ISO 14001:2015 Certificate Of Registration

Geotek Global Certification Pvt. Ltd.

hereby certify that the organization

Rajiv Gandhi University

Address : Rono Hills, Doimukh 791112, Arunachal Pradesh, India

has implemented and maintains an Environmental Management System for

Scope :

To Evolve and Impart Comprehensive, Multidisciplinary and Multidimensional Higher Education to the Students at Undergraduate, Post Graduate, PG Diploma, Certificate and Doctoral Programmes in Basic & Life Sciences, Engineering & Technology, Law, Social Sciences, Commerce & Management, Languages, Fine Arts & Music, Aquiculture, Sports Sciences & Physical Education and Teacher Education.

An audit was performed and proof has been furnished that the management system fulfils the requirements of international standard detailed below ...

Standard: ISO 14001:2015Certificate No.: 23.GGCS.IN.140224Certification Date: 15th May 2023Cert. Expiry Date: 14th May 2026



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Scope :

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Standard: ISO 50001:2018Certificate No.: 23.GGCS.IN.500154Certification Date: 15th May 2023Cert. Expiry Date: 14th May 2026



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Green Education Campus Certification

Geotek Global Certification Pvt. Ltd.

hereby certify that the organization

Rajiv Gandhi University

Address : Rono Hills, Doimukh 791112, Arunachal Pradesh, India

has implemented and maintains a Green Education Campus for

Scope :

To Evolve and Impart Comprehensive, Multidisciplinary and Multidimensional Higher Education to the Students at Undergraduate, Post Graduate, PG Diploma, Certificate and Doctoral Programmes in Basic & Life Sciences, Engineering & Technology, Law, Social Sciences, Commerce & Management, Languages, Fine Arts & Music, Aquiculture, Sports Sciences & Physical Education and Teacher Education.

An audit was performed and proof has been furnished that the management system fulfils the requirements of international standard detailed below ...

Scheme: Green Education CampusCertificate No.: 23.GGCS.IN.GEC051488Certification Date: 15th May 2023Cert. Expiry Date: 14th May 2026

Chief Executive Officer Geotek Global Certification Pvt. Ltd. 102, Raj Legacy, Near Bramhand Phase 5, Off. GB Road, Thane (West), Pin 400607, Maharashtra, India



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Green-Auditing of Trees in the Campus of Rajiv Gandhi University, Arunachal Pradesh

Assessment Team:

Dr. Abhaya Prasad Das, Adjunct Professor Dr. Sumpam Tangjang, Professor Dipankar Borah (Research Scholar) Pyonim Lungphi (Research Scholar) Toku Bani (Research Scholar) Mundeep Deori (Research Scholar) Mepi Timba (PG Student), Pokhaw Khangam (PG Student), Jenima Basumatari (PG Student)



Department of Botany Rajiv Gandhi University Rono Hills, Doimukh Arunachal Pradesh, INDIA

INDEX

Sr. No.	Content	Page No.
1.0	Introduction	3
2.0	Environment Policy	4
3.0	Vision and Mission	5
4.0	Green Audit and Environmental Audit	6
5.0	Objective of Green Audit	10
6.0	Methodology	13
7.0	Noise Pollution Management	43
8.0	Solar Power Usage	46
9.0	Recommendations	53
10.0	Conclusions	56

Importance of plants in human life need no not reiterate. Plants provide everything for our survival. All three basic needs for survival, Oxygen, Water and Food we get from plants. At the same time, for the creation of most suitable habitat or even the best ambience we need plants.

1.0 INTRODUCTION

Rajiv Gandhi University is situated on the top of Rono Hills in the Papum Pare district of Arunachal Pradesh. Earlier the entire area was free from human settlements and was covered with natural vegetation. For the establishment of a University, the natural vegetation was removed, land structure modified, houses, roads and open grounds were created. During this exercise, evidently, most of the local trees, shrubs and woody-climbers were removed. Only some local herbs are trying to survive.

However, during this development and mostly for beautification plantation programs were also taken indifferent times, especially along the road sides (avenue plantation) and surrounding the different buildings. Man generally introduces plants those are, in some way or other, beneficial for themselves.So, it is expected that, mostly useful plants are introduced and some of those are with visible economicand/or commercial values.

Keeping these in mind, the authority of Rajiv Gandhi University decided to take a stock of its green- wealth. This is for the first time, and it is expected, this will serve as the base-line data, for similar futureassessments.

2.0 ENVIRONMENTAL POLICY OF THE UNIVERSITY:

Rajiv Gandhi University, Arunachal Pradesh is a quality-conscious University. It protects its own environment by maintaining it green with the help of large and many more small plants in campus. Our staff and students always try to keep the campus pollution free in all possible ways.

The management, administration and the students of the University look after the environment carefully.

Every year, during rainy season, we perform tree-plantation and carefully look after the planted trees.

We have our own environmental policy that includes-

- > To comply with all requisite environmental legislations and government guidelines, wherever applicable.
- > To ensure that there is optimum utilization of resources and waste generation is minimized.
- To integrate environmental concerns in decision-making, e.g. purchasing policy, teaching-learning process, communications, etc.
- > To implement an environment management system.
- > To strive towards continual reduction in ecological footprint of the University as it grows.
- Education and training of students, staff and society in environmental issues and the environmental effects of their activities.
- Monitoring progress and reviewing environmental performance against targets and objectives on a regular basis.

3.0 Vision and Mission

Vision

To help students in rural areas learn and grow through education and encourage them to use their knowledge to make the world a better place for everyone.

Mission

Allow positive and noble ideas to flow to us from every corner of the universe.

Goals and Objectives of the Institution

- Provide advanced science education to rural students in our region.
- Support activities that benefit students' well-being and growth
- Assist financially disadvantaged students with their education
- Prepare students to tackle challenges in a competitive world.
- Foster discipline, sincerity, and devotion to shape responsible and respected Indian citizens among student.

4.0 Green Audit and Environmental Audit

4.1 Green audit:

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments. It aims to analyze environmental practices within and outside of the concerned sites, which will have an impact on the eco-friendly ambience.

Green audit can be a useful tool for a University to determine how and where they are using the most energy or water or resources; the University can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which canbe used for a recycling project or to improve waste minimization plan. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students a better understanding of Green impact on campus. Thus it is imperative that the University evaluate its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.



Figure 6: Green Audit

The rapid urbanization and economic development at local, regional and global level has ledto several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institutes which will lead for sustainable development and at the same time reduce a sizable amount of atmospheric carbon-di-oxide from the environment. **Green Audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council** that declares the institutions as Grade A, Grade B or Grade C according to the scores assigned at the time of accreditation. Moreover, it is a part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

Therefore, the purpose of the present green audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards.

Need for Green Audit

The modernization and industrialization are the two important outputs of twentieth centurywhich have made human life more luxurious and comfortable. Simultaneously, they are responsible for voracious use of natural resources, exploitation of forests and wildlife, producing massive solid waste, polluting the scarce and sacred water resources and finally making our mother Earth ugly and inhospitable. Today, people are getting more familiar to the global issues like global warming, greenhouse effect, ozone depletion and climate changeetc. Now, it is considered as a final call by mother Earth to walk on the path of sustainable development. The time has come to wake up, unite and combat together for sustainable environment.

Green Audit is the most efficient ecological tool to solve environmental problems. It is a process of regular identification, quantification, documenting, reporting and monitoring of environmentally important components in a specified area. Through this process the regular environmental activities are monitored within and outside of the concerned sites which havedirect and indirect impact on surroundings. Green audit can be one of the initiative for suchinstitutes to account their energy, water resource use as well as wastewater, solid waste, E- waste, hazardous waste generation. Green Audit process can play an important role in promotion of environmental awareness and sensitization about resource use. It can create consciousness towards ecological values and ethics. Through green audit one can get direction about how to improve the condition of environment.

