



Preserve

Er. S.K.Goyal M.E. (Env.), FIE (India) Sr. Env. Engineer(Retd.) Punjab Pollution Control Board(PPCB)



Protect

Environment

EIA Co-ordinator (QCI) Chartered Engineer,PPCB

Save

Certificate

Certified that a team of faculty members & students, under the leadership of **Prof. Ashwani Luthra, Director IQAC** of Guru Nanak Dev University, Amritsar has conducted a detailed **Environmental Green Audit of various Green Initiatives taken by the university** covering different aspects such as Green Cover, Green Mobility, Air Quality Monitoring, Water and Wastewater Management, Green Energy Initiatives, Solid Waste Management, Bio-Medical Waste Management, and E-Waste Management, for the preservation and protection of environment in its campus. Data and credentials in the report have been scrutinised and are found **Satisfactory**.

Efforts made by the leadership, faculty and students of the University towards environment and sustainability are commendable and worth appreciating.

Dated: NOV.25,2021

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(Er. Samarjit K. Goyal) Chartered Engineer Pb Pollution Control Board

CENTRE FOR SCIENCE AND ENVIRONMENT

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LEAVES

OF IMPORTANT SURVIVAL TREES

IN

KHEJDI.

ALDER, PALMYRA AND

OAK

November 29, 2021

The Coordinator Centre for Sustainable Habitat Guru Nanak Dev University Amritsar

Subject: Certification for different Audits under Green Campus Initiatives

Dear Sir,

From the past six years, Centre for Science and Environment (CSE) and Guru Nanak Dev University (GNDU) Amritsar have been working together on CSE's Green Campus Initiative and audit programme. Under this engagement, CSE has supervised multiple environmental audits and trained the faculty, staff and students at GNDU as well as other universities and colleges across India. The results and outcomes of this engagement have been published by CSE in multiple reports such as 'A Green Campus Compendium: Incubation, Experimentation and Demonstration of a Green Future' and 'Green Campus Movement'. Appreciation letters have also been shared at the various stages of this programme. CSE appreciates that the faculty at GNDU has prepared the following audit reports:

- 1. Green Cover of GNDU
- 2. Green Mobility Initiatives
- 3. Air Quality Monitoring
- 4. Liquid Waste Management
- 5. Green Energy Initiatives
- 6. Solid Waste Management
- 7. Bio-Medical Waste Management
- 8. E-Waste Management

CSE commends GNDU's efforts towards realising Sustainable Development Goals and extends its full support and expertise in its future endeavours.

Yours' cordially,

meesh Saveen

Rajneesh Sareen Programme Director Sustainable Buildings and Habitat Programme Centre for Science and Environment

non-profit organisation registered in New Delhi, set up to disseminate information about science and environment

Preface

Guru Nanak Dev University Campus is known for its lush green landscape. It encases variety of green, ornamental and medicinal trees and shrubs. A team led by Dr. Avinash Nagpal, Professor, Botanical and Environmental Sciences and Dr. Jaswinder Singh Bilga, Consultant (Horticulture) along with their students and staff have attempted to audit the tree cover of the University for Internal Quality Assurance Cell, GNDU. The report showcases the unique work to identify the varieties of trees and shrubs planted in the lawns, botanical garden and other forest lands of the university.

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GURU NANAK DEV UNIVERSITY



With the glorious history of past fifty years, Guru Nanak Dev University was established at Amritsar on November 24, 1969 to mark the Birth Quincentenary of Sri Guru Nanak Dev Ji, the apostle of universal brotherhood, truthfulness, non-violence, compassion, tolerance, harmony, humanity, strict observance of moral & ethical values in daily life, who is also revered as the founder of Sikhism. It won't be an exaggeration to state that His teachings and preaching & His own personal life are perfect examples to be emulated by the entire mankind even after about four and half a centuries and will remain so eternally. Ever since its foundation the endeavour of the university has always been to meet the objectives enshrined in the Guru Nanak Dev University Act 1969, which emphasized that the new University would make provision for imparting education and promoting research in the humanities, learned professions, sciences, especially of applied nature and technology. Studies and research on the life and teachings of Guru Nanak, in addition to working towards the promotion of Punjabi language and spreading education among educationally backward classes and communities are the other commitments. In consonance with these expectations, the university in its eventful history of 50 years has taken long strides in spreading the message of Guru Nanak Dev ji and promoting education in such fields as Science, Arts, Management, Information Technology, Industrial Technology, Environment, Planning and Architecture. To fulfil its commitment, tuition fee charged from the students of the Guru Nanak Studies and the School of Punjabi Studies departments has been waived. The UGC conferred this University with status of "University with Potential for Excellence" in 2012. The National Assessment and Accreditation Council (NAAC), Bangalore in November 2014 reaccredited the university in 3rd cycle with CGPA of 3.51 out of 4 point scale at "A++" grade, the highest in the region.

