THE UNIVERSITY OF BURDWAN

SUSTAINABILITY REPORT

2023-2024

BURDWAN, WEST BENGAL

INDIA-713104

HTTPS://WWW.BURUNIV.AC.IN/DEMO/INDEX_BUCC.PHP

About the Sustainability Report: Message from the Honorable Vice-Chancellor

It is with great pride that I present The University of Burdwan's maiden Sustainability Report for the year 2023-24, prepared by the ***Sustainability Practice and Reporting Committee*** *(SPRC). This inaugural report marks a pivotal step in our university's journey toward integrating sustainability into our core values and practices.*

As a leading academic institution, The University of Burdwan is committed to contributing to global sustainability efforts by aligning our activities with the Sustainable Development Goals (SDGs) set by the United Nations. This report outlines our initial efforts in identifying and mapping our activities against various SDG goals and targets. It will set the foundation for our future endeavours for achieving environmental stewardship, social equity, and economic sustainability. The preparation of this report is a testament to our commitment to transparency and accountability. It provides a comprehensive overview of our current sustainability status, highlighting our focus on key areas such as reducing CO2 emissions and working towards carbon neutrality. This foundational document will serve as a guiding framework for our future actions and strategies, ensuring that we remain aligned with the global agenda for sustainable development.

I extend my deepest gratitude to the SPRC for putting in their stupendous efforts to conduct research and collect data for preparing this report. The entire team has worked enthusiastically to complete this task in a short period. The presentation of report exhibits the mental perseverance and research integrity of the SPRC. I convey my best wishes to the university community that is dedicated to making our campus more sustainable. As we embark on this journey, I am confident that our collective efforts will foster a culture of sustainability and inspire positive change within our institution and beyond.

Let us continue to strive towards a sustainable future for all.

Thanking you.

Prof. Goutam Chandra, Ph.D, D.Sc
Honorable Vice-Chancellor
The University of Burdwan

This Report is prepared by the ***Sustainability Practice and Reporting Committee*** (SPRC), The University of Burdwan. The purpose of SPRC is to promote sustainability practices and prepare sustainability report for the University of Burdwan.

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Prof. Debdas Rakshit, Department of Commerce

Prof. Arindam Das, Department of Commerce

Prof. Arindam Laha, Department of Commerce

Dr Subodh Chandra Pal, Department of Geography

Dr Sumit Kumar Maji, Department of Commerce

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The University of Burdwan: Nestled in Nature's Green Cover

Total Campus Area: 356 Acres

Total water area: 66.12 acres (18.55%)

Total built up area: 20.40 Acres (5.72%)

Types of Trees: No. 122

Total Open Space: 166.91 acres (46.82%)

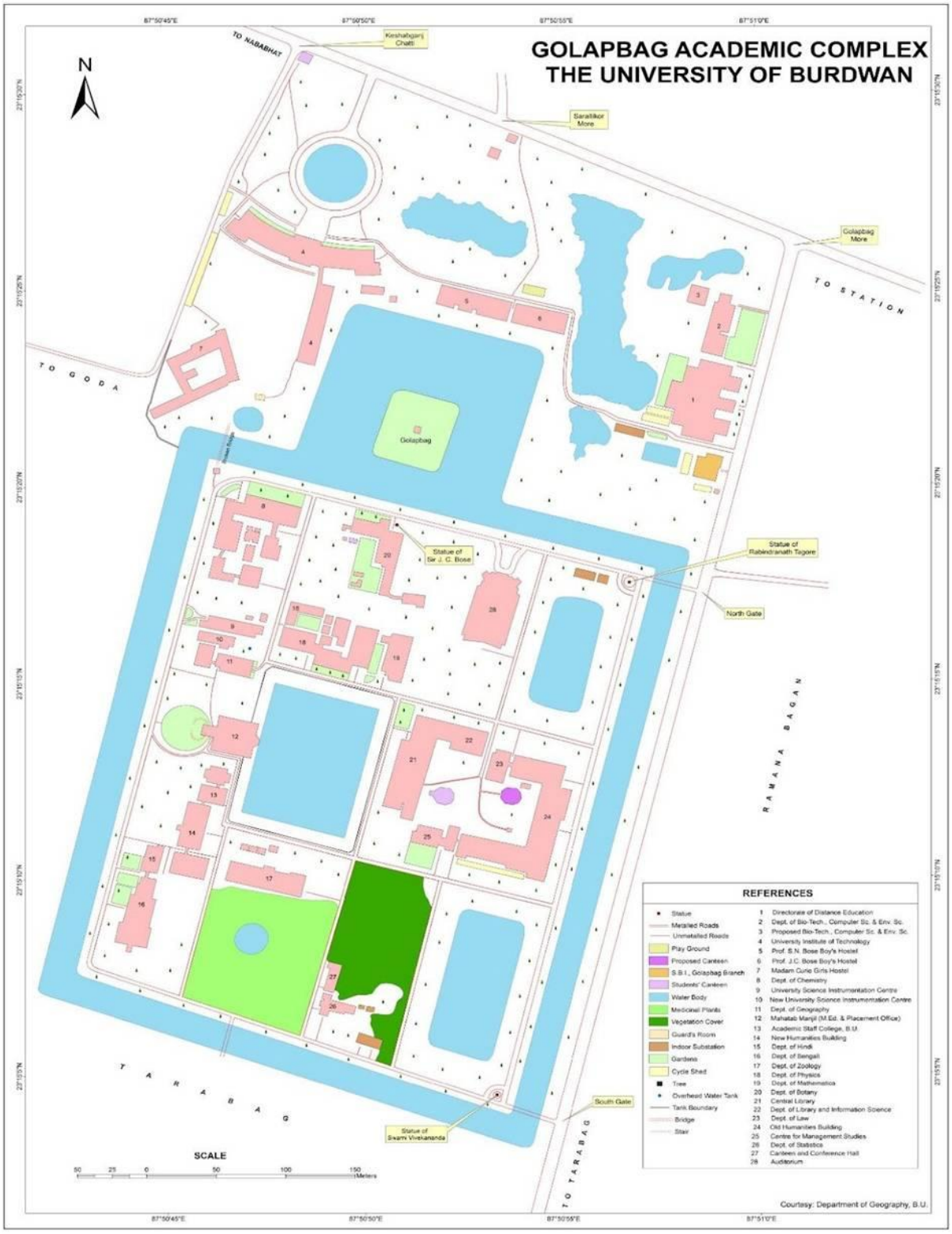
Number of Trees: 1074

Green Area: 103.06 acres (28.91%)

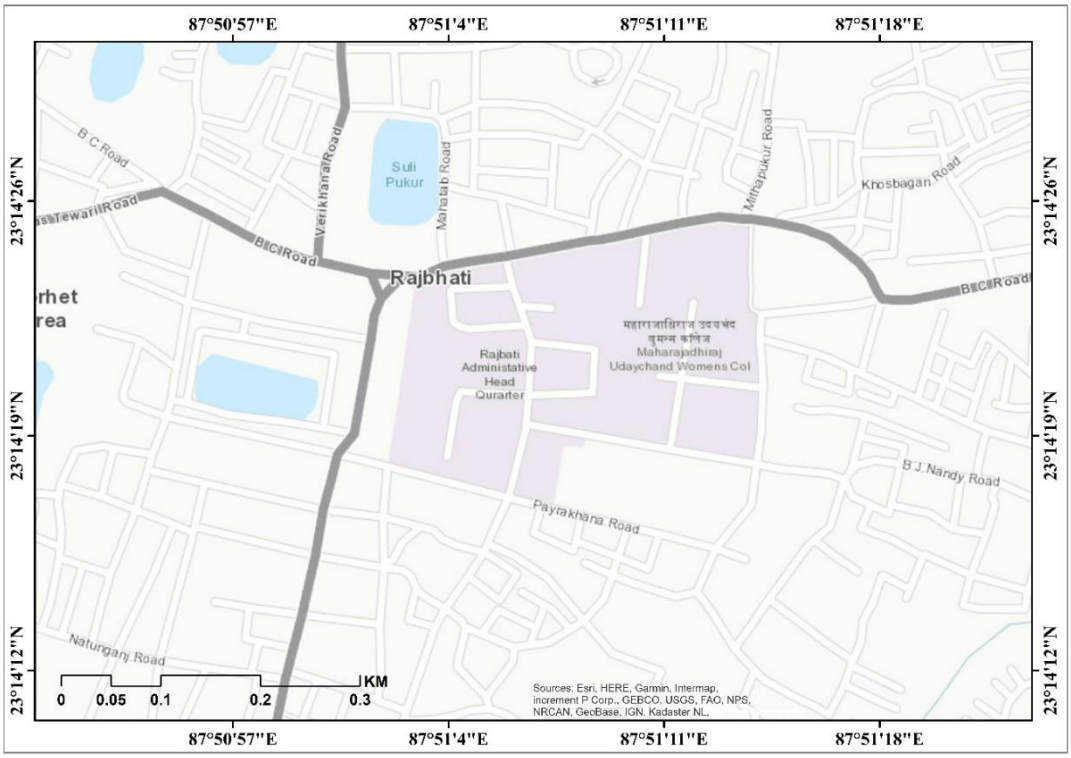
The University of Burdwan is one of the prominent higher educational institutes nestled in the lap of Mother Nature, folded in greenery in the City of Burdwan, West Bengal, India. Established in 1960, the university has grown to become a leading centre for higher education in the education map of West Bengal and India, known for its academic excellence and picturesque campus.

The University of Burdwan is not just an educational institution but a heaven of greenery and tranquillity that enhances the overall learning experience. Its commitment to academic excellence, quality research, state of the art infrastructure combined with its beautiful and sustainable campus, makes it a unique and inspiring place for higher education. Students at the University have the opportunity to thrive academically while being surrounded by the natural beauty that the campus offers.

