Environmental Sustainability Report - 2022

Bhaskar K Mishra / Narender Malik

STRUCTURE OF THIS REPORT

The Environment Sustainability team at the University has established a range of policies and projects which tackle an array of sustainability issues. The chapters of this report provide an overview of progress in the main areas covered by the environmental sustainability team, up to Dec'2021.

Introduction

Ashoka University is a pioneer in its focus on providing a liberal education at par with the best in the world. The aim at Ashoka is to help students become well-rounded individuals who can think critically about issues from multiple perspectives, communicate effectively and become leaders with a commitment to public service. Our endeavour is to achieve academic excellence along with a focus towards environmental sustainability. We, not only focus on preparing the students for a promising social and professional future but also want to imbibe our student's faculty and staff with the moral responsibility towards a sustainable environment. We at Ashoka believe in contributing to environmental sustainability along with institutional growth.

Our Planet is changing. We need to help it change for the better. There are a lot of things that affect our planet in a bad way but the good news is that everyone can help to reduce them and do their bit for the environment.

The United Nations' 17 Sustainable Development Goals (SDGs) are our world's call to action on the most pressing challenges and opportunities facing humanity and the natural world. With their unique role in creating and sharing knowledge, universities have a direct role in addressing the challenges set out in transforming our world: the 2030 Agenda for Sustainable Development. While the government has initiated various actions towards sustainability, we at Ashoka have started our journey by measuring our carbon footprint and also undertaking sustainability goals. While the government is playing an active role in safeguarding the environment, Ashoka as an institution undertakes this as a moral responsibility to equally contribute towards sustainable environmental practices and give back to Mother Nature. We believe in Reduce, Recycle and Reuse.

Ashoka University is a pioneer in imparting liberal education, and we strive to be a pioneer in environmental sustainability as well. Hence our infrastructure, systems and processes are such that we can adapt to better practices easily.

Presented here is the Sustainability Report for the year 2022.

Sign

B. K. Mishra

Overview of 25 Acres Campus:

Ashoka University's master plan is designed keeping in mind all-natural elements and environmental aspects. Most of the academic buildings designed are eco-friendly building structures with open corridors.

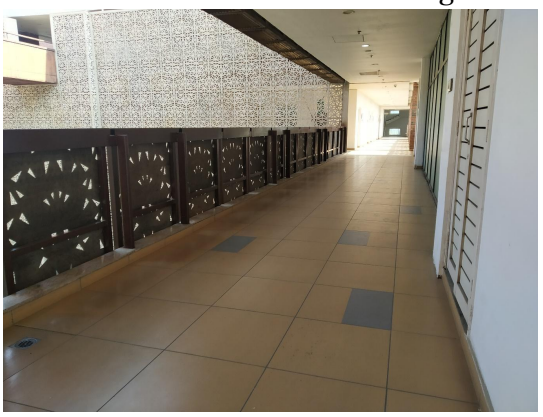
Ashoka University is a pioneer in imparting liberal arts and sciences education in India. The idea behind the inception of the University is to bring the best-in-class education to India through collaborations with other reputed institutions and this same ideology echoes in the design of the Campus. The design philosophy for Ashoka University brings in the best global practices of higher education trends and learning while building it to belong to its context.

The overall campus organizational concept is based on two concentric rings. The inner ring contains the academic buildings surrounding a central axial academic quadrangle. The buildings are low in height to ease flow between classes as well as to maintain a collegiate atmosphere. This inner ring is wrapped by an outer ring of student and faculty housing. The outer ring comprises several courtyard clusters that create smaller scaled spaces ideal for the residential environment. This organizational strategy of two concentric rings brings residential and academic life adjacent to each other rather than in distinct precincts which is conducive for moving between classes and housing. The two rings culminate in a sports yard on the west that is a hub for students' recreation with play courts and informal eateries. This facilitates the creation of a vibrant Campus where learning is part of everyone's experience both formally and informally.

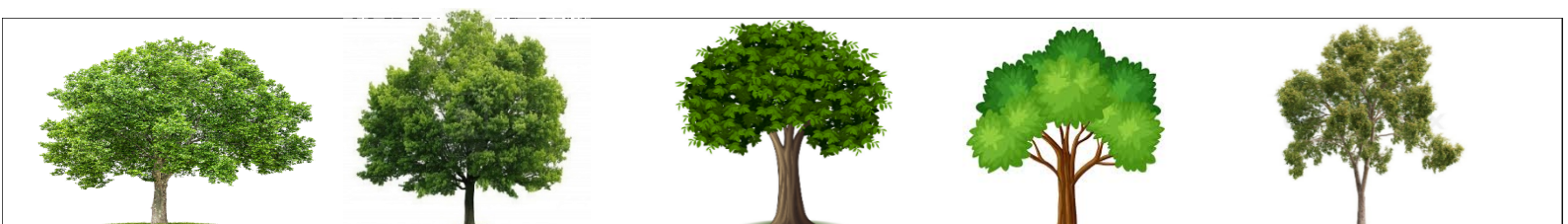
Sustainability is an integral part of design thinking with buildings incorporating outdoor corridors, natural ventilation in common areas, the use of “jaali” sunshades, and other passive features in addition to technologically advanced building systems. The building design uses a double wall construction with brick cladding and AAC blocks that reduce heat gain in the interior. Fenestrations are managed to bring in ample daylight in interior spaces. The stone jaali plays a vital role in cutting glare and providing diffused light. The design of the jaali has become synonymous with the brand of Ashoka, making the architecture a vital part of the Campus life.

The landscape of the Campus provides spaces for large events, group activities as well as quieter nooks of respite. It ties the built and un-built spaces together to create a vibrant environment that is active 24X7. The landscape has grown to make the campus a biodiversity hotspot and this can be seen with changing foliage over seasons.

Buildings designed with open corridors enable the use of natural ventilation and light



Species wise no. of tress



We have our in-house nursery on campus which is managed by our skilled team of gardeners. Currently, we grow 6000 approx. every year.

Bhaskar K Mishra / Narender Malik

Environment Policy:

Ashoka University (AU) is committed to maintaining, and wherever possible, improving the quality of its environment, both for the people who live and work in the University and for the wider community.

Scope

The Environment Policy applies at each stage of development of academics and extracurricular activities as well as services. It applies to every stage in the life cycle of the process and services i.e. a cradle-to-grave assessment. It applies to new as well as existing processes and services.

Implementation

A. In implementing the Environment Policy, AU will

- Use standards of environmental safety, which are scientifically sustainable and commonly acceptable.
- Review and continuously improve processes, performance of services and operations as measured by their environmental impact.
- Work in cooperation with members of the fraternity, government agencies, relevant environmental bodies, suppliers, transporters, caterers and service providers to promote the achievement of high standards in environmental care.
- Promote responsibly and showcase real advantages it has achieved without making false or misleading claims on environmental protection.

B. AU undertakes

- To appoint and empower a member of AU to oversee all environmental matters and to manage relevant communication both internally and externally.
- To analyse the University's environmental footprint and initiate changes necessary to improve the University's environmental performance.
- To comply with all local and national environmental laws and regulations.
- To comply with all government guidelines and codes of practice.
- To operate the best practices per the guidelines produced by AU or an appropriate body.
- To cooperate and interact with national and local authorities concerned with the protection of the environment.
- To operate the University in a manner that demonstrates awareness of the nature and extent of the impact on the environment.
- To maintain effective procedures, to prevent environmental incidents.
- To maintain procedures enabling quick response in the event of a hazardous accident, thereby minimizing environmental damage or nuisance.
- To maximize the energy efficiency of processes, thereby minimizing the emission of carbon dioxide and CDe (SOx, NOx,) and safely discharging them, monitoring COD, and BOD, to maintain the ecosystem.
- To fully assess the environmental impact of new processes completely at the design stage.

- To obtain raw materials of precise chemical composition from material suppliers to design good disposal techniques after its end-use. This procedure prevents the disposal of even trace quantities of material that may be harmful to the environment.
- To recycle waste or recover economically useful materials from waste as far as is reasonably practicable.
- To provide appropriate training for user groups, emphasizing individual responsibilities for sound environmental management.
- To carry out internal audits to demonstrate compliance with policy and local and national regulations.
- To maintain procedures for the investigations of all environmental incidents, requests and complaints and to take reasonably practicable action (wherever possible) to prevent or minimize their recurrence.
- To practice good housekeeping which is fundamental for a sound environmental management system.

C. The Policy will be implemented at the operating level. The overall responsibility for implementation and maintaining standards of the Environment Policy rests with the Safety Officer. S/He will
   - Take steps in protecting the environment through continuous improvement in the environmental impact of AU operations.
   - Meet or exceed the requirement of the legislation.
   - Increase environmental awareness by appropriate training of user groups.
   - Ensure that in the implementation of the policy, AU can call upon the expertise available from suitable specialists within or outside the University campus.

   All individuals have specific responsibility for the implementation of the policy in areas of their control. They are required to ensure that all activities are conducted in a responsible manner, which is compatible with the objectives of the AU Environment Policy.

   All individuals have a duty to observe rules and practices, which apply to the job or work area in which they are employed, and to report any faults or malpractice to their immediate supervisor. They should be aware of any action which may have an effect on environmental issues and at all times must cooperate with AU to ensure that legal requirements, the Environmental Policy and internal procedures are satisfied.

06th July, 2021

Vice President
Operations
Ashoka University

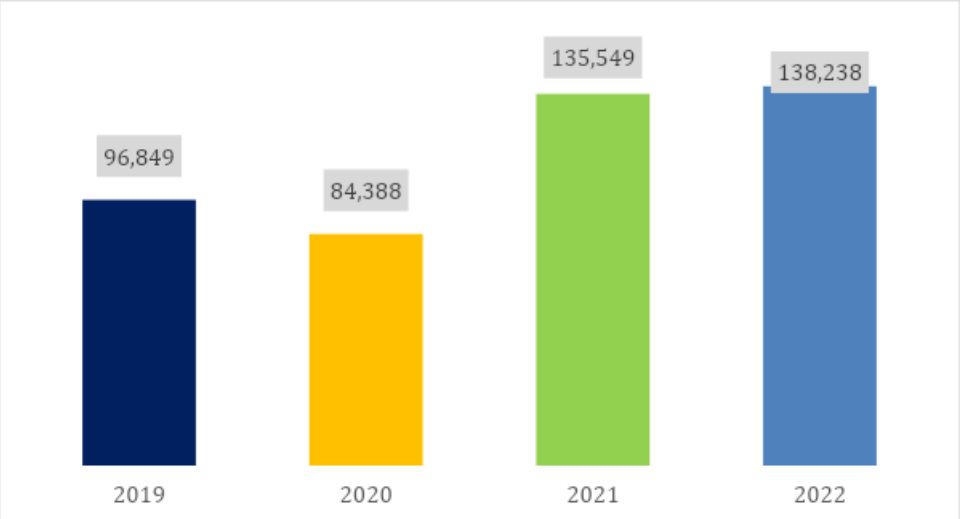
Water Management:

Water requirements on the campus are met through the HUDA water supply system. We do active monitoring of the actual consumption of water. Water meters have been installed in all buildings and we monitor the amount of water being used for other activities like irrigation, laundry etc. In India, the consumption of water is far more than the pace at which nature can replenish its resource. As a result, we are hit by the water crisis and the situation is becoming scarce day by day. Also, it has become the cause of conflict between people and even between states.

