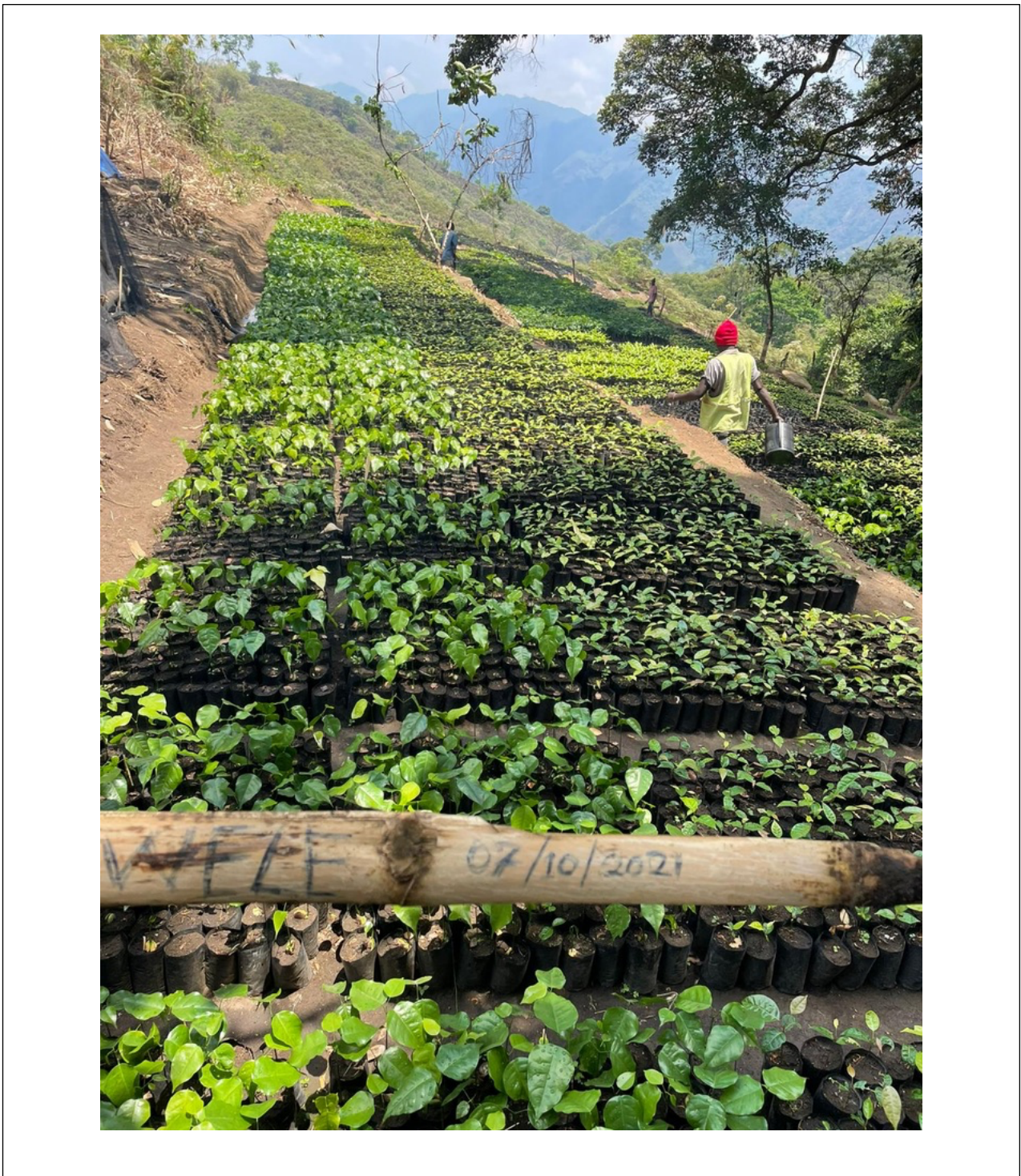


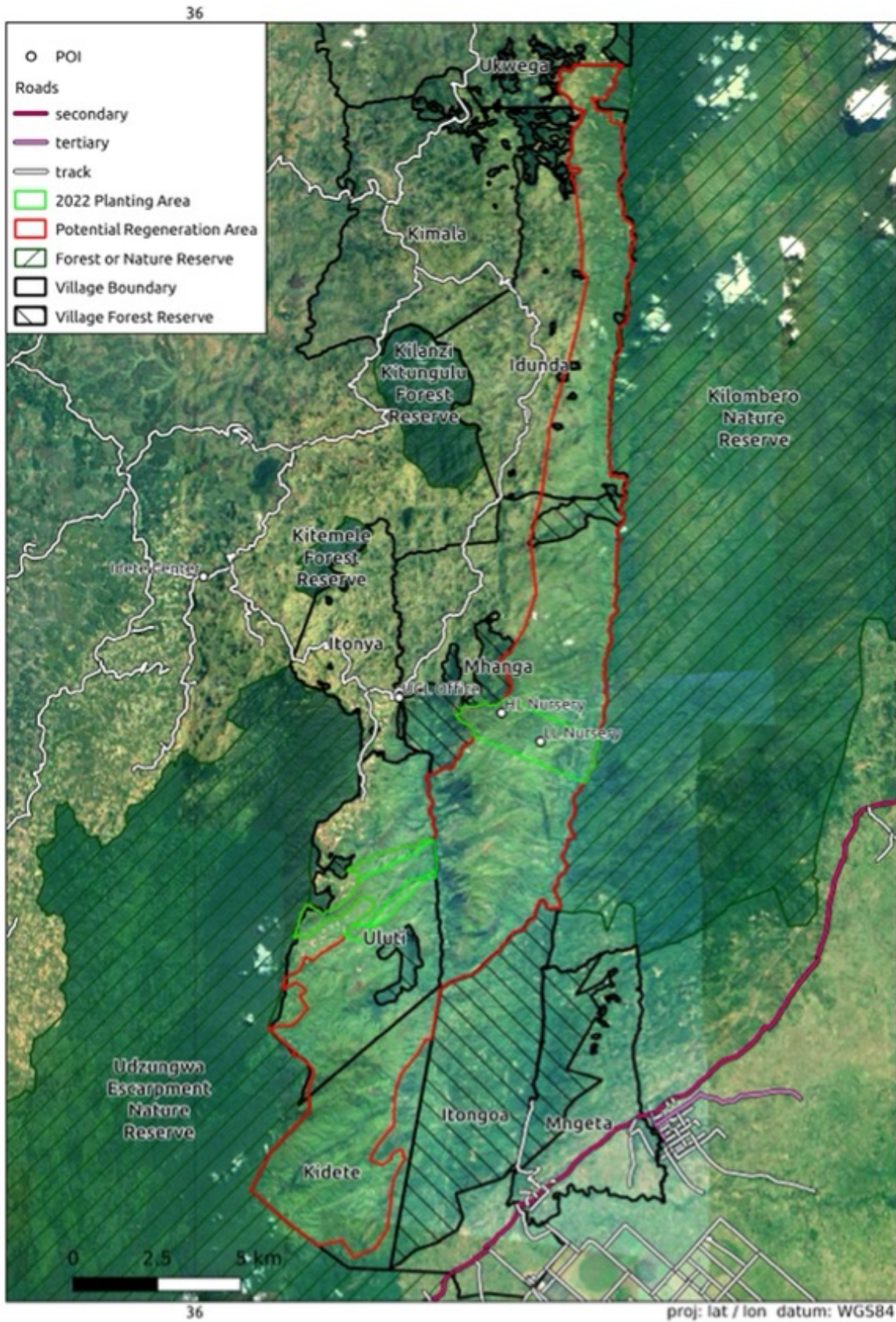


# UDZUNGWA CORRIDOR LTD Kilolo & Mlimba Districts

PROJECT SUMMARY, JANUARY 2022



# Project Area



The Corridor falls on the land of 4 villages: Idunda, Mhanga & Uluti in Kilolo and Kidete, Mlimba District. A total of 7,500 ha out of 10,666 ha in the red polygon, proposed to be planted over 7 years, starting with 375ha in Mhanga and 375 ha in Uluti, green polygons, in January 2022.