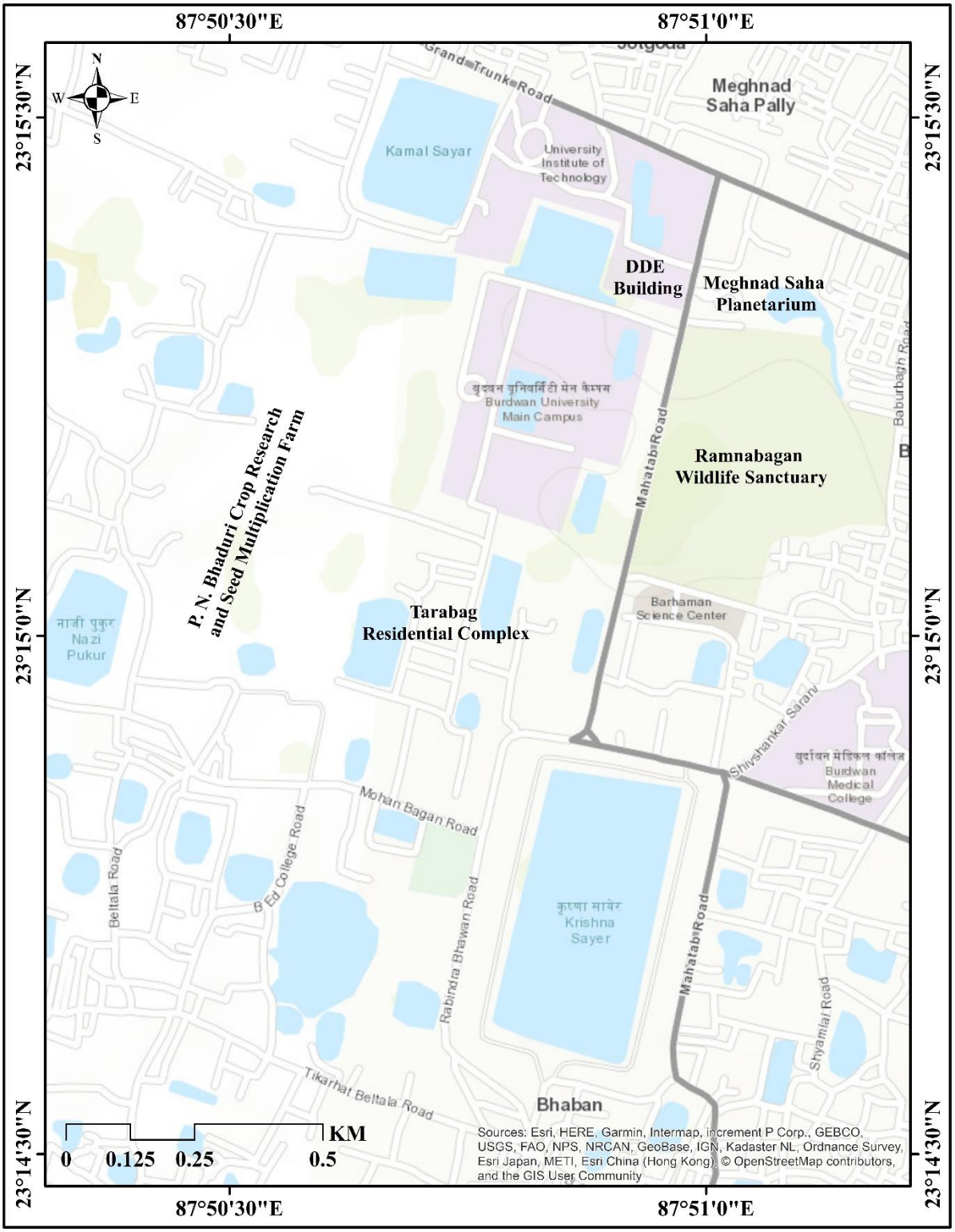
University Map



Rajbati



Abhaykanan


87°50'30"E
87°51'0"E
23°15'30"N
23°15'0"N
23°14'30"N
N
W
E
S
Grand Trunk Road
Meghnad Saha Pally
Kamal Sayar
University Institute of Technology
DDE Building
Meghnad Saha Planetarium
बुर्दवन यूनिवर्सिटी मेन कैम्पस
Burdwan University Main Campus
Baburbagh Road
Mahatab Road
Ramnabagan Wildlife Sanctuary
P. N. Bhaduri Crop Research and Seed Multiplication Farm
Tarabag Residential Complex
Barhaman Science Center
नाजी पुकुर
Nazi Pukur
Shivshankar Sarani
बुर्दवन मेडिकल कॉलेज
Burdwan Medical College
Mohan Bagan Road
Beltala Road
B Ed College Road
Rabindra Bhawan Road
कृष्णा सायेर
Krishna Sayer
Mahatab Road
Shyamlal Road
Tikarhat Beltala Road
Bhaban
KM
0 0.125 0.25 0.5
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), © OpenStreetMap contributors, and the GIS User Community

Contents

List of Abbreviations

AGB: Above-Ground Biomass

BGB: Below-Ground Biomass

BU: The University of Burdwan

CDOE: Centre for Distance and Online Education

CRSMF: Crop Research and Seed Multiplication Farm

GHGs: Green House Gases

GWP: Global Warming Potential

IBSC: Institutional Biosafety Committee

NEP: National Education Policy

NIRF: National Institutional Ranking Framework

OBC: Other Backward Classes

RTC: Regional Technology Centre

SC: Scheduled Caste

SDGs: Sustainable Development Goals

ST: Scheduled Tribes

TB: Total Biomass

TC: Total Carbon

TDW: Total Dry Weight

TRIPS: Trade-Related Aspects of Intellectual Property Rights.

UGC: University Grants Commission

UN: United Nations

WoS: Web of Science

CO_2 Emissions

Reporting of CO_2 emissions is important for organizations, including academic institutions, because it helps them understand and manage their environmental impact. By tracking their carbon footprint, organizations can identify opportunities to reduce energy use, switch to renewable energy sources, minimize waste, and promote sustainable practices. This not only supports environmental protection but also aligns with broader sustainability goals, demonstrating a commitment to responsible stewardship and contributing to global efforts to combat climate change.

CO_2-e, or carbon dioxide equivalent, is a standard unit used to measure the impact of greenhouse gases (GHGs) on global warming. It expresses the amount of CO_2 that would have the same global warming potential (GWP) as a given amount of another GHG. By converting various GHGs to a CO_2e metric, it's easier to compare and manage their contributions to climate change.

Scope 1 Emissions: These are direct CO_2e emissions from sources that are owned or controlled by an university. Examples include emissions from on-site fuel combustion in boilers, furnaces, and vehicles owned or operated by the company. These emissions are directly within the organization's control, making it responsible for managing and reducing them.

Scope 2 Emissions: These are indirect CO_2e emissions from the consumption of purchased electricity, steam, heating, and cooling. These emissions occur at the facility where the energy is produced, not at the consuming universities' site. However, since these emissions are a result of the university's energy use, they are included in the **organization's overall carbon footprint.**

Scope 3 Emissions: The University is making every effort to track Scope 3 emissions. Scope 3 emissions are all indirect CO_2 e emissions that occur in a university's value chain but are not included in Scope 2. Unlike Scope 1 and Scope 2, Scope 3 emissions are not directly controlled by the company but are a consequence of its activities.

CO_2 e Emissions

Scope	Sources	Consumption	Conversion factor (Indian Context)	CO_2 e
Scope 1 (Direct)	Petrol	1982 liters/year	Approx. 2.31 kg CO_2 per litre.	4,578.42 Kg
	Diesel	26352.4 Litre/year	Approx. 2.68 kg CO_2 per litre.	70,624.44 Kg
			CO_2 e Scope 1	**75,202.86 Kg**
Scope 2 (Indirect)	Electricity	2194935 Kwh/Year	Approx. 0.82 kg CO_2 per kWh	1800847.70 Kg
	Water	1293881000 Lit/Year	Approx. 0.27 kg CO_2 per litre.	349347870 Kg
			CO_2 e Scope 2	**35,11,48,717.70Kg**
			Total CO_2 e (Scope 1+ Scope 2)	**35,12,23,920.56 Kg**

For The University of Burdwan, targeting the Sustainable Development Goals (SDGs) and measuring their impact is essential for both reporting and fulfilling our broader educational mission. As an institution dedicated to advancing knowledge and fostering innovation, aligning with the SDGs allows us to address global challenges such as climate change, inequality, and sustainable development effectively. Through detailed SDG reporting, we can transparently communicate our progress in integrating sustainability into our research, academic programs, and campus activities.

This reporting is vital for several reasons. It provides a structured approach to assess our achievements and identify areas for improvement, ensuring we meet our sustainability targets and maintain accountability. Such transparency helps build trust with our stakeholders, including students, alumni, faculty, funding bodies, and accreditation agencies. It also supports our alignment with national policies and global standards, such as National Institutional Ranking Framework (NIRF), which is increasingly incorporating sustainability metrics. Moreover, by showcasing our commitment to the SDGs, we enhance our reputation as a leader in sustainability within the academic community. This not only attracts prospective students and faculty who are passionate about these issues but also strengthens our position in securing grants and forming valuable partnerships. Integrating SDGs into our reporting fosters a culture of sustainability on campus, engages our community in meaningful initiatives, and aligns our operations and research with broader societal goals. Ultimately, our commitment to the SDGs through rigorous reporting underscores The University of Burdwan's dedication to contributing positively to both national and global sustainability efforts, while supporting our mission to advance knowledge and societal impact for a more sustainable and equitable future.

Target 1.4: "ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources"

The University Scholarship/Free ship, affordable hostel and academic fees ensure access to financial resources for economically disadvantaged students and ensuring equitable access to education.