Therefore, conservation of water is the only solution for sustenance. It has become mandatory that we must value every drop of water and avoid wastage at Ashoka University. Being a sustainable campus here at Ashoka University we are putting all our effort to conserve every drop of water by adopting the policy to reduce, reuse and recycle. Therefore, we have taken the following measures and put up a robust system in place to ensure the appropriate use of water.

We have a robust irrigation system for our first phase of construction and are extending it to subsequent phases. We use treated STP water for irrigation. We also deploy adequate preventive/predictive and routine maintenance system with skilled manpower in place to implement the efficient working of the water system and ensure there is no water leakages take place.

Water Intake on campus over the years in KL (HUDA supply)

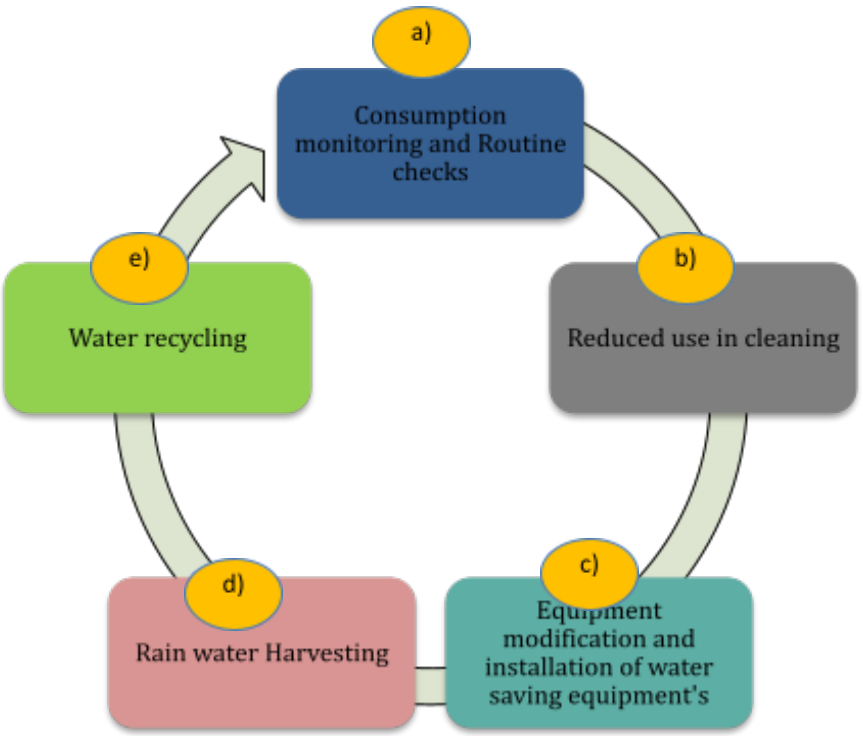


What does 1,38,238 Kilo liters (Year 2022) of water usage looks like. Translated into rainfall, one acre inch of rainfall means that 113310 litres of water through rainfall over 24 hours on one acre of land. Thus, in our case, we have 1,220 one-acre inches. As an example, Sonipat receives 579 mm of rainfall p.a., or 23.16 inches of rainfall. In other words, 52.68 acres of land would be irrigated with this water in the state of Haryana annually.

Understanding th through cropping in Sonipat, one acre would grow 1915 kg of wheat and 1345 kg of paddy per annum. This would mean, from the water being used by us, 1,00,876 kg of wheat and 70,851 kg of paddy would have been grown. Or a total of 1,68,386 kg (3,368 fifty kg bags or 19 trucks of food grains, @9 tons each) of grains could potentially been raised from 1,38,238 Kilo litres of water used at AU. The alternatives around this could also be explored such as dry cleaning, air curtains, waste water treatment and recharging or reusing. We are now evaluating installation of separate meters for drinking-cooking, separate for horticulture, flushing, cleaning and washing purpose.

Water Conservation measures:

Ashoka understands its responsibility for judicious use of water hence we have undertaken various measures for the right use of water and to reduce wastage.



a) Well calibrated water flow meter has been installed at sources and building level to measure and evaluate the water consumption for the day/month. Monitoring of daily water consumption building-wise along with monitoring of the water utilised for various other activities
b) Use of reduced water for cleaning purposes. For this reason, our housekeeping team is equipped with specialised cleaning machines which not only decrease the effort required for manual cleaning but also decrease the amount of water required for cleaning.

We also use the treated water from the sewage treatment plant to clean the solar panels as and when required.

c) i) Taps are fitted with water aerators for regulating the flow of water to reduce the required flow of water from taps to the level, which is sufficient enough as per requirement, which in turn reduces water usage. Efficient and Less water-consuming faucets/showers have been installed across all the washrooms on campus.

ii) Sensor-based urinals for the regulated flow of water

iii) Irrigation system is designed in such a way, which allows us to every single drop of water without waste. Our sprinkler water system allows uniform distribution of water with high efficiency. Loss of water is minimum

d) Rainwater harvesting:

There are 15 rainwater harvesting pits built up within Campus to recharge the groundwater. Appropriate preventive maintenance is in place to ensure these pits work efficiently with design recharging capacity. Each zone has one harvesting pit with a de-silting chamber. Through these pits, harvested water is fed into the ground, which helps in retaining the groundwater level.

e) i) STP-Ashoka has two STP plants (100KLD and 300KLD) to treat the sewage and to make it fit for safe usage. Wastewater treatment frees scarce freshwater resources for other uses or conservation. Treated water is currently being utilised for irrigating the landscape and solar panel cleaning. Further, we have planned to use STP-treated water for flushing purposes and construction activity. All the wastewater generated from buildings/mess and other sources is being collected and treated in our sewage treatment plant (STP) at desired parameters set up by the Central Pollution Control Board and is used within a campus for irrigation.

We are also in the process to utilize the treated water of STP in our toilet for flushing.

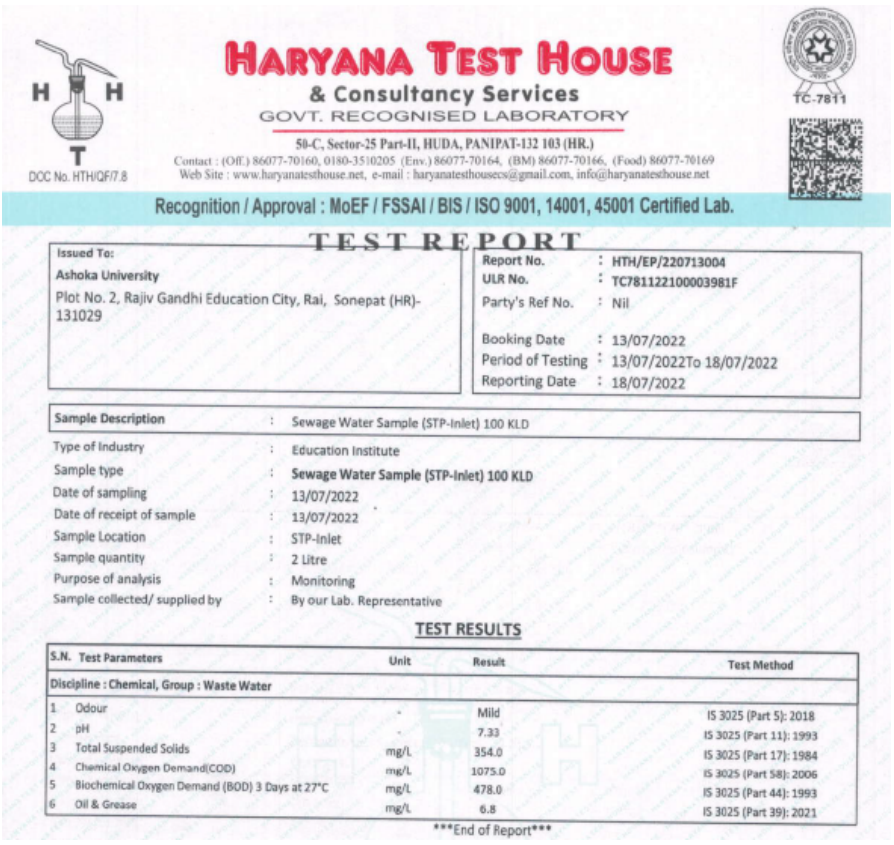
Our STP plants use the latest technology for treatment which is the MBBR system.

We also, ensure there is no pollution of water bodies by dumping any waste such as sewage, effluents, and other toxic substances and disposing of these appropriately to the authorized recycler/ vendor approved by govt.

Treated water is tested for the prescribed limits as per EP Act. 1986 for the following parameters

1	2	3	4	5
PH	Total suspended solids	Chemical Oxygen demand	Biochemical Oxygen demand, 3 days at 27-degree C	Oil & Grease

Test report for the Sewage water sample- before treatment



HARYANA TEST HOUSE
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DOC No. HTH/QF/7.8
TC-7811
Recognition / Approval : MoEF / FSSAI / BIS / ISO 9001, 14001, 45001 Certified Lab.

TEST REPORT

Issued To:
Ashoka University
Plot No. 2, Rajiv Gandhi Education City, Rai, Sonepat (HR)-131029

Report No. : HTH/EP/220713004
ULR No. : TC781122100003981F
Party's Ref No. : Nil
Booking Date : 13/07/2022
Period of Testing : 13/07/2022To 18/07/2022
Reporting Date : 18/07/2022

