CHITKARA UNIVERSITY

REPORT ON
GREEN CAMPUS INITIATIVES

1. Restricted entry of automobiles
2. Use of Bicycles/ Battery powered vehicles
3. Pedestrian Friendly pathways
4. Ban on use of Plastic
5. Landscaping with trees and plants

CHAPTER – 1

INTRODUCTION

Chitkara Educational Trust, established in the year 1998, had been set up with a clear mission to pursue excellence in the field of education and go adhere to the highest standards of academic rigor in all its work. Since then, Chitkara has grown tremendously and has attained a leadership position in North India, which speaks volumes about its enduring commitment, outstanding faculty and a rich learning environment. Chitkara University is managed by Dr Ashok K Chitkara and Dr Madhu Chitkara, hard - core passionate academicians.

The University has a **zero discharge campus** which follows Innovative Technology for Solid/Liquid Waste Disposal. The University has a self-driven ecosystem of best practices for making a societal impact. **Reduce, Reuse, Recycle and Recover** is the mantra Chitkara University works by. It has been unyieldingly working towards becoming a self-sustaining campus that proudly boasts innovative technologies and environment friendly green initiatives such as:

- Waste Paper Recycling Plant is available on campus to recycle waste paper and convert it into new papers, file covers, sheets, note pads etc. - Capacity 100 sheets per day
- Kitchen waste is being processed in Vermin Compost Plant. Weeds, leaves and other garden waste are deposited in organic pits for generation of compost. - Capacity 30 Kg per day
- Liquid waste generated from washrooms, kitchen, laundry etc. is treated in the Sewage Treatment Plant (STP) installed within the campus. - Capacity 250 KLD
- The treated wastewater coming from STP is being reused through Double Plumbing Technique and for horticulture purpose. - Capacity 50 KLD
- Organic pesticide pit collects the residual water from Vermin Composting Plant; which is further used as Pesticide. - Capacity 10 liters per day
- Disposal of roof top rain water in Rain Water Harvesting pits.
- Reuse of Air Conditioner Drained Water for gardening and washing purpose. - Capacity @10000 liter per day for 6 months
- Waste that cannot be treated or reused in the University is placed in the Garbage Disposal Bins placed near the University. Biomedical waste and lubricating oil coming out from generator sets are being collected by the government approved vendors.
- The University has an in-house Solar Power Plant - Capacity 320 KWS (on-grid).

- In addition to this, solar water heaters are installed across the campus and in hostels - Capacity of about 30,000 liters hot water per day
- Solar Photovoltaic Street lights are also installed across the campus.
- Adequate provision for watering through sprinklers and treated water from the Sewage Treatment Plant is used in horticulture.
- In-house nursery for growing plants further used for tree plantation drives and for gifting.
- Protection of the saplings is done through organic pesticides and compost prepared in-house.
- Plant markers indicating nomenclature, species information is displayed at the designated spots.
- Pollination of many flowering plants, thus increasing the yield of certain crops through Bee Keeping on campus.
- Tree plantation drives – a regular feature
- The initiatives has also been recognized by the Government and projects worth 160 lakh are funded by various Government agencies to support the research and innovation in the areas of sustainable development.

Chitkara University has always prioritized greenery in the campus. The serene location of the campus at the foothills of Shimla provides the best of atmosphere and the greenery and colourful flowers on campus adds to the beauty. The campus is located in the Atal Shiksha Kunj area, spread across 67835 Sq.mt. land of area with a green pocket of 36318.21 Sq.mt. The campus has three grounds, nine vertical gardens, one terrace garden, an organic farm and nineteen gardens including a herbal garden and rose garden. The campus nursery as well as hydroponic project are all ventures that contribute to our "Go Green" efforts. A dedicated team of horticulturist and gardeners to upkeep the greenery and landscaping in and around the campus. Over **5000 trees** have been planted within the campus and equally around the University locations to improve air and noise environment. Our green initiatives are visible on the basis of following;