Hostel Full free-ship beneficiary: 79

Nominal Hostel Fees: Rs 110 per Month per Student (On average)

Nominal Tuition Fees: Rs. 720/Semester (On average)

Admission and First Semester Fees (To be paid at the time of admission)

SUBJECT	Admission Fee (Rs.)	Session Fee (Rs.)	Library (Rs.)	Student Aid Fund (Rs.)	Student Health Home (Rs.)	Facilitation Fee (Rs.)	Development Fee (Rs.)	Health Care (Rs.)	Identity Card (Rs.)	Examination Fee (Rs.)	BVCS (Rs.)	Sports (Rs.)	Tuition/Course Fee (Rs.)	Laboratory Fee (Rs.)	Computer Practice (Rs.)	Economic Survey (Rs.)	WBCIPE Merit@ (Rs.)	Camp & Outdoor Education	Educational Tour (Rs.)	Spot fee (Rs.)	Total (Rs.)
Bengali	200	100	200	50	10	40	200	30	20	350	50	160	600	0	0	0	0	0	0	--	2010
Urdu	200	100	200	50	10	40	200	30	20	350	50	160	600	0	0	0	0	0	0	--	2010
Education	200	100	200	50	10	40	200	30	20	350	50	160	600	0	0	0	0	0	0	--	2010
Santali	200	100	200	50	10	40	200	30	20	350	50	160	600	0	0	0	0	0	0	--	2010
English	200	100	200	50	10	40	200	30	20	350	50	160	600	0	0	0	0	0	0	--	2010
History	200	100	200	50	10	40	200	30	20	350	50	160	600	0	0	0	0	0	0	--	2010
Political Science	200	100	200	50	10	40	200	30	20	350	50	160	600	0	0	0	0	0	0	--	2010
Philosophy	200	100	200	50	10	40	200	30	20	350	50	160	600	0	0	0	0	0	0	--	2010
Sanskrit	200	100	200	50	10	40	200	30	20	350	50	160	600	0	0	0	0	0	0	--	2010
Sociology	200	100	200	50	10	40	200	30	20	350	50	160	600	0	0	0	0	0	0	--	2010
Hindi	200	100	200	50	10	40	200	30	20	350	50	160	600	0	0	0	0	0	0	--	2010
Economics	200	100	200	50	10	40	200	30	20	350	50	160	600	0	0	800	0	0	0	--	2810
Hindustani Classical Vocal Music	200	100	200	50	10	40	200	30	20	400	50	160	1000	500	0	0	0	0	0	--	2960
Rabindra Sangeet	200	100	200	50	10	40	200	30	20	400	50	160	1000	500	0	0	0	0	0	--	2960
Commerce	200	100	200	50	10	40	200	30	20	400	50	160	600	0	600	0	0	0	0	--	2660
Mathematics	200	100	200	50	10	40	200	30	20	400	50	160	600	900	0	0	0	0	0	--	2960
Physics	200	100	200	50	10	40	200	30	20	430	50	160	600	900	0	0	0	0	0	--	2990

Second Semester Fees

SUBJECT	Examination Fee (Rs.)	Tution/Course Fee (Rs.)	Laboratory Fee (Rs.)	Spot Fee (Rs.)	Total (Rs.)
Bengali	350	600	0	--	950
Urdu	350	600	0	--	950
Education	350	600	0	--	950
Santali	350	600	0	--	950
English	350	600	0	--	950
History	350	600	0	--	950
Political Science	350	600	0	--	950
Philosophy	350	600	0	--	950
Sanskrit	350	600	0	--	950
Sociology	350	600	0	--	950
Hindi	350	600	0	--	950
Economics	350	600	0	--	950
Hindustani Classical Vocal Music	400	1000	500	--	1900
RabindraSangeet	400	1000	500	--	1900
Commerce	400	600	0	--	1000
Mathematics	400	600	900	--	1900
Physics	430	600	900	--	1930
Chemistry	550	600	900	--	2050
Geography	450	600	900	--	1950
Zoology	520	600	900	--	2020
Botany	520	600	900	--	2020
Statistics	400	600	900	--	1900
Bio-Technology	500	16000	3000	--	19500
Microbiology	500	17500	3000	--	21000
Environmental Science	500	6750	1500	--	8750

Third Semester/ Second Year(Wherever applicable)Fees

SUBJECT	Session Fee (Rs.)	Student Aid Fund (Rs.)	Student Health Home (Rs.)	Examination Fee (Rs.)	Tution/Course Fee (Rs.)	Laboratory Fee (Rs.)	Spot Fee (Rs.)	Total (Rs.)
Bengali	100	50	10	350	600	0	--	1110
Urdu	100	50	10	350	600	0	--	1110
Education	100	50	10	350	600	0	--	1110
Santali	100	50	10	350	600	0	--	1110
English	100	50	10	350	600	0	--	1110
History	100	50	10	350	600	0	--	1110
Political Science	100	50	10	350	600	0	--	1110
Philosophy	100	50	10	350	600	0	--	1110
Sanskrit	100	50	10	350	600	0	--	1110
Sociology	100	50	10	350	600	0	--	1110
Hindi	100	50	10	350	600	0	--	1110
Economics	100	50	10	350	600	0	--	1110
Hindustani Classical Vocal Music	100	50	10	400	1000	500	--	2060
RabindraSangeet	100	50	10	400	1000	500	--	2060
Commerce	100	50	10	400	600	0	--	1160
Mathematics	100	50	10	400	600	900	--	2060
Physics	100	50	10	430	600	900	--	2090
Chemistry	100	50	10	550	600	900	--	2210
Geography	100	50	10	450	600	900	--	2110
Zoology	100	50	10	520	600	900	--	2180
Botany	100	50	10	520	600	900	--	2180
Statistics	100	50	10	400	600	900	--	2060
Bio-Technology	100	50	10	500	16000	3000	--	19660
Microbiology	100	50	10	500	17500	3000	--	21160

Fourth Semester Fees

SUBJECT	Examination Fee (Rs.)	Tution/Course Fee (Rs.)	Laboratory Fee (Rs.)	Spot Fee (Rs.)	Total (Rs.)
Bengali	350	600	0	--	950
Urdu	350	600	0	--	950
Education	350	600	0	--	950
Santali	350	600	0	--	950
English	350	600	0	--	950
History	350	600	0	--	950
Political Science	350	600	0	--	950
Philosophy	350	600	0	--	950
Sanskrit	350	600	0	--	950
Sociology	350	600	0	--	950
Hindi	350	600	0	--	950
Economics	350	600	0	--	950
Hindustani Classical Vocal Music	400	1000	500	--	1900
RabindraSangeet	400	1000	500	--	1900
Commerce	400	600	0	--	1000
Mathematics	400	600	900	--	1900
Physics	430	600	900	--	1930
Chemistry	550	600	900	--	2050
Geography	450	600	900	--	1950
Zoology	520	600	900	--	2020
Botany	520	600	900	--	2020
Statistics	400	600	900	--	1900

Source: https://www.buruniv.ac.in/Downloads/Docs/BUREG_FeesStructures.pdf

Target 1.5: "build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic , social and environmental shocks"

The University Engages in economic resilience building at the local level through Crop Research and Seed Multiplication Farm (CRSMF) and Regional Technology Centre (RTC) initiatives that improve economic resilience of the local farmer community. Moreover, CRSMF sustains the livelihood of local farm workers engaged at CRSMF.

No. of farmers associated with CRSMF: 1300

No. of Blocks associated with CRSMF: 12

Target 2.2: "By 2030, end all forms of malnutrition" Recognising the importance of this Goal"

The "Nutrition & Public Health" department was started in 2020. In addition to creating public health professionals, the research contributions of the faculty members in this direction enable evidence-based decision-making.

Target 2.4: "ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality"

The University is actively engaged in the research on sustainable agricultural practices (soil fertility and productivity improvement, maintenance of physiological quality of seeds, certification of seed), and productivity of different seeds.

Target 3.4: "……promote mental health and well-being"

Mentor-mentee practice in the University plays a pivotal role in providing students emotional support and stress management.

Target 3.8: "…….access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all"

The University Health Centre and the preventive health care medical camps organized by it for the students, teachers and non-teaching staff directly contributes towards this target (access to quality essential health-care services). Moreover, free medicines provided by the University Health

Centre and hosting Covid-19 vaccination contributes towards "access to safe, effective, quality and affordable essential medicines and vaccines for all"

No. of Health Professionals in Health Centre: 4

No. of Doctors associated with Health Centre: 2

Number of patients attended in 223-24: 4408

Medical equipment and facilities like USG, X ray, PFT, ECG, Holter monitoring are available.

Types of Testing Camps on a Monthly Basis: 7 [Fibro Scan, Uroflometry, Bone Mineral Density, Homocystin & Vitamin D3 estimate etc.]

Value of medicine provided free of Cost:

Rs. 7,35,863

In addition homeopathy clinic, physiotherapy, dental clinic, gynaecology clinics, pathological tests are conducted on weekly basis.

Emergency Services Provided: Oxygen therapy, Nebulization &Cupt injury repairs.

Target 3.b: "Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health"

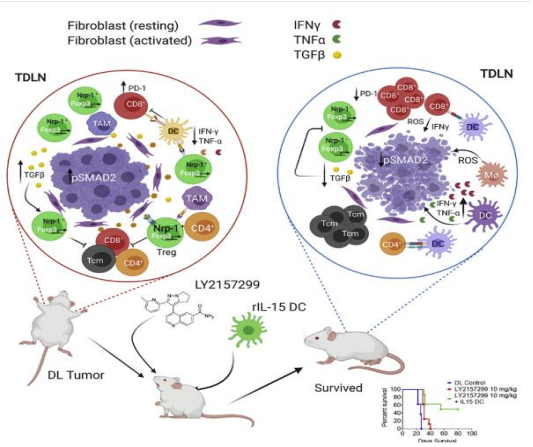
The research activities by the esteemed faculty members of Zoology, Botany, Microbiology, Bio-technology, Molecular Biology and Genomics (new department) are positively contributing towards Goal 3.