Guru Nanak Dev University is a high performing state public university as it has improved its ranking from 80 in 2017 to 51 in 2020 among all Central, Public and Private Universities in the country (NIRF, MHRD, GoI). It is reckoned among top 9% universities of the world and top 10 state public universities of India by Centre for World University Ranking (CWUR), a leading international agency engaged in grading the top ranking universities world-wide since 2012. QS I-GAUGE Rating System has rated the university in the Diamond Category in the field of 'research, faculty quality and infrastructure' by the. It was also shortlisted for the University of the Year Award in the 16th FICCI Higher Education Summit 2021 organized by FICCI jointly with the Ministry of Education and Ministry of Commerce & Industry, Government of India. High quality research has improved the H-index of the university from 64 to 119 with top 10 percent highly cited papers in Scopus. The university is placed among the top 4 Institutions in Punjab and 10 Institutions in North India by Nature Index,

The University today boasts of 43 teaching departments at the Campus and 149 affiliated colleges, 16 Constituent & University Colleges and 53 Associate Institutes, many of which are located in the rural areas. The university has always strived hard to make the benefits of higher education accessible to the rural masses. More than twenty thousand students, an overwhelming majority of them being women, are enrolled in various Departments at University Campus and Constituent Colleges. On-line admission,

on-line counselling, on-line re-evaluation, introduction of Credit Based Continuous Evaluation Grading System etc. are a few hallmarks of the university. All the results have been computerized and OMR (Optical Magnetic Recognition) system is being used to bring in more efficiency and transparency. This is the first University in the region to have computerized its examination and registration system. The students now have an all-time access to their results through SMS service. It acts as a model higher education institution for digital initiatives like e-office management system, digital library, Wi-Fi enabled campus, high speed online teaching modules, and smart classrooms to name a few.

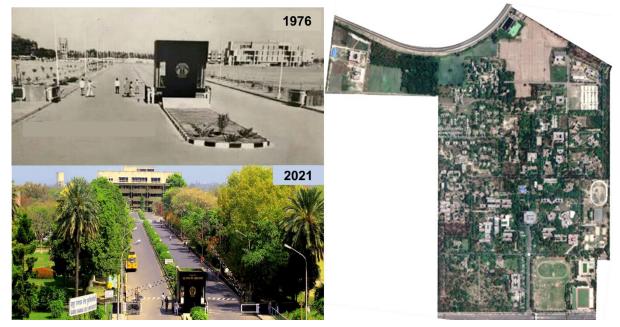
Academically also, the university has carved a niche for itself in the field of Higher Education in the country. Our University is recognized as one of the leading institutions in North India in the domain of Science and Technology. Many coveted projects from the apex bodies like the DST, CSIR, BARC and other organizations worth crores of rupees have been awarded to our faculty members. One of the four Nodal Calibration Centres established by Bhabha Atomic Research Centre is set up at our campus. The Centre of Emerging Life Sciences equipped with the state-of-the-art scientific instruments worth crores of rupees, well-maintained Botanical Garden, Department of Sports Medicine & Physiotherapy are a few of the jewels in the crown of the university. To more strengthen the university infrastructure and to prepare students for employments, computer lab with the help of TCS is also established. Further, the UGC has granted the University the Centre with Potential for Excellence in Life Sciences and Centre for Advanced Study in Chemistry.

In the field of culture and sports also, the achievements of the university are noteworthy. The university has been national Champion for 10 times & the winner of the North-Zone-Inter-Varsity Cultural Championship for 13 times. The winning of the coveted Maulana Abul Kalam Azad Trophy, the highest sports award for a university in the country, for a record number of 23 times, speaks volumes about its supremacy in the field of sports. An Astro Turf for hockey, a swimming pool of international standards, a velodrome, a Gymnasium hall, shooting range & many other state-of-the art sports facilities are the prized possessions of the university. The Lifelong Learning Department of the university is successfully catering to the female folk of the region to make them self-dependent by offering various skill development programmes. The Track record of employment of our students by big business Houses and Multi-National Companies has been very satisfactory. Our students of engineering, management and commerce field are employed by companies in India and abroad. They are all contributing to the creditworthiness of the University by their hard work and diligence. In the last year alone, almost all our engineering and management students were recruited by various companies through campus placements. It goes without saying that all these achievements would not have been achieved, but for the heart and soul put in by the students, faculty members, and administration of the university. Undoubtedly, the university remains committed to achieve the lofty goals, for which it was founded after the name of Sri Guru Nanak Dev Ji.

