

# BEST PRACTICE I

## SWAYAMPURNA

### Objectives

Best Practices bears the cultural and economic shades of the locality. *Swayampurna* evolved from *Share a Meal* practice, after the COVID-19 pandemic. The inability to continue *Share a Meal* forced the college to adopt *Swayampurna* as a best practice. The aim of the practice is

- To ensure hunger-free campus
- To provide subsidized food to economically backward students
- To inculcate fellow feeling, compassion and empathy among students

### The Context

The practice of *Share a Meal* was started in 2014 in collaboration with the NSS units. It came to a stand-still with the spread of COVID 19 in 2020. In the last months of 2019, the District Head Quarters Taluk Hospital had taken precautionary steps to reduce the possible spread of the virus by closing the admittance of inpatients. All external agency assistance in and around the hospital was tentatively blocked. So, the Best Practice Team decided to carry on with the distribution of the food in the campus in a slightly different form, once the campus reopened after the lockdown. The practice was found necessary in the post COVID scenario, as many students belonging to the lower rungs of the middle class were undergoing tangible financial crisis.



Through this programme, the students continue to provide food for patients and relatives admitted in Government hospital of the district. Initially food was served at Taluk Hospital Kottappadi, however since other organizations also started service there, from 2019 August, food is being served at ***District Cooperative Hospital in Kunnummal.***

The NSS team is funding for this project through mushroom cultivation and its sale, and contribution from teachers and students. Organic vegetables which are grown in college terrace are being used. Everyday 2 NSS volunteers and 2 other students are in charge of preparing and serving the food at the hospital. Food is served on every working day at 10:30 am and each department are assigned to arrange transportation of the food on their allotted days.





**Clap For  
Share  
A Meal**

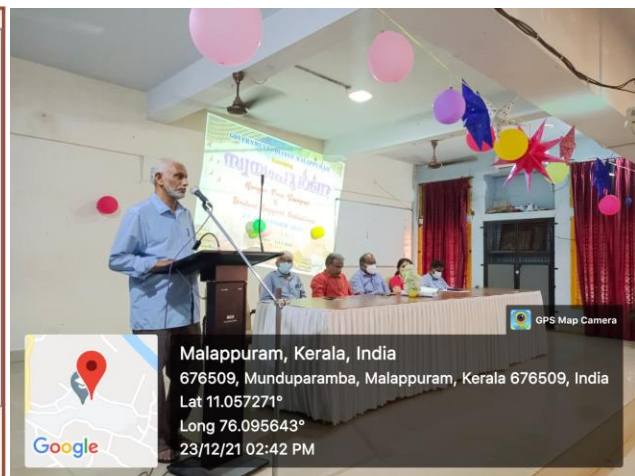
മലയാളം നവം കോളത്തിൽ  
വീരാധിപതി നാട്ടുപ്രതിമയിലേക്കുള്ള  
കൈമാറ്റം അധികാരിയായ



## The Practice

After the lockdown, *Swayampurna*, an initiative to turn the campus 'Hunger Free' materialised. The initiative is financially supported by the Alumni Association, Former Teachers' Union (FORT) and the staff. A committee was formed to monitor the programme with a bylaw. The initial aim of hunger free campus has succeeded, and *Swayampurna* has expanded its reach by providing mobility support for the differently abled students from this academic year onwards.

### Inauguration and Logo Release: Swayampoorna Project



## Results/ Evidence of Impact

Learning lessons from the erstwhile *Share a Meal*, students voluntarily helped the community in times of crisis like the floods; collected essential items like food, clothing and other basic amenities, and donated them; cleaned and chlorinated the flood hit areas; visited different parts of the landslide hit Nilambur and joined hands in the herculean task of cleaning a large region;

and distributed food packets to the victims of flood hit regions on the banks of river Chaliyar. The willingness and readiness to help those in crisis spring from the lessons of the practice.