The major objective of performing Green Audit is controlling the pollution. It also helps in improving the safety and to making sure the prevention and reduction of the waste. It also provides performance reviews of working facilities and its possible impact on the surroundings. Audits enable the management of an organization to see exactly what is happening within the organization and to check the operation (or otherwise) of systems andprocedures. Environmental auditing can help to reveal the likely weaknesses of an organization's strategy, therefore reducing the risk of unexpected events. A properly prepared and conducted environmental audit will bring real benefits to an organization committed to act on the results.

Environmental Audit

An environmental audit is a type of evaluation intended to identify environmental compliance and management system implementation gaps, along with related corrective actions. In this way they perform an analogous (similar) function to financial audits. There are generally two different types of environmental audits: compliance audits and management systems audits.ISO 14001 is a voluntary international standard for environmental management systems ("EMS"). ISO 14001:2004 provides the requirements for an EMS and ISO 14004 gives general EMS guidelines.

The Supreme Audit Institution (SAI) in India is headed by the Comptroller and Auditor General (CAG) of India who is a constitutional authority. The audit conducted by CAG is broadly classified into Financial, Compliance and Performance Audit. Environmental audit by SAI India is conducted within the broad framework of compliance and performance audit.



Environmental auditing is a systematic, documented, periodic and objective process in assessing an organization's activities and services in relation to:

- Assessing compliance with relevant statutory and internal requirements
- Facilitating management control of environmental practices
- Promoting good environmental management
- Maintaining credibility with the public
- Raising staff awareness and enforcing commitment to departmental environmental policy
- Exploring improvement opportunities
- Establishing the performance baseline for developing an Environmental Management System (EMS)

5.0 Objectives of Green audit

The overall objective of green auditing is to help safeguard the environment and minimizerisks to human health. The key objectives of an environmental audit therefore are to:

- To determine how well the environmental management systems and equipment are performing.
- To verify compliance with the relevant national, local or other laws and regulations
- To minimize human exposure to risks from environmental, health and safety problems.
- More efficient resource management
- To provide basis for improved sustainability
- To enable waste management through reduction of waste generation, solid- waste andwater recycling
- To create green plastic free campus and evolve health consciousness among the stakeholders.
- To Recognize the cost saving methods through waste minimizing
- To Point out the prevailing and forthcoming complications
- Impart environmental education through systematic environmental managementapproach and improving environmental standards.
- Financial savings through a reduction in resource use
- Enhancement of University profile
- Developing an environmental ethic and value systems in students

Goals of Green Audit

- To achieve compliance standards and establish a report with regulatory bodies
- To identify needs, strengths, and weaknesses of the educational institute
- To review management systems and identify liabilities
- To assess environmental performance of the educational institute with the help of direct assessment.
- To promote environmental awareness among the staff and students
- To conserve non-renewable resources for betterment of future
- The long term goal is to collect the baseline data in terms of environmental parameters, calculate its impact on the environment and recommend measures to reduce them



Figure 8: Goal

5.1 Target Areas of Green and Environmental Auditing

- Energy Conservation and Management: This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances, and vehicles.
- Water Quality and Conservation: This indicator addresses water consumption, water sources, irrigation, storm water, appliances and fixtures.
- **Biodiversity Conservation**: All plant and animal species including microorganisms are a part of biodiversity. All types of gardens, lawns and trees are considered in this aspect.
- Waste Management: This indicator addresses all types of waste from University and associated amenities. The minimization, safe handling, and ultimate elimination of these materials are essential to the long-term health of the planet.
- **Carbon Footprint:** This aspect is for quantifying the carbon emissions from all the parts of the institution and quantifying how much of it is sequestrated with the help oflandscape.



Figure 9: Target Areas of Green Audit

6.0 METHODOLOGY

The survey for the trees in the campus of Rajiv Gandhi University, Rono Hills, Arunachal Pradesh wasconducted during December 2019 to February 2020 to know their presence and distribution. All the plants growing inside the developed campus with Girth at Breast Height (GBH) over 20 cm were spotted, identified and measured for the GBH. For this purpose, entire developed part of the campus was loosely divided into 26 sectors/ areas:

- 1. A-Sector Area
- 2. VC's Bungalow compound
- 3. Outside Area of VC's Bungalow
- 4. AITS Area
- 5. Security Office Area
- 6. Subansiri Hostel
- 7. NSS Park
- 8. RGU Market and Canteen Area
- 9. Coffee Corner Area
- 10. Administrative Campus Road- side Car Park
- 11. Administrative Campus [except Car-park area near bank]
- 12. Administrative Campus Car-park Area
- 13. Residential Area behind the Administrative Campus
- 14. Main Auditorium to library
- 15. D-Sector area
- 16. Behind Main Auditorium and Teachers' activity Centre Geography
- 17. Women's Technology Park
- 18. Main Gate area
- 19. Girls' Hostel Campus
- 20. Siang Hostel Campus
- 21. Library to Social Science Building
- 22. Life Science Building Area
- 23. RS Boys Hostel Area
- 24. Boys' Hostel area

25. Bus Terminus Area

26. New RS Hostel – F-Sector Quarters

Areas covered with natural forest behind the E & F sector areas and the Botanical Garden (also a natural tract of vegetation) were not covered for this assessment.

All the recorded 116 species of trees were recognised scientifically and presented here with their scientific names and with their numerical distribution pattern and girth. Recorded girths of different individuals of each species were grouped in to a number of 'Girth-Classes' for the convenience of understanding their present status. Here it is presumed that a tree with over 150 cm girth is a matured tree and all are grouped under 'Above 150' cm girth class.

SECTOR-WISE OBSERVATION:

Data collected and classified from all the 26 sectors are provided below in Tables 1 - 26.

Tree species	Basic data			Girth classes				
	Total No.	Total girth	20 - 50	51 - 80	81 – 110	111 – 150	Over 150	
Acacia auriculoformis	1	123				1		
Aglaia sp.	1	77		1				

Table - 1. A-Sector Area [girth in cm]

Ailanthus grandis	4	607				2	2
Albizia lucidior	6	692			4	2	
Albizia sinensis	15	1856			2	6	7
Altingia excelsa	3	332		1	1	1	
Araucaria cookei	1	67		1			
Areca catechu	2	79	2				
Artocarpus heterophyllus	4	305					
Artocarpus chama	2	193		1	1		
Rombax ceiha	3	455				1	2
Callicarpa macrophylla	3	554					3
Citrus grandis	2	122	1	1			
Crypteronia paniculata	1	36	1				
Dalhergia sp. (tree)	3	437				1	3
Delonix regia	2	331					2
Ehretia acuminata	2	59	2				
Elaeocarpus sphaericus	3	371					2
Ervthring stricta	2	80	2				
Ficus elastica	1	630					1
Ficus fulva	1	53		1			
Ficus rumphii	3	580				2	1
Ficus sp.	6	406		3	1	2	
Garcinia pedunculata	1	32	1				
Lagerstroemia speciosa	1	289					1
Leucaena leucocephala	1	55		1			
Litsea polyantha	3	276			2	1	
Macaranga denticulata	2	133		2			
Mangifera indica	6	498	1	2	2	1	
Melia azadirac	4	208		2	2		
Mesua ferrea	23	1514	6	12	5		
Moringa oleifera	2	160		1	1		
Nyctanthes arbor-tristis	2	157		1	1		

Phyllanthus embelica	2	146		1	1	
Pongamia pinnata	9	597	2	1	9	
Psidium guajava	5	171	3	2		
Rhus chinensis	2	96	1	1		
Schima wallichii	1	161				1
Spondias pinata	1	39	1			
Syzygium cumini	3	246		1	2	
Ziziphus jujuba	3	317			3	
	142	13540				

Table – 2. VC's Bungalow compound [girth in cm]