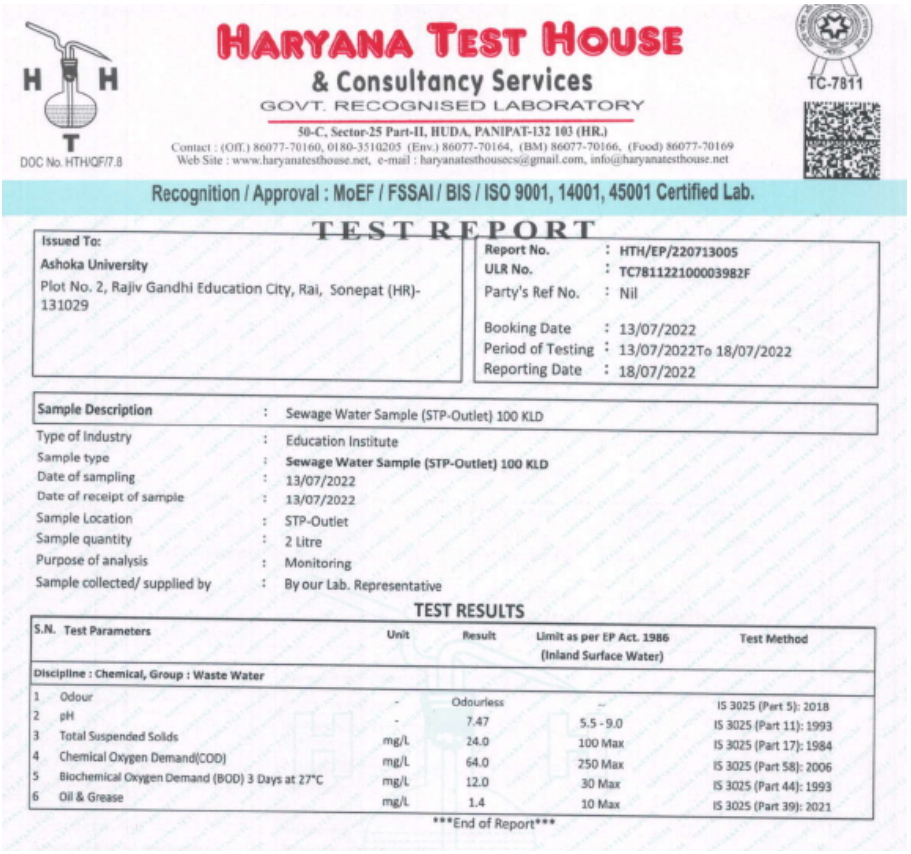
Sample Description : Sewage Water Sample (STP-Inlet) 100 KLD
Type of Industry : Education Institute
Sample type : Sewage Water Sample (STP-Inlet) 100 KLD
Date of sampling : 13/07/2022
Date of receipt of sample : 13/07/2022
Sample Location : STP-Inlet
Sample quantity : 2 Litre
Purpose of analysis : Monitoring
Sample collected/ supplied by : By our Lab. Representative

TEST RESULTS

S.N.	Test Parameters	Unit	Result	Test Method
Discipline : Chemical, Group : Waste Water				
1	Odour	-	Mild	IS 3025 (Part 5): 2018
2	pH	-	7.33	IS 3025 (Part 11): 1993
3	Total Suspended Solids	mg/L	354.0	IS 3025 (Part 17): 1984
4	Chemical Oxygen Demand(COD)	mg/L	1075.0	IS 3025 (Part 58): 2006
5	Biochemical Oxygen Demand (BOD) 3 Days at 27°C	mg/L	478.0	IS 3025 (Part 44): 1993
6	Oil & Grease	mg/L	6.8	IS 3025 (Part 39): 2021

End of Report

Test report for the Sewage water sample -after treatment (100KLD)



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TEST REPORT

Issued To:
Ashoka University
Plot No. 2, Rajiv Gandhi Education City, Rai, Sonepat (HR)-131029

Report No. : HTH/EP/220713005
ULR No. : TC781122100003982F
Party's Ref No. : Nil
Booking Date : 13/07/2022
Period of Testing : 13/07/2022To 18/07/2022
Reporting Date : 18/07/2022

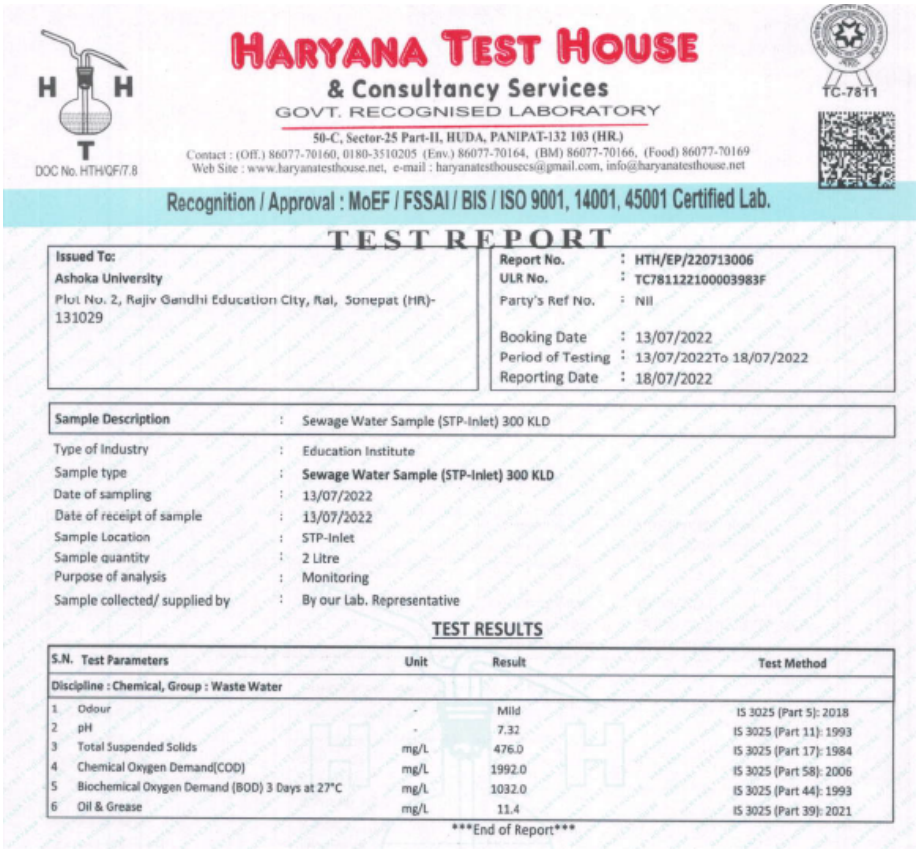
Sample Description : Sewage Water Sample (STP-Outlet) 100 KLD
Type of Industry : Education Institute
Sample type : Sewage Water Sample (STP-Outlet) 100 KLD
Date of sampling : 13/07/2022
Date of receipt of sample : 13/07/2022
Sample Location : STP-Outlet
Sample quantity : 2 Litre
Purpose of analysis : Monitoring
Sample collected/ supplied by : By our Lab. Representative

TEST RESULTS

S.N.	Test Parameters	Unit	Result	Limit as per EP Act. 1986 (Inland Surface Water)	Test Method
Discipline : Chemical, Group : Waste Water					
1	Odour	-	Odourless	--	IS 3025 (Part 5): 2018
2	pH	-	7.47	5.5 - 9.0	IS 3025 (Part 11): 1993
3	Total Suspended Solids	mg/L	24.0	100 Max	IS 3025 (Part 17): 1984
4	Chemical Oxygen Demand(COD)	mg/L	64.0	250 Max	IS 3025 (Part 58): 2006
5	Biochemical Oxygen Demand (BOD) 3 Days at 27°C	mg/L	12.0	30 Max	IS 3025 (Part 44): 1993
6	Oil & Grease	mg/L	1.4	10 Max	IS 3025 (Part 39): 2021

End of Report

Test report for the Sewage water sample- before treatment (300KLD)



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DOC No. HTH/QF/7.8

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TEST REPORT

Issued To:	**Report No.** : **HTH/EP/220713006**
Ashoka University	**ULR No.** : **TC781122100003983F**
Plot No. 2, Rajiv Gandhi Education City, Rai, Sonepat (HR)-131029	Party's Ref No. : Nil
	Booking Date : 13/07/2022
	Period of Testing : 13/07/2022To 18/07/2022
	Reporting Date : 18/07/2022

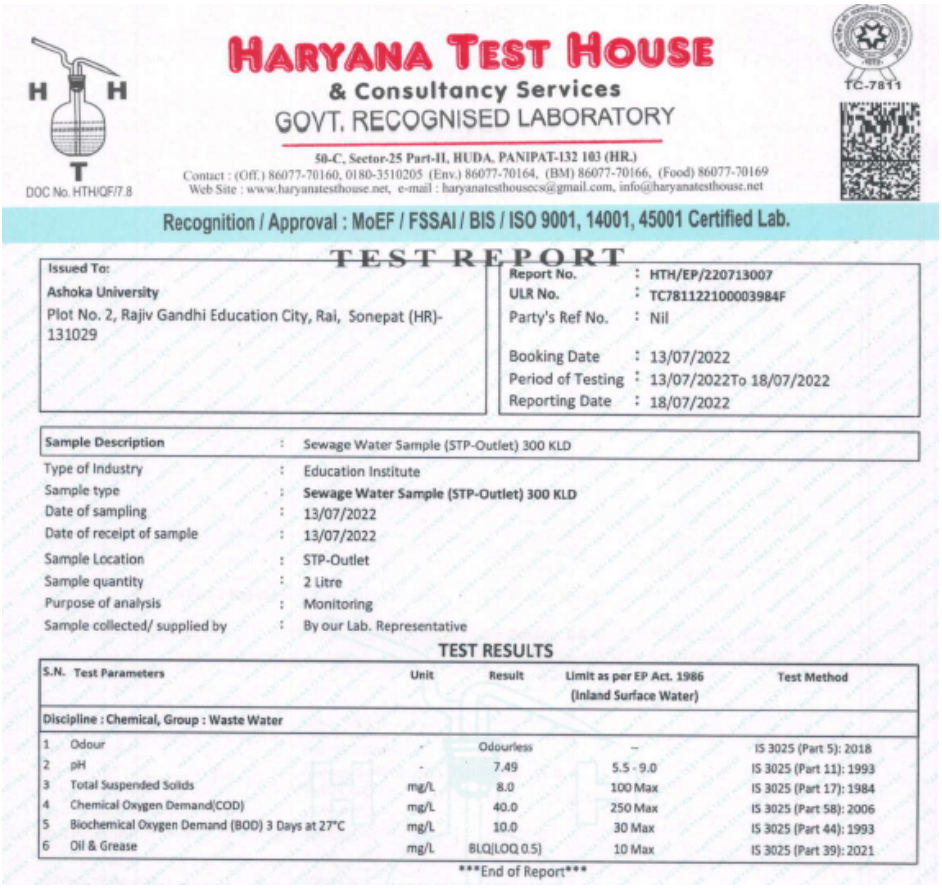
Sample Description	:	Sewage Water Sample (STP-Inlet) 300 KLD
Type of Industry	:	Education Institute
Sample type	:	**Sewage Water Sample (STP-Inlet) 300 KLD**
Date of sampling	:	13/07/2022
Date of receipt of sample	:	13/07/2022
Sample Location	:	STP-Inlet
Sample quantity	:	2 Litre
Purpose of analysis	:	Monitoring
Sample collected/ supplied by	:	By our Lab. Representative

TEST RESULTS

S.N.	Test Parameters	Unit	Result	Test Method
Discipline : Chemical, Group : Waste Water				
1	Odour	-	Mild	IS 3025 (Part 5): 2018
2	pH	-	7.32	IS 3025 (Part 11): 1993
3	Total Suspended Solids	mg/L	476.0	IS 3025 (Part 17): 1984
4	Chemical Oxygen Demand(COD)	mg/L	1992.0	IS 3025 (Part 58): 2006
5	Biochemical Oxygen Demand (BOD) 3 Days at 27°C	mg/L	1032.0	IS 3025 (Part 44): 1993
6	Oil & Grease	mg/L	11.4	IS 3025 (Part 39): 2021

End of Report

Test report for the Sewage water sample- After treatment (300KLD)



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Issued To:
Ashoka University
Plot No. 2, Rajiv Gandhi Education City, Rai, Sonepat (HR)-131029