## **Problems Encountered and Resources Required**

The issue of raising funds for *Swayampurna* cropped up initially, which was solved by receiving voluntary contributions from the Alumni and members of the staff during regular intervals. Later, a separate account was opened and more sponsors were identified. The main challenge was to identify the deserving students as many of them were reluctant to register themselves. To resolve this, tutors were entrusted with the charge of identifying eligible students.



# BEST PRACTICE 2

## *PACHAPPU*

*Pachappu* which in English means greenery is an umbrella term for the twin programme; eco-friendly practices within the campus; and the participatory, mass educational programme done outside the campus. It is implemented in collaboration with local self-government. It is tinged with activism involving students, teachers, their families and people of a select locality. It has the following objectives:

### Objectives

- To inculcate a vigilant attitude towards Nature and immediate environment in the days of climate crisis.
- To educate the students and their family about the symbiotic existence of the flora and fauna
- To sensitize all on the need to curtail anthropocentric activities

### The Context

Climate crisis has affected humanity detrimentally. Several cases of natural calamities, sunburns and heat strokes necessitate the need of an eco-consciousness. That is how the concept of *Pachappu* evolved and was integrated into the campus. It is a two-pronged practice where an attitudinal positivity towards Nature is blended with an activist readiness of humans.

### The Practice

Over a period of time, the college has created “cool spots” at multiple locations in the 5.8-hectare campus. The Herbal Garden; the Butterfly Garden; and *Under the Mango Tree* are some of them. In addition, the students are engaged in planting saplings in the cultivable soil; engaged in Mushroom Farming (2016-19); programme for River Bank protection; and seasonal vegetable farming by the NSS using bio manures. After readying the “cool spots”, the college launched a mass environment educational programme in the select wards of Malappuram municipality. *The Green Army*, a joint front of students, teachers and their family was formed to ensure the transaction of these ideas to the larger society. Six teams of fifty participants, including students,

# Plastic Free Campus Campaign

[illegible]

തുണിസഞ്ചിയുമായി ചലച്ചിത്രം ഗവ. കോളജ് എൻ എസ് എസ് വിദ്യാർത്ഥികൾ

## തൂണിസബിയുമായി തുടക്കം

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സംസ്ഥാനത്രി യുണൈറ്റഡ്  
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 ഏകീകരണവും മേൽക്കോട്ടെത്തിൽ  
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 പരിശീലനം, മത്സരകളിലൂടെ നിർ  
 മ്മാണം. മഹിറപ്പൂർ വിതരണം,  
 പരിശീലനം മോഡറലൈക്കേഷ  
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അനുഭവി മോഹൻദാസ്, സുബി

ഹി. അന. നൂറാദ ഏ  
സാതിച്ച. പ്രൊഫ.

നവീൻ സംസ്ഥാനത്തിൽ സ്വാഗതം അർപ്പിക്കുകയും ചെയ്തു.