The university is known for its GREEN CAMPUS initiatives in the field of energy, water, solid waste management, micro mobility and health and hygiene. Some of the key initiatives of the university are energy efficient buildings, rooftop solar energy plant, solar water heaters, censor based urinals, toilets and wash basins, maintenance of lawns as water recharge systems, rooftop rainwater harvesting, on campus sewerage water treatment plant, organic waste management through bio-gas plant and vermin-compositing, natural processing to convert agro-waste into compost, involvement in recycling and reuse of paper, plastic, mettle and other waste, efficient medical waste management, regular thickening of tree cover by planning tree each year, making the campus car free, facilitating the students, staff and the visitors by free of charge e-vehicle facility for micro mobility within the campus, developing lush green covered footpaths, regular sweeping of the roads and buildings at least twice a day and regular disinfectant spray to help the university bag the second cleanest State University in India awarded by the Ministry of Human Resource Development, Government of India under Swachh Campus Ranking for the last two years continuously.

1. The Context

Green spaces are known as the lungs on the earth as they freshen the air and make the mankind live a healthy life. Guru Nanak Dev University in Amritsar acts as a huge lung space for the city due to its lush green cover of variety of trees, shrubs and other plants. Once a barren land has been converted into a green parcel having thick green cover of trees and green lawns. Continuous plantation of trees each year presents it as a models of rigorous effort towards reducing the carbon footprints to meet the targets of sustainable development goal number 13 i.e. climate change. The vistas and avenues created by thick tree cover along its roads present spectacular views and walk throughs in the campus.



2. Land Use and Green Spaces

Majority of the land area of the university is kept under green cover. Only 37.58 acres out of 500 acres of the total land of the campus is built. The remaining 462.42 acres, nearly 92.50%, is kept as green. The green parcels consist of parks, lawns, play grounds, agricultural lands, road berms, forest patches, and the botanical garden. The botanical garden of the university was established in 1975 and is spread in 24.71 acres of land. It has about 500 species of trees, shrubs and medicinal plants. It houses open air theatre, lily pool, aquatic pond, fern house and herbal garden. Some of the glimpses of green spaces of the campus are as under.



Glimpses of Tree Cover around Buildings of the University



Glimpses of Tree Cover along Roads of the University



Glimpses of Romanticism of Footpaths



Glimpses of Lawns of the University

3. Tree Audit

The university is a place to witness different varieties of trees and shrubs. About 143 spices of trees and shrubs have been identified in the campus (refer table 1).