Genetic Service from Molecular Biology& Human Genetics Division:

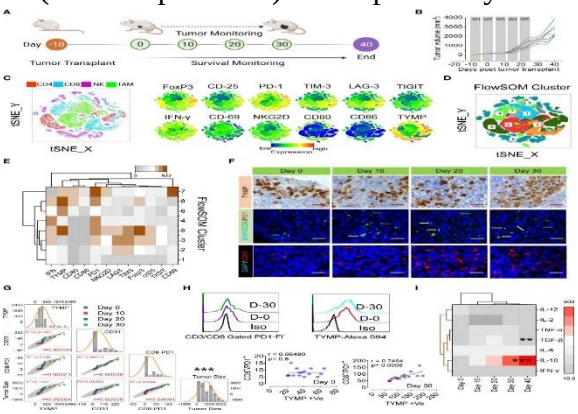
Thalassemia carrier screening: 56

Thalassemia patients genetic testing: 24

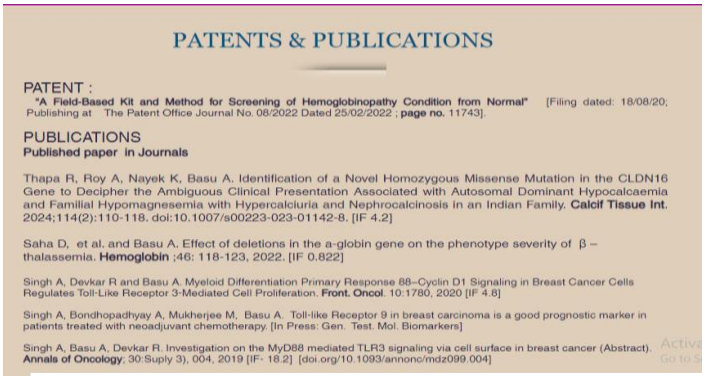
Rare disorder genetic diagnosis: 16



Hira, S. K., Rej, A., Paladhi, A., Singh, R., Saha, J., Mondal, I., Bhattacharyya, S., and Manna, P. P. (2020) Galunisertib Drives Treg Fragility and Promotes Dendritic Cell-Mediated Immunity against Experimental Lymphoma. iScience 23, 101623



Source: Paladhi A, Daripa S, Mondal I and Hira SK (2022) Targeting thymidine phosphorylase alleviates resistance to dendritic cell immunotherapy in colorectal cancer and promotes antitumor immunity. Front. Immunol. 13:988071.



PATENTS & PUBLICATIONS

PATENT :

"A Field-Based Kit and Method for Screening of Hemoglobinopathy Condition from Normal" [Filing dated: 18/08/20; Publishing at The Patent Office Journal No. 08/2022 Dated 25/02/2022 ; **page no.** 11743].

PUBLICATIONS

Published paper in Journals

Thapa R, Roy A, Nayek K, Basu A. Identification of a Novel Homozygous Missense Mutation in the CLDN16 Gene to Decipher the Ambiguous Clinical Presentation Associated with Autosomal Dominant Hypocalcaemia and Familial Hypomagnesemia with Hypercalciuria and Nephrocalcinosis in an Indian Family. **Calcif Tissue Int.** 2024;114(2):110-118. doi:10.1007/s00223-023-01142-8. [IF 4.2]

Saha D, et al. and Basu A. Effect of deletions in the a-globin gene on the phenotype severity of β – thalassemia. **Hemoglobin** ;46: 118-123, 2022. [IF 0.822]

Singh A, Devkar R and Basu A. Myeloid Differentiation Primary Response 88–Cyclin D1 Signaling in Breast Cancer Cells Regulates Toll-Like Receptor 3-Mediated Cell Proliferation. **Front. Oncol.** 10:1780, 2020 [IF 4.8]

Singh A, Bondhopadhyay A, Mukherjee M, Basu A. Toll-like Receptor 9 in breast carcinoma is a good prognostic marker in patients treated with neoadjuvant chemotherapy. [In Press: Gen. Test. Mol. Biomarkers]

Singh A, Basu A, Devkar R. Investigation on the MyD88 mediated TLR3 signaling via cell surface in breast cancer (Abstract). **Annals of Oncology**; 30:Suply 3), 004, 2019 [IF- 18.2] [doi.org/10.1093/annonc/mdz099.004]

Source: https://anupamlab.wixsite.com/home/publications

Target 4.5: "gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, Indigenous peoples and children in vulnerable situations".

Non-discriminative policy, economic support (University Free-ship), and reservation for vulnerable sections of society as per Government Rules ensure that our University is pursuing this target.

2023-24	Arts					Science					Total
	SC	ST	OBC	Gen	Others	SC	ST	OBC	Gen	Others	
Enrolled	427	130	439	890	25	160	31	146	453	28	2729
Sanctioned	492	142	439	1003	89	231	59	178	465	127	3173
Percentage Enrolled	87%	92%	100%	89%	28%	69%	53%	82%	97%	22%	86%

The Department of Women's Studies at The University of Burdwan promotes gender equality and women's empowerment through interdisciplinary education, research, and community outreach. By offering specialized programs, organizing workshops, and engaging in policy advocacy, the department works to reduce gender disparities and empower women in both academic and local communities.

Target 4.7: "that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development".

Periodic syllabus revision practice to include recent development in the relevant subject and adopting NEP, 2020 enables our University to address this Target. The Department of Lifelong Learning at Burdwan University equips learners with essential knowledge and skills to support sustainable development.

Through programs like Cyber Law, Guidance & Counselling, and Yoga, the department emphasizes education on sustainable lifestyles, human rights, gender equality, and cultural diversity, fostering global citizenship and a culture of peace. Through Centre for Innovation, Entrepreneurship and Skill Development, a number of programs have been organized on inculcating entrepreneurship, innovation, intellectual property rights and skill development for the students, research scholars and faculty members.

Categories	Diploma in Cyber Law			PG Diploma in Guidance & Counselling			PG Diploma in Yoga		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
EWS	0	0	0	0	1	1	0	0	0
General	7	8	15	4	15	19	5	14	19
OBC-A	2	1	3	1	1	2	1	5	6
OBC-B	1	2	3	2	1	3	3	4	7
SC	6	3	9	1	3	4	1	9	10
ST	1	0	1	0	0	0	4	1	5
Total	17	14	31	8	21	29	14	33	47

The Centre for Distance and Online Education (CDOE), BU formerly Directorate of Distance Education, BU was established in 1994. The first of its kind in West Bengal it evolved and developed since its inception and presently it has a sound infrastructure of its own and conducts several postgraduate programmes on the basis of the approval of UGC-DEB and AICTE. Situated near the Golapbag Campus of the university, the CDOE can boast of a beautiful building of its own with the latest infrastructure. It houses all the administrative departments of the Directorate and organizes counseling sessions for different programmes under Distance mode. It has adequate faculty and staff for imparting quality education through distance mode.

Target 5.5: "women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life".

Women teachers and non-teaching staff in various committees and bodies try to attain this target.

Women diversity (Teaching): 3.34 times

Women diversity (Non-Teaching): 0.27 times

Overall: 1.86 times

Target 5.2: "all forms of violence against all women and girls in the public and private spheres".

The University has adopted a zero tolerance policy towards eliminating violence against all women and girls. The University through '*Vishaka*', headed by a female teacher, enforces strict policies to end all forms of harassment and violence against all women and girls. No. of Complaints Registered in *Vishaka*: Zero

Target 6.2: "achieve access to adequate and equitable sanitation and hygiene for all".

The practice of maintaining clean and hygienic sanitation facilities attains this target.

Cleaning & Sanitation Budget for 2023-24: Rs. 38,45,148.

Target 6.4: "substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity"

Rajbati, Water Underground water Conservation

Rainwater preservation & harvesting systems in the University help the University to attain target 6.4.

No. of rainwater harvesting points: 13 (7 in Golapbag and 6 in Tarabag)

Rainwater preservation: 1 at Rajbati

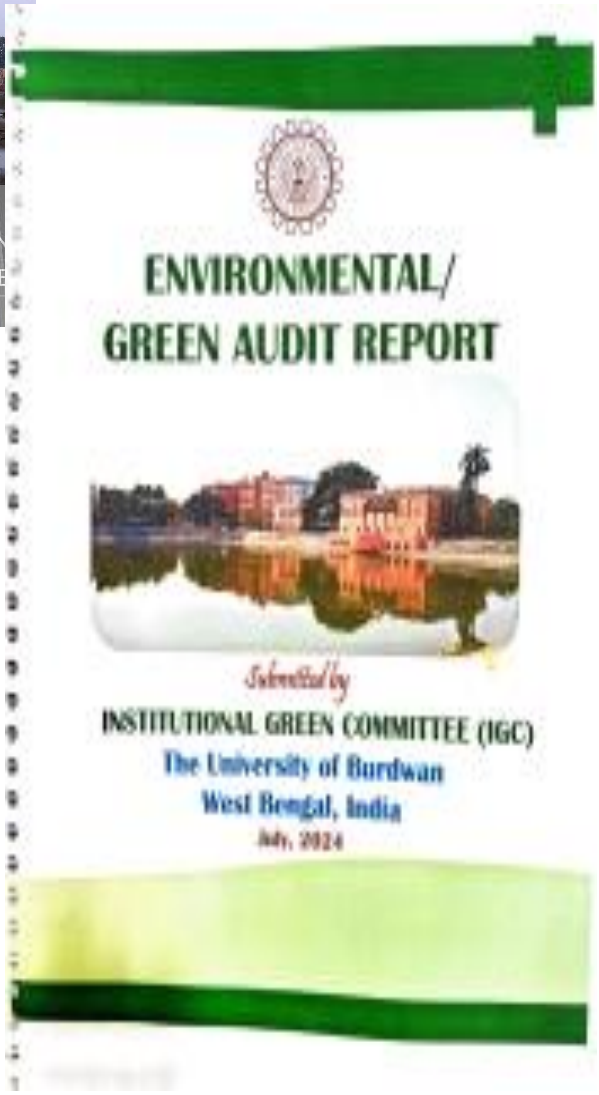
Target 7.2: "substantially the share of renewable energy in the global energy mix".