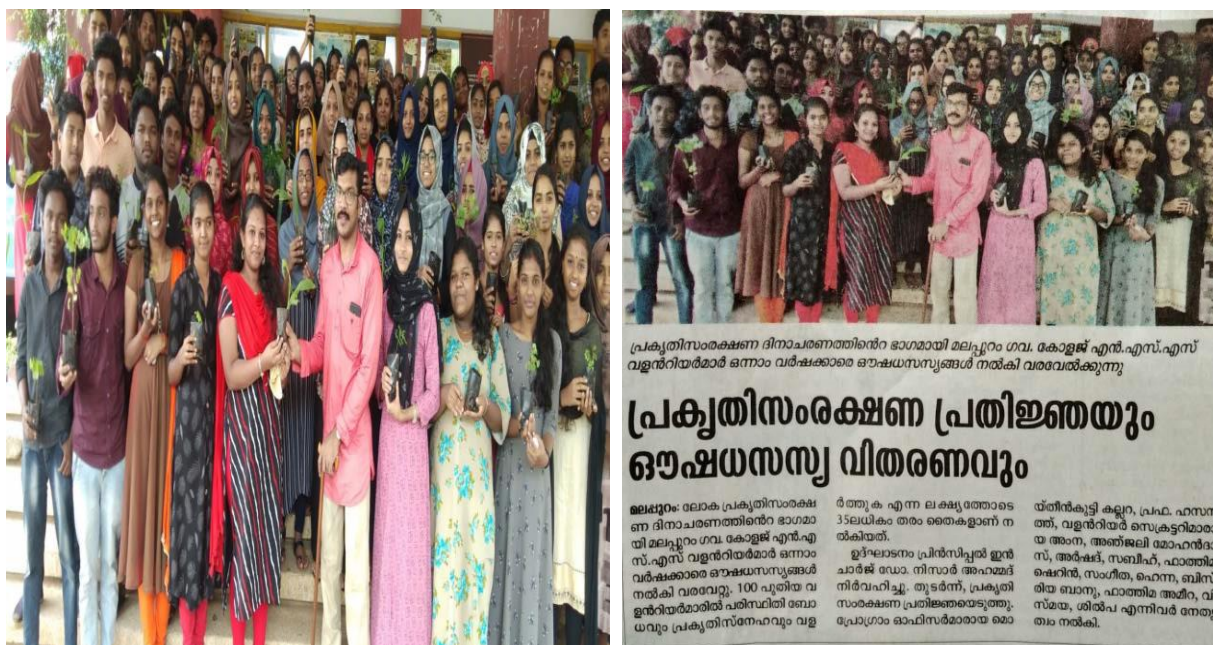
## Waste classification training programme

As part of the Green Protocol, the waste collected in different parts of the campus were gathered by NSS volunteers and then sorted into different categories such as electronics, plastics, paper, wooden and other degradable wastes under the guidance of *Kudumbasree members*.



## Distribution of herbal plants

Herbal plants were distributed to hundred new NSS volunteers as a way to promote knowledge about medicinal herbs among the young generation. More than 35 types of herbal plants were distributed in the function which was followed by taking an oath to protect the environment.





Thirty herbs were planted as part of building a herbal garden in the college campus by the NSS team. The programme was inaugurated by Principal Alavi Bin Muhammed, and NSS program officers Prof. Moideenkkutty Kallara and Prof. Hasnath lead the programme.



## Distribution of seeds



## Terrace garden

This was another endeavour launched by NSS volunteers of Malappuram Govt. College. The roof top of college building was used for Terrace farming. 100 grow bags were planted with varieties of vegetables as a primary stage. The terrace farming was inaugurated by Principal Alavi Bin Muhammed. Later a pair of volunteers were assigned to look after the cultivation daily. The vegetables grown here were used for preparing food for *Share a Meal* project.







## Mushroom cultivation

In order to collect funds for the functioning of '*Share A Meal*' project, NSS team came up with the idea of mushroom cultivation. 1st year NSS volunteers collected Rs 50000 and set up a dark room for growing mushrooms and fog pipes for controlling the temperature. 250 mushroom buds were planted and mushrooms were sold in packets of 125g and 250g at the rate of Rs 400 per kg. A mushroom fest was also conducted by preparing variety dishes using mushroom as a means to promote mushroom cultivation.







### Preparation of ‘Karkkidaka Thenga Marunnu’

Environmentalist Shri. Promod Irumpuzhi led for the preparation of '***Karkkidaka Thenga Marunnu***', which boosts our immunity system and prepares our body for the climatic changes that occur in monsoon. Under his guidance NSS volunteers prepared and distributed the ***thenga marunnu*** among students. This is made from grated coconut and six types of cereals and many other spices.



