(s) for 50 years (the "**carbon crediting period**") as described below:

i. Maintenance of the land use system is defined for the first ten years of tree growth by Appendix II Table B, and thereafter as at least 90% survival of mature trees past the ten year monitoring period and until the end of the 50 year carbon crediting period. Additional details regarding management of the tree systems are outlined in the technical specification documents on the Plan Vivo website.
ii. All payments, based on the projected carbon to be sequestered over the 50 year crediting period, are calculated to be paid out over a ten year period as shown in Appendix I.
iii. After ten years, Producer shall be held self-accountable for the survival of the trees.

c. *Rectify problem areas*. If Producer fails to meet monitoring targets, Producer shall be placed on probation and shall have one calendar year (12 months) to rectify problem areas, starting at the date of failure to meet set targets, during which time payment shall be withheld.

i. If the Producer has not yet taken steps to rectify the problem areas by the second year of being on probation, further payment may be withheld and the Producer will be evaluated by CDI to determine whether or not he or she will remain in the program.
ii. If the reason for tree-loss is deemed unacceptable by CDI, Producer shall be permanently removed from the Trees of Hope project, and shall forfeit all future payments.

2. CDI shall:

a. *Pay agreed purchase price*. CDI shall pay the agreed purchase price per ton at the rate described in Appendix I, after verification that monitoring targets as specified in Table B and described below have been met.

i. Monitoring shall take place during the years specified in Table B: Data will be collected by CDI field officers for each Producer. Thereafter, monitoring by CDI field staff shall stop. Details of the monitoring process are outlined in the Project Design Document on the Plan Vivo website.

b. *Pay in instalments.* CDI shall pay total amount due to Producer (see Appendix I) via instalments as detailed in Appendix II, Table B, following verification that corresponding monitoring targets have been met. Payment conditions are as follows:

i. CDI works with First Merchant Bank of Malawi ("**FMB**") to issue bank account cards to all producers under the Trees of Hope project. CDI submits annual payment summaries to FMB, which will distribute the funds into Producer's account if annual monitoring targets are met.
ii. If Producer fails to meet monitoring targets, payments shall be suspended, at which point the Producer will have one calendar year (12 months) to rectify problem areas, starting at the date of failure to meet set targets.
    1. Payment may be withheld for up to two (2) one-year payment periods (or 24 months) if Producer fails to rectify problem areas to meet monitoring targets by the end of their two year probation period. At that point, CDI will determine, based on the reason for tree-life loss, whether or not the Producer will remain in the project or if the Agreement shall terminate.
    2. If the reason for tree-loss is deemed unacceptable, Producer shall be permanently removed from the Trees of Hope project, and shall forfeit all future payments.

3. Jointly, the Parties agree to the following: *Risk Buffer*. The Producer agrees to allocate 20% of his/her total carbon sequestered into a risk buffer maintained by Project Manager (the remaining 80% shall be the basis for Producer's payments, or the saleable carbon). In extreme cases of tree-loss by any given Producer, the risk buffer will ensure that if any losses are incurred, the total sequestered carbon in aggregate for the project can remain stable.

4. Term/Termination. The term of this Agreement shall commence on and shall continue for an initial term of ten (10) years, provided however that (i) either party may terminate this Agreement if the other party fails to perform its obligations hereunder and such failure to perform is not cured within thirty (30) days or (ii) in accordance with sections

1.c and 2.b.ii above, following written notice from the complaining party of such failure to perform; and (iii) CDI may terminate this Agreement upon not less than sixty (60) calendar days prior written notice to Producer should the Clinton Foundation discontinue its work or make other significant programming changes requiring the termination of this Agreement.

Signatures Appear Below

Acknowledged and agreed to this ____ day of _____, 2015.