# Mission

## **Udzungwa Corridor Limited, UCL**

In the global effort to mitigate the climate crisis, UCL's mission is to create a new carbon sink that will remove 4.5 million tons of CO<sub>2</sub> greenhouse gas from the global atmosphere.

From the removal of the CO<sub>2</sub>, the business of UCL is to produce Verified Emission Reductions, VERs, carbon credits that can be sold on the world market to offset the buyer's greenhouse gas emissions.

To create the carbon sink, UCL aims to reforest 7,500 ha of abandoned farmland and degraded land between the Kilombero Nature Reserve and the Udzungwa Scarp Nature Reserve, reconnecting after 100 years the two high-biodiversity sub-montane forest habitats.

The UCL mission is to develop the project to benefit as much as possible the c. 5,583 residents of Idunda, Mhanga, Uluti, and Kidete villages. The local people are vital to our success over the next thirty years and for the continued existence of the new forest carbon sink after the project ends.

## **Financial Benefits**

Funded from the sales of future carbon credits, pre-purchases of VERs, from 2022 through 2052, UCL will generate approximately:

- TZS 19.3 billion rent paid to farmers with surveyed plots and Village Councils for unallocated land. On remote steep terrain without roads, mostly farmland abandoned 5 or more years ago, UCL will lease land from individual farmers and Village Councils for 30 years. The annual rent is based on the calculated "opportunity cost" of not cultivating a hectare of land for maize—the profit a farmer might have on a hectare maize crop in the corridor. Starting at TZS 55,000/hectare, the rent rises 3% per year to TZS 130,000.
- TZS 2.38 billion paid to 4 Village Councils as Payments for Ecosystem Services (PES) to protect 5,047 ha of Village Land Forest Reserves and 748 ha of 60-meter-wide buffers along streams and rivers
- TZS 14.5 billion in seasonal labour planting and weeding and fire protection
- TZS 4.3 billion in full-time jobs
- TZS 1.1 billion equivalent of 5% CESS on rent and PES payments paid to the Districts
- TZS 7.9 billion to TRA for PAYE, WHT and corporate tax

# Project Plan Overview

## **Background: Payment for Ecosystems Services Project (PES)**

The project is built upon the 2017/18 work of the Tanzania Forest Conservation Group in gazetting Village Land Forest Reserves (VLFRs) and establishing a PES project in the water catchment of the Mngeta River.

To protect the Mngeta River as the source of its irrigation water supply, Kilombero Plantations Ltd (KPL) was to pay TZS 50 million per year divided between 8 villages in Kilolo and Mlimba (formerly Kilombero) Districts who would safeguard their VLFRs and 60-meter buffers along the tributaries that feed the Mngeta River.

As KPL farm went in receivership and failed to make the first PES payment to the villages in 2020, UCL will assume the PES payments for the entire watershed, starting with Mhanga and Uluti, based on the payment mechanism of the PES project:

## PES Mechanism

| Ceiling Payments for Ecosystem Services by Village TZS |                |                |                   |                |                |                   |                   | Village Totals                                |             |                   |
|--|----------------|----------------|-------------------|----------------|----------------|-------------------|-------------------|---|-------------|-------------------|
| Village  | VLFR, ha       | %              | VLFR, TZS         | 60m buffer, ha | %              | 60m buffer, TZS   | VLFR + 60m buffer | Target  | % Payment   | Value TZS         |
| Idunda   | 64.26          | 1.27%          | 190,981           | 153.54         | 20.51%         | 7,180,135         | 7,371,115         | 0% agriculture in Village Land                |             |                   |
| Itongaa Kidete   | 2562.03        | 50.76%         | 7,614,348         | 75.06          | 10.03%         | 3,510,101         | 11,124,449        | Forest Reserves                               | 30%         | 15,000,000        |
| Itonya   | 30.33          | 0.60%          | 90,141            | 62.91          | 8.41%          | 2,941,919         | 3,032,060         |   |             |                   |
| Kimala   | 335.88         | 6.65%          | 998,235           | 9.72           | 1.30%          | 454,545           | 1,452,780         |   |             |                   |
| Mhanga   | 850.05         | 16.84%         | 2,526,347         | 159.93         | 21.37%         | 7,478,956         | 10,005,303        | 0% agriculture in 60m buffer zone by streams. | 70%         | 35,000,000        |
| Mngeta   | 737.28         | 14.61%         | 2,191,195         | 54.63          | 7.30%          | 2,554,714         | 4,745,908         |   |             |                   |
| Ukwega   | 289.53         | 5.74%          | 860,483           | 4.5            | 0.60%          | 210,438           | 1,070,920         |   |             |                   |
| Uluti  | 177.75         | 3.52%          | 528,273           | 228.15         | 30.48%         | 10,669,192        | 11,197,465        |   |             |                   |
| <b>Total</b>   | <b>5047.11</b> | <b>100.00%</b> | <b>15,000,000</b> | <b>748.44</b>  | <b>100.00%</b> | <b>35,000,000</b> | <b>50,000,000</b> | <b>Total</b>                                  | <b>100%</b> | <b>50,000,000</b> |

For each village, payments shall be calculated on the basis of:

- % of the VLFR area that is under forest / regenerating forest and is not under agriculture, including agroforestry. This will determine the % of the ceiling payment set for that specific village. For example if Mhanga has 80% forest cover in its VLFR it would be paid 80% of TZS 2,526,347 = TZS 2,021,078.
- % of the 60 m buffer zone around the Order 3 streams and the main head waters that is under forest / regenerating forest and is not under agriculture including agroforestry.
- Monitoring will be done annually in using Landsat images and ground truthing after which payments will be done based on the monitoring results

UCL will commit to the annual PES payments for thirty years, through 2051, with 3% annual inflation.

### Outstanding PES Project Objectives

| Village                       | Community Contribution | Requested Contribution | Total Project Costs |
|-------------------------------|------------------------|------------------------|---------------------|
| Mhanga Village Office         | 3,620,000              | 9,901,000              | 13,521,000          |
| Idunda Village Office         | -                      | 1,317,000              | 1,317,000           |
| Itonya Village Office         | 3,620,000              | 9,901,000              | 13,521,000          |
| Uluti Village Office          | 1,810,000              | 9,901,000              | 11,711,000          |
| Totals                        | 9,050,000              | 31,020,000             | 40,070,000          |
| <b>Total UCL Contribution</b> |                        | <b>31,020,000</b>      |                     |

When the project officially starts, UCL will complete the Village Offices in Mhanga, Idunda, Itonya and Uluti that were left unfinished by the TFCG PES project when the villages have committed to participate in the project.

To finish the work, UCL will donate Tsh 31 million.

### Additional Benefits

As a gesture of friendship to the communities, UCL will contribute TZS 23 million to the cost of two secondary school class rooms in Mhanga Village.

In addition to the annual rent, each villager who leases their land will receive 25 high-yielding, grafted avocado trees distributed to participating to plant by their homes (TZS 150,000 value) and 32 kg of improved bean seed (TZS 73,000 value).

After 30 years the villagers should enjoy an income leap 24 times, from TZS 130,000/hectare to TZS 3 million/ha/year from sustainably harvesting rare and valuable native hardwood in the corridor, while maintaining the carbon sink.

The project will aim to secure a Certificate of Customary Right of Occupancy for every villager in the project, and the CCRO will be used to calculate future timber revenues per farmer family.

### National Importance

The reforestation of the corridor, restoring the watershed of the Mngeta River, will also have a large positive impact on the water resources of Tanzania, increasing the dry season river flows of the Mngeta which flows into the larger Kilombero River and ultimately feeds the Rufiji River where the 2.1 gigawatt Nyerere Hydropower Project is currently under construction.