## Signing up for environmental protection







### **Cleaned up campus, farm and its area**

NSS volunteers cleaned up college campus, farm and surrounding area as a part of Gandhi Jayanti weekly celebration













**Nature's Green Guardians Foundation**  
**Green Audit – Biodiversity Audit**  
**Compliance Statement for AY 2020 - '21**  
**Government College, Malappuram, 676 509, Kerala**

Overall Objective	Main Objectives	Compliance Status
Ensure that an effective biodiversity protection plan is followed in the campus with the maintenance of all plants and animals living in and around the campus, and expanding the same even to the communities outside the campus in addition to working for capacity building to withstand Climate Change impacts.	<ol style="list-style-type: none"><li>1. Ensure that there is a competent Biodiversity Expert from an external agency, who will provide guidance on Biodiversity and Resource conservation, and improve the ecology.</li><li>2. Ensure that an Environment Protocol is adopted and followed by the entire campus community, adherence of which is reviewed, monitored, and targets reset annually.</li><li>3. Ensure that frequent training and awareness programs are planned and carried out focusing on climate change resiliency.</li><li>4. Ensure that every student and staff member commit to the lowering of carbon footprint of the institution through sustained greening measures.</li><li>5. Ensure that Environment Audit is conducted annually, with participation of staff and students, and that recommendations are followed up.</li></ol>	<p>Ensured continuous guidance of experts from NGGF</p> <p>Ensured [Vide 2020-21 Green Audit Report for the Green Protocol]</p> <p>Done. Two during the Audit year. Committed to Continue.</p> <p>Commitment Ensured.</p> <p>Annual Green Audit commitment ensured.</p>

**Prof. V.K. Damodaran**

*Ecologist Expert*

For NGGFs Audit Team, dated 04 November 2021





Nature's Green Guardians Foundation

**Green Audit – Energy Audit**

Compliance Statement for AY 2020 - '21

Government College, Malappuram, 676 509, Kerala

Overall Objective	Main Objectives	Compliance Status
Ensure that an effective energy management plan is followed in the campus with high degree of energy efficiency and increasing rate of utilisation of renewable energy, as also help raise the Climate Change resiliency, which is periodically reviewed and implemented incessantly.	<ol style="list-style-type: none"><li>1. Ensure that there is a competent Energy Management Expert from an external agency, who will provide guidance on Energy conservation and energy transition initiatives.</li><li>2. Ensure that the Energy Conservation Strategy is reviewed annually, progress monitored and achievable and measurable targets set for the future course</li><li>3. Ensure that a Policy on embracing Green energy, energy efficiency, and wastes to energy is evolved, enforced, and reviewed regardless of it exceeding legal mandates.</li><li>4. Ensure that every student and member of staff commits to the lowering of carbon footprint of the institution from all facets of energy use.</li><li>5. Ensure that Energy Audit is conducted annually, with involvement of staff and students and action taken on all the viable recommendations of the linked external expert energy agency.</li></ol>	<p>Ensured continuous support and guidance from NGGFs headed by an International Energy Expert and with multidisciplinary expertise.</p> <p>[Ensured. Vide Section on Energy Efficiency and on Renewable Energy Use in the Green Audit Report for 2020-21.]</p> <p>Ensured. Vide Green Protocol in Green Audit Report of 20-21.</p> <p>Ensured. 2 Training programs organised.</p> <p>Energy Audit conducted and actions for 2022-23 in planning stage.</p>

  
**Prof. V K Damodaran**

Ex-UNESCO International Energy Co-ordinator  
For NGGFs Audit Team, dated 04 November 2022



**Nature's Green Guardians Foundation**

Trivandrum 695 043 India

**Green Audit – Environment Quality Certificate**  
**Government College, Malappuram, Kerala for AY 2020-21**

Environment Audit for the academic year 2020 – 21 has been conducted for Government College, Malappuram, Kerala, in accordance with the International Standards for ISO 14000 family of standards set by ISO TC 207 and its Sub-committees, Biological Diversity Act 2002, Environmental Protection Act 1986 (and amendments) of Government of India, and other relevant mandates for maintaining sustainable and healthy environment for education in the campus.

In our opinion, the Institution has presented true and up-to-date data on the various aspects of working of this education institution, and appropriate audit procedures have been completed by the audit team for issuing this Audit Certificate and Compliance Statement. The recommendations are based on verified data presented on the situation as they existed at the time of audit.