[ ]

By:_____

WITNESSED BY:

_____

CLINTON FOUNDATION

By:_____

WITNESSED BY:

_____

Producer Identity and Carbon Credits Profile

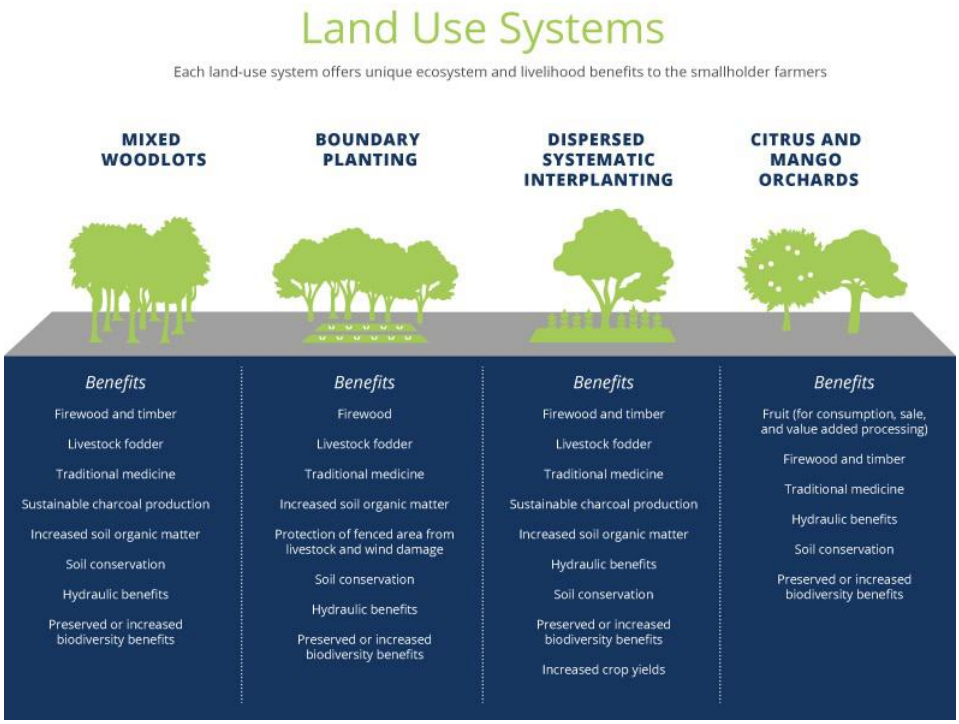
This form was computerized in 2016.

1.	**Name of Producer (Individual/Group and key point of contact)**	
2.	**Group Village Head**	
3.	**Traditional Authority**	
4.	**Project site (location)**	
5.	**Producer's Government ID number.**	
6.	**Total estimated size to be planted (Appendix II Table A)**	
7.	**Total carbon credits issued (tCO_2e for all land use systems implemented in the Producers field(s))**	
8.	**tCO_2 withheld as buffer (20% of total)**	
9.	**Total saleable tCO_2e**	
10.	**Total tCO_2e bought to date**	
11.	**Total unsold tCO_2e to date**	
12.	**Price per tCO_2e (euro)**	
13.	**Total amount (Euro and Kwacha) to be paid to the Producer for carbon sold over 10 year period**	

