



# CARBON SEQUESTRATION IMPACT REPORT

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*Vesak Dansala Urban Fruit Tree Distribution Initiative*

Colombo City, Sri Lanka | 2<sup>nd</sup> June 2026

Prepared by:

**Control Union Sri Lanka**



# 1. Executive Summary

On 2nd June 2026, Control Union Sri Lanka organized a Vesak Dansala — a traditional Buddhist alms-giving ceremony — at which 1,000 native and tropical fruit trees were distributed to devotees across Colombo city. This initiative combines cultural heritage with environmental stewardship, encouraging the greening of urban spaces through community participation.

This report quantifies the estimated carbon sequestration potential of the distributed trees over their projected lifespan of 20 years, applying internationally accepted IPCC Tier 1 methodologies. Assuming an 80% survival rate, approximately 800 trees are expected to thrive in urban Colombo, collectively sequestering an estimated 173.71 tonnes of CO<sub>2</sub> over two decades — equivalent to offsetting the annual emissions of roughly 37 average Sri Lankan households.

**8.69 tonnes CO<sub>2</sub>**  
Annual Sequestration

**173.71 tonnes CO<sub>2</sub>**  
Lifetime Sequestration (20 yrs)

## 2. Introduction

Urbanization poses significant challenges to biodiversity and environmental quality in Sri Lanka's capital, Colombo. Rapid population growth, impervious surfaces, and the loss of green cover have collectively contributed to the urban heat island effect, increased air pollution, and reduced ecosystem services. Urban tree planting is widely recognized as a cost-effective nature-based solution to partially offset these pressures.

Control Union Sri Lanka, a member of the Control Union World Group — a global leader in certification, inspection, and testing services — organized a Vesak Dansala on 2<sup>nd</sup> June 2026 in alignment with the spirit of the Vesak season, which commemorates the birth, enlightenment, and passing of the Buddha. The event distributed 1,000 indigenous and tropical fruit trees to devotees, who pledged to plant them in home gardens, roadsides, community spaces, and institutional grounds across Colombo.

This report serves as a formal impact document to communicate the environmental value of this initiative to stakeholders, donors, regulatory bodies, and the public. It presents a transparent carbon sequestration assessment using standard methodological frameworks and conservative assumptions.

### 3. Project Details

<b>Organiser</b>	: Control Union Sri Lanka
<b>Event</b>	: Vesak Dansala — Urban Fruit Tree Distribution
<b>Date</b>	: 2 <sup>nd</sup> June 2026
<b>Location</b>	: Colombo City, Western Province, Sri Lanka
<b>Trees Distributed</b>	: 1,000
<b>Tree Species</b>	: 9 species of native and tropical fruit trees
<b>Target Planting</b>	: Urban residential, roadside, and community spaces

The table below presents the complete species list distributed during the event, including local Sinhala names, English common names, scientific names, and the number of saplings per species.

Local Name	English Name	Scientific Name	No. of Trees
Mora	Longan Fruit	<i>Dimocarpus longan Lour</i>	50
Ebul Pera	Sour Guava	<i>Psidium guineense</i>	250
Lovi	Lovi-lovi	<i>Flacourtia inermis</i>	50
Pera	Guava	<i>Psidium guajava</i>	80
Jambu	Water Apple	<i>Syzygium spp.</i>	170
Lemon	Lemon	<i>Citrus limon</i>	100
Veralu	Ceylon Olive	<i>Elaeocarpus serratus</i>	150
Gaduguda	Langsat	<i>Baccaurea motleyana</i>	100
Mangus	Mangosteen	<i>Garcinia mangostana</i>	50
<b>Total</b>			<b>1,000</b>

### 4. Carbon Sequestration Methodology

#### 4.1 Methodological Framework

The carbon sequestration estimate follows the IPCC (2006) Guidelines for National Greenhouse Gas Inventories, Volume 4: Agriculture, Forestry and Other Land Use (AFOLU), using the Tier 1 default approach applicable to tropical and subtropical tree species. This approach estimates the annual increase in carbon stock based on above-ground biomass growth rates and expansion to below-ground biomass using a biomass expansion factor (BEF).

The general formula applied is:

$$\text{CO}_2 \text{ sequestered (kg)} = \text{AGBA} \times \text{BEF} \times \text{CF} \times (44/12)$$

Where:

- $AG\Delta$  = Annual above-ground biomass increment (kg dry matter / tree / year)
- BEF = Biomass Expansion Factor (ratio of total biomass to above-ground biomass)
- CF = Carbon Fraction of dry matter (default 0.47 for tropical species)
- 44/12 = Molecular weight ratio of CO<sub>2</sub> to Carbon (3.667)

## 4.2 Assumptions

The following assumptions have been applied consistently across all species, given the unavailability of species-specific growth data for all nine tree types under urban Sri Lankan conditions. Conservative values have been preferred to avoid over-estimation of climate benefits.