## Project Based on 30-Year Leases

### Carbon Credit Project Life

30 years is the standard project life of reforestation to produce carbon credits. Over thirty years, the carbon captured by reforesting the Corridor is estimated to produce 4.5 million tons of Verified Emission Reductions, VERs.

There will be three buyers of the VERs: The Skoll Foundation (skoll.org), which supports entrepreneurs and public health around the world, and two investment companies owned by the first president of eBay, Jeff Skoll—Sequoia Holdings and The Skoll Fund. All three will use the VERs to offset their own carbon footprints.

In a global market of \$554 million, the current world price for a “Forest & Land Use VER” is \$4.73/ton.

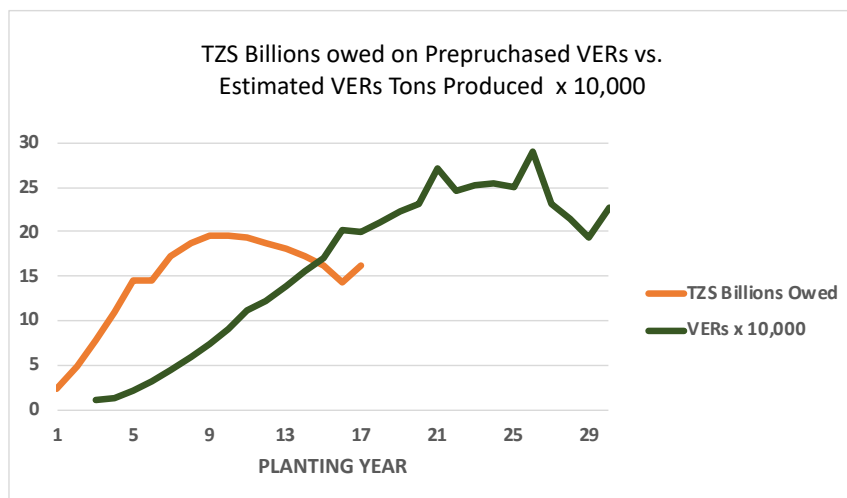
| Year  | Price per CO2e Ton \$ | Volume Million Tons | Value \$M |
|-------|-----------------------|---------------------|-----------|
| 2019  | 4.33                  | 37                  | \$159 M   |
| 2020  | 5.60                  | 48                  | \$269 M   |
| 2021* | 4.73                  | 115                 | \$544 M   |

\* thru August

<https://www.forest-trends.org/publications/state-of-the-voluntary-carbon-markets-2021/>

The off-takers for the Udzungwa project have offered \$7.40/VER, 56% higher than the current market price for a forestry credit, for all VERs generated by the project over 30 years.

The chart below illustrates the funding through the prepurchase of VERs against the production of VERs:



Given the slow growth of a forest and the time it takes to capture CO<sub>2</sub>, TZS 41 billion are advanced through pre-purchases over the first 17 years before the project starts to sell the VERs as they are produced.

Funding the project by the purchase of VERs that will not be fully delivered until Year 17 is an enormous risk for the buyers—can the project successfully plant the remote, steep terrain and protect the young trees

from fire in an area that *has dozens of fires today*? **Advancing TZS 41 billion until 2038, when VERs start to be sold as they are produced, is a high-risk social and ecological investment.**

The Emissions Reduction Purchase Agreement between UCL and the three off-takers will contain a price adjustment mechanism; if the market value of the VERs delivered to the off-takers exceeds their total committed capital over the 30 years, all the funding they have promised through 2051, *at that point*, they will increase the VER price above \$7.40/ton.

In the case that UCL receives a higher price than \$7.40/VER and posts a profit for the year, UCL will share 50% of the profit with the local communities in the form an increase in the annual rent in that year. This is unlikely to occur before Year 17.