Tree species	Basic d	ata	Girth classes					
	Total No.	Total girth	20 - 50	51 - 80	81 - 110	111 – 150	Over 150	
Albizia saman	1	302					1	
Alstonia scholaris	2	342					2	
Artocarpus heterophylla	5	244	1	3	1			
Callicarpa macrophylla	1	174					1	
Casuarina equisetifolia	1	84			1			
Cinnamomum tamala	1	125				1		
Citrus grandis	1	68		1				
Cocos nucifera	1	80		1				
Dalbergia sisoo	1	114				1		
Delonix regia	1	88			1			
Elaeocarpus sphaericus	1	175					1	
Grevillea robusta	7	662			4	3		
Leucaena leucocephala	1	109				1		
Mangifera indica	4	353		2	1	1		
Mesua ferrea	15	968		8	7			
Murraya paniculata	1	49	1					
Pongamia pinnata	1	33	1					

	2	134		2		
Psidium guajava						
	1	274				1
Schima wallichii						
	1	139				1
Stereospermum chelonoides						
	2	146	1		1	
Synzygium cumini						
	1	27	1			
Thuja orientalis						
TOTAL:	52	4690				

Table - 3. Outside Area of	VC's Bungalow	[girth in cm]
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Tree species	Basic d	ata		Girth classes						
	Total No.	Total girth	20 - 50	51 - 80	81 - 110	111 – 150	Over 150			
Albizia sinensis	2	55	2							
Araucaria cookei	1	63		1						
Artocarpus heterophylla	1	180					1			
Averrhoa carambola	1	119				1				
Bombax ceiba	2	207				2				
Callistemon citrinus	1	60		1						
Cassia fistula	2	447					2			
Ehretia acuminata	3	366			1	2				
Ficus sp3	1	391					1			
Gravaelia robusta	1	104					1			
Litchi sinensis	1	121				1				
Mangifera indica	7	402			3	4				
Mesua ferrea	9	309	8	1						
Murraya paniculata	4	144	4							
Nyctanthes arbor-tristis	1	83			1					
Phyllanthus embelica	2	156		1	1					
Pongamia pinnata	2	356				1	1			
Prunus persica	1	31	1							
Psidium guajava	6	252	5	1						
Saribus rotundifolius	1	21	1							
Stereospermum chelonoides	3	452					3			

Terminalia arjuna	1	128		1	
TOTAL:	53	4447			

Tree species	Basic data		Girth classes				
	Total No.	Total girth	20 - 50	51 - 80	81 – 110	111 – 150	Over 150
Artocarpus heterophyllus	1	86			1		
Callistemon citrinus	1	89			1		
Delonix regia	1	265					1
Mangifera indica	1	65		1			
Melia azadirac	1	55		1			
Mesua ferrea	12	866	4	8			
Nyctanthes arbor-tristis	1	141				1	
Phyllanthus embelica	1	149				1	
Synzygium cumini	1	64		1			
Ziziphus jujuba	1	228					1
TOTAL:	21	2008					

Table - 5. Security Office Area [girth in cm]

Tree species	Basic	data	Girth classes					
	Total No.	Total girth	20 - 50	51 - 80	81 – 110	111 – 150	Over 150	
Acacia auricularia	8	1141				3	5	
Ficus sp 2	1	68		1				
Macaranga denticulata	3	274		2	1			
Melia azadirac	1	55		1				
Neolamarckia cadamba	1	278					1	
Putranjiva roxburghii	2	226			1	1		
Synzygium cumini	1	108				1		
TOTAL:	17	2150						

Tree species	Basic da	ata	Girth classes						
	Total No.	Total girth	20 - 50	51 - 80	81 – 110	111 – 150	Over 150		
Acacia auricularia	2	453					2		
Actinodaphne obvatata	1	52		1					
Ailanthus grandis	3	411				2	1		
Alstonia scholaris	2	297				2			
Altingia excelsa	2	287			1	1			
Artocarpus heterophylla	2	163		1	1				
Bauhinia variegata	12	1041		2	10				
Delonix regia	1	241					1		
Ehretia acuminata	1	149					1		
Elaeocarpus sphaericus	2	367					2		
Ficus religiosa	1	292					1		
Gravaelia robusta	1	179					1		
Jacaranda mimosifolia	1	258					1		
Lagerstroemia speciosa	4	372			4				
Mangifera indica	1	189					1		
Melia azadirac	7	393	2	5					
Mesua ferrea	13	1127		5	8				
Morus macroura	7	765			3	4			
Neolamarckia cadamba	2	468					2		
Phyllanthus embelica	1	76		1					
Polyalthia longifolia	1	40	1						
Pongamia pinnata	11	615	2	3	6				
Terminalia arjuna	2	167		1	1				
Vernicia fordii	13	1339			3	10			
Ziziphus jujuba	1	107			1				
TOTAL:	94	9848							

Table - 6. Subansiri Hostel [girth in cm]

Tree species	Basic d	ata			Girth class	ses	
	Total No.	Total girth	20 - 50	51 - 80	81 - 110	111 – 150	Over 150
Acacia auriculoformis	26	2965			10	16	
Ailanthus grandis	6	1115					6
Albizia sinensis	1	212					1
Artocarpus heterophylla	1	112				1	
Bombax ceiba	1	50	1				
Callicarna macronhvlla	3	543				1	2
Callistemon citrinus	4	220	1	3			
Cassia fistula	3	307		1	2		
Cassia sp.	1	56		1			
Dalbergia (liana)	2	162		1	1		
Delonix regia	2	334				1	1
Ehretia acuminata	13	828		5	8		
Elaeocarpus sphaericus	4	835					4
Ervthring strictg	2	347					2
Gmelina arborea	1	63		1			
Leucaena leucocephala	1	109			1		
Mangifera indica	1	117				1	
Melia azadirac	1	140				1	
Neolamarckia cadamba	1	187					1
Pandanus furcatus	1	145				1	
Psidium guaiava	1	87			1		
Putraniiva roxhurghii	1	75		1			
Rhus chinensis	1	198					1
Schima wallichii	1	178					1
Stereospermum chelonoides	2	158		1	1		
Svnzvgium cumini	1	105			1		
Terminalia myriocarna	4	1218					4
TOTAL:	86	10866					

Table - 7. NSS Park [girth in cm]

Tree species	Basic d	ata			Girth class	es	
	Total No.	Total girth	20-50	51 - 80	81 - 110	111 – 150	Over 150
Acacia auriculoformis	2	219			2		
Ailanthus grandis	2	258				1	1
Altingia excelsa	1	155					1
Bauhinia variegata	1	112				1	
Callistemon citrinus	2	253				2	
Cassia fistula	1	58		1			
Crypteronia paniculata	1	116				1	
Ehretia acuminata	3	174		3			
Elaeocarpus sphaericus	8	742		1	6	1	
Ficus rumphii	1	445					1
Gravaelia robusta	1	95			1		
Mesua ferrea	2	69	1				
Morus macroura	7	479		1	5	1	
Pandanus furcatus	1	57		1			
Polyalthia longifolia	4	93	4				
Stereospermum chelonoides	1	66		1			
Tamarindus indicus	2	194		1	1		
Vernicia fordii	3	294		1	2		
Ziziphus jujuba	1	180					1
TOTAL:	44	4059					

Table - 8. RGU Market and Canteen Area [girth in cm]

Table - 9. Coffee Corner Area [girth in cm]

Tree species	Basic d	ata	Girth classes						
	Total No.	Total girth	20 - 50	51 - 80	81 – 110	111 – 150	Over 150		
Acacia auriculoformis	3	359			1	2			
Ailanthus grandis	2	500					2		
Altingia excelsa	2	87	2						
Delonix regia	1	202					1		

Ehretia acuminata	5	328		4	1		
Ficus religiosa	1	127				1	
Melia azadirac	2	173		1	1		
Morus laevigatus	3	133	1	2			
Mesua ferrea	3	105	3				
TOTAL:	22	2014					