Report No. : HTH/EP/220713007
ULR No. : TC781122100003984F
Party's Ref No. : Nil
Booking Date : 13/07/2022
Period of Testing : 13/07/2022To 18/07/2022
Reporting Date : 18/07/2022

Sample Description	:	Sewage Water Sample (STP-Outlet) 300 KLD
Type of Industry	:	Education Institute
Sample type	:	Sewage Water Sample (STP-Outlet) 300 KLD
Date of sampling	:	13/07/2022
Date of receipt of sample	:	13/07/2022
Sample Location	:	STP-Outlet
Sample quantity	:	2 Litre
Purpose of analysis	:	Monitoring
Sample collected/ supplied by	:	By our Lab. Representative

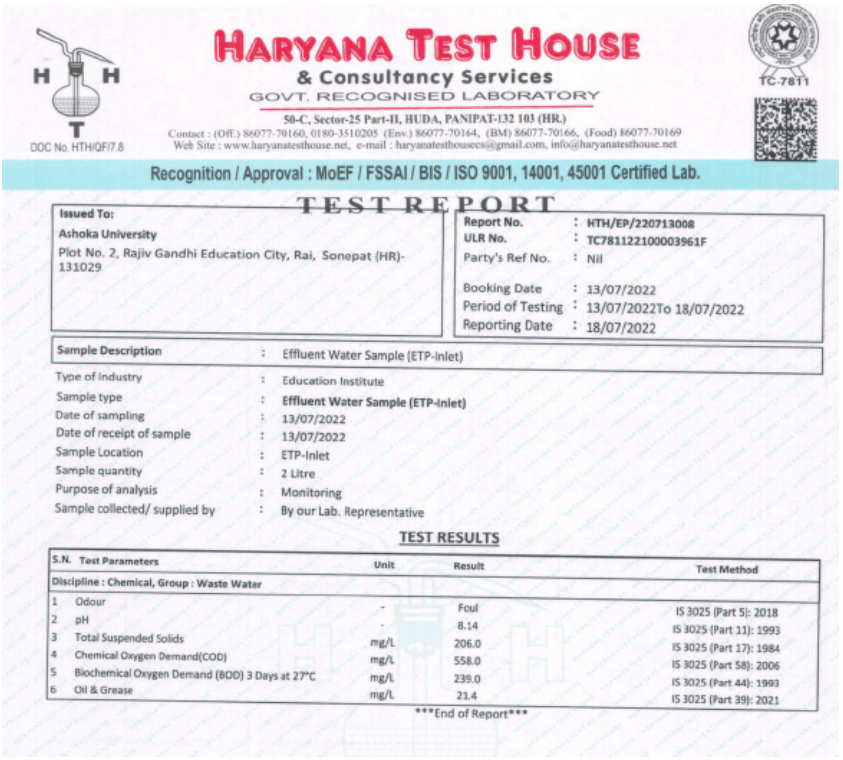
TEST RESULTS

S.N.	Test Parameters	Unit	Result	Limit as per EP Act. 1986 (Inland Surface Water)	Test Method
Discipline : Chemical, Group : Waste Water					
1	Odour	-	Odourless	--	IS 3025 (Part 5): 2018
2	pH	-	7.49	5.5 - 9.0	IS 3025 (Part 11): 1993
3	Total Suspended Solids	mg/L	8.0	100 Max	IS 3025 (Part 17): 1984
4	Chemical Oxygen Demand(COD)	mg/L	40.0	250 Max	IS 3025 (Part 58): 2006
5	Biochemical Oxygen Demand (BOD) 3 Days at 27°C	mg/L	10.0	30 Max	IS 3025 (Part 44): 1993
6	Oil & Grease	mg/L	BLQ(LOQ 0.5)	10 Max	IS 3025 (Part 39): 2021

End of Report

ii) ETP: Two ETP plants each with a capacity of 5KLD have been installed to treat the discharged water from the laundry. ETP-treated water is then fed into the STP where it is further utilised as mentioned earlier, for landscaping, solar panel washing etc.

Test report for the ETP water sample- before treatment



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Report No. : HTH/EP/220713008
ULR No. : TC781122100003961F
Party's Ref No. : Nil
Booking Date : 13/07/2022
Period of Testing : 13/07/2022To 18/07/2022
Reporting Date : 18/07/2022

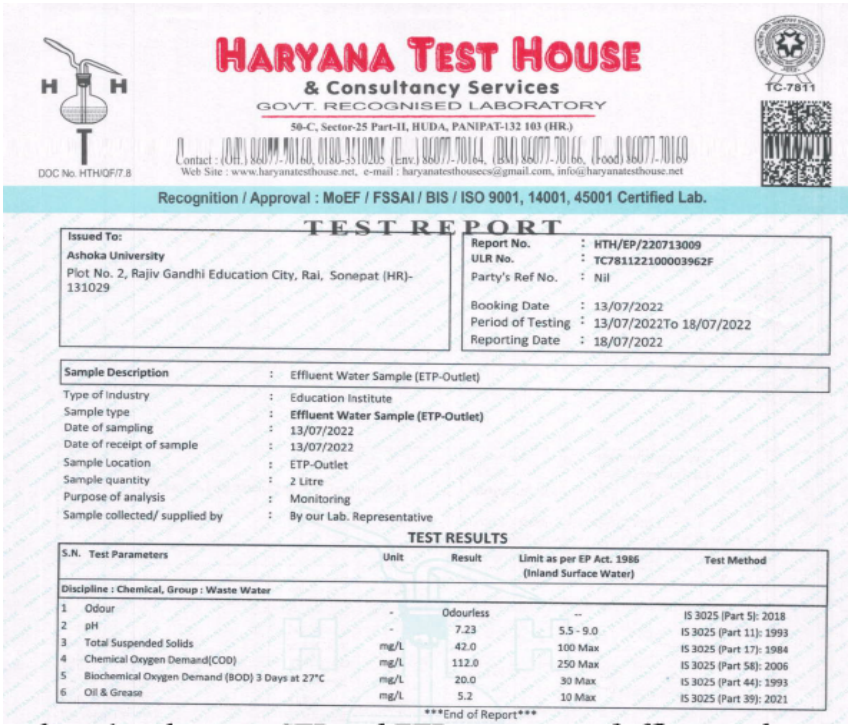
Sample Description : Effluent Water Sample (ETP-Inlet)
Type of Industry : Education Institute
Sample type : Effluent Water Sample (ETP-Inlet)
Date of sampling : 13/07/2022
Date of receipt of sample : 13/07/2022
Sample Location : ETP-Inlet
Sample quantity : 2 Litre
Purpose of analysis : Monitoring
Sample collected/ supplied by : By our Lab. Representative

TEST RESULTS

S.N.	Test Parameters	Unit	Result	Test Method
Discipline : Chemical, Group : Waste Water				
1	Odour	-	Foul	IS 3025 (Part 5): 2018
2	pH	-	8.14	IS 3025 (Part 11): 1993
3	Total Suspended Solids	mg/L	206.0	IS 3025 (Part 17): 1984
4	Chemical Oxygen Demand(COD)	mg/L	558.0	IS 3025 (Part 58): 2006
5	Biochemical Oxygen Demand (BOD) 3 Days at 27°C	mg/L	239.0	IS 3025 (Part 44): 1993
6	Oil & Grease	mg/L	21.4	IS 3025 (Part 39): 2021

End of Report

Test report for the ETP water sample- After treatment



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Issued To:
Ashoka University
Plot No. 2, Rajiv Gandhi Education City, Rai, Sonepat (HR)-131029

Report No. : HTH/EP/220713009
ULR No. : TC781122100003962F
Party's Ref No. : Nil
Booking Date : 13/07/2022
Period of Testing : 13/07/2022To 18/07/2022
Reporting Date : 18/07/2022

Sample Description : Effluent Water Sample (ETP-Outlet)
Type of Industry : Education Institute
Sample type : Effluent Water Sample (ETP-Outlet)
Date of sampling : 13/07/2022
Date of receipt of sample : 13/07/2022
Sample Location : ETP-Outlet
Sample quantity : 2 Litre
Purpose of analysis : Monitoring
Sample collected/ supplied by : By our Lab. Representative

TEST RESULTS

S.N.	Test Parameters	Unit	Result	Limit as per EP Act. 1986 (Inland Surface Water)	Test Method
Discipline : Chemical, Group : Waste Water					
1	Odour	-	Odourless	--	IS 3025 (Part 5): 2018
2	pH	-	7.23	5.5 - 9.0	IS 3025 (Part 11): 1993
3	Total Suspended Solids	mg/L	42.0	100 Max	IS 3025 (Part 17): 1984
4	Chemical Oxygen Demand(COD)	mg/L	112.0	250 Max	IS 3025 (Part 58): 2006
5	Biochemical Oxygen Demand (BOD) 3 Days at 27°C	mg/L	20.0	30 Max	IS 3025 (Part 44): 1993
6	Oil & Grease	mg/L	5.2	10 Max	IS 3025 (Part 39): 2021

End of Report

It may be worth noting that post STP and ETP treatment of effluents, the output is well within all prescribed norms and thus fit for use for the activities it is being used for.

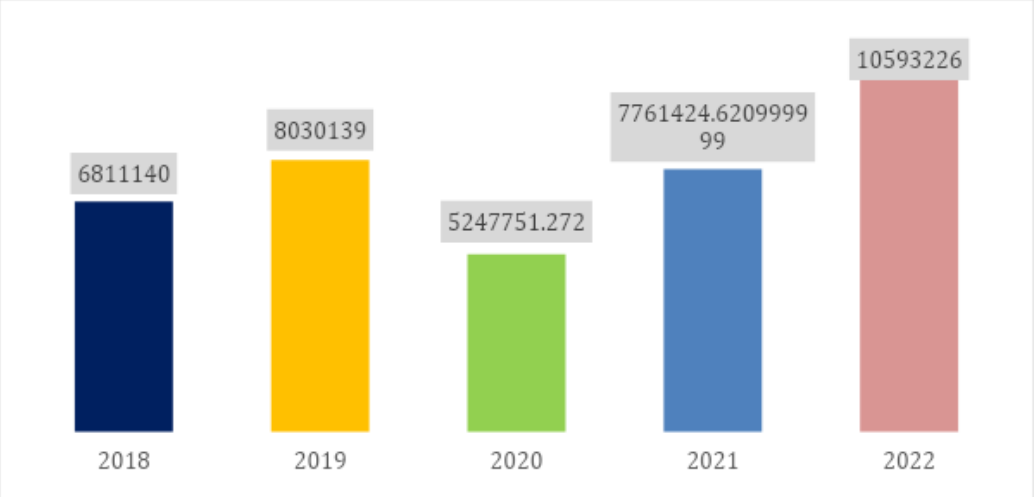
Energy Management:

Ashoka University understands that the educational and research development requires significant dependence on natural resources including water and energy. To grow in a more sustainable and responsible manner, AU is committed toward decreasing dependence on the conventional source of energy and increasing the share of renewable energy in the energy mix, every year. While we lay emphasis on adopting greener sources of energy,

adopted greener transportation alternatives to our Campus such as the use of metro by large number of daily commuters and CNG shuttle service. To lay a stronger emphasis on reducing emissions, we encourage our employees to carpool and use the metro and we have also implemented last-mile connectivity with the Shuttle service.

