Date: 17-09-2019

To,

The Joint Director,
KIET Group of Institutions
Ghaziabad

Subject- Submission of Environmental, Energy and Green Audit Report of the Institute for the year 2018-19.

Sir,

The Environmental, Energy and Green Audit of the Institute had been conducted for the year 2018-19.

Kindly find attached the Environmental, Energy and Green Audit Report of the Institute for the year 2018-19 (Annexure-1) for your kind perusal and approval.

Thanking you.

Yours Sincerely

(Dr. Shailendra Kumar Tiwary)
Head
EEM Cell

Approved

Date: 15 September 2019

Environmental Audit Report

(For the Academic Year-2018-19)

1. Preface

Institutional self-inquiry is a natural and necessary outgrowth of quality of higher education. Concern about environmental degradation and realization of values of environment are logical consequences of scholarly research, teaching and learning process. In its pursuit for improving environmental quality and to maintain a pristine environment for the future generation of students. Institute has made a self-inquiry on environmental quality of the campus with the following objectives:

i. To establish a baseline of existing environmental conditions with focus on natural and physical environment.
ii. To understand the current practices of sustainability with regard to the use of water and energy, generation of wastes, purchase of goods, transportation, etc.
iii. To promote environmental awareness through participatory auditing process.
iv. To create a report that document baseline data of good practices and provide future strategies and action plans towards improving environmental quality for future.

This report is compiled by a committee constituted by KIET Group of Institutions. As there was no standard model for such an environment/green audit of campuses in the state, the committee brainstormed and evolved a questionnaire. With the help of student volunteers, the major part of the data was compiled, which the committee analyzed. The remaining part which involved measurement of quality was entrusted with the Department of Civil Engineering & Department of Electrical and Electronics Engineering, KIET Group of Institutions.

2. Audit Summary

i. **Energy Management:** The Institution has facilities for alternate sources of energy and energy conservation measures are being practiced. The institute had installed Grid connected rooftop project/ small power plant of 100 KWp (310 Wp) capacity in 2017.
ii. **Water Management:** As such, wise use of water is an established practice in Institute. Sensor based automated system has been placed for putting the water pumps and motors on and off as

per the water requirement. Regular maintenance and repair activities are carried out for prevention of water leakage. The institute has established a proper rain water harvesting system for aquifer recharge in association with a certified external agency i.e. Parle Agro. The rainwater harvesting system has been established as per the norms of local administrative authorities.

iii. **Solid Waste management:** Priority is being given to eco-friendly brands followed by those that are recyclable or made from recycled material for purchases. Waste segregation is being carried out strictly through different coloured bins kept near every department for proper segregation of waste. Institute is managing biodegradable waste through composting and vermicomposting as an effective environmental solution for integrated management of solid waste. The institute has taken the initiative to bio convert yard waste like pruned grass, leaves etc. into fertilizer.

iv. **Liquid Waste management:** The institute has set up a Sewage Treatment Plant (STP) in the campus with a capacity of 500 KLD (Kilo Litres per Day). The treated water is used for watering the gardens and lawns maintained in the campus.

v. **E-waste management:** The collected e-waste is handed over to a certified agency for the proper disposal as per norms.

vi. **Landscape/environment:** Institute maintains gardens properly and the campus is greener with fair biodiversity around. Long-term Eco restoration programs for replacing exotic Acacia plantations and land use and development planning should be undertaken.

vii. **Green Campus Initiatives:** Institute facilitates the faculty & staff members with provision of busses to bring them to the campus from a designated point to discourage use of personal vehicles. Faculty and staff members should be motivated to use car pool to commute.

3. Recommendations

i. Environmental and energy auditing should be conducted quarterly every year, under the auspices of the EEM Cell.

ii. Periodical maintenance of rainwater harvesting facilities should be continued as per the schedule.

iii. Specific waste management plans should be adopted to manage solid waste in the campus, with the assistance of State Swachh Mission and use of plastic carry bags, thermocole cups/plates and flex boards should be banned inside the Campus.

iv. For managing organic wastes, biogas plants may be commissioned at different locations, canteens, and staff quarters. The wastes generated can be used for promoting organic farming activities within the campus and the products can be used in hostels and canteens. The system for the management of hazardous wastes should be strengthened.

v. The public lights within the campus may be run with solar panels and the replacement of existing lights should be done with LED lamps.