Table – 10. Administrative Campus Road- side Car Park [girth in cm]

Tree species	Basic data		Girth classes						
	Total No.	Total girth	20 - 50	51 - 80	81 – 110	111 – 150	Over 150		
Alstonia scholaris	2	119		2					
Elaeocarpus rugosus	1	31	1						
Grevillea robusta	3	325			1	2			
Mesua ferrea	40	3769		4	30	6			
Ziziphus jujuba	1	185					1		
TOTAL:	47	4429							

 Table - 11. Administrative Campus [except Car-park area near bank], [girth in cm]

Tree species	Basic d	ata	Girth classes					
	Total No.	Total girth	20 - 50	51 - 80	81 – 110	111 – 150	Over 150	
Areca catechu	1	22	1					
Artocarpus heterophylla	2	294				1	1	
Bauhinia variegata	1	173					1	
Callistemon citrinus	5	403		1	4			
Ehretia acuminata	2	89	2					
Elaeocarpus sphaericus	3	326				2	1	
Ficus elastica	1	58		1				
Grevillea robusta	13	1347			10	3		
Livistona jenkensiana	1	52		1				
Mangifera indica	4	318	1	1	1			
Melia azadirac	1	44	1					

Mesua ferrea	7	701		1	6	
Neolamarckia cadamba	5	445				
Polyalthia longifolia	4	313		2	2	
Pongamia pinnata	2	87	2			
Psidium guajava	1	28	1			
Saribus rotundifolius	4	307		4		
TOTAL:	57	5007				

 Table - 12. Administrative Campus Car-park Area [girth in cm]

Tree species	Basic d	ata	Girth classes					
	Total No.	Total girth	20 - 50	51 - 80	81 – 110	111 – 150	Over 150	
Artocarpus heterophylla	2	400					2	
Coffea arabica	1	56		1				
Ehretia acuminata	3	206		2	1			
Melia azadirac	3	413			1	2		
Mesua ferrea	3	137			2	1		
Psidium guajava	2	63	1					
Roystonea regia	1	171					1	
Stereospermum chelonoides	1	102			1			
Terminalia chebula	2	150		2				
TOTAL:	18	1698						

Table - 13. Residential Area behind the Administrative Campus [girth in cm]

Tree species	Basic data			Girth classes					
	Total No.	Total girth	20 - 50	51 - 80	81 - 110	111 – 150	Over 150		
Araucaria cookei	3	120	1	2					
Areca catechu	7	254	7						
Artocarpus heterophylla	7	585		3	3	1			
Averrhoa carambola	1	27	1						
Delonix regia	1	33	1						
Ficus rumphii	1	72		1					

Heteropanax	1	51		1			
Litsea polyantha	3	181		3			
Livistona jenkensiana	1	131				1	
Mangifera indica	9	693		7	2		
Melia azadirac	1	57		1			
Mesua ferrea	1	63		1			
Moringa oleifera	2	179		1	1		
Nyctanthes arbor-tristis	2	134	1	1			
Pandanus furcatus	1	67		1			
Phoebe cooperiana	3	269		1	2		
Phyllanthus embelica	16	913	4	11	1		
Pongamia pinnata	4	275	2	2			
Psidium guajava	11	332	9	2			
Roystonea regia	2	310					2
Terminalia chebula	4	194			2		
Ziziphus jujuba	2	110	1	1			
TOTAL:	83	5050					

Table – 14. Main Auditorium to library [girth in cm]

Tree species	Basic d	ata			Girth class	ses	
	Total No.	Total girth	20 - 50	51 - 80	81 – 110	111 – 150	Over 150
Albizia saman	10	1856					10
Altingia excelsa	2	348					2
Araucaria cookei	1	55		1			
Artocarpus heterophylla	4	475			2	2	
Bauhinia variegata	1	81			1		
Cinnamomum tamala	1	177					1
Delonix regia	5	787				1	4
Ehretia acuminata	2	174				2	
Elaeocarpus sphaericus	2	252				1	1
Erythrina stricta	2	142				2	

TOTAL:	125	12751					
Ziziphus jujuba	4	313	1	2	1		
Trema orientalis	1	58		1			
Terminalia bellirica	1	109			1		
Terminalia arjuna	4	489			2	2	
Tectona grandis	1	87			1		
Stereospermum chelonoides	1	111				1	
Psidium guajava	2	93	1	1			
Polyalthia longifolia	3	67	3				
Oroxylum indicum	3	377			1	2	
Mesua ferrea	29	2130			17	12	
Melia azadirac	3	263		1	2		
Mangifera indica	5	428		1	2	2	
Mallotus nudiflorus	1	137				1	
Lagerstroemia speciosa	35	3605		2	12	21	
Ficus sp.	2	137			2		

Tree species	Basic d	ata		Girth classes					
	Total No.	Total girth	20-50	51 - 80	81 – 110	111 – 150	Over 150		
Aegle marmelos	1	87			1				
Alangium barbatum	2	327				1	1		
Altingia excelsa	12	1421			6	6			
Araucaria cookei	1	93			1				
Averrhoa carambola	2	154		2					
Baccaurea ramiflora	1	42	1						
Bauhinia variegata	6	358	1	3	2				
Cassia fistula	1	29	1						
Cocos nucifera	1	127				1			
Dillenia indica	1	98			1				
Ehretia acuminata	5	323		3	2				

Elaeocarpus sphaericus	2	193				2	
Erythrina stricta	11	831		2	8	1	
Ficus rumphii	1	190					1
Lagerstroemia speciosa	2	53	2				
Macaranga denticulata	6	431		4	2		
Magnolia champaca	1	51		1			
Mangifera indica	6	338	2	4			
Mesua ferrea	7	413	6	1			
Moringa oleifera	4	376			4		
Murraya paniculata	1	21	1				
Nyctanthes arbor-tristis	3	173	1	2			
Phoebe cooperiana	2	218				2	
Phyllanthus embelica	1	105			1		
Pongamia pinnata	2	522					2
Prunus domestica	2	118		1	1		
Psidium guajava	7	406	3	4			
Rhus chinensis	1	68		1			
Stereospermum chelonoides	3	210		2	1		
Syzygium cumini	1	98			1		
Ziziphus jujuba	6	593		3	3		
TOTAL:	102	8467					

Table - 16. Behind Main Auditorium and Teachers' activity Centre – Geography [girth in cm]

Tree species	Basic data		Girth classes					
	Total No.	Total girth	20 - 50	51 - 80	81 - 110	111 – 150	Over 150	
Aglaia sp.	2	78	1	1				
Albizia lucidior	2	149	1	1				
Albizia sinensis	2	189		1	1			
Alangium	1	56		1				
Artocarpus heterophylla	6	422	1	5				
Artocarpus chama	3	277		1	2			

Averrhoa carambola	1	36	1				
Bauhinia variegata	3	162	1	2			
Cascabela thevetia	1	37	1				
Cassia fistula	7	296	4	3			
Cordia dichotoma	1	47	1				
Dalbergia (liana)	1	43	1				
Duabanga grandiflora	3	180	1	1			
Ehretia acuminata	4	191	1	2			
Elaeocarpus aristatus	1	52		1			
Elaeocarpus sphaericus	1	50	1				
Erythrina stricta	5	315	1	2	2		
Ficus religiosa	1	112				1	
Ficus auriculata	3	147	1	2			
Grevillea robusta	1	54		1			
Lagerstroemia speciosa	1	27	1				
Magnolia hodgsonii	1	58		1			
Mallotus nudiflorus	4	348		2	2		
Mangifera indica	7	283	2	5			
Melia azadirac	1	49	1				
Mesua ferrea	2	78	2				
Morus macroura	1	54		1			
Neolamarckia cadamba	10	771	2	7	1		
Oroxylum indicum	2	195		1	1		
Pongamia pinnata	3	125	2	1			
Psidium guajava	1	30	1				
Schima wallichii	1	112				1	
Styrax serrulatum	2	72	2				
Syzygium cumini	1	48	1				
Tectona grandis	2	199	1	1			
Toona sp.	2	118	1	1			
Vernicia fordii	2	119		2			