Energy saved is energy produced. Therefore, substantial energy savings can be achieved through energy conservation measures. Energy savings can be considered as an additional source of energy. This will also help in the reduction of environmental pollution. Energy conservation would also result in the good health of humans. Furthermore, the pollution released due to energy sources is harmful to the human body. Air pollution due to fossil fuels can cause various health issues i.e. asthma, cancer, heart attack, heart diseases, neurological disorders etc. Energy sources can pollute water which could cause several harmful diseases in humans. Hence, here at Ashoka, we are trying to decrease our dependency on conventional sources and move to renewable sources like solar. We have utilised all available surfaces inclusive of rooftops and car parks to harvest solar energy. We have aggressively explored offsite solar farms but due to change in government norms, review and final G.O. is awaited.

Total energy consumption (KWH)



Energy Sources at Ashoka

EB Distribution:

At Ashoka University the electric power is supplied from Uttar Haryana Bijli Vitran Nigam (UHBVN). The supplied voltage is 11KV. These high voltages are stepped down to a low voltage using step-down transformers. The sanctioned load is 3MW. Ashoka University also maintains the power factor at 0.99 on each EB bill to reduce the power and energy losses in power lines and transformers. This is closely monitored. Power factor tracking for the year 2021

KWH (000)	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	YTD
Grid Power	741	503	0	1,586	670	684	763	749	883	740	602	562	8,485
DG Power	17	19	18	158	141	132	102	84	304	77	38	19	1,109
M/s. Cleantech Solar Power	15	25	36	38	39	38	30	35	29	25	21	20	351
M/s. M+Solar Power	28	45	67	68	71	72	63	64	53	49	37	32	648
Total	**801**	**592**	**121**	**1,850**	**921**	**926**	**958**	**932**	**1,269**	**891**	**699**	**633**	10,593

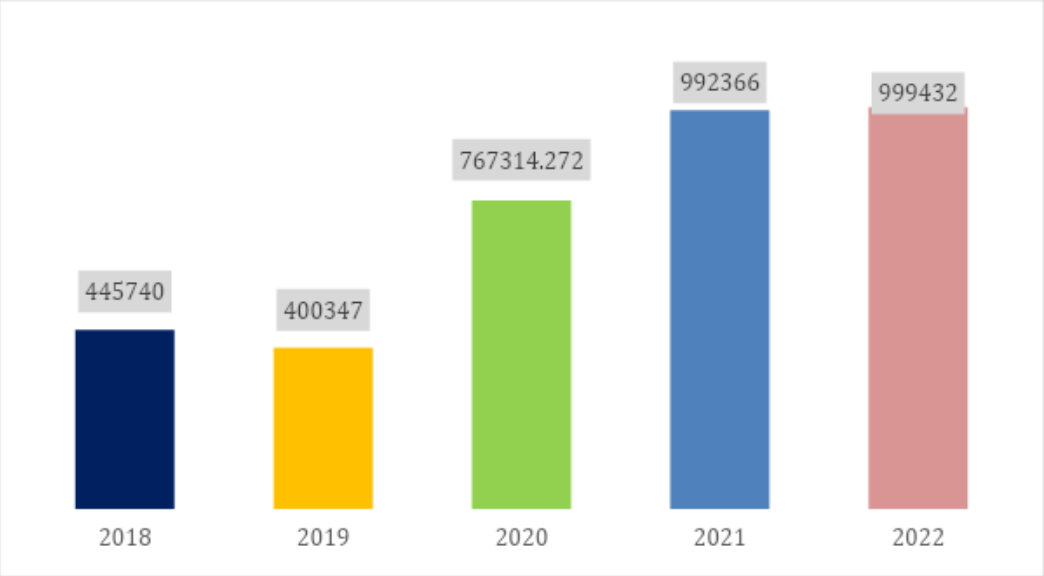
Grid Power - KVAH (000)	741	503	0	1,588	671	678	764	750	884	741	603	563	8,486
P/F	1.00	0.99	1.00	0.99	0.99	1.00	0.99	09.9	0.99	0.99	0.99	0.99	0.99

In Ashoka, we have a completely separate building for the electric power distribution system called the Service block. The power distribution starts from the transformer, and we have 3nos of 1500kva transformers which step downs the high voltage to 440 volts. In the LT section, we have four sections that supply power to the different areas and buildings of the Campus. This LT panel has the dedicated ACBs for all three transformers which provides all the necessary safety and protection to handle the fluctuating voltage.

Solar energy:

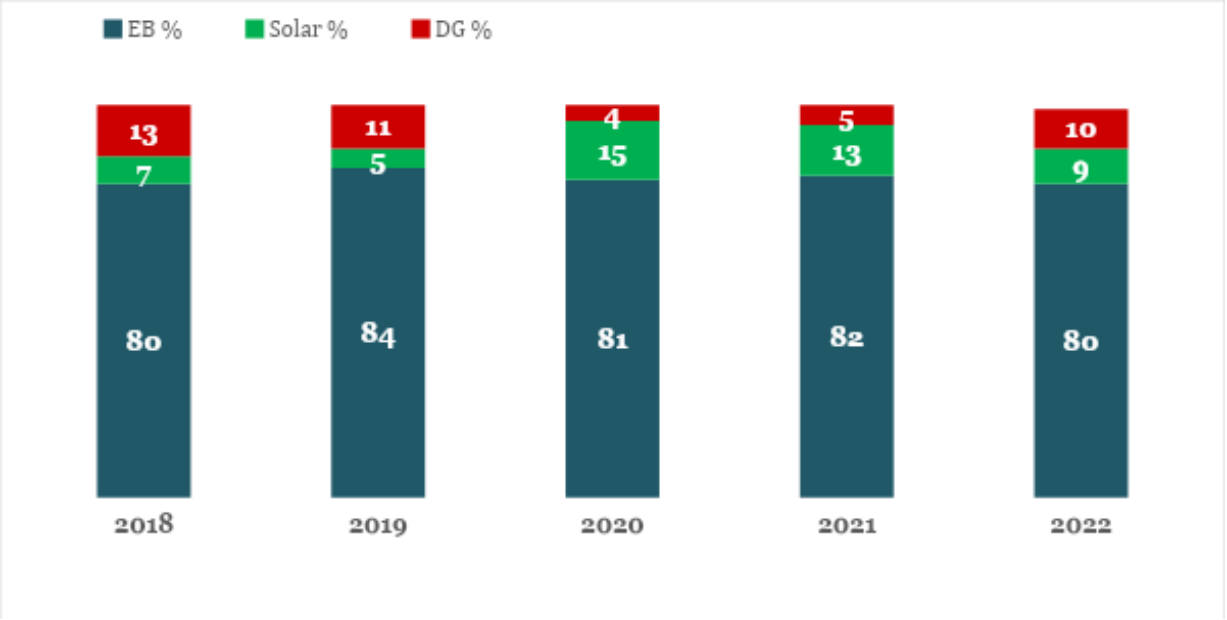
As we keep expanding Y-o-Y, our energy requirements are also growing. At Ashoka, we are trying to reduce our dependency on conventional sources and move towards renewable sources like solar. At present, we have installed 893 KW of solar power as a rooftop and carport through which we can generate approx. 13% power requirement of total campus.

Solar energy generation over the years (KWH)



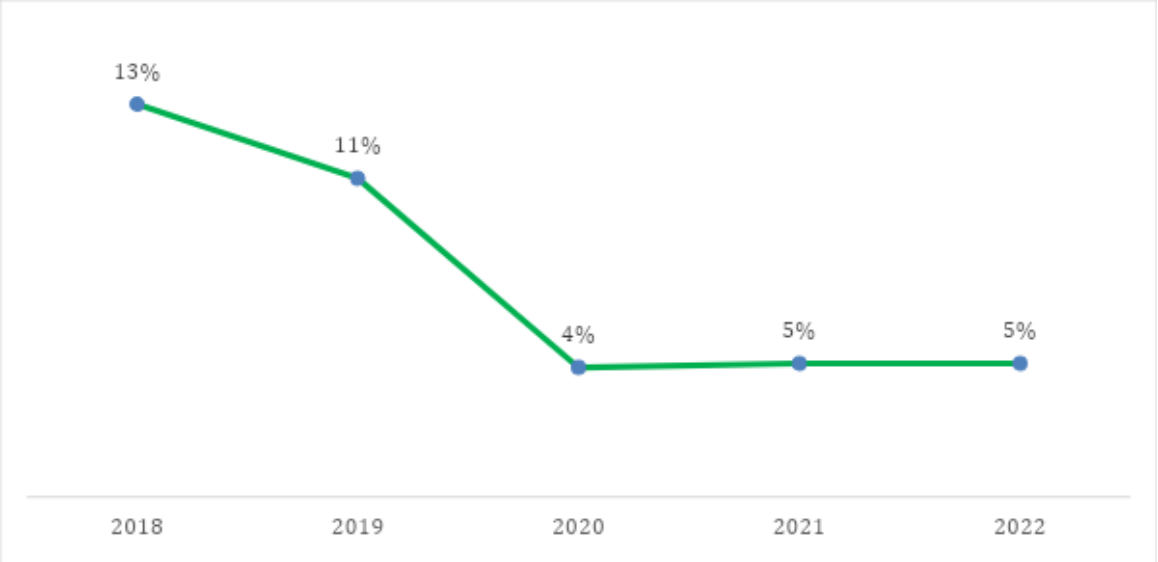
DG Sets:

DG Sets provide 100% power in the event of a blackout or power outage from the State Electricity Board. We have total of 5 DG sets (750Kva x 4 No.s and 500Kva x 1 No.). We ensure adherence to all pollution control board norms while operating the DG sets. All DG sets are tested for Carbon emissions at fixed periodic intervals as prescribed by the pollution control board.