The audit methodology did combine physical inspection of the campus on several occasions, with analytical reviews of relevant documents and activities, as well as interviews with the Principal, selected Staff members and Students of the College.

Audit findings indicate that, of the 359.4 T CO<sub>2</sub> of carbon footprint of the institution for the year, the contribution from Transportation and mobility including public transport use is at 276.7 T CO<sub>2</sub> – with 80.2 T coming from the use of personal vehicles by staff and students, and that out of Wastes is at 15.3 T CO<sub>2</sub>. But, remedial activities contributed a relief of only 27.2 T CO<sub>2</sub>. The campus is maintained litter free, clean, and green.

**Prof. V K Damodaran**

Ex-UNIDO International Energy Expert  
For NGGFs Audit Team, dated 04 November 2022

*I agree with the data presented in this report, as true, and further express my willingness to implement the recommendations of this audit report after internal review, even if any or many of them are in excess of the relevant mandates.*

**Dr. K K Damodaran, Principal**

Government College, Malappuram, Kerala

Date: 04 November 2022

Signature & Seal





**Nature's Green Guardians Foundation**

**Green Audit – Environment Quality Audit**  
**Compliance Statement for AY 2020 - '21**  
**Government College, Malappuram, 676 509, Kerala**

Overall Objective	Main Objectives	Compliance Status
Ensure that an effective environmental protection plan is followed in the campus with the maintenance of highest level of air quality, and 3 R policy on waste management - focusing on mitigation, adaptation and capacity building for Climate Change impacts resiliency, which is periodically reviewed and got implemented by all stakeholders.	<ol style="list-style-type: none"><li>1. Ensure that there is a competent Environment Expert from an external agency, who will provide guidance on Resource conservation, Waste management and Air and Water quality assurance.</li><li>2. Ensure that an Environment Protocol is adopted and followed by the campus community, adherence of which is reviewed annually.</li><li>3. Ensure that frequent training and awareness programs are chalked out and implemented, focusing on climate change resiliency, maintenance of air quality in the campus and students' living environment.</li><li>4. Ensure that every student and member of staff commits to the lowering of carbon footprint of the institution from all facets of energy use, including for transportation and mobility needs.</li><li>5. Ensure that Environment Audit is conducted annually, necessarily with involvement of staff and students, and action taken on all recommendations arising out of it.</li></ol>	<p>Ensured guidance from NGGF and CED - having international environment, transportation, and energy management experts</p> <p>Ensured. Green Protocol included in the Green Audit Report for the year.</p> <p>Ensured. Training given. Regular work experience also ensured.</p> <p>Commitment Ensured. [Elaborate infrastructure for environment quality assurance to be installed].</p> <p>Ensured. Environmental Audit conducted and actions initiated for the next year. [Vide GA Report Ch. 5]</p>

**Prof. V.K. Damodaran**

*Ec UNEP Expert*

*For NGGF Audit Team, dated 04 November 2022*



**Nature's Green Guardians Foundation**  
Trivandrum 695 043 India

**Energy Audit Certificate**  
**Government College, Malappuram, Kerala for AY 2020-21**

Energy Audit for the period of academic year 2020-21 has been conducted for Government College, Malappuram, Kerala, in accordance with the International Standards for ISO 14000 family of standards set by ISO TC 207 and its Sub-committees, Bureau of Energy Efficiency Standards, and stipulations under the Energy Conservation Act 2021 of Government of India, and other relevant mandates for maintenance of sustainable and healthy environment for education in the campus.

In our opinion, the Institution has presented true and up-to-date data on relevant activities to the audit team, and appropriate audit procedures have been completed for issuing this Audit Certificate and the Compliance Statement. The recommendations are based on verified data presented as they existed at the time of audit.

The inspection methodology did combine physical inspection of the campus, with analytical reviews of relevant documents and activities, as well as interviews with the Principal, and selected members of Staff and Students of the College.