- Ministry of Education, Government of India has ranked Chitkara University, Himachal Pradesh among top 10 Universities PAN India in Swachhta Ranking for Higher Educational Institutions for three consecutive years i.e. 2019, 2018 and 2017.
- Selected Chitkara University under "MGNCRE-DHE-MHRD-GOI-Swachhta Action

Plan 2020" for promotion of Swachhta in the community. Selected Chitkara University under Unnat Bharat Abhiyan for Rural Development;

- Government of Himachal Pradesh has awarded us "Environment Leadership Awards" consecutively for past 3 years for taking initiatives on sustainable development and solving the problem of society through its proactive research contribution to overcome the problems of the community as a whole;
- Quality Council of India also awarded Chitkara University Himachal Pradesh with 'DL Shah Quality Awards – 2018 & 2019 for two consecutive years. We are the first educational institute in India to receive this prestigious award;
- Government of Himachal Pradesh has selected Chitkara University under Chief Minister's Start-up scheme with funding of Rs 60 lakhs.

CAMPUS GREENERY

Figure 1: Layout of the campus highlighting green areas

Chitkara University has also been appreciated for adopting villages and activities taken like providing free education to children and opportunities for self-employment to adults. Apart from that, various environment oriented, cleanliness and health awareness programs are conducted by various student chapters in the adopted villages to create awareness and instill the fundamentals of environment friendly habits .

"At Chitkara University we believe in transforming the lives of students and bringing about a change in the entire academic scenario by providing them a congenial and healthy environment to flourish."

Glimpse of the clean and green campus

Figure 2: Entrance of the University

Figure 3: Arial view of the University

Figure 4: Playground – Alpha Zone

Figure 5: Green lawn in front of Square One – Food Court

Figure 6: Open air theatre (Guitar Stage)

Major green campus initiative take by Chitkara University, Himachal Pradesh are;

- Electric powered vehicle for campus ride
- Rain water harvesting
- Recycling bin for e-waste
- Use of LED
- Restricted entry of vehicles
- Restricted Parking
- Sewage treatment Plant
- Pedestrian friendly Road
- Paperless office
- Plastic free campus
- Landscaping with trees and plants

Green Campus Policy;

1. Restricted entry of vehicles

- All the vehicles of college staff/ faculty members should be getting the emission certification before entering the vehicle in college campus.
- The college encourages the employees and students to frequently use public transport, bicycles, etc. to limit the emissions.

2. Use of Bicycle/ battery powered vehicles

- College uses the Battery-powered vehicles for in- house transport.
- All electricity use within a new building space maximizes the use of renewable energy.

3. Pedestrian-friendly pathways

- Chitkara University campus follows the Pedestrian-friendly pathways in all the buildings.
- Pedestrian-friendly pathways are properly marked with suitable logo/sign.

4. Ban on use of Plastic

- The Chitkara University continuously committed to work towards plastic-free campus.
- In the University campus there is complete ban on single-use plastics in class room, labs canteens in the institution's premises and hostels.

5. Landscaping with trees and plants

- As per the green practices in the campus, it is planting more trees with in and outside the campus.
- Medicinal plants and more fruit plants and trees have been planted to clean the atmosphere

CHAPTER – 2

BATTERY POWERED VEHICLES IN THE CHITKARA UNIVERSITY CAMPUS

Battery operated vehicle service in the campus of Chitkara University was started in 2018. With this initiative, Chitkara University adopted a green culture and also promotes a greener ecosystem along with providing a pollution-free atmosphere to the residents inside the campus.

Benefits:

1. Better for the environment

Less pollution: By choosing to drive an EV we are helping to reduce harmful air pollution from exhaust emissions. An EV has zero exhaust emissions.

Renewable energy: If we use renewable energy to recharge the EV, we can reduce the greenhouse gas emissions even further. We could recharge the EV from the solar PV system during the day instead of from the grid.