Solar panels installed at New Humanities Building and Bengali Department contributes towards increasing share of renewable energy.

Installed capacities:

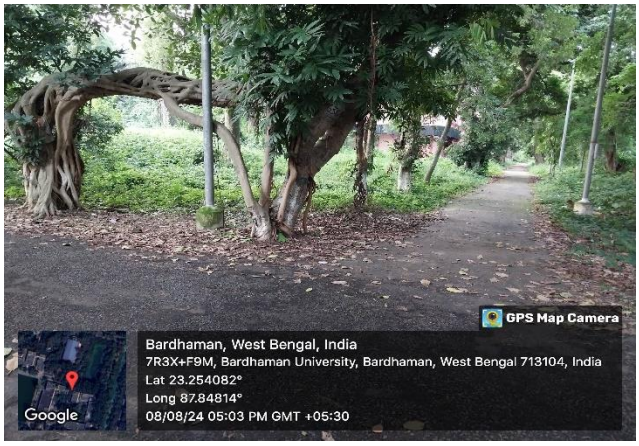
Bengali Department: 25 KVA

New Humanities Building: 75 KVA

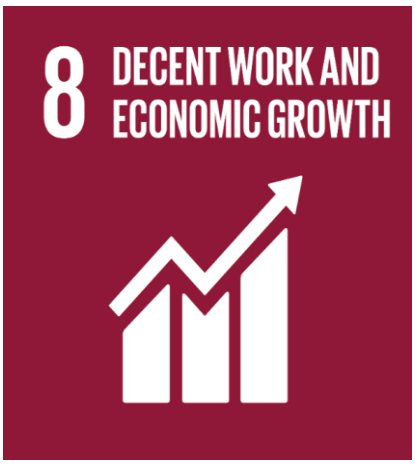


Target 7.3: "attaining improvement in energy efficiency"

Conducting green audits and encouraging vis-a-vis nudging energy-efficient practices among the university community helps attaining this target.



Target 8.5: "decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value"



Equal employment opportunity (transparent non-discriminatory recruitment), pay equality and equity (following UGC Norms) in the University ensures the achievement of this goal. Positive work atmosphere, Day care room play pivotal role in contributing towards Goal 8.

Target 8.6: "substantially reduce the proportion of youth not in employment, education or training".

The generic activities of imparting education and skill development of the University directly contribute towards this target. The University through it Life Long Learning Centre different course.

No. of Students during 2023-24:

Diploma in Cyber Law: 31

PG Diploma in Guidance & Counselling: 29

PG Diploma in Yoga: 47

Target 9.5: i.e. "Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation".

he generic activity of research carried out by the teachers and scholars plays a catalytic role towards achieving this target

For Science Faculty Teachers (2023-24):

No. of Scopus/WoS Index articles: 626

No. of patents: Granted: 04; Published: 07

No. of copyrights: 01 No. of projects: 35

Total Value of Projects: INR 1482.10 Lakh

No. of ph.d scholars: 353

No. of Ph.d awarded: 103

No. of start-ups: 02 (2024)

Total number of Google Scholar citations: 192816

For Arts Faculty Teachers (2023-24):

No. of articles Published: 132

No. of projects: 03

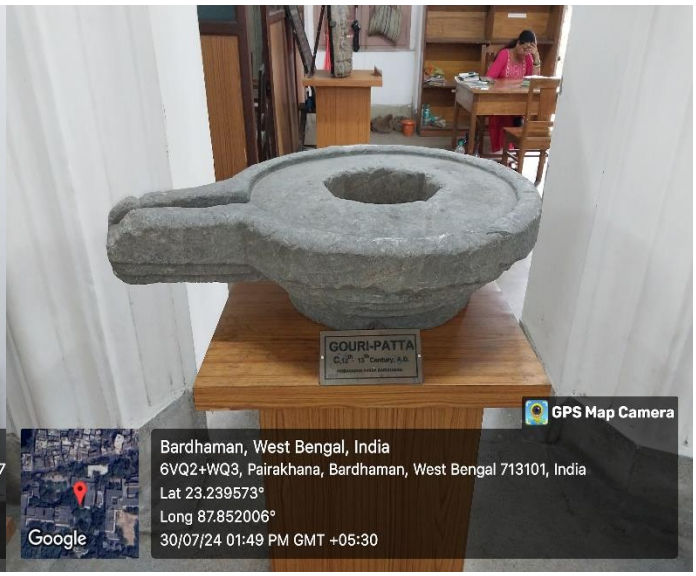
Total Value of Projects: INR 130.00 Lakh

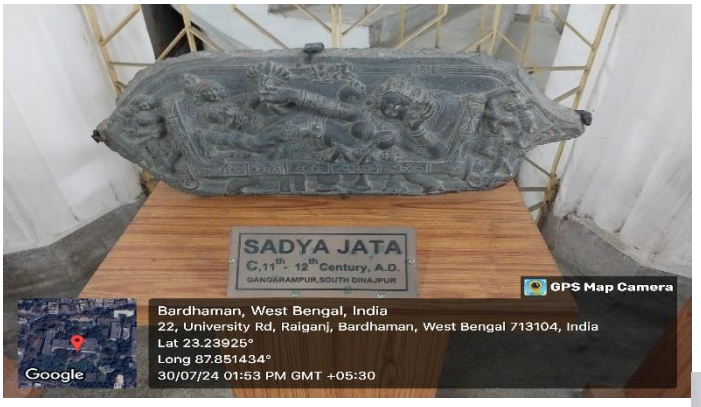
No. of ph.d scholars: 215No. of Ph.d awarded: 119

Total number of Google Scholar citations: 17088

Target 11.4: "efforts to protect and safeguard the world's cultural and natural heritage". University museum and Art Gallery, buildings of archaeological importance are contributing towards strengthening and preserving cultural heritage.

List of Antiquities:





Coins: 1172

Sculptures: 224

Temple Terracotta Plaques: 102

Terracotta objects: 244

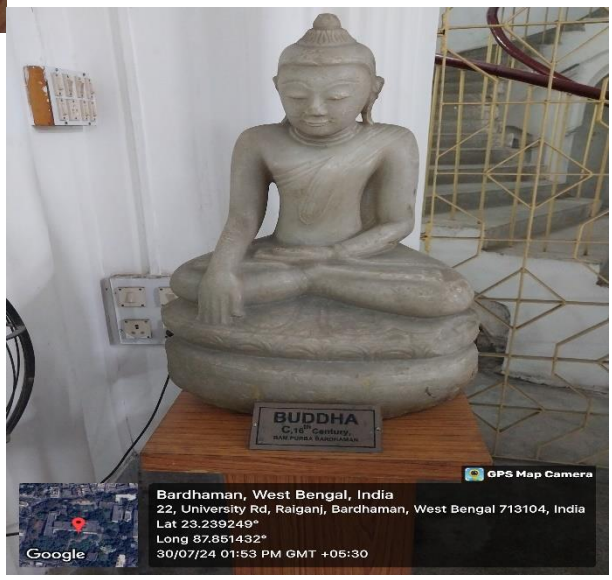
Metal Sculptures: 38

Wooden Sculptures: 14

Paintings: 60

Beads: 31; Tools: 17

Marble Sculptures: 7



The biodiversity of the University makes efforts to protect and safeguard the world's cultural and natural heritage:

Types of Tree Species: 122

Types of Amphibia: 7

Types of Bird: 62

Types of Osteichthyes:21

Types of Insects: 45

Types of Bird: 62

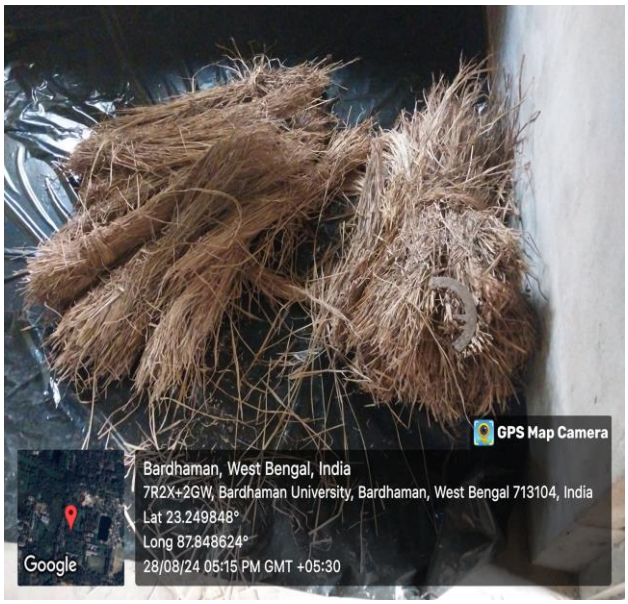
Types of Mammalia: 12

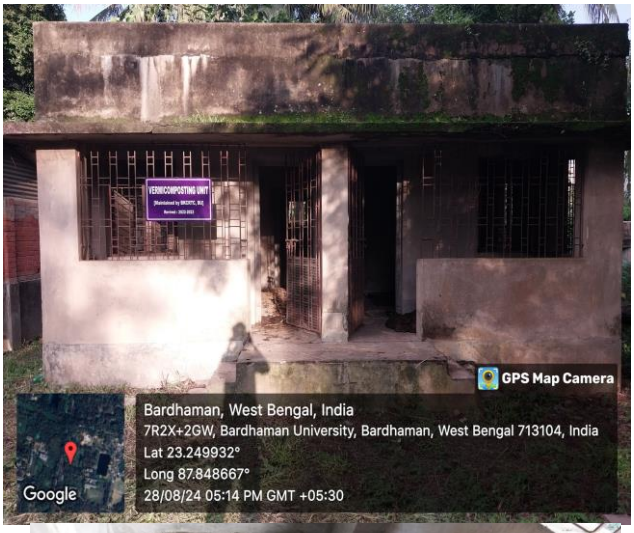
Types of Insects: 45

Types of Reptilia: 15

Target 12.5: "substantially reduce waste generation through prevention, reduction, recycling and reuse implementing comprehensive waste management programs, including recycling and composting initiatives".