Audit findings indicate that, of the 359.4 T CO<sub>2</sub> of carbon footprint of the institution for the year, the contribution from direct use of electricity and firewood was limited to 39.7 T CO<sub>2</sub>. Transportation including public transport use (outside the campus) is at 276.7 T CO<sub>2</sub> (or 70% of the total). Wastes contributed 15.3 T CO<sub>2</sub> only, but wastes to energy thro' biogas returned 4.5 T CO<sub>2</sub> (remedial measures). Effective awareness and training programs were conducted during the year and are planned for the future as well, to make all stakeholders aware of the need for individual efforts.

**Prof. V K Damodaran**

Ex-UNIDO International Energy Expert  
For NGG's Audit, dated 04 November 2022

I agree with the data presented in this report, as true, and further express my willingness to implement the recommendations of this audit report after internal review, even if any or many of them are in excess of the relevant mandates.

**Dr. K K Damodaran, Principal**

Government College, Malappuram, Kerala

Date: 04 November 2022

Signature & Seal





**Nature's Green Guardians Foundation**

Trivandrum 695 043 India

**Biodiversity - Green Audit Certificate**

**Government College, Malappuram, Kerala for AY 2020-21**

This Green Audit including evaluation of Biodiversity conservation has been conducted for Government College, Malappuram, Kerala, in accordance with the International Standards for ISO 14000 family of standards set by ISO TC 207 and its sub-committees, and Biological Diversity Act, 2002 (Act No. 18 of 2003) of Government of India and other relevant mandates for promotion of sustainable living and education in a healthy environment.

In our opinion, the Institution has presented true and up-to-date data on the various aspects of working of this higher education institution before the audit team, and appropriate audit procedures have been completed for preparing this report. The assessments and recommendations are based on data presented before the team at the time of audit.

The audit methodology did combine physical inspection of the campus on several work days and holidays, with analytical reviews of relevant documents and activities, as well as interviews with the designated Staff and Students of the College.

This audit is conducted to ensure that a Green lifestyle is followed and implemented in the campus across all academic and non-academic departments, as well as the body of students undergoing studies in the College.

Green Audit 2020-21 of Government College, Malappuram has found that the institution's per capita carbon footprint for the year is only 0.179 ton of CO<sub>2</sub> equivalent, a level well below the current national per capita average of 1.84 t CO<sub>2</sub> (2021 level), with **potential to develop into a carbon neutral campus**. All efforts are taken to conserve, protect, and enrich the existing biodiversity and also to extend efforts even beyond the college boundary through outreach, and further by implementing the Green Protocol, and having a commitment to continue its green practices to positively impact the society at large.

**Prof. V K Damodaran**

Ex-GRGP Expert

For BOCGP Audit, dated 04 November 2022

*I agree with the data presented in this report as true, and further express my willingness to implement the recommendations of this audit report after internal review, even if any or many of them are in excess of the relevant mandates.*

**Dr. K K Damodaran, Principal**

Government College, Malappuram, Kerala

Date: 04 November 2022

Signature & Seal

**GREEN AUDIT OF GOVERNMENT COLLEGE, MALAPPURAM**  
Mundapuram PO, Malappuram, 676 509, Kerala

**Carbon Footprint Analysis and Evaluation for 2020-'21**

The actual per capita carbon footprint for Government College, Malappuram, Kerala is 194 kg (0.194 Ton) of CO<sub>2</sub> equivalent [359.4 Ton/(1821 + 29 visitors)], and an offset of 27.2 TCO<sub>2</sub> through remedial actions is obtained. The net carbon footprint during 2020-'21 is thus [359.4 - 27.2 = 332.2 T CO<sub>2</sub> eq].

**The effective CF is 332/1850 or 0.179 T or 179 kg CO<sub>2</sub> per capita [2020-21]**

According to the Economic Survey of Govt. of India, the per capita emission for an Indian is 1.84 Ton CO<sub>2</sub> eq. per annum in 2021. It is projected to reach 3.0 - 3.5 T of CO<sub>2</sub> by 2030 as per evaluation in 2010. India's effort for greening is luckily bringing in a reduction from the expected CF level by at least 5%.