Note: Electricity units for EB are based on the monthly electricity board invoice

Share of electricity through DG sets

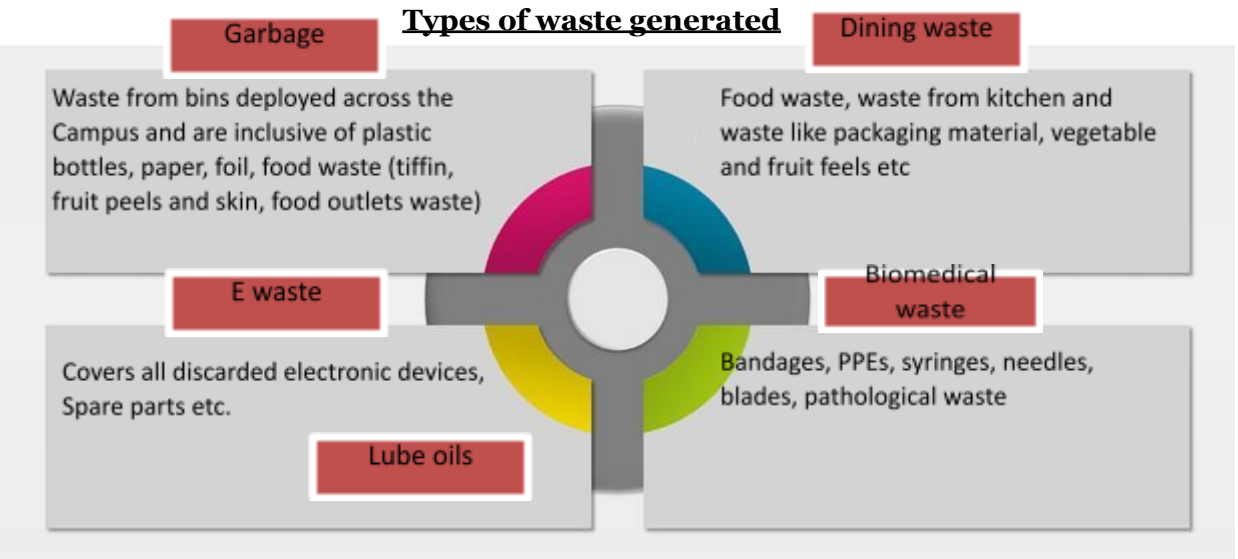


Over the years the share of energy from DG sets has reduced considerably. With the addition of more solar capacity y-o-y, we have been able to generate more green energy and reduce the dependency on fossil fuels. Decreased use of DG sets means less consumption of fossil fuels and thus lesser carbon emissions. Further, at Ashoka, we are taking the following measures to conserve energy:

- ☐ The use of energy is consistently being monitored building-wise to analyse energy efficiency.
- ☐ Our all-campus, buildings are designed in a very energy-efficient manner and employed with energy-efficient and high-performance equipment and plant with regular maintenance to optimise the performance of equipment.
- ☐ Our air conditioning system is being controlled centrally and an optimum temperature setting of 26±1 is maintained across the campus air-conditioning spaces to optimise energy usage.

Waste Management:

Waste management at Ashoka includes the activities and actions taken to manage the waste from its inception till its disposal including various involved steps like collection, transport, Sorting and treatment.



Waste management (mixed waste)

Colour-coded bins have been placed at various locations on the entire campus. These bins are coded as black (inorganic/dry) and green (organic/wet/recyclable). This allows waste segregation at the first level. Entire waste is collected separately, and further segregation is done.

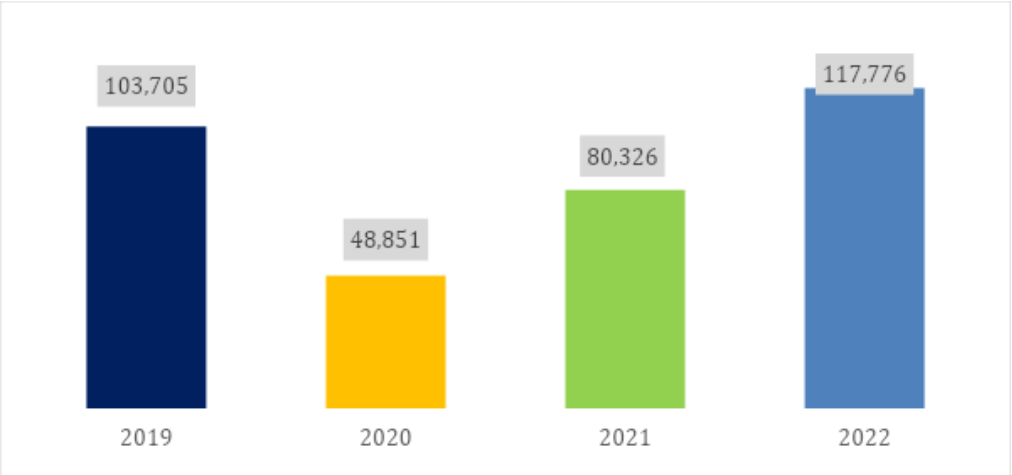
Bin categories and design

At Ashoka, we currently have a two-bin system (organic and inorganic) in all open spaces. Waste disposal is done based on the category of waste.

- **Organic (biodegradable):** the first iteration included food waste, garden waste, unlined paper plates, toothpicks and paper napkins used while eating. All this waste is directed to the composter, to make the compost richer and of better quality.
- **Inorganic (plastic (recyclable), metal, tetra pack and glass):** This category includes recyclable plastics such as beverage and cosmetics containers, cutlery and stationery. In addition, empty bottles used to take up valuable space in the "recyclable" dustbin, causing it to overflow. The contents of this bin are collected by Ashoka's contracted waste collector and further processed.

Smaller bins are placed in all workstations and offices. These are labelled “paper” and are mostly meant for paper waste collection as this is the most common type of waste generation in workspaces. These bins are emptied, and the content is stored till a bulk amount is achieved and then disposed to our empanelled paper recycler.

Waste generated over the years

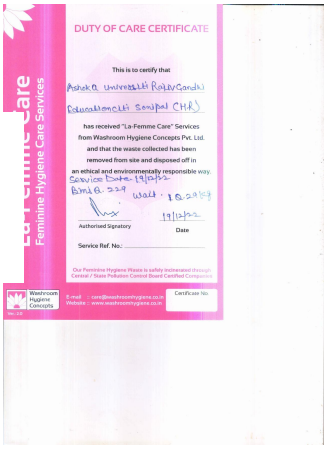


*The waste details include waste bins waste deployed across the Campus and are inclusive of plastic bottles, paper, foil, food waste (tiffin, fruit peels and skin, food outlets waste)

**This does not include newsprint, A3, A4 printing paper & cafeteria waste of any sort which is captured separately

Female health unit (FHU): Female washrooms have been facilitated in every block with FHU for the disposal of sanitary pads and these units are serviced twice a month.

Certificate issued by the service provider for disposing off the collected waste in a an ethical and environmentally responsible way



E-waste management:

E-waste consists of all electronic and electrical devices which have been discarded and will not be in use. While most of the modern electronic equipments are safe, a few of them contain some form of toxic elements, including lithium, lead, and mercury which can

potentially be a serious threat to the environment and environmental constituents like soil, water, air, and wildlife.

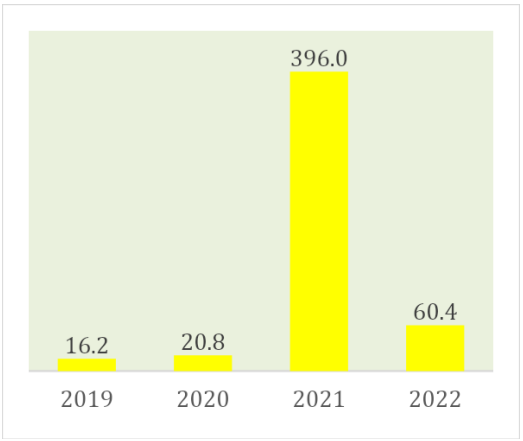
We know that new devices will keep coming into the system at the same time it is important to keep reinforcing the message that we need to recycle the older devices and not throw them out. There are serious environmental risks if we send our electronic devices and gadgets to a landfill. On the other hand, recycling provides considerable benefits to our environment. At Ashoka, we have an experienced firm that has years of experience in performing environmentally friendly recycling of electronic products.

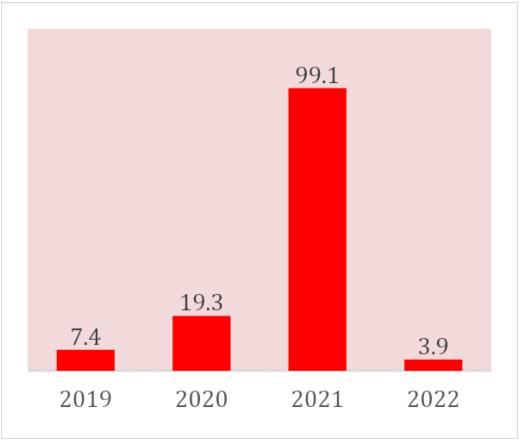
Biomedical Waste Management:

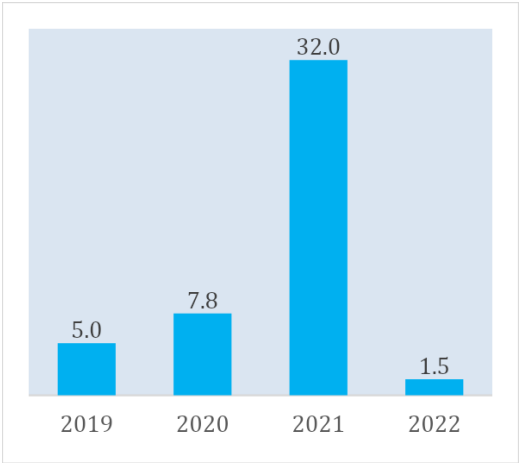
Biomedical waste gets generated at the infirmary and the IQC. At Ashoka, Biomedical waste is collected and disposed of in a specialised manner. Separate colour-coded bins have been placed for collecting the specific type of waste for which the colour is earmarked.

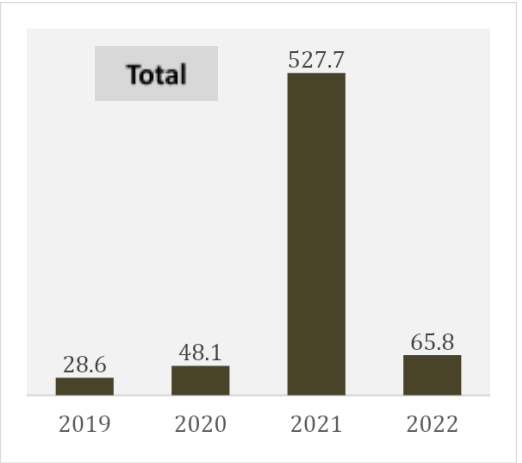
Yellow: Pathological waste, used cotton, dressing material, beddings, body fluid, PPE etc
Red: syringe without a needle, I.V. Set, catheters, gloves, Urine bag, plastic waste etc
Blue: glass and metal
White: Sharp waste, Needles, scalpels, blades etc

Biomedical waste generated (Kg)









Summary-Biomedical waste (Kg)					
Year	Yellow	Red	Blue	White	Total
2019	16.2	7.4	5.0	0.0	28.6
2020	20.8	19.3	7.8	0.2	48.1
2021	399.8	103.1	33.3	1.6	664.0
2022	60.4	3.9	1.5	0.0	65.8
Grand Total	497.2	133.6	47.6	1.8	806.5

At Ashoka, we have a govt. authorised firm which manages the biomedical waste disposal

Lube Oil:

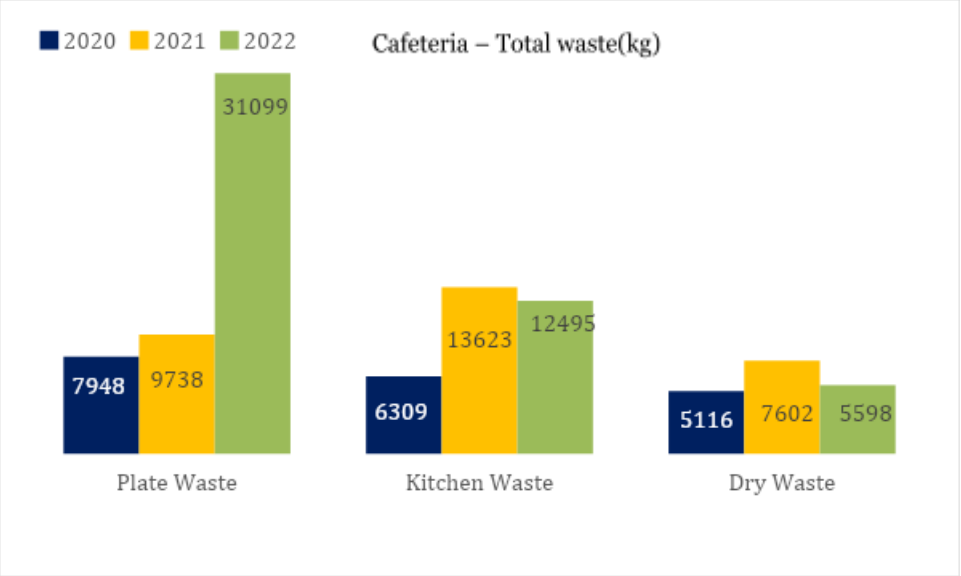
Lube oil is considered as hazardous waste hence it is handled in a specialised way by an experienced government-approved agency.