Biomedical waste management: Management of Biomedical and Chemical waste and monitoring of research work involving Biohazard issues is performed under the strict surveillance of the Institutional Biosafety Committee (IBSC, BU) chaired by Hon'ble Vice-Chancellor, The University of Burdwan. The IBSC has been entrusted to monitor the following: Decontamination and Disposal, DISPOSAL METHODS, Disposal of Hazardous Chemicals.

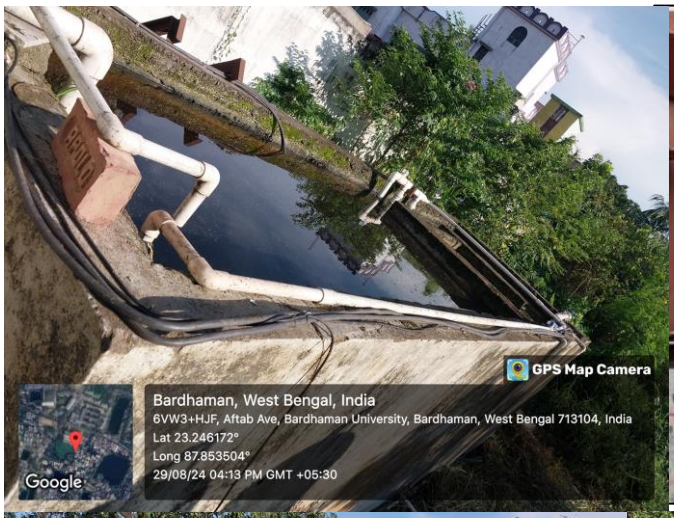




Solid waste management: The University of Burdwan has a biodegradable solid waste management system. The facility is located in the Crop Research and Seed Multiplication Farm of the University. Sewage treatment plant at golden jubilee building: The treatment process provided in this plant is

completely based on Extended Aeration Activated Sludge Process with diffused aeration system followed by Tube Settler along with Tertiary Filtration Unit. After treatment, water can be discharged into the nearby sewer line or can be reused for gardening/ toilet flushing etc.

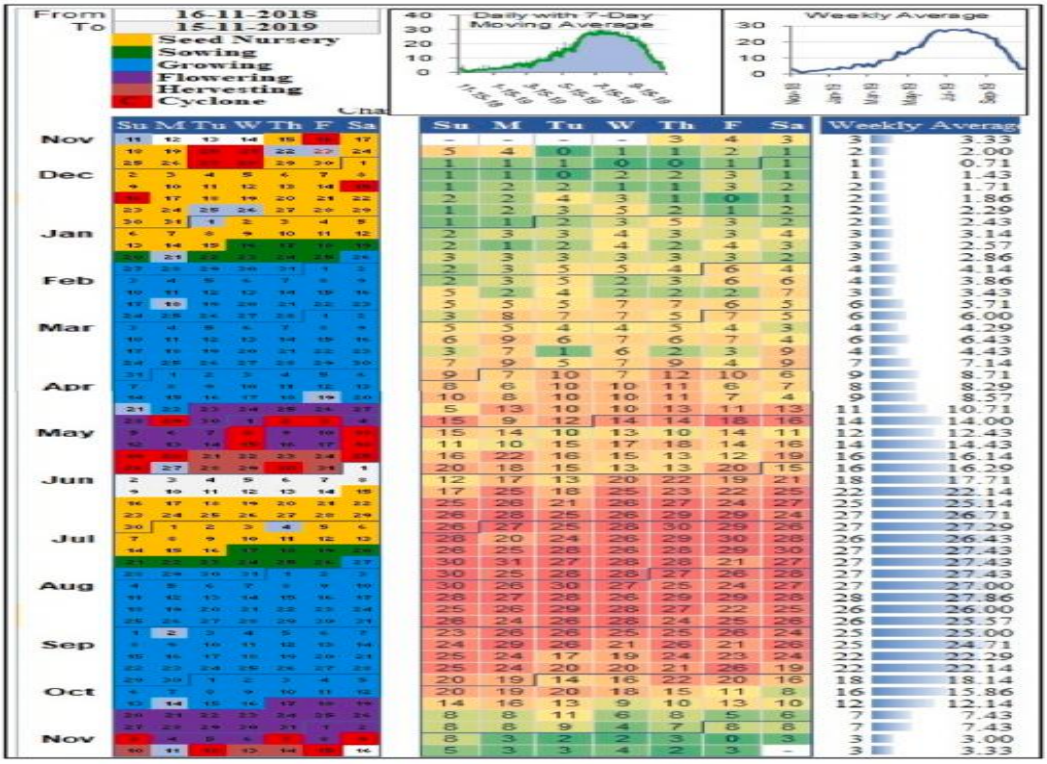
Liquid waste management: The Department of Chemistry has installed a hazardous liquid chemical waste management facility.



Target 13.3: i.e. "Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning".

Inclusion of sustainability issues in different courses, greenery, and periodic tree plantation directly addresses this target.

Annual crop calendar of rice (Both for 'Aman' and 'Boro' rice)



Source: Chowdhuri, I., & Pal, S. C. (2024). Threats of tropical cyclone on cropping systems and crop calendar of paddy in India: issues, policy practice gap and adaptation strategies. *International Journal of Disaster Risk Reduction.*

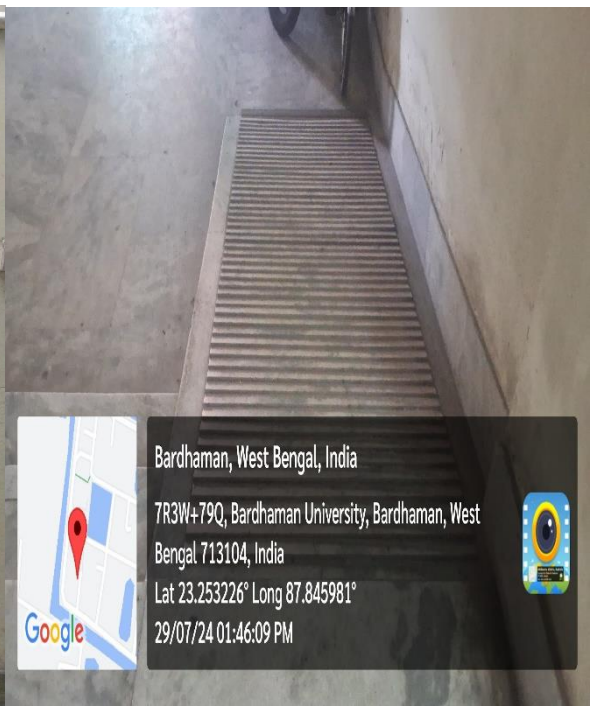
Target 16.7: "responsive, inclusive, participatory and representative decision-making at all levels".

Inclusion of individuals of different ages, genders and stakeholders into the different committees ensures.

Target 16.3: "Promote the rule of law at the national and international levels and ensure equal access to justice for all"

Nos. of Legal opinions given by the Legal Cell in the administrative issues of this University: 11
No. of cases resolved: 25
No. of new cases filed: 15
Total Cases pending before legal forums: 108 (Since 2009)
High Court at Calcutta : 99
Supreme Court of India : 03
Burdwan District Judges' Court : 06

Moreover the Gender Equality Cell, Equal Opportunities Cell, Internal Complaint Committee, Vishakha, Anti Ragging Cell and Grievance Settlement Cell etc. constituted at the University level ensures peace and justice.