Appendix II: Training Module Components

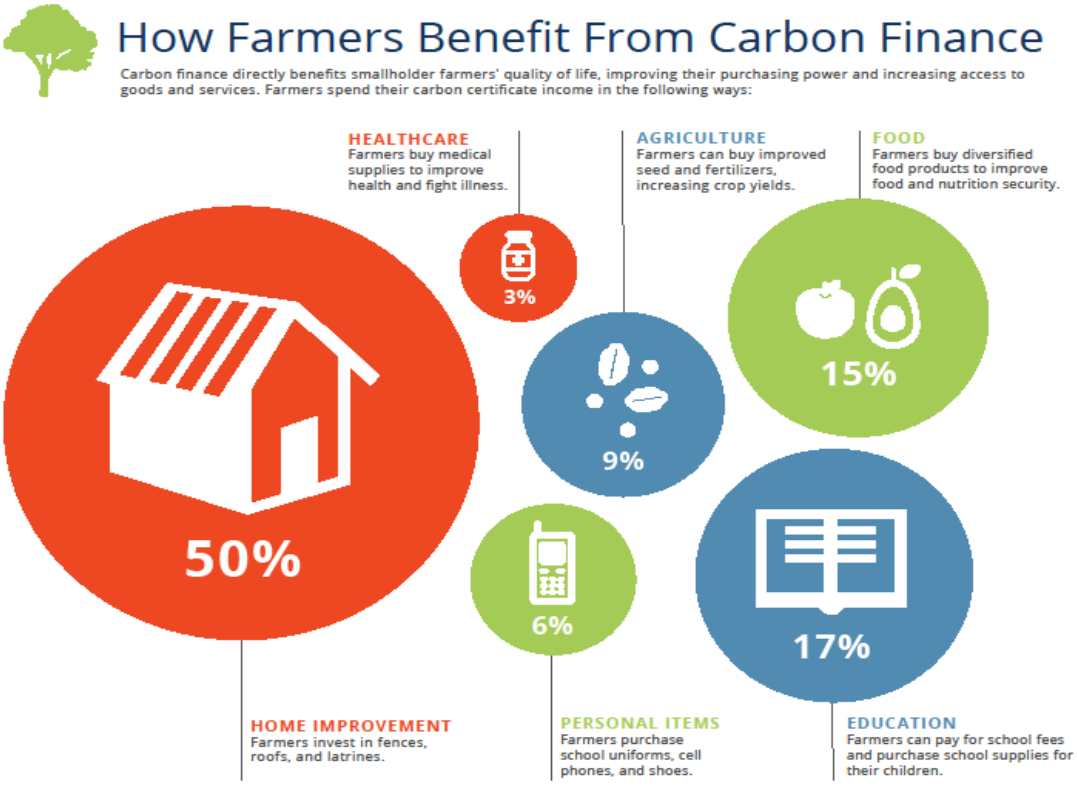
NUMBER	MODULE	BRIEF CONTENT AND RATIONALE
1	Climate change and rural livelihoods	Covers definition, causes and illustration of climate change effects with local indicators and its impact on rural livelihoods.
2	Climate change adaptation and mitigation	Presents possible strategies for avoiding further dangerous climate change and mechanisms to learn to live with the present effects. The role of trees in climate change management is discussed.
3	Trees of Hope Project: An Overview	Presents the objectives of the project and other building blocks of the program as a vehicle available to the communities to address climate change and safeguard and improve livelihoods.
4	The Plan Vivo System	Covers all tenets of the Plan Vivo system touching on all aspects from definition of a plan vivo to payment of carbon finance.
5	The concept of carbon trading	Introduces the new paradigm of carbon trading and carbon markets by defining the product to be produced by them as producers and outlining requirements of the market.
6	Tree nursery establishment and management	Looks at nursery techniques including choice of site, fencing, seed pre-treatment, media preparation, pot filling, sowing, development of root stocks, grafting, budding, root pruning, pest and disease management and hardening off.
7	Establishment and management	Covers selection of site, pegging and marking according to the technical specification, pitting, planting, mulching, pest and disease management, fire breaks, thinning and pruning.
8	Field monitoring	This outlines monitoring indicators and specifies what data are to be collected, highlighting the target for each monitoring period.
9	Receipt of carbon finance	Covers mainly the dividing criteria between eligibility and non-eligibility for receipt of carbon finance depending on monitoring results. Also covers issues about farmer payment procedures.
10	Group dynamics	Looks at advantages of working in groups, group formation, group leadership, team building, motivation and trust building.