S. No.	Botanical Name of the Plant	Common Name	Approx. No. of Trees/ Shrubs
1.	Acacia auriculaeformis	Australian Kikar	75
2.	Aegle marmelos	Bael	94
3.	Ailanthus sp.*	Tree Of Heaven	1
4.	Albizia procera	White Siris	28
5.	Albizia lebbeck	Sareen	48
6.	Alstonia scholaris	Sat Pati	1080
7.	Acacia nilotica	Kikar	15
8.	Araucaria cunninghamii	Christmas Tree	44
9.	Artocarpus hetrophyllus	Jack Fruit	8
10.	Azadirachta indica	Neem	240
11.	Bambusa ventricosa	Budda Bamboo	8
12.	Bambusa vulgaris	Yellow Bamboo	22
13.	Bauhinia tomentosa*	Yellow Bauhinia	03
14.	Bauhinia purpurea	Lal Kachnar/ Purple Bauhinia	38
15.	Bauhinia variegata	Kachnar	183
16.	Bischofia Javanica	Bishop Wood Tree/ Java Cedar	15
17.	Bombax ceiba	Simbal/ Red Silk Cotton Tree	156
18.	Bouganvillea glabra	Baugan Bel	1400
19.	Butea monosperma	Palash/ Dhak/ Flame Of Forest	508
20.	Caesalpinia pulcherrima	Krishna-Charan/ Peacock Flower	5
21.	Callistemon lanceolatus	Bottle Brush	381
22.	Calliandra tweedi	Red Tassel Flower	32
23.	Camphora sp.	Camphor Tree	3
23.	Carica papaya	Papita	142
25.	Coriaria nepalensis*	Masuri Berry	10
26.	Caryota urens	Fishtail Palm	28
20.	Cassia biflora*	Desert Cassia	4
27.	Cassia fistula	Amaltas	550
29.	Cassia glabra	Glabra	61
30.	Cassia glauca	Pila Amaltas	600
31.	Cassia javanica	Java Cassia	6
32.	Cassia siamea	Seemia/ Kassod	94
	Casuarina equisetifolia	Junglisaru/ Beef Wood/	24
33.	Casuarina equiselijolia	Whistling Pine	32
34.	Cedrela toona	Tun/ Chitti Sirinh	61
<u> </u>		Rat Ki Rani	345
	Cestrum nocturnum		<u> </u>
<u> </u>	Chukrasia tabularis Citrus limon	Indian Mahogany/Chikrasi Lemon	192
	Citrus iimon Citrus aurantium*		192
38.	Curus aurantium*	Bitter Orange	1/
39.	Citurs jambhiri	Jambhiri/ Rough Lemon/Jati- Khatti	47
40.	Clerodendron inerme	Sankuppi/ Wild Jasmine	1400
41.	Combretum indicum*	Madhu Malati/ Chinese Honeysuckle	12
42.	Cordia dichotoma	Lasooda	75
43.	Cupressus sempervirens*	Mediterranean Cypress	60
44.	Cycas circinalis	Queen Sago	15
45.	Cycas Revoluta	Sago Palm	4
46.	Dalbergia sissoo	Sheesam	3100
47.	Delonix regia	Gulmoher	197

Table 1: List of Trees and Shrubs in GNDU Campus

48.	Dendrocalamus strictus	Male Bamboo	244
49.	Dillenia indica	Chalta/ Elephant Apple	8
50.	Diospyros spp.*		10
51.	Dypsis lutescens	Areca Palm/ Butterfly Palm	27
52.	Erythrina indica*	Indian Coral Tree	2
53.	Embilica officinalis	Amla	52
54.	Eugenia jambolana	Jambolan/Java Plum	96
55.	Eucalyptus sp.	Safeda	5460
56.	Ficus benghalensis	Bodar/ Bargad/ Banyan Tree	149
57.	Ficus benjamina	Weeping Fig/ Pukar	191
58.	Ficus blackeana		9
59.	Ficus elastica	Rubber Tree	61
60.	Ficus goldiana		28
61.	Ficus infectoria	Pilkhan/ White Fig	78
62.	Ficus lyrata*	Fiddle Leaf Fig	04
63.	Ficus panda		50
64.	Ficus religiosa	Pipal	161
65.	Ficus retusa	Kamarup/ Laurel Fig	229
66.	Galphimia gracilis*	Gold Shower	7
67.	Gardenia jasminoides	Gandhraj/ Cape Jasmine	52
68.	Gmelina asiatica	Nag-Phul	24
<u> </u>	Grevillea robusta	Silver-Oak	190
70.	Grewia asiatica	Phalsa	17
70.	Hamelia patens	Hamelia/Scarlet Bush	470
72.	Hibiscus rosa-sinensis	China Rose	1400
72.	Hibiscus nutabilis	Cotton Rose	50
73.	Hyophorbe lagenicaulis	Champangne Palm	31
74.	Ixora chinensis	Chinese Ixora	02
75.	Jacaranda mimosifolia	Neeli Gulmohur	307
70.	Jatropha curcas	Biodiesel Plant	6
77.	Jatropha panduraefolia	Bio-Diesel Plant	296
78.	Kigelia pinnata	Balam Khira/ Sausage Tree	66
80.	Koelreuteria paniculata	Gulabi Neem	89
80.	Lagerstroemia indica	Saoni/ Crape Myrtle	78
81.	Lagerstroemia speciosa	Jaral/ Giant Crape Myrtle	29
82.		Mehndi	292
<u>83.</u> 84.	Lawsonia inermis	Chinese Palm	<u> </u>
04.	Livistonia chinensis	Lamtoro/ Safed Babool/ Wild	140
85.	Leucaena leucocephala	Tamarind	936
96			16
<u>86.</u>	Madhuca indica	Madua Uim Chompo	<u>16</u> 5
87.	Magnolia grandiflora	Him Champa	-
<u>88.</u>	Mangifera indica	Aam Dhrek	125
<u>89.</u>	Melia azadirach Michelia an		306
<u>90.</u>	Michelia sp.	Champika	<u>12</u> 5
91.	Millingtonia hortensis	Neem Chameli/ Indian Cork Tree	<u> </u>
92.	Milettia ovalifolia	Moulmein Rose Wood	
93.	Mimusops elegani	Morshree/ Spanish Cherry	70
94.	Mimusops hexandra	Khirni Tree	3
95.	Morus nigra	Shahtoot/Black Mulberry	1203
96.	Morus alba	White Mulberry	178
97.	Moringa oleifera	Sejana/ Drumstick Tree	33
98.	Murraya exotica	Kamini/ Orange Jasmine	363
99.	Murraya koenigii	Kadi Pata	377
100.	Neolamarckia cadamba	Kadam	41
101.	Nerium oleander	Kanel/ Kaner	750
102.	Ochna squarrosa	Ramdhan Champa/ Golden Champak	103
103.	Oncoba Spinosa	Fried Egg Tree	4