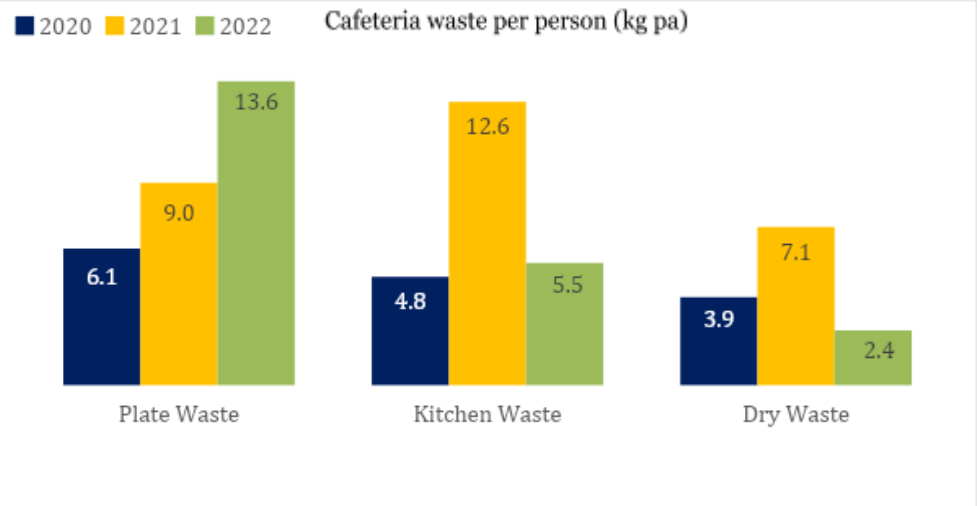
Waste lube oil generated over the years			
2019	2020	2021	2022
1120	180	875	1080

Cafeteria waste:

Waste generated from the cafeteria is categorised into three categories plate waste, kitchen waste and dry waste.

Plate waste: Food scraped off into waste collection bins from plates.
Kitchen waste: Unserved cooked food and Food wastes such as vegetable peels, wheat sieving, pulses cleaning, etc.
Dry waste: Packing material of food, such as cardboard boxes, plastic sleeves, plastic containers, tins etc.

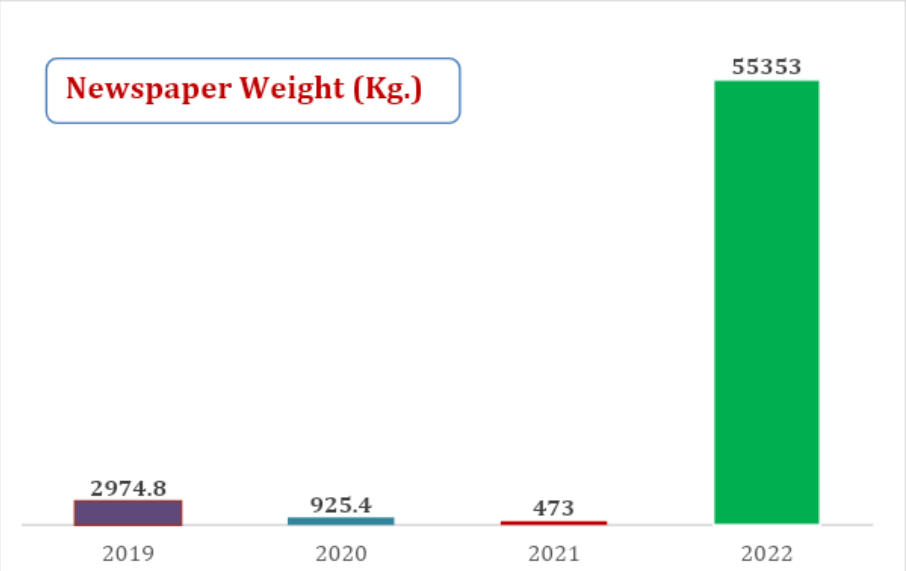




	Qty (Kg)				Per person (kg)			
	Plate Waste	Kitchen Waste	Dry Waste	Total	Plate Waste	Kitchen Waste	Dry Waste	Total
2020	7948	6309	5116	19373	6.10	4.85	3.93	14.88
2021	9738	13623	7602	30963	9.04	12.65	7.06	28.74
2022	31099	12495	5598	49191	13.6	5.5	2.4	21.5

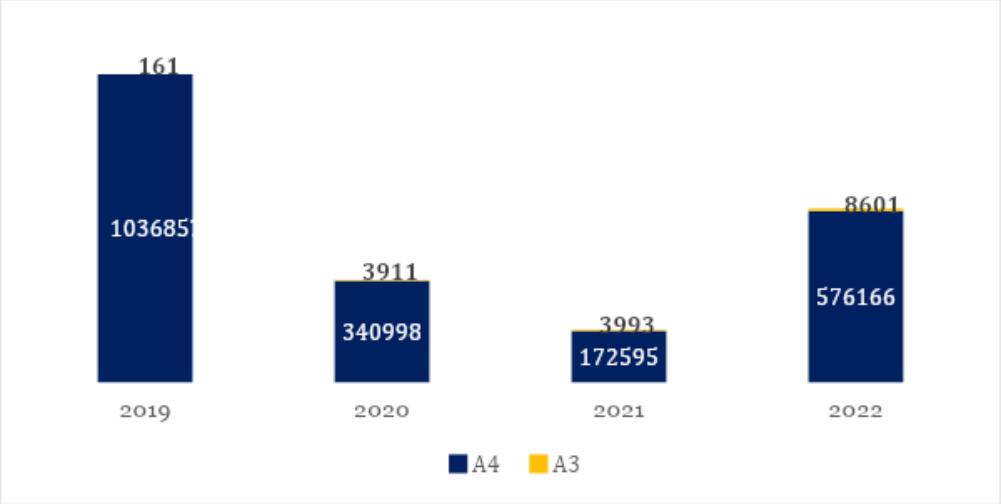
Paper Usage:

Newspaper (Kg)



In the year 2022, Ashoka University used 55,353 kg of newsprint p.a. or 46,12.75 kg p.m. (easily reducible through e-paper/magazines and this can be a first in AU).

Printing sheets



Trees cut for paper (based on the number of printing sheets used)

Sheet Type	GSM	No. of sheets /tree	Count of Sheets used				No. of trees cut			
			2019	2020	2021	2022	2019	2020	2021	2022
A4	70	1,21,444	10,36,857	3,40,998	1,72,595	5,76,166	9	3	1	5
A3	75	60,722	161	3,911	3,993	8,601	0	0	0	0
Total			10,37,018	3,44,909	1,76,588	5,84,767	9	3	1	5

Paper calculation source: WWW.Paperonweb.com/A1011.htm

Responsible construction practice

As a university, we need to ensure that our construction practice is responsibly handled across the site. This includes complying with safety standards as well as minimizing our impact on the immediate environment. Construction sites tend to add more air pollutants to the air. We ensure that all our construction sites take measures to reduce pollution. These measures have helped us maintain the air quality within the permissible limits.

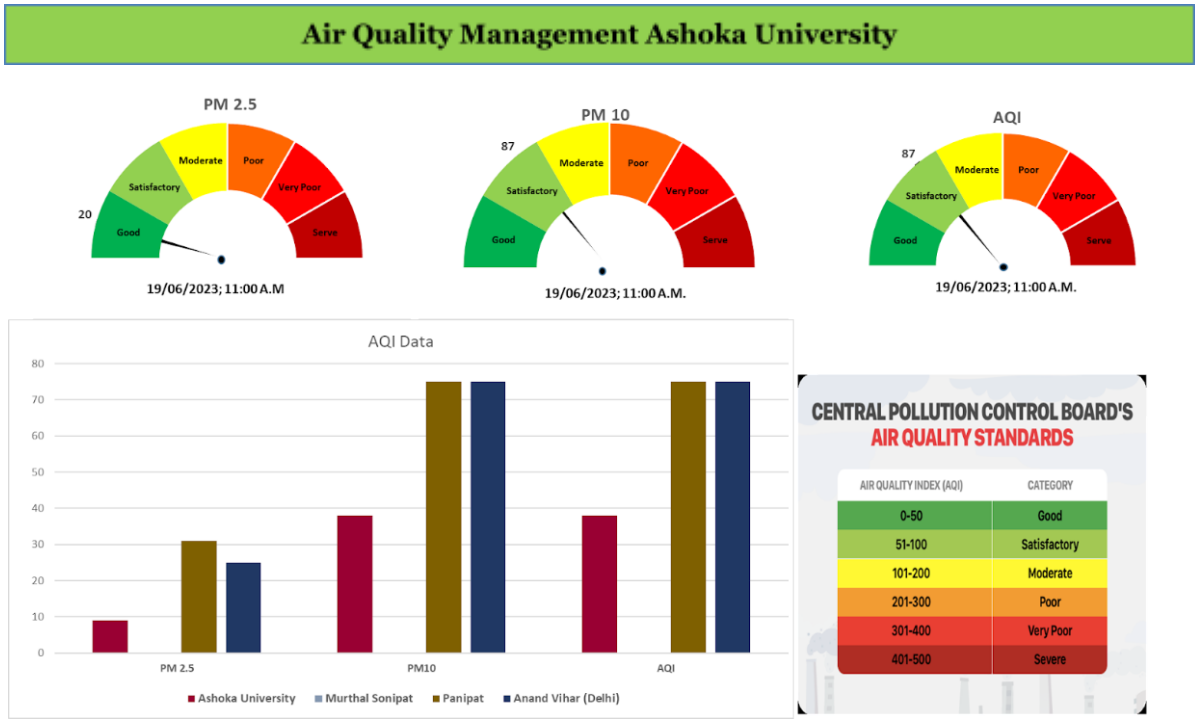
- Water spraying has been adopted in areas where construction work was being undertaken to reduce the impact of air pollution.
- Anti-smoke guns have been adopted across the construction site to reduce dust particles or reduce the impact of air pollution.
- Water is regularly sprinkled on transportation corridors within the site to avoid air pollution due to vehicles.