Vitex sp.	1	43	1		
Zanthoxylum armata	1	22	1		
TOTAL:	94	5644			

Tree species	Basic da	ata	Girth classes				
	Total No.	Total girth	20 - 50	51 - 80	81 – 110	111 – 150	Over 150
Artocarpus heterophylla	5	457		2	3		
Bauhinia variegata	1	21	1				
Delonix regia	1	107			1		
Elaeocarpus sphaericus	2	78	2				
Litsea polyantha	4	317		2	2		
Mangifera indica	3	209		2	1		
Melia azadirac	2	204			2		
Moringa oleifera	2	105		2			
Nyctanthes arbor-tristis	1	86			1		
Oroxylum indicum	1	157					1
Parkia timorensis	3	278			3		
Phoebe cooperiana	1	142				1	
Phyllanthus embelica	2	121		2			
Prunus domestica	1	83			1		
Psidium guajava	2	157		1	1		
Putranjiva roxburghii	1	47	1				
Stereospermum chelonoides	1	41	1				
Terminalia chebula	2	120	1	1			
Trema orientalis	4	262	2	2			
Ziziphus jujuba	1	138					1
TOTAL:	40	3130					

Table - 17. Women's Technology Park-[girth in cm]

Table - 18. Main Gate area [girth in cm]

Tree species	Basic data	Girth classes

	Total	Total	20 - 50	51 - 80	81 – 110	111 – 150	Over 150
	No.	girth					
Albizia sinensis	2	405					2
Delonix regia	3	324				1	2
Litsea polyantha	2	236			1	1	
Mangifera indica	2	102	1	1			
Parkia timorensis	5	421		1	4		
Pentapanax sp.	1	125				1	
Spondias pinata	1	82			1		
TOTAL:	16	1695					

Table - 19. Girls' Hostel Campus [girth in cm]

Tree species	Basic d	ata		Girth classes					
	Total No.	Total girth	20 - 50	51 - 80	81 – 110	111 – 150	Over 150		
Albizia saman	2	285				1	1		
Areca catechu	2	78	2						
Artocarpus heterophylla	3	476				1	2		
Artocarpus chama	1	279					1		
Baccaurea ramiflora	1	40	1						
Cassia sp.	1	92			1				
Delonix regia	1	253					1		
Dillenia indica	1	116				1			
Elaeocarpus aristatus	1	75		1					
Erythrina stricta	10	1183			3	7			
Ficus elastica	1	371					1		
Ficus rumphii	4	483			2	2			
Litsea polyantha	3	305			2	1			
Macaranga denticulata	1	110			1				
Mangifera indica	2	239			1	1			
Mesua ferrea	9	434	8	1					
Neolamarckia cadamba	1	223					1		
Nyctanthes arbor-tristis	11	738	3	8					

Oroxylum indicum	1	137		1	
Ziziphus jujuba	1	79	1		
TOTAL:	57	5996			

Table - 20	. Siang	Hostel	Campus	[girth	in cm]
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Tree species	Basic d	ata	Girth classes							
	Total No.	Total girth	20-50	51 - 80	81 – 110	111 – 150	Over 150			
Litchi sinensis	1	50	1							
Mangifera indica	1	107			1					
Mesua ferrea	1	145					1			
Ziziphus jujuba	4	203	2	2						
TOTAL:	7	505								

Table – 21. Library to Social Science Building [girth in cm]

Tree species	Basic d	ata	Girth classes					
	Total No.	Total girth	20 - 50	51 - 80	81 – 110	111 – 150	Over 150	
Albizia saman	2	318					2	
Araucaria cookei	3	228		1	2			
Carica papaya	2	133		2				
Citrus grandis	1	81			1			
Delonix regia	4	680				2	2	
Ehretia acuminata	1	56		1				
Erythrina stricta	2	358					2	
Hevea brasiliensis	70	2482	43	17	10			
Lagerstroemia speciosa	57	4852	12	23	15	7		
Melia azadirac	1	106			1			
Mesua ferrea	5	137	5					
Polyalthia longifolia	13	317	13					
Pongamia pinnata	4	141	3	1				

Stereospermum chelonoides	1	29	1				
Terminalia arjuna	10	1223	1		3	5	1
Thuja orientalis	1	56		1			
TOTAL:	177	11197					

Tree species	Basic d	ata			Girth class	ses	
	Total No.	Total girth	20 - 50	51 - 80	81 – 110	111 – 150	Over 150
Albizia sinensis	1	240					1
Alstonia scholaris	1	281					1
Bombax ceiba	3	752					3
Callicarpa macrophylla	3	280			3		
Duabanga grandiflora	1	199					1
Erythrina stricta	1	135				1	
Lagerstroemia speciosa	1	92			1		
Magnolia hodgsonii	1	55		1			
Mesua ferrea	4	99					
Oroxylum indicum	2	198					
Pentapanax sp	1	84			1		
Polyalthia longifolia	12	369	12				
Schima wallichii	1	271					1
Stereospermum chelonoides	1	149				1	
Ziziphus jujuba	1	113				1	
TOTAL:	34	3317					

Table – 22. Life Science Building Area [girth in cm]

Table -	23.	RS	Bovs	Hostel	Area	[girth	in cml
		~		1100000		18	

Tree species	Basic d	ata	Girth classes				
	Total No.	Total girth	20 - 50	51 - 80	81 - 110	111 – 150	Over 150
Ailanthus grandis	1	120				1	
Albizia saman	1	128				1	

Altingia excelsa	1	123				1	
Aphanamixis polystachya	2	110		2			
Artocarpus heterophylla	1	45	1				
Artocarpus chama	3	246		1	1	1	
Balakata baccata	1	242					1
Bombax ceiba	1	125				1	
Calicarpa macrophylla	1	187					1
Castanopsis sp.	6	417		3	3		
Cinnamomum obtusifolium	1	46	1				
Dillenia indica	1	99			1		
Erythrina stricta	4	412			3	1	
Ficus hispida	2	114		2			
Litsea polyantha	3	157	1	2			
Macaranga denticulata	1	68		1			
Mallotus nudiflorus	1	182					1
Oroxylum indicum	1	46	1				
Spondias pinata	2	275				2	
Stereospermum chelonoides	3	199		2	1		
Terminalia arjuna	1	240					1
TOTAL:	38	3581					

Table - 24. Boys' Hostel area-[girth in cm]

Tree species	Ba	sic data	Girth classes				
	Total No.	Total girth	20 - 50	51 - 80	81 - 110	111 – 150	Over 150
Actinodaphne obvatata	1	90			1		
Alangium barbatum	1	63		1			
Artocarpus heterophylla	4	321		2	2		
Balakata baccata	1	45	1				
Bauhinia variegata	2	68	2				
Callicarpa macrophylla	1	190					1
Castanopsis indica	1	220					1

Dillenia indica	1	121				1	
Elaeocarpus sphaericus	1	78		1			
Erythrina stricta	7	717			2	5	
Ficus hispida	1	40	1				
Litsea polyantha	1	50	1				
Mangifera indica	1	25	1				
Mesua ferrea	1	57		1			
Moringa oleifera	1	45	1				
Morus macroura	1	150				1	
Nyctanthes arbor-tristis	1	71		1			
Pandanus furcatus	1	115				1	
Phoebe cooperiana	1	430					1
Psidium guajava	1	55		1			
Schima wallichii	1	123				1	
Stereospermum chelonoides	5	213	2	3			
Terminalia myriocarpa	1	270					1
TOTAL:	37	3557					

Table - 25. Bus Terminus Area [girth in cm]