Appendix III: Land Use System for Trees of Hope and Infographic



Land Use System	Description	Density/Spacing
Woodlots	This system involves the establishment of indigenous and/or naturalized tree species on a plot of land in a systematic manner.	2,500 trees per hectare
DSI (Dispersed Systematic Inter-Planting)	This systems involved inter-planting trees with arable crops to improve soil fertility over time through the addition of degradable organic matter to the soil and biological nitrogen fixation.	200 trees per hectare
Boundary Planting (BP)	This system involved the linear planting around amenities. It is commonly used around producers farms for boundary demarcation, but can also be used to protect fields from livestock damage	3 meters within rows (or 33.33 trees per 100 meter segment)
Citrus Orchard	This system involves the planting of high-value citrus varieties produced from local seedling rootstock through bud-grafting. These improved varieties not only produce high value fruit, but also reach fruiting age in 4 years, much earlier than local varieties.	400 trees per hectare
Mango Orchards	This system involves the planting of high-value mango varieties produced through grafting improved scion varieties on to local rootstock. These improved varieties produce less fibrous, more fleshy fruits, that reach fruiting age in 3-5 years, much earlier than local varieties.	200 trees per hectare

Appendix IV: How Farmers Benefit from Carbon Finance (2015)



Appendix V: Land Use System Chart

Land use system	Approved Tree Species	Check for Farmer Use	Planting density per hectare	Total Area to plant (ha/m)	Number of trees to be planted	Plot location (GPS)	Rotation and Harvesting period
Woodlot	*S. siamea, S. spectabilis and A. polyacantha.*		2500				**20 years**
Dispersed Systematic Inter-planting (DSI)	*Faidhelbia albida, Acacia polyacantha.*		200				**To be thinned progressively to 25 trees/ha at Year 50**
Boundary planting	*A. polyacantha, S. spectabilis*		34 trees/ 100m				**25 years**
Mango orchard	*Mangifera indica*		200				**50 years**
Citrus orchard	*Citrus sinensis*		400				**50 years**

Appendix VI: Monitoring and Payment Protocol

Monitoring period	Monitoring target to be met	Percentage (%) of total payment due	Number of payments
Year 1	**50%** of plot established	20 %	**1**
Year 2	**75%** of plot established	20 %	**1**
Year 3	Whole plot established with stand survival not less than **85%**	20 %	**1**
Year 4	Whole plot established with at least **90%** survival.	10 %	**1**
Year 5	Average DBH not less than 4cm	10 %	**1**
Year 7	Average DBH not less than 8cm	10 %	**1**
Year 10	Average DBH not less than 15cm	10 %	**1**

Appendix VII: Historical Sales Chart

DATE	PURCHASER	PVC	PRICE/PVC	Currency	Total	TOTAL USD
Reported in 2013 Annual Report						
	ZeroMission AB	1600				
	United Bank of Carbon	550				
	AECOM	600				
	COzero PTY Ltd	100				
	ZeroMissionAB - 46	6000				
Apr-13	ZeroMissionAB - 55	1999				
Jul-13	ZeroMissionAB - 55	1200				
Feb-13	COTAP - 1	468				
Dec-13	COTAP - 2	282				
subtotal		**12,799**				
Reported in 2014 Annual Report						
Jan-14	ZeroMissionAB -73	800				
Apr-14	ZeroMissionAB	300				
Apr-14	ZeroMissionAB	10000				
May-14	ZeroMissionAB	700				
Jun-14	COTAP - 3	524				
Jun-14	ZeroMissionAB	1500				
Aug-14	ZeroMissionAB	450				
Nov-14	ZeroMissionAB	1287				
subtotal		**15,561**				
Reported in 2015 Annual Report						
Feb-15	COTAP - 4	705				
Nov-15	COTAP - 5	229				
Jan-15	ZeroMissionAB -125	1500				
Feb-15	ZeroMissionAB -128	1000				
Jan-15	ZeroMissionAB -129	1100				
Apr-15	ZeroMissionAB -133	500				
Aug-15	ZeroMissionAB -140	34325				
Sep-15	ZeroMissionAB -149	1660				
Dec-15	ZeroMissionAB -158	1000				
subtotal		**42,019**				
Reported in 2016 Annual Report						
Feb-16	ZeroMissionAB -160	1000				
Jul-16	ZeroMissionAB -176 (replaced #175)	5169				
Sep-16	COTAP - 6	588				
Dec-16	United Bank of Carbon	840				
Dec-16	ZeroMissionAB	1426				
subtotal		**9,023**				
TOTAL		**79,402**				**$ 530,411.09**