## Planting Plan & Income

Previously, UCL had assumed that part of the Corridor would contain an “Agroforestry Zone” where farmer families would continue cultivating their shambas for 8 years until the ground is shaded out and where they would plant avocado (and possibly macadamia). However, as mapping over the past 18 months has revealed, less than 10% of the Corridor area is under active cultivation and farmers prefer to plant avocados closer to their homes rather than in the remote, inaccessible corridor.

Therefore, except for farmers who choose not to participate in the project, the corridor shall consist solely of a “biodiversity zone” where up to 100 native species will be planted and maintained as if the area were a commercial tree plantation to recreate a natural forest habitat and wildlife corridor.

The Village Land Use Plans will be altered to reclassify the land as Village Land Forest Reserve, while individual farmer families will have claims to future timber revenues from the VLFRs through their CCROs. After thirty years, a sustainable harvest of the native hardwoods, only 3% per year with replanting to maintain the carbon sink, would produce at least TZS 3 million per ha per year for a farmer family or a village council, based on the current government royalty rates for native hardwoods, which will be rare in three decades.

The Biodiversity Zone will not produce agroforestry products for the farmer families, but it will generate rent income farmers and Village Councils and provide employment to the villagers to plant and weed the area.

|                    | 1       | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      | 11      | 12      | 13      | 14      | 15      |
|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                    | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2025-26 | 2026-27 | 2027-28 | 2028-29 | 2029-30 | 2030-31 | 2031-32 | 2032-33 | 2033-34 | 2034-35 | 2035-36 |
| Hectares Planted   | 750     | 1,000   | 1,000   | 1,000   | 1,250   | 1,250   | 1,250   |         |         |         |         |         |         |         |         |
| Seasonal Peak Jobs | 200     | 400     | 400     | 400     | 550     | 550     | 550     | 100     | 75      | 35      |         |         |         |         |         |
| TZS Millions:      |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Local Wages        | 359     | 718     | 1,047   | 1,242   | 1,459   | 1,575   | 1,717   | 1,174   | 747     | 312     | 111     | 95      | 96      | 98      | 101     |
| Annual Rent        | 45      | 108     | 175     | 239     | 328     | 507     | 523     | 538     | 554     | 571     | 588     | 606     | 624     | 643     | 662     |
| Ecosystem Payments | 50      | 52      | 53      | 55      | 56      | 58      | 60      | 61      | 63      | 65      | 67      | 69      | 71      | 73      | 76      |
| District CESS 5%   | 4.75    | 7.99    | 11.42   | 14.69   | 19.23   | 28.27   | 29.11   | 29.99   | 30.89   | 31.81   | 32.77   | 33.75   | 34.76   | 35.81   | 36.88   |

The project aims to plant the corridor over 7 years starting January 2022 with the first 750 ha. In 2022 seasonal employment will peak with over 200 casual labourers and TZS 359 million total wages injected into the villages, a place of no job opportunity. From 2024 through 2028, each year over TZS 1 billion wages will be paid to the local communities.

After the employment ends, the Corridor will continue to generate income for the farmer families and the Village Councils through the leases, a total of TZS 17.6 billion over the final 15 years.

|                    | 16      | 17      | 18      | 19      | 20      | 21      | 22      | 23      | 24      | 25      | 26      | 27      | 28      | 29      | 30      |
|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                    | 2036-37 | 2037-38 | 2038-39 | 2039-40 | 2040-41 | 2041-42 | 2041-43 | 2041-44 | 2041-45 | 2041-46 | 2041-47 | 2041-48 | 2041-49 | 2041-50 | 2041-51 |
| TZS Millions:      |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Local Wages        | 104     | 107     | 110     | 113     | 117     | 120     | 124     | 128     | 131     | 135     | 139     | 144     | 148     | 152     | 162     |
| Annual Rent        | 682     | 702     | 723     | 745     | 767     | 767     | 814     | 839     | 864     | 890     | 916     | 944     | 972     | 1,001   | 1,031   |
| Ecosystem Payments | 78      | 80      | 83      | 85      | 88      | 90      | 93      | 96      | 99      | 102     | 105     | 108     | 111     | 114     | 118     |
| District CESS 5%   | 37.99   | 39.13   | 40.30   | 41.51   | 42.75   | 42.89   | 45.36   | 46.72   | 48.12   | 49.56   | 51.05   | 52.58   | 54.16   | 55.78   | 57.46   |