Tree species	Basic d	ata			Girth class	ses	
	Total No.	Total girth	20 - 50	51 - 80	81 – 110	111 – 150	Over 150
Artocarpus heterophylla	4	279	1	3			
Bombax ceiba	1	115				1	
Callicarpa macrophylla	2	455					2
Castanopsis indica	2	202				2	
Citrus grandis	3	106	3				
Dillenia indica	1	55		1			
Duabanga grandiflora	2	89	2				
Elaeocarpus aristatus	1	55		1			
Erythrina stricta	8	524	2	6			
Ficus religiosa	1	114				1	

Lagerstroemia speciosa	2	87	2				
Litchi sinensis	1	24	1				
Lithocarpus sp.	1	32	1				
Mangifera indica	9	464	4	5			
Neolamarckia cadamba	1	74		1			
Pentapanax sp.	1	55		1			
Phoebe cooperiana	1	125				1	
Prunus persica	1	31	1				
Psidium guajava	6	355	1	5			
Spondias pinata	4	229		3	1		
Stereospermum chelonoides	2	60	2				
Ziziphus jujuba	2	71		1			
TOTAL:	56	3601					

Table - 26. New RS Hostel - F-Sector Quarters [girth in cm]

Tree species Basic data			Girth classes						
	Total No.	Total girth	20-50	51 - 80	81 – 110	111 – 150	Over 150		
Actinodaphne obovata	5	252	3		1				
Aglaia sp.	2	98	1	1					
Alangium sp.	6	316	3	3					
Albizia sinensis	4	506			2	1	1		
Alstonia scholaris	2	117		2					
Aphanamixis polystachya	3	230		2	1				
Artocarpus chama	2	148		1	1				
Artocarpus heterophyllus	3	187	1	1	1				
Balakata baccata	2	202		1		1			
Bauhinia variagata	3	135	2	1					
Bombax ceiba	5	330	1	2	2				
Callicarpa macrophylla	3	229		2	1				
Carica papaya	4	97	4						
Cassia fistula	2	98	1	1					

Citrus grandis	2	79	2			
Delonix regia	1	89			1	
Duabanga grandiflora	3	154	1	2		
Elaeocarpus aristatus	2	101	1	1		
Erythrina stricta	4	226	1	3		
Ficus hispida	5	201	4	1		
Ficus sp.	1	184				1
Leucaena leucocephala	1	61		1		
Litsea cubeba	1	61		1		
Litsea polyantha	4	184	3	1		
Litsea sebifera	2	99	1	1		
Macaranga deltoidea	5	226	4	1		
Magnolia hodgsonii	1	49	1			
Mallotus nudiflorus	3	222		2	1	
Mangifera indica	2	60	1			
Mesua ferrea	4	109	4			
Oroxylum indica	3	142	2	1		
Phoebe cooperiana	2	127		2		
Psidium guajava	2	72	2			
Schima wallichii	1	58		1		
Spondias pinnata	2	97	1	1		
Terminalia bellirica	1	47	1			
Terminalia myriocarpa	2	142		1	1	
Trema orientalis	5	185	5			
Zanthoxylum armata	2	79	2			
Ziziphus jujuba	1	39	1			
TOTAL:	108	6038				

The totals of number of tree-stands (individuals) and recorded girth has been presented below in Table -27.

Table 27. Numerical Summery of recorded data

Sectors	Total number of	Total recorded
	Individuals	girth [cm]
Sector - 1	142	13,540
Sector - 2	52	4690
Sector - 3	53	4447
Sector - 4	21	2008
Sector - 5	17	2150
Sector - 6	94	9848
Sector - 7	86	10,866
Sector - 8	44	4059
Sector - 9	22	2014
Sector - 10	47	4429
Sector - 11	57	5007
Sector - 12	18	1698
Sector - 13	83	5050
Sector - 14	125	12,751
Sector - 15	102	8467
Sector - 16	94	5644
Sector - 17	40	3130
Sector - 18	16	1695
Sector - 19	57	5996
Sector - 20	7	505
Sector - 21	177	11,197
Sector - 22	34	3317
Sector - 23	38	3581
Sector - 24	37	3557
Sector - 25	56	3601
Sector - 26	108	6038

TREE FLORA

The present survey recorded the occurrence of as much as 116 species of trees in the developed area of the Rajiv Gandhi University campus on top of the Rono Hills. All the species along with their families, usefulness etc. are presented in Table 28 below:

Table – 28. List of recorded trees from the developed areas of RGU campus

	Tree Scientific Names	Families	No	TG (cm)	Mean girth (cm)	Main Use	Indian/ Exotic
01	Acacia auriculoformis	Leguminosae: Mimosoideae	41	5260	128.29	Fire wood, Ornamental	Exotic
02	Actinodaphne obvatata	Lauraceae	07	394	56.29	Fire wood	Indian
03	Aegle marmelos	Rutaceae	01	87	87	Medicinal, Religious	Indian
04	Aglaia sp.	Meliaceae	05	246	49.2	Timber	Indian

05	Ailanthus grandis	Burseraceae	18	3011	167.28	Timber	Indian
06	Alangium barbatum	Alangiaceae	10	762	26.2	Fodder	Indian
07	Albizia lucidior	Leguminosae: Mimosoideae	08	841	105.13	Timber	Indian
08	Albizia saman	Leguminosae: Mimosoideae	16	2889	180.57	Timber	Indian
09	Albizia sinensis	Leguminosae: Mimosoideae	27	3463	128.26	Timber	Indian
10	Alstonia scholaris	Apocynaceae	07	1037	148.14	Medicinal, Religious	Indian
11	Altingia excelsa	Altingiaceae	23	2753	119.7	Medicinal. Timber	Indian
12	Aphanamixis polystachya	Meliaceae	05	340	68	Timber	Indian
13	Araucaria cookei	Arucariaceae	10	626	62.6	Ornamental	Exotic
14	Areca catechu	Leguminosae: Mimosoideae	12	433	36.08	Mastigator	Indian
15	Artocarpus chama	Moraceae	11	1143	103.9	Timber, Fruits edible	Indian
16	Artocarpus heterophylla	Moraceae	55	5031	91.47	Fruits edible, Fodder	Indian
17	Averrhoa carambola	Oxalidaceae	05	336	67.2	Fruits edible	Indian
18	Baccaurea ramiflora	Phyllanthaceae	02	82	41	Fruits edible	Indian
19	Balakata baccata	Euphorbiaceae	04	489	122.25	Timber	Indian
20	Bauhinia variegata	Leguminosae: Caesalpinioideae	30	2151	71.7	Ornamental , Flower bus edible	Indian
21	Bombax ceiba	Malvaceae	16	2034	127.13	Ornamental , Floss	Indian
22	Callicarpa macrophylla	Lamiaceae	17	2582	151.88	Fire wood	Indian
23	Callistemon citrinus	Myrtaceae	13	1025	78.85	Ornamental	Exotic
24	Carica papaya	Caricaceae	06	230	38.33	Fruits edible	Exotic
25	Cascabela thevetia	Apocynaceae	01	37	37	Ornamental	Exotic