vi. Frame long-term Eco restoration programs for replacing exotic Acacia plantations with indigenous trees and need of the hour is to frame a holistic campus development plan to foresee the future developmental needs in tune with green charter adopted by Institute.

vii. As far as practicable, all the blocks in the campus should develop a garden in surrounding of the buildings.

viii. Green habitat concept should be adopted for all the building construction activities of the campus in future, which may help a long way in reducing energy usage, increasing aesthetic appeal of the buildings and class rooms, besides reducing carbon foot print.

ix. Further, more green spaces should be established all around the campus around larger trees and shades for the benefit of the students.

x. Vehicle pooling should be promoted both among students and faculty should be promoted as a policy of Institute.

xi. Irrespective of the subjects, environmental education is a part of curriculum. Certificates may be given to students participating in environmental conservation/awareness activities.

xii. All the purchases in future should be restricted to star rating equipment so that conservation of energy can be done.

xiii. Treated waste water should be used in flushing toilets at Aryabhatt hostel as pilot projects to achieve utilization of TWW.

4. **Detailed Audit Report**

Part A: Quality of Life Support Systems

A1. Water Quality Measurement

Bore well water: water samples were collected from wells near to Library (W1), Behind Faculty Apartment (W2), Boys Hostel (W3) and from Girls Hostel (W4) of KIET Campus. The analyzed parameters included pH, Colour, Electrical Conductivity, Total Dissolved Solids, Dissolved Oxygen, Acidity, Alkalinity, Sulphate, Chlorine, Nitrate, Phosphate, Iron, Total Hardness, Calcium Hardness and Total Coliforms. All the parameters except pH and Iron were within standard desirable limits of drinking water quality (BIS IS: 10500:1991). All well water samples (W1, W2, W3, and W4) are slightly acidic in nature, and Hard water (<300 mg/lt).

Tap water: Out of the three tested tap water samples (A Block-T1, B Block-T2, D Block-T3, E Block T4, KSOP Block T5 and Girls Hostel-T6), the tap water from the T1 shows slightly acidic pH. Bacteriological quality results indicated the presence of coliform bacteria (≥ 93MPN Index /100ml) in all tested tap water samples and water is Hard at all Tap water samples

B1.2 Waste Management

Sl. No	Sources	Fruit/ Vegetable Waste /day (Kg/day)	Lawn Waste/Leaf waste(Yard waste) (Kg/day)	Total Biodegradable Waste (Kg/day)	Tetra packs/ Paper cups/ Packaging material	Plastic bottle wastes	Other waste (Packaging/ glass)	Total Non Biodegradable waste	Management of Organic Waste	Management of Other Waste
1	Amount generated from Dept.& other places	2	30	32	2.2	5.5	4.5	12.2	4R rules/Segregation/storage /Composting /Vermicomposting	3 R rules/ Waste after segregation sent to the authorized recyclers.
2	Amount generated from lawns, Hostels, Canteens and residence	41	53	94	0.75	5	4.5	10.25	4R rules/Segregation/storage /Composting /Vermicomposting	3 R rules/ Waste after segregation sent to the authorized recyclers.
3	Total/ Conclusion	43	83	126	2.95	10.5	9.0	22.45	30 tons of yard waste is converted to 66 tons of vermicompost annually through co-composting	After segregation sent to authorized dealers and recyclers.

Notes/Observations:

1. Segregation of waste is essentially required at the source of generation.
2. Maximum waste generated is biodegradable in nature and further bioprocessing is recommended.
3. Recycling of waste is required for the recyclable items.

Dr. Minakshi Karwal

Member, EEM Cell

Date: 25 August 2019

Part B: Internal Audit Report

1. Environmental Audit

B1.1 Water Management

Sl. No.	Blocks	Wise Use Of Water	Water Leakage Repairs	Use of Water Purification	Use of Water Cooler	Water Tank Cleaning
1.	A	√	√	√	√	√
2	B	√	√	√	√	√
3	C	√	√	√	x	√
4	D	√	√	√	√	√
5	E	√	x	√	√	√
6	F	√	√	√	√	x
7	KSOP	√	√	√	√	√
8	MBA	x	√	√	√	√
9	Tagore Hostel	√	√	√	√	√
10	Aryabhatt Hostel	√	√	√	√	√
11	Vivekanand Hostel	x	x	√	√	√
12	Gargi Hostel	√	√	√	√	√
13	Sarojini Hostel	√	√	√	√	√
14	Saraswati Hostel	√	√	√	√	√

Notes/Observations:

1. Periodically monitoring of any leakage need to checked.
2. Periodically cleaning need to be monitored on regular basis
3. Water Quality analysis is recommended

Dr. Minakshi Karwal

Member, EEM Cell

Date: 25 August 2019

1. Energy Audit

B2.1. Energy Management

Sl. No	Block	No of Tubes/ Bulbs	No. of A/C	No of LCD Projector	No of Photocopier	Computer + Printer	LEDs	Non-Conventional Solar	No of Fans/Exhaust
1	A	383 TL+ 18 CFL	52 Window+17split+2 central	19	5	166 desktop+28printer	252	unspecified	344 (F) + 30 (E)
2	B	204 TL+1 CFL	17 Window+4 Split	13	NA	156 desktop +5 printer	116	unspecified	216 (F) + 16 (E)
3	C	197+7 CFL	22 W+31 S	8	1	133 desktop +6 printer	80	unspecified	341 (F) + 29 (E)
4	D	92 TL	2 w	9	NA	2 desktop +2 printer	60	unspecified	104 (F) + 30 (E)
5	E	396 TL+4 CFL	47 W + 17 S	33	1	565 desktop + 23 printers	264	100KWp solar generation	580 (F) + 21 (E)
6	F	41 TL + 226 CFL	2 W	3	NA	30 desktops	11	unspecified	95 (F) + 13 (E)
7	KSOP	228 TL + 112 CFL	11 W + 20 S	10	NA	59 desktop + 9 Printers	26	unspecified	232 (F) + 44 (E)
8	MBA	39 TL + 845 CFL	37 W +19 S	7	NA	142 desktop + 8 printers	26	unspecified	172 (F) + 20 (E)
9	Tagore Hostel	201 TL + 60 CFL	100 summer coolers	NA	NA	NA	164	unspecified	181 (F) + 30 (E)
10	Aryabhatt Hostel	150 TL + 64 CFL	100 summer coolers	NA	NA	NA	76	Unspecified	177 (F) + 15 (E)
11	Vivekanand Hostel	88 TL + 64 CFL	100 summer coolers	NA	NA	NA	200	unspecified	217 (F) + 10 (E)
12	Gargi Hostel	90 TL + 75 CFL	03 Windows+ 120 summer coolers	NA	NA	NA	81	unspecified	205 (F) + 19 (E)
13	Sarojini Hostel	163 TL + 59 CFL	117 summer coolers	NA	NA	NA	57	unspecified	247 (F) + 18 (E)
14	Saraswati Hostel	160 TL+ 41 CFL	120 Summer Coolers	NA	NA	NA	74	unspecified	208 (F) + 27 (E)

Notes/Observations:

Notes/Observations:

1. Maximum consumption of energy per year due to AC which was 17% and it might be due to the large numbers of AC in A Block classes
2. Fans, tube lights, summer coolers and geysers share about equal energy per year and that is about 12-15% each
3. As far as hostels are concerned, Summer cooler loads were found to be 27% as almost all the room there is cooler and in operation during the summers. Second largest consumption was seen in heating elements which only used 120 days nearby but its wattage value is very high

Prof. Sudhir Kumar	Prof. Ashish Thombre	Dr. Sanjeev Singh
Member, EEM Cell	Member, EEM Cell	Member, EEM Cell

Date: 25 August 2019

Environmental Audit Report

(For the Academic Year-2018-19)

1. Green Audit

B3.1. Land Scape/ Environment

Sl. No	Block	Over all Green Cover	Garden (sqmt)	Overall Bio diversity	Landscape Management Plans
1	A	5920 sqmt	1200	√	√
2	B		130	√	√
3	C		400	√	√
4	D		135	√	√
5	E		--	√	√
6	F		750	√	√
7	KSOP		600	x	√
8	MBA		365	√	x
9	Tagore Hostel		--	√	√
10	Aryabhatt Hostel		750	x	√
11	Vivekanand Hostel		550	√	x
12	Gargi Hostel		280	√	√
13	Sarojini Hostel		560	√	√
14	Saraswati Hostel		200	√	√

Notes/Observations:

1. Garden area needs to be well maintained
2. Construction Area needs to be covered with Green Mat.
3. Sprinkling of water to be done on unpaved area especially in unpaved parking area