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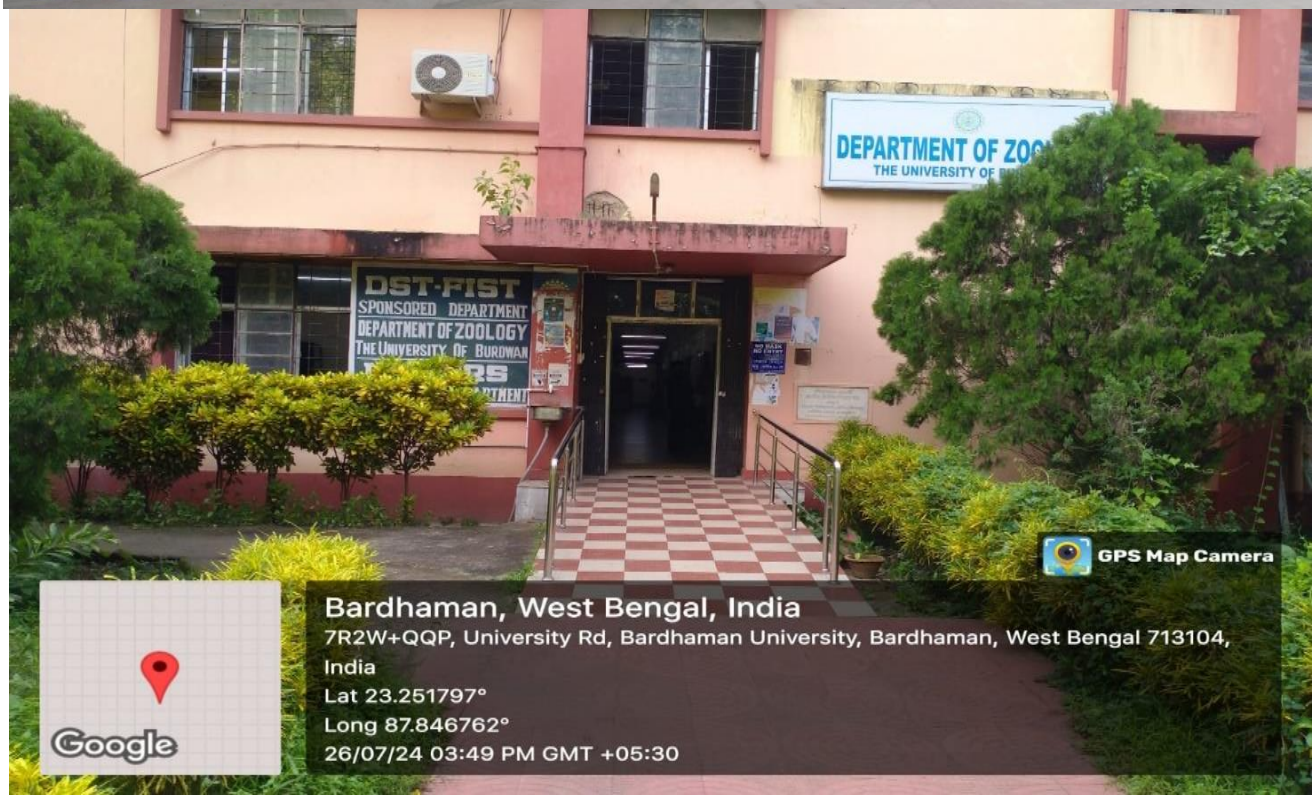
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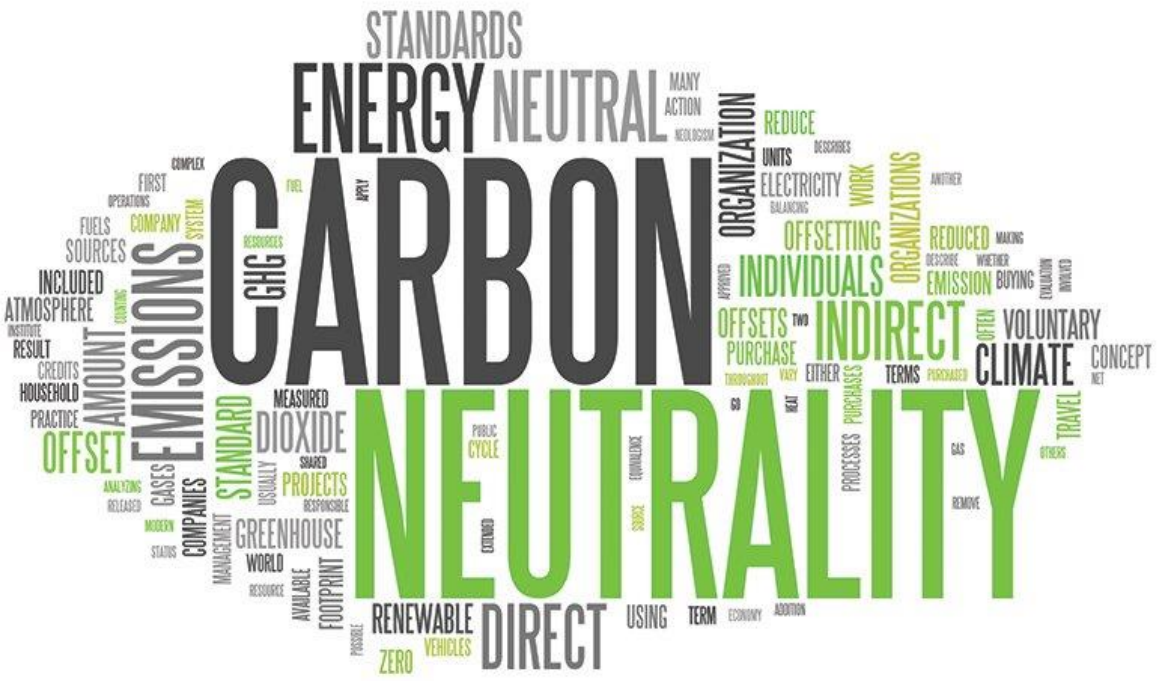


Carbon neutrality, also known as having a net-zero carbon footprint[1], refers to the state where the amount of carbon dioxide (CO_2) emissions released into the atmosphere is balanced by an equivalent amount of CO_2 removal or offset.

Calculation of CO_2 equivalent carbon sequestration by plants

Trees distribute its biomass in two primary compartments: Above-Ground Biomass (AGB) and Below-Ground Biomass (BGB).

$$AGB\ (\text{lb}) = 0.25 \times D^2 \times H$$

Where, D = tree diameter measured at 1.37 meters from the ground (inch). This measurement is globally used as a standard to get a better result. However, if your tree is below 1.37 meters, still the formula can be used, H = tree height (ft).

$$BGB\ (\text{lb}) = 0.2 \times AGB$$

From these formulas, we can calculate the total biomass from a tree:

$$Total\ Biomass\ (TB)\ (\text{lb}) = AGB + BGB = AGB + 0.2 \times AGB = 1.2 \times AGB$$

[1]A carbon footprint is the total amount of greenhouse gases (GHGs), primarily carbon dioxide (CO_2), that are emitted directly or indirectly by human activities. These activities can range from driving a car, using electricity, manufacturing goods, to various aspects of daily life. The carbon footprint is usually measured in units of carbon dioxide equivalents (CO_2e) to account for the different global warming potentials of various GHGs.

On average, a tree consists of 72.5% dry matter and 27.5% moisture content. To calculate the tree's dry weight, we could multiply the total weight of the tree by 72.5%.

Total Dry Weight (TDW)* (lb) = *TB* × *0.725

Carbon occupies 50% of the total dry weight. Therefore,

Total Carbon (TC)* (lb) = *TDW* × *0.5

With the value of total carbon, we can calculate the value of CO_2 equivalent sequestered (CO_2 eq.seq) on a tree. CO_2 has one molecule of Carbon and two molecules of Oxygen. The atomic weight of Carbon is 12u, and the atomic weight of Oxygen is 16u. The weight of CO_2 in trees is determined by the ratio of CO_2 to C is 44/12 = 3.67. Therefore, to determine the weight of carbon dioxide sequestered in the tree, multiply the weight of carbon in the tree by 3.67.

CO_2 eq.seq(lb year^{-1}) = *TC* × *3.67*

CO_2 eq.seq(kg year^{-1}) = CO_2 eq.seq(lb year^{-1}) / 2.205

Calculation of CO_2 equivalent carbon emission

Emission through transportation:

✓ Surveys were done to estimate the percentage of mode of transport used wnon-teaching staff, respectively.

✓ To validate the survey, visual counting was done at two main gate of the campus, i.e., north gate and south gate at 10:00-11:00, 13:00-14:00 and 17:00-18:00 hours.

✓ Total number of vehicles with types were calculated.The distance of roads from north to south of the campus is 420m, east to west of the campus is 310m and the diagonal distance is 522m.

✓ So, 522m on average is covered by every person of any department per day to reach his/her respective department, and every person return back from the campus. So, total distance covered per person per day is 1.04km.Total emissions from transport is calculated within the campus for faculties, research scholars, students and. Total working day for one year is 220.