26	Cassia fistula	Leguminosae: Caesalpinioideae	16	1235	77.19	Ornamental , Medicinal	Indian
27	Cassia sp.	Leguminosae: Caesalpinioideae	02	148	74	Ornamental	Exotic
28	Castanopsis indica	Fagaceae	03	422	140.67	Timber	Indian
29	Castanopsis sp.	Fagaceae	06	417	69.5	Timber	Indian
30	Casuarina equisetifolia	Casuarinaceae	01	84	84	Fire wood	Exotic
31	Cinnamomum obtusifolium	Lauraceae	01	46	46	Fire wood	Indian
32	Cinnamomum tamala	Lauraceae	02	302	151	Aromatic leavea	Indian
33	Citrus grandis	Rutaceae	09	456	50.67	Fruits edible	Indian
34	Cocos nucifera	Arecaceae	02	207	103.5	Fruits edible, Oil	Indian
35	Coffea arabica	Rubiaceae	01	56	56	Produce coffee	Exotic
36	Cordia dichotoma	Boraginaceae	01	47	47	Fire wood	Indian
37	Crypteronia paniculata	Panaeaceae	02	152	76	Timber	Indian
38	Dalbergia (liana)	Leguminosae: Papilionoideae	03	205	68.33	Fire wood	Indian
39	Dalbergia (tree)	Leguminosae: Papilionoideae	03	437	145.67	Timber	Indian
40	Dalbergia sisoo	Leguminosae: Papilionoideae	01	114	114	Timber	Indian
41	Delonix regia	Leguminosae: Caesalpinioideae	18	3701	205.61	Ornamental	Exotic
42	Dillenia indica	Dilleniaceae	06	489	81.5	Fruits edible	Exotic
43	Duabanga grandiflora	Lythraceae	09	622	69.11	Timber	Indian
44	Ehretia acuminata	Boraginaceae	43	2903	67.51	Fire wood	Indian
45	Elaeocarpus aristatus	Elaeocarpaceae	05	283	56.6	Fire wood, Fruits edible	Indian
46	Elaeocarpus rugosus	Elaeocarpaceae	01	31	31	Fire wood	Indian
47	Elaeocarpus sphaericus	Elaeocarpaceae	29	3467	119.55	Timber, Religious Beads	Indian

48	Erythrina stricta	Leguminosae: Papilionoideae	58	5270	90.87	Ornamental , Fire wood	Indian
49	Ficus auriculata	Moraceae	03	147	49	Fodder, Fruits edible	Indian
50	Ficus elastica	Moraceae	03	1059	353	Ornamental	Indian
51	Ficus fulva	Moraceae	01	53	53	Fodder	Indian
52	Ficus hispida	Moraceae	08	255	31.88	Fruits edible	Indian
53	Ficus religiosa	Moraceae	04	645	161.25	Religious	Indian
54	Ficus rumphii	Moraceae	10	1770	177	Ornamental , Fodder	Indian
55	Ficus sp 1	Moraceae	09	611	67.89		Indian
56	Ficus sp 2	Moraceae	01	184	184	Ornamental	Exotic
57	Ficus sp3	Moraceae	01	391	391	Ornamental	Indian
58	Garcinia pedunculata		01	32	32	Fruits edible	Indian
59	Gmelina arborea	Verbenaceae	01	63	63	Timber	Indian
60	Gravaelia robusta	Proteaceae	27	2766	102.44	Ornamental	Exotic
61	Heteropanax	Araliaceae	01	51	51	Fire wood	Indian
62	Hevea brasiliensis	Euphorbiaceae	70	2482	35.46	Produce rubber	Exotic
63	Jacaranda mimosifolia	Bignoniaceae	01	258	258	Ornamental	Exotic
64	Lagerstroemia speciosa	Lythraceae	103	9677	93.95	Timber, Ornamental	Indian
65	Leucaena leucocephala	Leguminosae: Mimosoideae	04	333	83.25	Fire wood	Indian
66	Litchi sinensis	Sapindaceae	03	195	65	Fruits edible	Exotic
67	Lithocarpus sp.	Fagaceae	01	32	32	Timber	Indian
68	Litsea cubeba	Lauraceae	01	61	61	Fruits edible	Indian
69	Litsea polyantha	Lauraceae	23	1706	74.18	Fire wood	Indian
70	Litsea sebifera	Lauraceae	02	99	49.5	Medicinal, Fire wood	Indian

71	Livistona jenkensiana	Arecaceae	02	183	91.5	Ornamental , Thatch	Indian
72	Macaranga denticulata	Euphorbiaceae	18	1242	69	Fire wood	Indian
73	Magnolia champaca	Magnoliaceae	01	51	51	Timber, Ornamental	Indian
74	Magnolia hodgsonii	Magnoliaceae	03	162	54	Fire wood	Indian
75	Mallotus nudiflorus	Euphorbiaceae	09	889	98.78	Timber	Indian
76	Mangifera indica	Anacardiaceae	71	4890	68.88	Fruits edible, Timber	Indian
77	Melia azadirac	Meliaceae	28	2160	77.14	Fodder	Indian
78	Mesua ferrea	Clusiaceae	189	13230	70	Timber, Ornamental	Indian
79	Moringa oleifera	Moringaceae	11	865	78.64	Fruits edible, Medicinal	Exotic
80	Morus macroura	Moraceae	19	1581	83.21	Timber	Indian
81	Murraya paniculata	Rutaceae	06	214	35.67	Ornamental	Indian
82	Neolamarckia cadamba	Rubiaceae	21	2446	116.48	Timber, Ornamental	Indian
83	Nyctanthes arbor-tristis	Oleaceae	22	1583	71.96	Ornamental	Indian
84	Oroxylum indicum	Bignoniaceae	13	1252	96.31	Ornamental , Religious	Indian
85	Pandanus furcatus	Pandanaceae	04	384	96	Ornamental	Indian
86	Parkia timorensis	Leguminosae: Mimosoideae	08	699	87.38	Fruit vegetable	Indian (?)
87	Pentapanax sp	Araliaceae	03	264	88		Indian
88	Phoebe cooperiana	Lauraceae	10	1311	131.1	Fruits edible, Timber	Indian
89	Phyllanthus embelica	Phyllanthaceae	25	1664	66.56	Medicinal	Indian
90	Polyalthia longifolia	Annonaceae	37	1199	32.41	Ornamental	Indian
91	Pongamia pinnata	Leguminosae: Papilionoideae	38	2751	72.4	Timber, Medicinal	Indian
92	Prunus domestica	Rosaceae	03	201	67	Fruits edible	Exotic

93	Prunus persica	Rosaceae	01	31	31	Fruits edible	Exotic
94	Psidium guajava	Myrtaceae	49	2235	45.61	Fruits edible	Exotic
95	Putranjiva roxburghii	Putranjivaceae	04	348	87	Ornamental	Indian
96	Rhus chinensis	Anacardiaceae	04	362	90.5	Fruits edible	Indian
97	Roystonea regia	Arecaceae	03	481	160.33	Ornamental	Exotic
98	Saribus rotundifolius	Arecaceae	05	328	65.6	Ornamental	Indian
99	Schima wallichii	Theaceae	07	1177	168.14	Timber, Fire wood	Indian
100	Spondias pinata	Anacardiaceae	10	722	72.2	Fruits edible	Indian
101	Stereospermum chelonoides	Bignoniaceae	25	1929	77.16	Timber	Indian
102	Styrax serrulatum	Styricaceae	02	72	36		Indian
103	Syzygium cumini	Myrtaceae	10	815	81.5	Fruits edible	Indian
104	Tamarindus indicus	Leguminosae: Caesalpinioideae	02	194	97	Fruits edible, Timber	Indian (?)
105	Tectona grandis	Lamiaceae	03	286	95.33	Timber	Exotic
106	Terminalia arjuna	Combretaceae	18	2247	124.83	Timber, Medicinal	Indian
107	Terminalia bellirica	Combretaceae	02	156	78	Timber, Medicinal	Indian
108	Terminalia chebula	Combretaceae	08	464	58	Medicinal	Indian
109	Terminalia myriocarpa	Combretaceae	07	1630	232.86	Timber	Indian
110	Thuja orientalis	Thujaceae	02	83	41.5	Ornamental	Exotic
111	Toona sp.	Meliaceae	02	118	59	Timber	Indian
112	Trema orientalis	Cannabaceae	10	55	5.5	Fire wood	Indian
113	Vernicia fordii	Euphorbiaceae	18	1752	97.33	Ornamental , Oil	Exotic
114	Vitex sp.	Lamiaceae	01	43	43	Medicinal	Indian
115	Zanthoxylum armata	Rutaceae	03	91	30.33	Aromatic leaves	Indian

116	Ziziphus jujuba	Rhamnaceae	29	2676	92.28	Fruits edible	Indian
			1616	138762	85.87		

Though Sector 21 is having highest number of 177 trees with GBH above 20 cm but highest total of girth (13,540 cm) has been recorded from the Sector 1 [Sector A]. So, threes in this sector are with good girth and many are quite old trees. One Indian Rubber tree (*Ficus elastica*) is representing the highest girth of 630 cm in the entire campus. The overall average girth, considering all the recorded 1616 individual is 85.87 is also quite high and encouraging.