Prof. Siddharth Jain
Member, EEM Cell

Prof. Yasir Karim.
Member, EEM Cell

B3.2. Built Up Environment

Sl. No	Block	Building Type	Ground Coverage in sq.mt.	Eco friendliness	Fire Prevention Provisions	Serenity of Class Rooms	Recreation Room	Provisions for differently abled	Toilet Me Wom differe abl
1	A	5 Floors	3000	√	√	√	N.A.	√	√
2	B	3 Floors	750	√	√	√	N.A.	√	√
3	C	3 Floors	2000	√	√	√	N.A.	√	√
4	D	3 Floors	650	x	√	√	N.A.	√	√
5	E	5 Floors	850	√	√	√	N.A.	√	x
6	F	4 Floors	675	√	√	√	N.A.	√	√
7	KSOP	5 Floors	1400	√	√	√	N.A.	√	√
8	MBA	5 floors	1000	√	√	√	N.A.	√	√
9	Tagore Hostel	4 floors	1450	√	√	N.A.	√	√	√
10	Aryabhat t Hostel	6 floors	969.72	x	√	N.A,	√	√	√
11	Vivekana nd Hostel	5 floors	1134.34	√	√	N.A.	√	√	√
12	Gargi Hostel	6 floors	1408.64	√	√	N.A.	√	√	√
13	Sarojini Hostel	4 floors	2496	√	√	N.A.	√	√	√
14	Saraswati Hostel	5 floors	1280.32	√	√	N.A.	√	√	√

Notes/Observations:

1. Eco-friendlier initiative to be taken
2. Ramps to be made better for movement of differently abled people
3. Green coverage need to be improved

Prof. Siddharth Jain
Member, EEM Cell

Prof. Yasir Karim.
Member, EEM Cell

B3.3. Green Agenda

Sl. No.	Courses	Environmental Education in Syllabus	Green Research (Project/Mini Project)
1	B. Tech	√	√
2	M. Tech	No	x
3	M.B.A	No	x
4	M.C.A.	No	x
5	B. Pharm	No	x
6	M. Pharm	No	x

Notes/Observations:

1. Less weightage of Environment in syllabus
2. More Projects /Mini Projects to create more awareness

Prof. Siddharth Jain
Member, EEM Cell

Prof. Yasir Karim.
Member, EEM Cell

Date: 25 August 2019

Environmental Audit Report

(For the Academic Year-2018-19)

B3.4. Transportation

Sl. No	Block	Institute Vehicle No	Member with Vehicle	Member using Public Transportation (%)	Vehicle Pooling	Institute buses different rout
1	A	05	10 (F)	43%	√	12
2	B		12 (F) + 28 (Student)		√	
3	C		10 (F) + 47 (Student)		√	
4	D		07 (F) + 39 (Student)		√	
5	E		36 (F) + 82 (Student)		√	
6	F		02 (F) + 5 (Student)		√	
7	KSOP		06 (F) + 20 (Student)		√	
8	MBA		04 (F) + 21(Student)		√	
9	Tagore Hostel	02	N.A.	N.A.	N.A.	
10	Aryabhatt Hostel					
11	Vivekanand Hostel					
12	Gargi Hostel					
13	Sarojini Hostel					
14	Saraswati Hostel					

Notes/Observations:

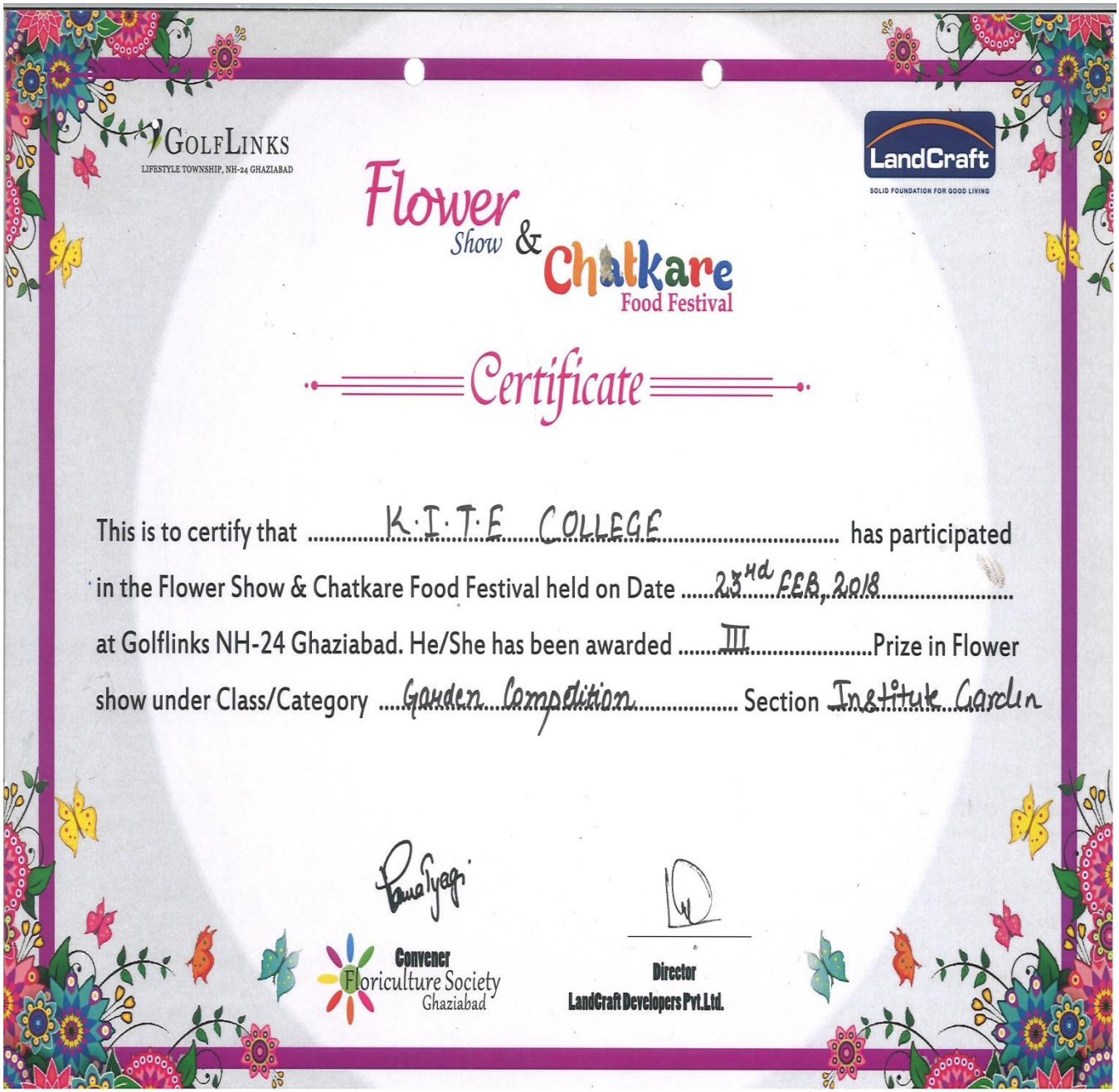
1. **Faculty, Staff and Students should be advised to use the pooled vehicles instead of individual vehicles on same route, so as to reduce the carbon footprints in the campus.**
2. **Kietians those who are residing in the within 2-3 Km, should be encouraged to use the bicycles instead of two or four-wheeler.**

Mr. Umesh Kumar Sharma
Member, EEM Cell

Appendix 1: List of Student Volunteers

Student Volunteers
Mr. Manish Kumar (Final Year)
Mr. Nirjhar Joshi (Final Year)
Ms. Neha Agarwal (Final Year)
Ms. Meegha Cheema (Final Year)
Mr. Utkarsh Singh (Third Year)
Ms. Vaishali Narula (Third Year)
Mr. Damandeep Singh (Third Year)
Mr. Akshay Saharan (Third Year)

7.1.6 - Quality audits on environment and energy regularly undertaken by the Institution



GolfLinks
LIFESTYLE TOWNSHIP, NH-24 GHAZIABAD

LandCraft
SOLID FOUNDATION FOR GOOD LIVING

Flower Show & Chatkare Food Festival

Certificate

This is to certify that K.I.T.E COLLEGE has participated in the Flower Show & Chatkare Food Festival held on Date 23rd FEB, 2018 at Golflinks NH-24 Ghaziabad. He/She has been awarded III Prize in Flower show under Class/Category Garden Competition Section Institute Garden

Convener
Floriculture Society
Ghaziabad

Director
LandCraft Developers Pvt. Ltd.