Eco-friendly materials: There is also a trend towards more eco-friendly production and materials for EVs. This electric vehicle is made up of recycled materials and the padding is made out of bio based materials.

2. Health benefits

Reduced harmful exhaust emissions is good news for our health. Better air quality will lead to less health problems and costs caused by air pollution. EVs are also quieter than petrol/diesel vehicles, which means less noise pollution.

3. Safety improvements

Recent findings have shown that several EV features can improve safety. EVs tend to have a lower centre of gravity that makes them less likely to roll over. They can also have a lower risk for major fires or explosions and the body construction and durability of EVs may make them safer in a collision

Figure 7: 8-Seater electric vehicle used for commuting inside the campus

Figure 8: 6-seater electric vehicle used for commuting inside the campus

CHAPTER – 3

BAN OF PLASTIC

Ban on plastic is strictly followed in the campus. Single-use plastic items such as plastic bottles, bags, spoons, straws and cups are banned completely and awareness is created among staff and students through orientation and display
boards in the premises. To restrict the use of plastic, measures have been taken to replace plastic tea cups and glasses with plastic free glasses in the canteen. The staff and students are informed to use steel or copper water bottles instead of plastic bottles. Students and faculty take oath not to use paper covers or bags. Under Swachchh Bharat Abhiyan, students with NSS volunteers pledge to keep the campus free from polythene.

Figure 9: Ban on plastic posters displayed at various location inside the campus

Figure 10: Paper bags distributed at the nearby villages in-lieu of the plastic bags

Figure 11: Cleanliness drives in the adopted villages near the campus

Figure 12: Cleanliness drives in the Nankpur village carried out by the NSS volunteers

Plastic Ban - Say no to plastic

Plastic v/s Paper Bags

Figure 13: Paper bags in-lieu of plastic bags, drive carried out in the Kotbeja village, HP

CHAPTER – 4

RESTRICTED ENTRY OF AUTOMOBILE / VISITORS

As part of the Green Policy Initiative, the entry of automobiles inside the campus is strictly prohibited. Any student, staff or outsiders parking their vehicle inside the premises will face disciplinary action.

The objective of the restricted entry is to manage the traffic as efficiently and safely as possible within the university campus and providing guidelines to promote green initiatives of the university by encouraging the use of bicycle / baterry driven cart. The restricted entry guidelines aim to provide safety to the students and staff in the campus and to safeguard pedestrians too.

Figure 14 - Restricted entry of vehicle

General Instructions for Restricted Entry

1. No outside person shall be allowed inside the campus without any bonafide reference for general visit on campus.

2. Visitors may be allowed after confirmation from the host, if any. Proper entry is must for all such visitors along with the host details. Visitors need to sign in the register both during entry and exit.

3. Visitors shall be issued tokens for the entry inside the campus and they shall have to return it at the time of exit.

4. For all purposes, visitors are allowed only during office hours that too only for particular destination.

5. Security at the gate may check their identity of all the domestic help/workers of agencies or vendors / suppliers, engaged by the University. Their bags etc. can also be checked, if required.

6. No salesman, hawker, media person, reporter, courier person shall be allowed to enter the campus without any reference.

7. Newspaper vendors approved by the University shall be allowed only in specific periods as per instructions.

General Instructions for Traffic regulation

1.Visitors' with cars / two wheelers need to enter in the visitors' register at the main entry gate. A vehicle token shall be issued to them, which shall have to return at the gate during the exit.

2. Vehicles of the employee should be allowed to be parked inside the campus at the designated space only with a condition that it will not be used for inside campus movement .

3. The students and staff shall be encouraged to use bicycles / golf cart for commuting inside the campus

CHAPTER – 4

PEDESTRIAN FRIENDLY PATHWAYS

Vehicle parking space is provided at the main entrance of the University campus. As the campus is vehicle free with some exceptions, students and staff experience comfort walking through the pedestrian friendly pathways. The internal roads are lined with trees and lights and they are properly maintained by the campus maintenance committee. The pathways are tiled and pedestrian friendly.