Among the common trees, the tallest tree is Ailanthus grandis, it is also with very high girth andcan produce highest amount of useful timber. Plants showing high girth includes *Ailanthis grandis, Albizia saman, Bombax ceiba, Callicarpa macrophylla, Delonix regia, Phoebe cooperiana, Schima wallichii, Terminalia myriocarpa*, etc. Some of these plants may be Indian but are planted in this campus.

At least 35 of the recorded 116 species produce good quality timber. Beautification is very important, and 31 species are planted mainly for this purpose. Fruits of 27 species are edible. Also, fivespecies has religious importance. One *Ficus religiosa* planted in front of Mini Auditorium already statedreceiving puja from campus duellers.

Of the recorded 116 species of trees, 93 are Indians and remaining 23 were introduced to Indiafor different purpose. There are a good number Rudraksha (*Elaeocarpus sphericus*) plants in this campus and those produce huge beads and many people found collecting those regularly.

The beauty renders by different species with their flowers and/or foliage include *Cassia fistula*, *Delonix regia*, *Vernicia fordii*, *Bombax ceiba*, *Erythrina stricta*, *Mesua ferrea*, etc. are unforgettable.

7.0 NOISE POLLUTION MANAGEMENT

A. Silence zones in University:

Various display boards are present in library, auditorium and other places for awareness to maintain silence in the University.

Display boards at-

Location	Display board
Library	KEEP SILENCE PLEASE Brilliant minds at work
Auditorium	KEEP CALM AND STAY QUIET
Classroom	
Laboratory	ATTENTION (())) PLEASE SILENCE YOUR CELL PHONES.

B. Noise control during any programme in University:

The University has one huge gate for entry and exit of students. It is continuously monitored by the security guards. Entire campus, all class rooms, library & auditorium are under CCTV surveillance. This helps to keep the entire campus noise-free. In addition to this, security guards and members of Discipline Committee ensure smooth entry and exit of students without any noise and nuisance.



C. Controlling entry and exit of students and their discipline monitoring.

- Our University has a huge main gate & another small gate in back-side of administrative building i.e. 'Á'kklu Hkou'. During the IQAC Youth Festival, National & International Conferences, Workshops, Competitions, we use the main gate through which the students can come and go easily. Main gate has been divided into two gates, one for entry and other for exit. This helps to avoid the possible chaos during rush hours.
- 2. Besides, main road in the campus is provided with two foot-paths. Students are instructed to use right side foot-path by girls and left one by boys. This helps to avoid possible chaos during rush-hours.
- 3. We have the entry register for the visitors visiting our University. They have to register their name, time of entry and exit at the gate and then they are allowed to enter/leave the campus.
- 4. We have hired the security agency. Personnel of this agency in association with discipline committee of the University take care of all the security aspects including discipline in the campus. For this purpose, 10-15 security guards are in action every day including holidays.

D. No pressure horns for vehicle:

Our University staff members and students do not use pressure horns and is not permitted to the students.



Plastic free environment:

Attempt of our University is to keep the campus free from plastic as much as possible. We increase the awareness amongst students and staff members regarding the same by display boards and other programmes.

At present our University does not have plastic dumping yard in the campus. But, University has made available the Penguin-dustbins to collect plastic and garbage in the key-places like girls' waiting room, administration building, girls' hostel, Auditorium, etc.

SOLAR POWER USAGE

Solar panels at various Academic Buildings, Hostels etc.











Sensor-Based Solar powered street lights at RGU campus







LED Lights in Academic Buildings



Wheeling to Grids



9.0 Recommendation:

Water Management:

- Add aerators/regulators to taps to save water it work by simply mixing air into the flow and this reduces the amount of water passing through the tap.
- Pipes, overhead tanks and plumbing system should be maintained properly to reduce leakages and wastages of water
- Install water meters to measure water consumption regularly
- Set up University's own water recycling unit/STP where the recycled water can be used for gardening in University and hostels
- Perform water, energy and waste management audits frequently
- Non-teaching staff or peons in the concerned section should take responsibility of monitoring the overflow of water tanks
- Regularly do the water check of the treated water from the STP
- Keep record of the waste generation by the University

Energy:

- University has many areas where lighting is not required at all times. Installing sensor based lighting in such areas can generate massive rewards. This is one of the easiest ways to save energy at University.
- Replacing old computers and instruments with ones having energy efficiency certifications is the easiest way to conserve energy at university.
- A huge amount of energy is wasted because no one really cares about switching off the fans and lights when not required. Hence, planning workshops on energy conservation to educate students, faculty and staff can generate huge results.
- Establish a purchase policy that is energy saving and eco-friendly
- Replace all incandescent and CFL lamps with LED lights
- The University needs to arrange the energy conservation program for the purpose of awareness of fuel energy conservation and motivation of students for use of non-conventional energy devices.
- University needs to use alternative sources instead of use of LPG (Non-conventional

sources) for laboratory and other sources.

Solid Waste:

- Install a Biogas plant in the campus. It can be used as an agricultural fertilizer.
 Biogas can be used as the fuel in the system of producing biogas from agricultural wastes and co-generating heat and electricity in a combined heat and power (CHP) plant
- Avoid plastic/thermocol plates and cups in the University level or department level functions
- The University should ban use of plastic and campus should be declared "Plastic free campus"
- In all functions, workshops and conferences, the plastic mineral water bottles, teacups, straws, bouquets and gifts with plastic covering, decorations and unwanted plastic should be strictly avoided.
 - To cut down the waste and carbon footprint, the university administration and various departments follows paperless methods of communication by using emails.

Biodiversity:

- Grow up vegetable garden and fruit garden to attract more fauna
- Develop a butterfly garden that arouses appreciation towards flora and fauna diversity
- Name all the trees and plants with its common name and scientific name and theiruses
- Display boards of fauna diversity to generate enthusiasm for learners

General:

- Establish an environmental committee to look after the environmental aspects of the campus
- Adopt green building rating system like IGBC GRIHA OR LEED which will further help in maintaining the campus for different environmental aspects
- Layout 'Green Chemistry' that reduces or eliminates the use or generation of hazardous

substances in the design, manufacture and application of chemical products

- Organize earn while learn eco-friendly programmes
- Conduct exhibitions for parents and public on environment and sustainable practices
- Organize earn while learn eco-friendly programmes
- Ensure participation of students and teachers in local environmental issues

10.0 Conclusions

to find a way to solve problems. Green Audit is one kind of a professional approach towards a responsible way in utilizing economic, financial, social andenvironmental resources. Green audit can "add value" to the management approaches beingtaken by the University and is a way of identifying, evaluating and managing environmental risks (known and unknown). There is scope for further improvement, particularly in relation to waste, energy and water management. The University in recent years considers theenvironmental impacts of most of its actions and makes a concerted effort to act in an environmentally responsible manner. Even though the University does perform fairly well, the recommendations in this report highlight many ways in which the University can work to improve its actions and become a more sustainable institution.

Note: Rajiv Gandhi University is located inside the Himalaya Hotspot region for Biodiversity conservation. It is essential to prepare a detailed flora of this campus as in some part of the campus there is still patches of natural vegetation. At the same time, for plantation, local plants need to be given some priority along with their proper identity as Arunachal Pradesh is known world-wide for its extremely rich original plant diversity and still ill explored and new species are regularly recognized.

[ABHAYA PRASAD DAS]