For the year 2020-'21, for Government College, Malappuram, Kerala, the Carbon Footprint per capita at 0.179 T CO<sub>2</sub> equivalent, is very modest. This is achieved due to the minimal use of resources equivalent to a rural setting and the simple life style of the students.

**The campus can be treated as a 'low carbon footprint' institution.**

The remediation gap between the assessed footprint and the available remediation is 332.2 Ton CO<sub>2</sub> eq. On a closer look, the major contributors are:

1. Transportation (276.7 T of CO<sub>2</sub>)
2. Use of Purchased Electricity (28.4 T of CO<sub>2</sub>)
3. Events, and Postcards (25.7 T of CO<sub>2</sub>), and
4. Use of Firewood (11.3 T of CO<sub>2</sub>).
5. Food waste contributes 12.9 T of CO<sub>2</sub> only, and it is converted to energy in a biogas plant built in the campus.

The College may consider several remediation options, in spite of its very low CF status. Being a college with moderate use of personal vehicles like the use of scooters/bikes, and cars, the present 70% share of carbon footprint of Transportation is largely due to large number of students daily commuting by bus from distant places. Government policy on admission - single window - does not allow students to choose the neighbourhood college for study, and this result in the need for longer daily commutation.

The campus greenery content is worth improving. College is to plan ahead for continuous upgrading the greening efforts, and introduction of roof top Solar PV installation to wipe off the carbon footprint completely.

[ P.T.O ]

*hms*

Prof. V.K. Dasgupta  
for NCCF



**Carbon Footprint Calculation  
of Government College, Malappuram, 676 509 Kerala, for 2020- 21**

Sl. No.	Source	Rate	Quantity x Days/year	Total Quantity	Annual Eqp. CO <sub>2</sub>
1.a	Electricity use	0.82 kgCO <sub>2</sub> /kWh Factor 2021B		24 x MWh	28.4 T CO <sub>2</sub>
1.b	Fossil fuel use	2.68 kgCO <sub>2</sub> /kg 2.38kgCO <sub>2</sub> /kg	LPG (38x70 kg + 28x14.2 kg)	0.834 T	2.0 T CO <sub>2</sub>
1.c	Personal	1.8kgCO <sub>2</sub> /kg	280 x 25 kg	6.3 T	11.2 T CO <sub>2</sub>
2.a	Food waste	1.8 kgCO <sub>2</sub> /kg	21x250	6.3 T	12.9 T CO <sub>2</sub>
2.b	Paper waste	1.72kgCO <sub>2</sub> /kg	3 kg x 250	0.7 T	1.2 T CO <sub>2</sub>
2.c	Water waste	0.358kgCO <sub>2</sub> /L	4 L x 250	0.3 L	0.0 T CO <sub>2</sub>
2.d	Plastic/Other	6.3kgCO <sub>2</sub> /kg	89x1.250	0.2 kg	1.2 T CO <sub>2</sub>
3.a	Bus/Train/ Bicycles and staff	2.45 kgCO <sub>2</sub> /kg	37708x250/3004	72.1 L	182.2 T CO <sub>2</sub>
3.b	Quaternary vehicle type	2.68 kgCO <sub>2</sub> /kg	---	---	0.0 T CO <sub>2</sub>
3.c	Car, Taxi	2.32 kgCO <sub>2</sub> /L	238x1000/10	26.2 L	60.5 T CO <sub>2</sub>
3.d	Auto rickshaws	2.68 kgCO <sub>2</sub> /L	148x250/30	1.2 L	3.2 T CO <sub>2</sub>
3.e	Two wheelers	2.38 kgCO <sub>2</sub> /L	1730x250/30	0.7 L	14.9 T CO <sub>2</sub>
4	Events, Festivals	Approx	30008x1.2	0.6 T	28.7 T CO <sub>2</sub>
5	Construction	Lump sum	---	---	0.4 T CO <sub>2</sub>
	<b>Total</b>				<b>369.4 T CO<sub>2</sub></b>