Figure 15: Signage's for the use of padestrian path displayed at various location

Figure 16: User friendly padestrian path for easy access in all the buidings

CHAPTER – 5

TREE PLANTATION AND NURSERIES

The landscaping of the campus with plants and trees is designed bearing in mind that the staff and students stay connected to nature in their daily routine also. Be it the entrance, the pathways, the view from all buildings – we strive to include greenery including the colors of seasonal flowers. Plants and trees in the campus include – Jacaranda, Mango, Litchi, Amla, Bamboo, Arjun, Bahera, Maghani, Toon, Nashpati, Nimboo, Aru, Apple, plum, Kinno, Papaya, Banana, Tacoma, Gorichori, Kusum, Foxtail palm, Alstonia, Bottel Brush, Junipers Golden, Cassia Biflora, Araucaria, Begoniavenusta,

Drought tolerant plants planted in the campus are - Amaltas, Pine Tree, Phoenix Palm, Ficus Banjamina, Casuarina, Arica Palm, Bougainvillea, Desi Palm, Ashoka Pandola, Ficus Nuda, Ficus Iceland, Royal Palm, Cycas, Murraya, Lantana, Fishtail palm etc.

On all important national days, tree plantation drives are being organised. As a ritual, each guest who visit the University, plants a tree.

Figure 17 - Tree plantation by the University guests

Plants Nursery

The plants nursery in our campus is taken care by the in-house team and helps add greenery manifold. Seedlings of many plants are collected and maintained, and various plants are grafted in this nursery.

Figure 18 - Plants available in the University nursery

Figure 19 - Plants grown in the nursery used for gifting purpose

Plants grown in the Nursery:

	2016	2017	2018	2019	2020	2021
Seasonal	7000	9000	11000	13500	13000	16000
Perennial	2500	2800	3200	3000	3500	3800

GREEN WALLS

To add beauty and variety to the green area of campus, efforts are also made by using scrap material like old vehicle tyres, plastic bottles, curd containers etc.

Figure 20 - Green walls made using plastic bottles and condemn tyres

VERTICAL GARDENS

"By using vertical space more effectively, you not only make more room for greenery but shorter commutes also mean less pressure on CO2 emission problems and by freeing up time now spent on unproductive commuter trains, people would have more options in their lives." Minoru Mori

We have a total of nine vertical gardens in the campus. This is an effort to use maximum space towards as much greenery as possible. Water supply to these plants is by the dripping system.

Venue	Area	Plants
CV Raman Block	142.79 Sq Ft	567 plants
UCO Bank Wall	230 Sq Ft	984 plants
Chanakya Block (Nursing) Lift Side A	26.4 Sq Ft	96 plants
Chanakya Block (Nursing) Lift Side B	26.4 Sq Ft	96 plants
Square One	108.12 Sq Ft	468 plants
Arya Bhatta A	191.04 Sq Ft	612 plants
Arya Bhatta B	191.04 Sq Ft	612 plants
Ramanujan Block Corridor A	26 Sq Ft	72 plants
Ramanujan Block Corridor B	26 Sq Ft	72 plants

Figure 21 - Green walls present at different locations in the University

GARDENS IN CAMPUS

There are nineteen gardens in the campus, including a rose garden and a herbal garden. The plants in the herbal garden include – Hing (Asofoetida), Curry Patta (Murraya Koenigii), Kapoor (Cinnamomum Camphore), Aprajita (Clitoria Ternatea), Ashwgandha (Withania Somnifera), Lemongrass (Cymbopogan flexuosus), Harsingar or Parijat (Nyctanthes arbour tristis), Basil (Ocimum basilicum), Stevia rebaudiana, Dalchini (CinnamomumVerum), Mint **or** Pudina, Hari Elaichi (Cardamom), Patharchatta (Bryophyllum), Aloe vera, Oregano,

Figure 22 - Herbal and rose garden present at different locations in the University

Sadabahar (Catharanthus), Hibiscus Rosa, Allspice (Pimenta dioica), Karonda (Carissa carandas), Giloy (Tinospora Cardifolia) etc.