GolfLinks
LIFESTYLE TOWNSHIP, NH-24 GHAZIABAD

LandCraft
SOLID FOUNDATION FOR GOOD LIVING

Flower Show & Chatkare Food Festival

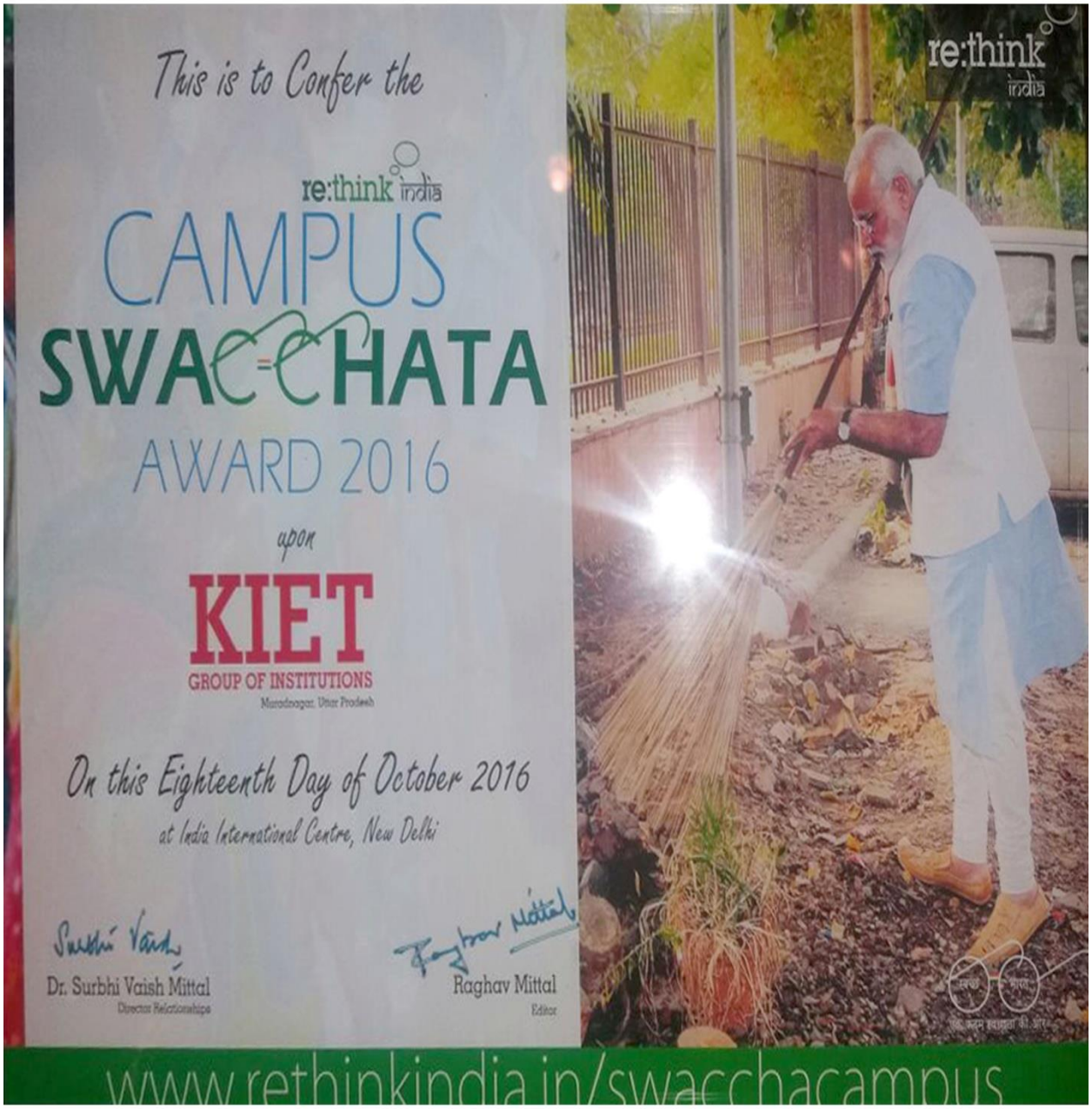
Certificate

This is to certify that .....K.I.E.T, Meerut Road, Ghaziabad (Ist)..... has participated in the Flower Show & Chatkare Food Festival held on 15th, 16th & 17th February 2019 at Golflinks NH-24, Ghaziabad.

With Best Compliments.

Convener
Horticulture Floriculture Society (Regd.)
Ghaziabad

Director
LandCraft Developers Pvt.Ltd.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SWACCHATA
AWARD 2016
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KIET
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Muradnagar, Uttar Pradesh
On this Eighteenth Day of October 2016
at India International Centre, New Delhi
Dr. Surbhi Vaish Mittal
Director Relationships
Raghav Mittal
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