## VER Production

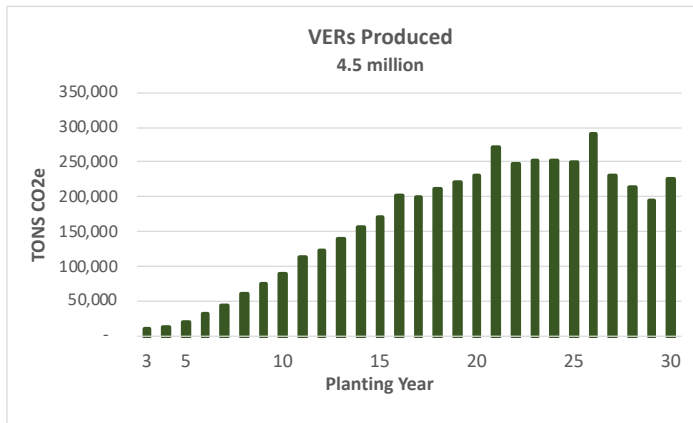
**Total VER Production: 4.5 million tons over 30 years.**

One metric ton of carbon removed from the atmosphere = one Verified Emission Reduction (VER) when certified by a recognised carbon registry.

UCL will register and validate the project under two internationally-recognised standards:

- Verra’s Verified Carbon Standard
- Community, Climate, Biodiversity Standard (CCB)

The chart below shows the Verified Emission Reductions produced over 30 years, using an Oxford tropical forest biometric expert’s medium carbon sequestration scenario for 36 native species in the corridor area.



Every year 10% of the VERs produced are put in the Registry’s Buffer Account. Projects around the world all contribute to the Verra Registry’s Buffer Account to ensure that if there is a disaster in a few projects, there are enough existing VERs across the Registry to assure that there is not an increase of CO<sub>2</sub> emissions because a few projects failed to hit their targets. Every five years 15% of a project’s buffer account can be sold as VERs. The chart reflects the total UCL VERs available

for sale each year, including the buffer debits and credits.

Previously UCL had estimated 5.5 million tons; however Dr. Denis Alder, an Oxford University forest biometric expert, discovered an error in his model for the Corridor and reduced his estimate by 1 million tons.

All VERs produced by the project will be transparent as they will be registered on the public Verra registry.

### Social Enterprise

Even at 3 times today’s world prices, \$15/ton, UCL is not attractive to a commercial investor. No bank would lend to a company that loses 13% over the first 10 years for fear that the company would never make a profit.

|                                    |  |                |
|------------------------------------|--|----------------|
| Total Equity Investment @ \$15/ton |  | TZS 13 Billion |
| Project IRR                        |  |                |
| 10 Year                            |  | -13%           |
| 15 Year                            |  | 15%            |
| 20 Year                            |  | 20%            |
| 30 Year                            |  | 21%            |

Therefore, UCL is a “social enterprise,” funded by patient off-takers whose primary objective is the removal of 4.5 million tons of CO<sub>2</sub> and positive

impact for biodiversity and the local people. Profits would be greatly appreciated but are not necessary for the company to operate for 30 years.

## UCL Shareholders

The shareholders in Udzungwa Corridor Limited are:



The Tanzania Forest Conservation Group was established in 1985. It helped pioneer Community Based Forest Management in Tanzania, assisting over 260 communities to protect 3,642 km<sup>2</sup> of forest and the creation of 115 Village Land Forest Reserves over 2,552 km<sup>2</sup>. From fish ponds to environmental education in village schools, the TFCG works in an array of community development activities, including planting of over 16.7 million agroforestry trees.



Reterra Ltd was established in London, UK in 2021 to develop and finance reforestation and restoration projects in East Africa. Reterra is responsible for raising the funding requirements for the Udzungwa Corridor project.