104.	Oreodoxa regia	Florida Royal Palm	19			
105.	Oroxylum indica	Broken Bone Plant/ Bhut Vriksha	9			
106.	Parkinsonia aculeata	Vilayti Kikar/ Jellybean Tree	2			
107.	Phoenix sp.	Khajur	19			
108.	Pisonia grandis	Lettuce Tree, Cabbage Tree	7			
109.	Pinus roxburghii	Chir	9			
110.	Platanus orientalis	Chinar	12			
111.	Platycladus orientalis	Thuja/ Morpankhi	650			
112.	Plumbago capensis	Nila Chitrak	60			
113.	Plumeria alba	Frangipani	74			
114.	Plumeria rubra	Temple Tree	50			
115.	Polyalthia sp.	False Ashoka	210			
116.	Pongamia sp.	Shukchain	732			
117.	Prunus domestica	Alu Bukhara/ Plum	46			
118.	Psidium guajava	Amrood	406			
119.	Pterospermum acerifolium	Kanak Champa/ Muchkund	162			
120.	Pterospermum xylocarpum*	Tada	2			
121.	Punica granatum	Anar	356			
122.	Putranjiva roxburghii	Putran-Jiva	115			
123.	Ravenala madagascariensis	Traveler's Palm	12			
124.	Roystonia regia*	Florida Royal Palm	11			
125.	Salix babylonica*	Weeping Willow	10			
126.	Sapindus mukorossi	Reetha	15			
127.	Stercularia alata	Buddha Coconut	14			
128.	Schleichera oleosa	Kusum	331			
129.	Swietenia mahagoni	American Mahogany	30			
130.	Syzygium cumini	Jamun	900			
131.	Tabebuia argentea	Golden Bell	100			
132.	Tabernaemontana sp.	Pin Wheel Flower	1180			
133.	Tecoma stans	Piliya/ Yellow Trumpetbush	30			
134.	Tectona grandis	Teak	170			
135.	Terminalia arjuna	Arjun	355			
136.	Terminalia bellerica	Bahera	374			
137.	Terminalia chebula	Harad	7			
138.	Thevetia neriifolia	Pili Kaner	910			
139.	Terminalia ivorensis	Black Afara	70			
140.	Other Coniferous Sp.		50			
141.	Different Species Of Palms		50			
142.	Wodyetia bifurcata	Foxtail Palm	60			
143.	Ziziphus mauritiana	Ber	135			
Total 34878						

*Only in Botanical Garden

4. Glimpses of Spices of Trees



Cassia fistula



Polyalthia longifolia



Acacia auriculiformis



Pongamia glabra



Mangifera indica



Morus alba



Tabernaemontana divaricata



Delonix regia



Terminalia arjuna



Ficus religiosa



Ficus retusa



Thevetia neriifolia



Callistemon lanceolatus



Bauhinia variegata



Aegle marmelo



Albizzia lebbeck



Pterospermum acerifolium



Chukrasia tabularis







Plumeria rubra



Psidium guajava



Bauhinia purpurea





Bombax ceiba





Green-Campus Guru Nanak Dev University

Prepared by Internal Quality Assurance Cell, Guru Nanak Dev University, Amritsar