Parameter	Value / Rate	Source / Rationale
Total trees distributed	1,000	Control Union Sri Lanka event record
Survival rate	80%	Typical urban fruit-tree establishment rate
Surviving trees	800	$1,000 \times 0.80$
Average lifespan	20 years	Assumption per project scope
Above-ground biomass growth	5 kg d.m/tree/yr	IPCC Tier 1 default – tropical fruit trees
Root-to-shoot ratio (R)	0.26	IPCC (2006) Guidelines
Carbon fraction (CF)	0.47	IPCC (2006) Guidelines, Table 4.4
CO <sub>2</sub> -to-C ratio	3.667 (44/12)	Molecular weight conversion
Annual CO <sub>2</sub> /tree	≈ 10.857 kg CO <sub>2</sub>	$5 \times 1.26 \times 0.47 \times 3.667$

## 4.3 Scope and Limitations

This assessment covers the direct carbon sequestration by tree biomass only. It does not account for: (a) soil organic carbon accumulation; (b) avoided emissions from urban cooling effects reducing air-conditioning loads; (c) carbon stored in harvested fruit; or (d) albedo changes. Actual sequestration may therefore be higher than reported. Conversely, trees planted in poorly drained or highly compacted urban soils may have lower growth rates than the IPCC Tier 1 default.

## 5. Results and Discussion

### 5.1 Carbon Sequestration by Species

The table below presents the calculated annual and lifetime CO<sub>2</sub> sequestration for each species, based on surviving tree counts and the Tier 1 emission factor described in Section 4.

Local Name	English Name	Scientific Name	Dist.	Surviv.	Annual CO <sub>2</sub> (t)	Total CO <sub>2</sub> (t)
Mora	Longan Fruit	<i>Dimocarpus longan Lour</i>	50	40	0.434	8.69
Ebul Pera	Sour Guava	<i>Psidium guineense</i>	250	200	2.171	43.43
Lovi	Lovi-lovi	<i>Flacourtia inermis</i>	50	40	0.434	8.69
Pera	Guava	<i>Psidium guajava</i>	80	64	0.695	13.90
Jambu	Water Apple	<i>Syzygium spp.</i>	170	136	1.477	29.53
Lemon	Lemon	<i>Citrus limon</i>	100	80	0.869	17.37
Veralu	Ceylon Olive	<i>Elaeocarpus serratus</i>	150	120	1.303	26.06
Gaduguda	Langsat	<i>Baccaurea motleyana</i>	100	80	0.869	17.37
Mangus	Mangosteen	<i>Garcinia mangostana</i>	50	40	0.434	8.69
<b>TOTAL</b>			<b>1,000</b>	<b>800</b>	<b>8.69</b>	<b>173.71</b>

### 5.2 Summary of Key Findings

**Total trees distributed** : 1,000 across 9 species

**Estimated surviving trees** : 800 (applying 80% survival rate)

**Annual CO<sub>2</sub> sequestration** : 8.69 tonnes CO<sub>2</sub>/year

**Lifetime CO<sub>2</sub> sequestration** : 173.71 tonnes CO<sub>2</sub> over 20 years

**Equivalent to** : Annual emissions of ~37 Sri Lankan households offset

Sour Guava (Ebul Pera) contributes the largest share of sequestration, accounting for 25% of all distributed trees (250 saplings). Ceylon Olive (Veralu) and Water Apple (Jambu) are the second and third largest contributors. Collectively, these nine species represent a diverse, climate-appropriate palette suitable for Colombo's tropical urban environment.

Beyond carbon, these fruit trees deliver multiple co-benefits: they provide shade and cooling to urban streets, support pollinators and urban biodiversity, supply nutritious fruit for households, and

strengthen community connection to nature through the cultural context of the Vesak Dansala tradition.

## 6. Conclusion

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The Vesak Dansala Urban Fruit Tree Distribution Initiative, organized by Control Union Sri Lanka on 2nd June 2026, exemplifies the intersection of cultural tradition, corporate social responsibility, and environmental action. By distributing 1,000 fruit trees to devotees in Colombo, the initiative is estimated to sequester 173.71 tonnes of CO<sub>2</sub> over a 20-year period — a meaningful contribution to urban climate resilience.

Control Union Sri Lanka remains committed to advancing sustainability across its operations and community engagements. This initiative reflects the company's broader mission to support transparent, science-based environmental stewardship. Control Union will continue to document and report on the long-term outcomes of this project in alignment with international best practices.

## 7. References

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### Disclaimer

*This report has been prepared by Control Union Sri Lanka based on internationally accepted IPCC Tier 1 default values and project-specific assumptions. Carbon sequestration estimates are indicative and subject to variation based on actual field conditions, species performance, and urban planting environments. This document does not constitute a verified carbon credit or offset certificate.*