EXPENSES INCURRED FOR GREENERY

Year	2016	2017	2018	2019	2020	2021
Amount in INR	1,42,780	2,45,259	2,03,552	3,39,695	1,71,367	4,51,387

ORGANIC FARMING

Figure 23 - Vegetable being grown in the fields by organic methods

Organic farming is agriculture which is totally oriented towards a healthy system where the food generated is healthy, the soil and the plants and finally the environment, stays healthy. In this campus too we have a humble venture of organic farming in a stretch of approximately 2500 sq. ft. The produce of this farm is used in the kitchens of the hostels. The **produce** from the farm is as shown below;

Detail of Crop Produced in Kg						
Sr. No.	**Crop**	**2018**	**2019**	**2020**	**2021**	**Grand Total**
1	Beet root		8		23	31
2	Bitter Gourd				17	17
3	Bottle Gourd	26.5	21		21	68.5
4	Brinjal	22	26	21	17	86
5	Broccoli		6	51	49	106
6	Capsicum			5		5
7	Carrot		3			3
8	Cauliflower		69	8	56	133
9	Cherri Tomato				15	15
10	Chilli		2	2		4

11	Coriander	7.5		12.5	25	45
12	Cucumber	19			22	41
13	Garlic				6	6
14	German Turnip			29.5	33	62.5
15	Green Chilli	2				2
16	Ladyfinger	33.5	52	15	28	128.5
17	Methi	3	23	11	23	60
18	Mustard	15	21			36
19	Onion	58	65		72	195
20	Pea				8	8
21	Potato				60	60
22	Pumpkin	7		5	8	20
23	Radish		27	31	26	84
24	Red Cabbage		8	15	15	38
25	Sarson			11	54	65
26	Spinach	14.5	39	31	23	107.5
27	Sponge Gourd		31	14.5		45.5
28	Tomato		31	13	14	58
29	Zucchini		7			7
	Grand Total	**208**	**439**	**275.5**	**615**	**1537.5**

Expenses Incurred towards Organic farming

Year	**2018**	**2019**	**2020**	**2021**
Expenses in INR	1379	3280	5232	2430

TERRACE GARDEN

Mankind always found solutions to the concerns that arose. When the concern was of space for greenery, the attention was channelized towards the roofs and gardens got created on terraces; hence enabling best utilisation of space and while enjoying greenery. In our campus too we have a terrace garden and are in the planning for making more such gardens. This garden has been set up in an area of 783 sq ft presently has 86 earthen pots, 8 cemented pots, and 23 wall mounted pots. We plan to have more such gardens.

Figure 24 - Terrace garden being maintained at different locations at the University

Figure 25 - Sketch of tree house available in the University

TREE HOUSE

An apple played a huge role in giving the scientist Sir Isaac Newton, the theory of gravity. Yes, nature did play a huge role in the evolution of science. Our tree house - it keeps students close to nature while they have fun and spend time with their friends. That is the idea behind this fun filled creative facility. Built in an area of 270 sq ft, this is one of the rendezvous of our students!!


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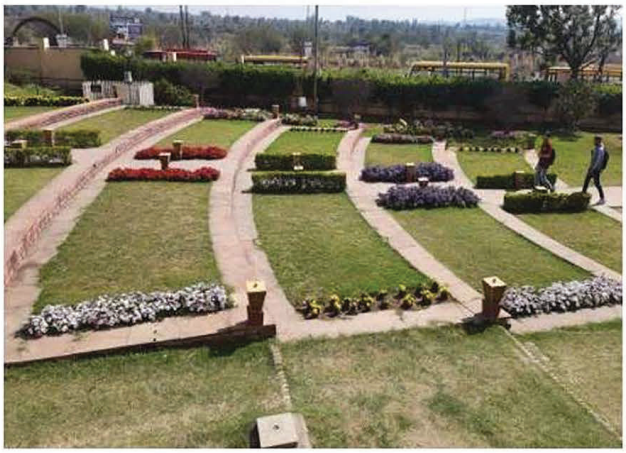