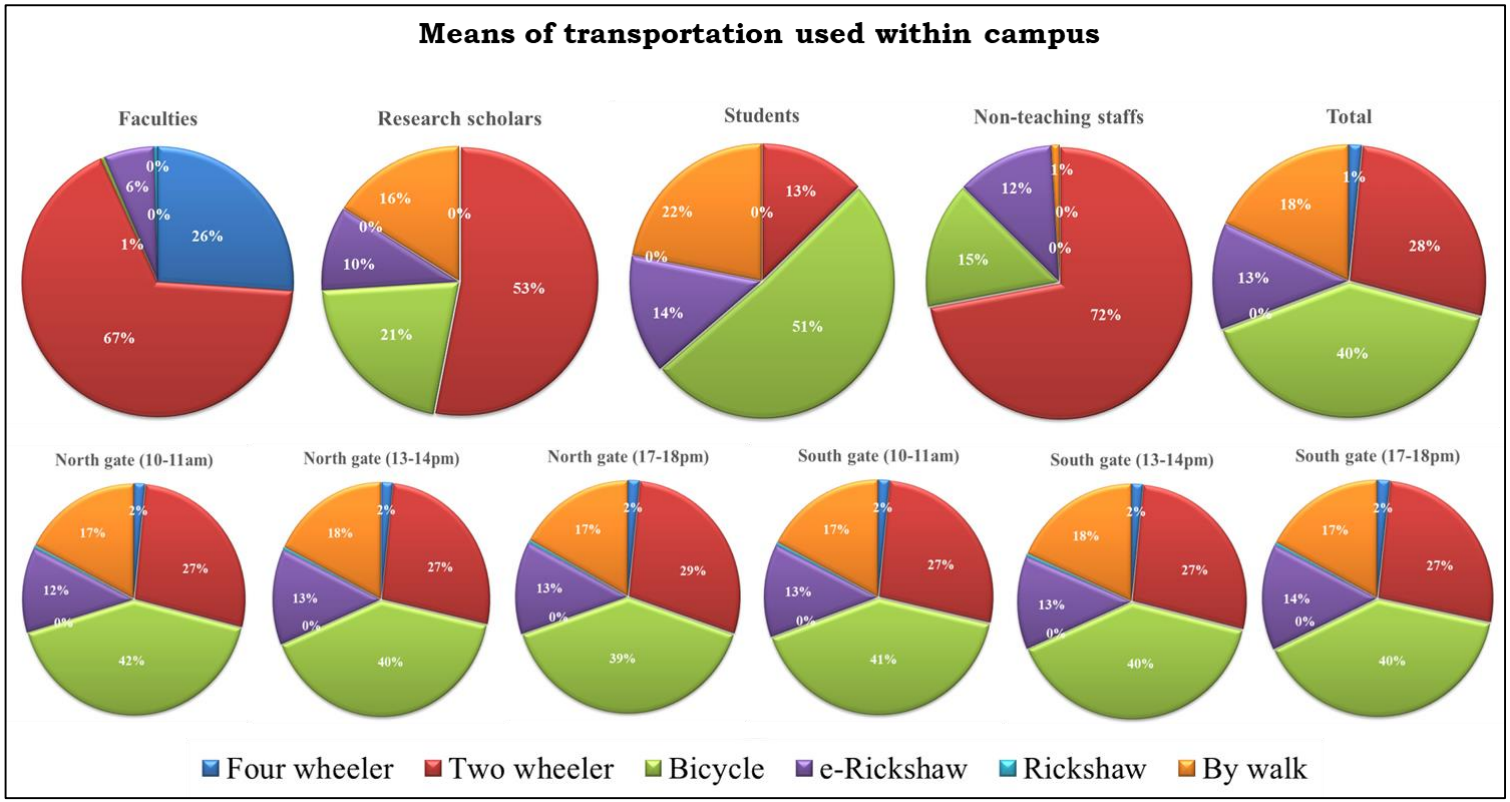
CO_2 equivalent carbon sequestration

Plant Name	Average diameter (D) (inch)	Average Height (H) (ft)	AGB (lb)	BGB (lb)	TB (lb)	TDW (lb)	TC (lb)	CO_2 eq.seq (lb $year^{-1}$)	CO_2 eq.seq (kg $year^{-1}$)
Polyalthia longifolia	29.184	42.049	8953.34	1790.67	10744.01	7789.41	3894.71	14293.59	6482.35
Lagestroemia speciosa	16.107	17.449	1131.72	226.34	1358.06	984.59	492.3	1806.74	819.38
Sarraca asoca	18.637	23.419	2033.58	406.72	2440.3	1769.22	884.61	3246.52	1472.34
Dolichandrone stipulata	14.303	32.537	1664.07	332.81	1996.88	1447.74	723.87	2656.6	1204.81
Swietenia mahagoni	55.993	76.096	59644.35	11928.87	71573.22	51890.58	25945.29	95219.21	43183.32
Mangifera indica	23.497	47.428	6546.36	1309.27	7855.63	5695.33	2847.67	10450.95	4739.66
Albizia saman	33.07	52.007	14219.04	2843.81	17062.85	12370.57	6185.29	22700.01	10294.79
Drypetes roxburghii	23.047	62.057	8240.61	1648.12	9888.73	7169.33	3584.67	13155.74	5966.32
Average CO2 eq.seq (kg $plant^{-1}$ $year^{-1}$)									**9270.37**

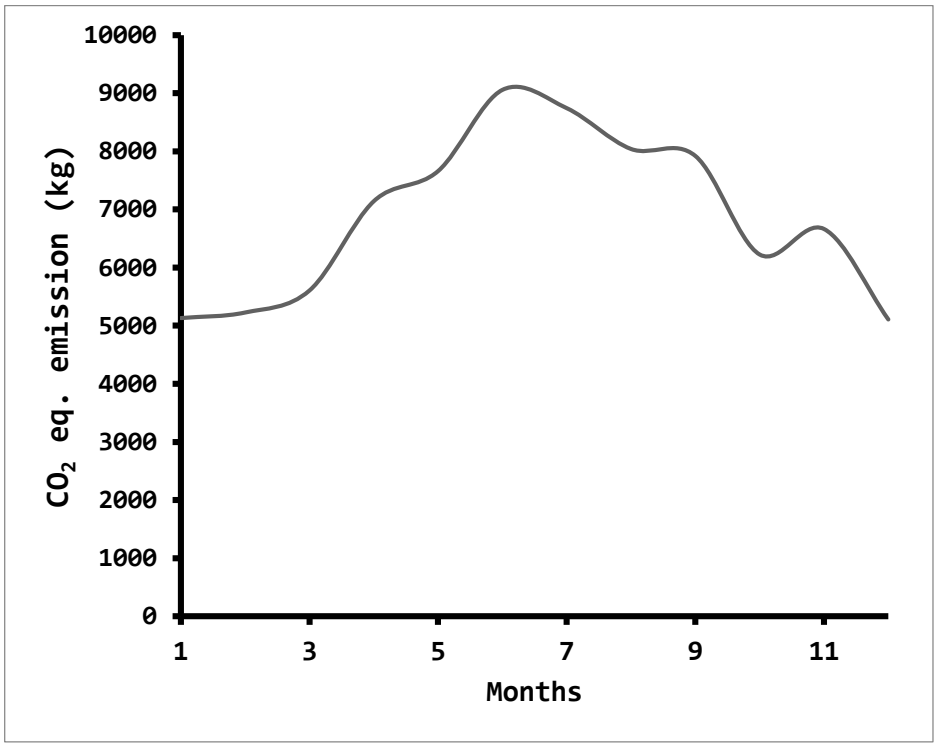
Total No of plants in Golapbag campus = 1200

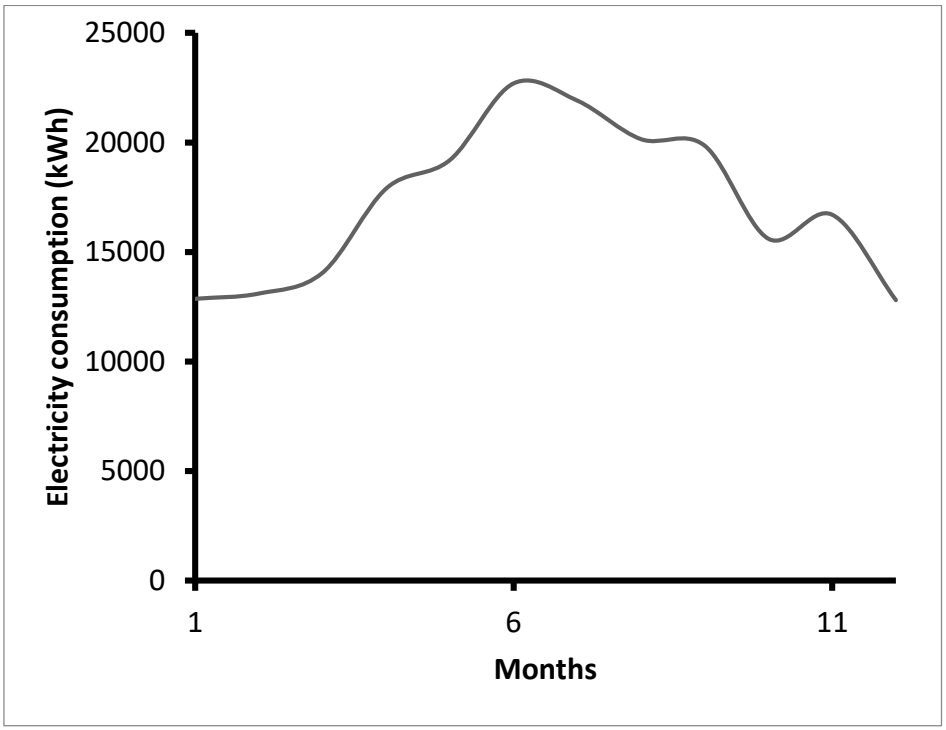
Total CO_2 eq.seq(kg $year^{-1}$)= 11124444

Total CO_2 eq.seq(tone $year^{-1}$)= 11124.444


Means of transportation used within campus
Faculties
0%
6%
0%
1%
26%
67%
Research scholars
16%
0%
0%
10%
53%
21%
Students
22%
0%
13%
0%
14%
51%
Non-teaching staffs
1%
12%
0%
0%
15%
72%
Total
1%
18%
28%
13%
0%
40%
North gate (10-11am)
2%
17%
27%
12%
0%
42%
North gate (13-14pm)
2%
18%
27%
13%
0%
40%
North gate (17-18pm)
2%
17%
29%
13%
0%
39%
South gate (10-11am)
2%
17%
27%
13%
0%
41%
South gate (13-14pm)
2%
18%
27%
13%
0%
40%
South gate (17-18pm)
2%
17%
27%
14%
0%
40%
Four wheeler
Two wheeler
Bicycle
e-Rickshaw
Rickshaw
By walk

CO_2 equivalent carbon emission from electricity consumption





Total CO_2 eq. emission from electricity consumption = 82.52118 tone year^{-1}

CO_2 equivalent carbon emission from transportation

Means of transportation	Number (day-1)	CO_2 eq. emission (kg km^{-1})	CO_2 eq. emission (kg day^{-1})	CO_2 eq. emission (kg $year^{-1}$)	CO_2 eq. emission (tone $year^{-1}$)
Four wheeler	61	0.2	12.69	2791.8	2.7918
Two wheeler	1126	0.1	117.1	25762	25.762
Bicycle	1630	0	0	0	0
e-rickshaw	516	0.03	16.1	3542	3.542
rickshaw	1	0	0	0	0
By walk	735	0	0	0	0
Total CO_2 eq. emission from transport (tone $year^{-1}$)					**32.0958**

CO_2 equivalent carbon emission from food consumption

Item	CO_2 eq. emission (kg day^{-1})	CO_2 eq. emission (kg $year^{-1}$)	CO_2 eq. emission (tone $year^{-1}$)
Rice	3.51	772.2	0.7722
Flour	12.97	2853.4	2.8534
Potato	8.55	1881	1.881
Vegetables	10.68	2349.6	2.3496
Milk & milk products	11.85	2607	2.607
Chiken	11.67	2567.4	2.5674
LPG	38.41	8450.2	8.4502
Coals	30.72	6758.4	6.7584
Total CO_2 eq. emission from food consumption (tone $year^{-1}$)			**28.2392**

Carbon Balance Sheet
The University of Burdwan

		CO_2 eq. (tone $year^{-1}$)
Emission		
Electricity consumption		82.52118
Transportation		32.0958
Food consumption		28.2392
Total		**142.8562**
Sequestration		
Plant	11124.44	
Net sequestration	**10981.59**	

The present campus of the University of Burdwan has enough green space to combat the emissions it generates. Moreover, the activities and consumption (in terms of CO2 equivalent) within the campus are far below the sequestration level, achieving a positive figure for net sequestration. The net sequestration of the University of Burdwan (whole campus) is about 10981.59 tonnes CO2 eq. $year^{-1}$.

The University of Burdwan's campus absorbs about 10,981.59 tonnes of CO_2 per year, which is more than it produces, leading to a positive environmental impact.

Notes:

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Sustainability Report, 2023-24

The University of Burdwan

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