\*No. of working days in 2020-21: 250 days

Table 4.1: Calculation of Carbon Footprint Source-wise

**Remediation for Carbon Footprint  
of Government College, Malappuram, 676 509 Kerala, for 2020- 21**

Sl. No.	Source	Rate	Quantity x Days/year	Total Quantity	Annual Eqp. CO <sub>2</sub>
1	1.a. Solar PV electricity	0.82kgCO <sub>2</sub> /kWh	2x1200 (Direct light)	0.96 kWh	0.2 T CO <sub>2</sub>
	1.b. Solar Hot Water	1.24	Nil	---	---
	1.c. Wind energy	2.3 kgCO <sub>2</sub> /kg	Nil	---	---
	1.d. Biogas	---	2 runs/day	200.0 kg	4.5 T CO <sub>2</sub>
	1.e. Micro Hydro Project, other	---	Nil	---	---
2	2.a. Replacing old tube lights	0.3 L	Nil	---	0.0 T CO <sub>2</sub>
	2.b. Replacing bulbs to CFLs	---	Nil	---	---
	2.c. Replacing Fans, Motors	---	Nil	---	---
	2.d. UPS Upgrading	---	Nil	---	---
	2.e. Recharge. Prudent. load	---	Nil	---	---
3	3.a. Water Recirculation	0.358kgCO <sub>2</sub> /L	4 L./day	1.500 L	0.5 T CO <sub>2</sub>
	3.b. Recycling	---	Limited	---	---
	3.c. Waste to Energy	---	No other	---	---
4	4.a. Sharing of vehicles	---	---	---	0.0 T CO <sub>2</sub>
	4.b. Low footprint options	---	---	---	---
	4.c. Wireless/Solar refuelers	---	---	---	---
5	5.a. Greenery Cover. retained	Nil	For area/yr	---	0.0 T CO <sub>2</sub>
	5.b. Tree planting, Biodiversity	230g/yr	---	---	13.8 T CO <sub>2</sub>
	5.c. Gardens, Lawns, Trees, etc	3208 kg/acre	---	0.35 acres	1.8 T CO <sub>2</sub>
6	6. Walking & bicycle use	2.45 kg/yr	300x250/3004	72.0 kg	1.8 T CO <sub>2</sub>
7	7. Greenwash activities	32 kg/yr	250 runs	50%	5.0 T CO <sub>2</sub>
	<b>Total</b>				<b>37.3 T CO<sub>2</sub></b>

Table 4.2: Remediation for Carbon Footprints available/created

The International Organization for Standardization (ISO) also provides some general standards for

- Greenhouse gas emissions at Organization level (ISO 14064 - 1) and
- Greenhouse gas emissions of project level (ISO 14064 - 2)
- Specifications to calculate and verify relevant emissions are documented in (ISO 14064 - 3)

**[Full Report of Green Audit of SMC Puthanangadi is issued separately]**

*Fig. V.K. Damodaran*  
for H&P  
04.11.2022

## **Results/ Evidence of Impact**

The greenery maintained in the campus along with an environmentally friendly attitude highlight this. The proper maintenance of Herbal Garden, Butterfly Garden and Under the Mango Tree, prove the eco sensitivity instilled in the students. As the girls learned to critique the impact of anthropocentric activities through the field work, an attitudinal change is visible in the understanding of the symbiotic existence of the flora and fauna in every family.

## **Problems Encountered and Resources Required**

The college faced the initial problem of making the campus free of plastic. It was made possible through a sustained campaign along with the extra counselling given to all involved. The preparation of a module for transacting at the grass root level posed challenges. Similarly, converting these messages into songs, street plays and musical performance also took some time. There was no monetary expense as the work was carried out by *The Green Army*. The saplings are provided to us free of cost by the involvement of the Alumni.