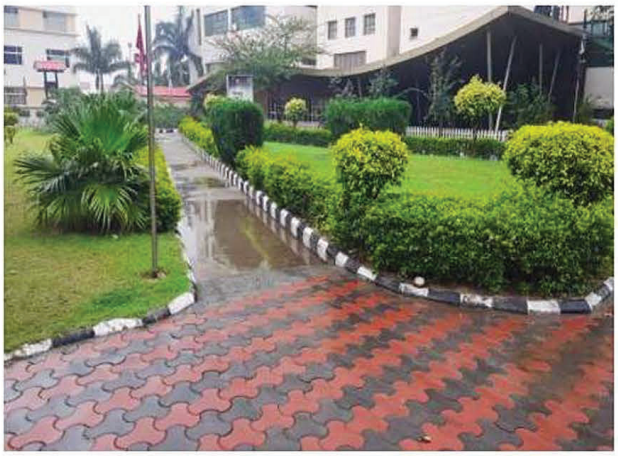

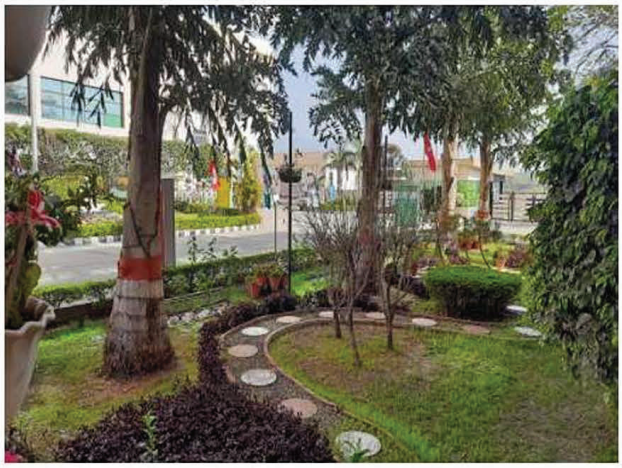

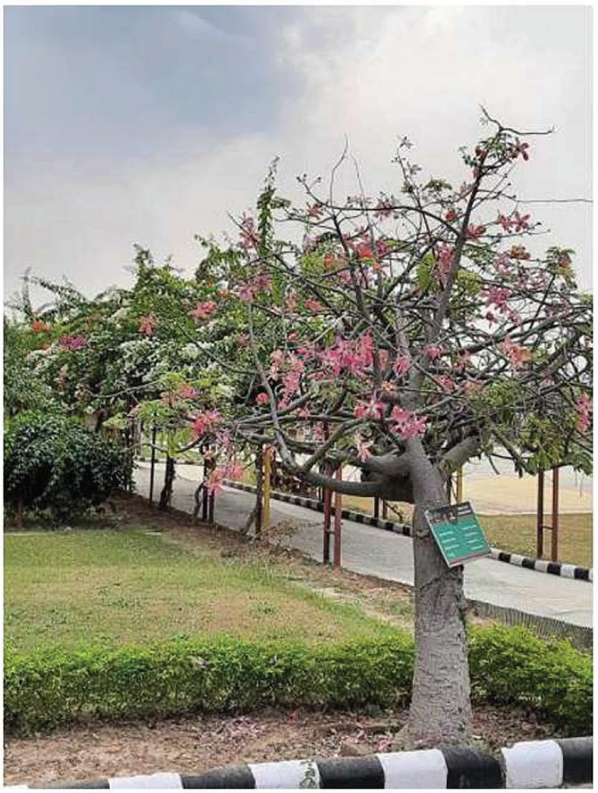

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