- The entire site has been barricaded with a minimum of three -meter site barricading, and geotextile fencing has been used as and when required to suppress dust particles.

- The vehicles taking construction waste materials outside the site have been covered with fabric to minimize dust caused due to vehicular movement.
- All DG sets chimneys have been placed at a height and orientation, such that the smoke will not cause harm to any flora and fauna and construction workforce working on the site.
- The speed limit for construction vehicles is restricted to a maximum of 10 KMPH within the construction boundary.
- All the loose construction materials are covered to prevent air pollution.

AQI Monitoring

We have been measuring PM 2.5, PM 10 and AQI (air quality index) daily for our university. We have been comparing the same with our nearby locations, namely Murthal, Panipat and Delhi (Anand Vihar). The values of the nearby places are taken from CPCB (Central Pollution Control Board) site while our data is from our recorder installed within our Campus. The data is updated daily and monitored closely, especially as the air quality deteriorates seasonally for various reasons.



Further, we ensure that the right systems, Machinery and Processes are in place which helps us in meeting the PCB norms and allows us to play our role in mitigating air pollution.

CARBON FOOTPRINT

Ashoka University started capturing its energy consumption and CDe generation from Jan'19 onwards, wherein it was more from understanding consumption. The data presented below has certain assumptions, which are as follows: -

- *In the DG efficiency assumption, the % has been changed from 44 to 80 as the DG sets being used at Ashoka University have between 80 to 85 % efficiency.*
- *Air travel has not been segregated into international and domestic components as the current calculations have very limited international travel or class of travel as business / first class will have much higher CDe value than economy class.*
- *GHG protocol has been used for calculations vis-à-vis PAS2050 or IS14064*

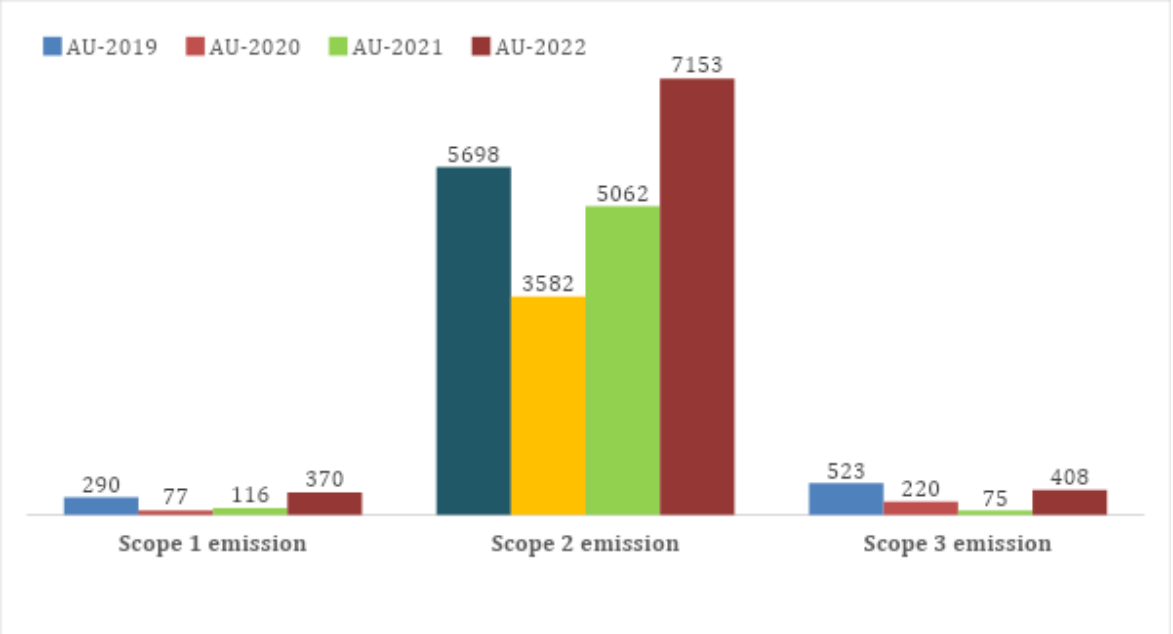
Carbon footprint, as per standards has been captured in the three scopes, (which are as per GHG protocol) and are as under: -

CARBON FOOTPRINT

Year	Number of people	Scope 1 emission	Scope 2 emission	Scope 3 emission	Total tCO_2	tCO_2 /person
AU-2019	2738*	290.4	5697.8	522.8	6511.0	2.38
AU-2020	1652*	77.1	3534.0	219.8	3830.9	2.32
AU-2021	2038*	116.7	5113.5	55.1	5285.3	2.59
AU-2022	3792*	369.7	7152.7	407.8	7930.3	2.09

**Average strength on Campus*

Note: The 2021 population is lower than 2019 but all hostel buildings were used to accommodate the students strength, unlike 2020 where the population was distributed over two hostels. The State power supply has been good due to pandemic thus the DG consumption was significantly lower. This led to higher consumption of fixed electricity for HVAC resulting in higher CDe per person, although the scope 2 emission is lower than 2019.



2019

	Scope 1	Scope 2	Scope 3		
	DG power generation	Grid Electricity consumption	Employee travel by road- Distance travelled	Employee travel by railways- passenger kilometres	Employee travel by airways- passenger kilometres
Month	kWh	kWh	km	km	Km
Jan-19	40320	668370	72995	-	146330
Feb-19	23861	517770	87880	-	157437
Mar-19	26247	309990	90939	-	439478
Apr-19	70424	544470	89640	-	300637
May-19	105818	518010	76506	-	374552
Jun-19	69082	547800	57161	-	387619
Jul-19	125765	784350	80059	-	116530
Aug-19	130295	799710	94358	-	192013
Sep-19	88698	785790	92540	-	373852
Oct-19	92132	475950	85877	-	266268
Nov-19	31909	440250	95085	-	329284
Dec-19	66241	366540	77832	-	298021
Total	**870792**	**6759000**	**1000872**	**-**	**3382021**

Carbon Emissions				
	Scope 1 Emissions	Scope 2 Emissions	Scope 3 emissions	Total
Month	tCO2	tCO2	tCO2	

Jan-19	13.44	563.44	30.47	607.35
Feb-19	7.96	436.48	35.26	479.69
Mar-19	8.75	261.32	57.59	327.66
Apr-19	23.48	458.99	46.65	529.12
May-19	35.29	436.68	48.82	520.78
Jun-19	23.04	461.80	44.70	529.53
Jul-19	41.94	661.21	30.07	733.21
Aug-19	43.45	674.16	39.61	757.21
Sep-19	29.58	662.42	53.00	745.00
Oct-19	30.72	401.23	43.03	474.98
Nov-19	10.64	371.13	50.28	432.05
Dec-19	22.09	308.99	43.33	374.41
	290.37	5697.84	522.79	6510.99

Construction staff	175
Total no. of Faculty and staff	347
Total No. of Students	1807
Support Staff	409
Total strength	**2738**
tCO2/Person	**2.38**

2020

	Scope 1	Scope 2	Scope 3		
	DG power generation	**Grid Electricity consumption**	**Employee travel by road-Distance travelled**	**Employee travel by railways-passenger kilometers**	**Employee travel by airways-passenger kilometers**
Month	kWh	kWh	km	km	km
Jan-20	58370	768540	85389	-	536882
Feb-20	9960	655320	107182	-	340837
Mar-20	19911	194490	55204	-	849534
Apr-20	9351	219630	0	-	37082
May-20	14929	403110	475	-	0
Jun-20	15094	225000	2121	-	25707
Jul-20	31341	247500	7303	-	34696
Aug-20	30698	378240	8379	-	4344
Sep-20	11721	286704	3952	-	0
Oct-20	12955	241920	4400	-	19399
Nov-20	4178	262110	6666	-	18238
Dec-20	12795	309660	8932	-	8137
Total	**231303**	**4192224**	**290003**	**-**	**1874856**

Carbon Emissions

	Scope 1 Emissions	Scope 2 Emissions	Scope 3 emissions	Total
Month	tCO2	tCO2	tCO2	
Jan-20	19.46	647.88	63.55	730.90
Feb-20	3.32	552.43	54.36	610.11
Mar-20	6.64	163.96	79.43	250.03
Apr-20	3.12	185.15	2.83	191.10
May-20	4.98	339.82	0.13	344.93
Jun-20	5.03	189.68	2.52	197.23
Jul-20	10.45	208.64	4.58	223.67
Aug-20	10.24	318.86	2.55	331.64
Sep-20	3.91	241.69	1.05	246.64
Oct-20	4.32	203.94	2.64	210.90
Nov-20	1.39	220.96	3.15	225.51
Dec-20	4.27	261.04	2.98	268.29
	77.13	3534.04	219.77	3830.95

Construction staff	350
Total no. of Faculty and staff	112
Total No. of Students	849
Support Staff	341
Total Strength	**1652**
tCO2/Person	**2.32**

2021

	Scope 1	Scope 2	Scope 3		
	DG power generation	Grid Electricity consumption	Employee travel by road-Distance traveled	Employee travel by railways-passenger kilometres	Employee travel by airways-passenger kilometers
Month	kWh	kWh	km	km	km
Jan-21	26065	555870	10586	-	18475
Feb-21	6869	297600	8933	-	15672
Mar-21	9975	341400	11081	-	39192
Apr-21	15255	540840	4629	-	10067
May-21	29814	397260	3882	-	12118
Jun-21	33120	569544	8554	-	34557
Jul-21	53541	525546	11628	-	7723
Aug-21	30659	651960	13706	-	30928
Sep-21	66752	770070	12938	-	29989
Oct-21	36473	496230	8726	-	42457
Nov-21	14553	439050	11536	-	21060
Dec-21	26818	480450	10836	-	54328
Total	**349894**	**6065820**	**117035**	**-**	**316568**

Carbon Emissions				
	Scope 1 Emissions	Scope 2 Emissions	Scope 3 emissions	Total
Month	tCO2	tCO2	tCO2	
Jan-21	8.69	468.60	4.21	481.50
Feb-21	2.29	250.88	3.56	256.73
Mar-21	3.33	287.80	5.92	297.05
Apr-21	5.09	455.93	1.99	463.01
May-21	9.94	334.89	1.95	346.78
Jun-21	11.04	480.13	4.90	496.07
Jul-21	17.85	443.04	3.66	464.55
Aug-21	10.22	549.60	5.98	565.81
Sep-21	22.26	649.17	5.71	677.14
Oct-21	12.16	418.32	5.55	436.03
Nov-21	4.85	370.12	4.66	379.63
Dec-21	8.94	405.02	7.01	420.97
	116.67	5113.49	55.11	5285.27

Construction staff	485
Total no. of Faculty and staff	70
Total No. of Students	966
Support Staff	517
Total Strength	**2038**
tCO2/Person	**2.59**

2022

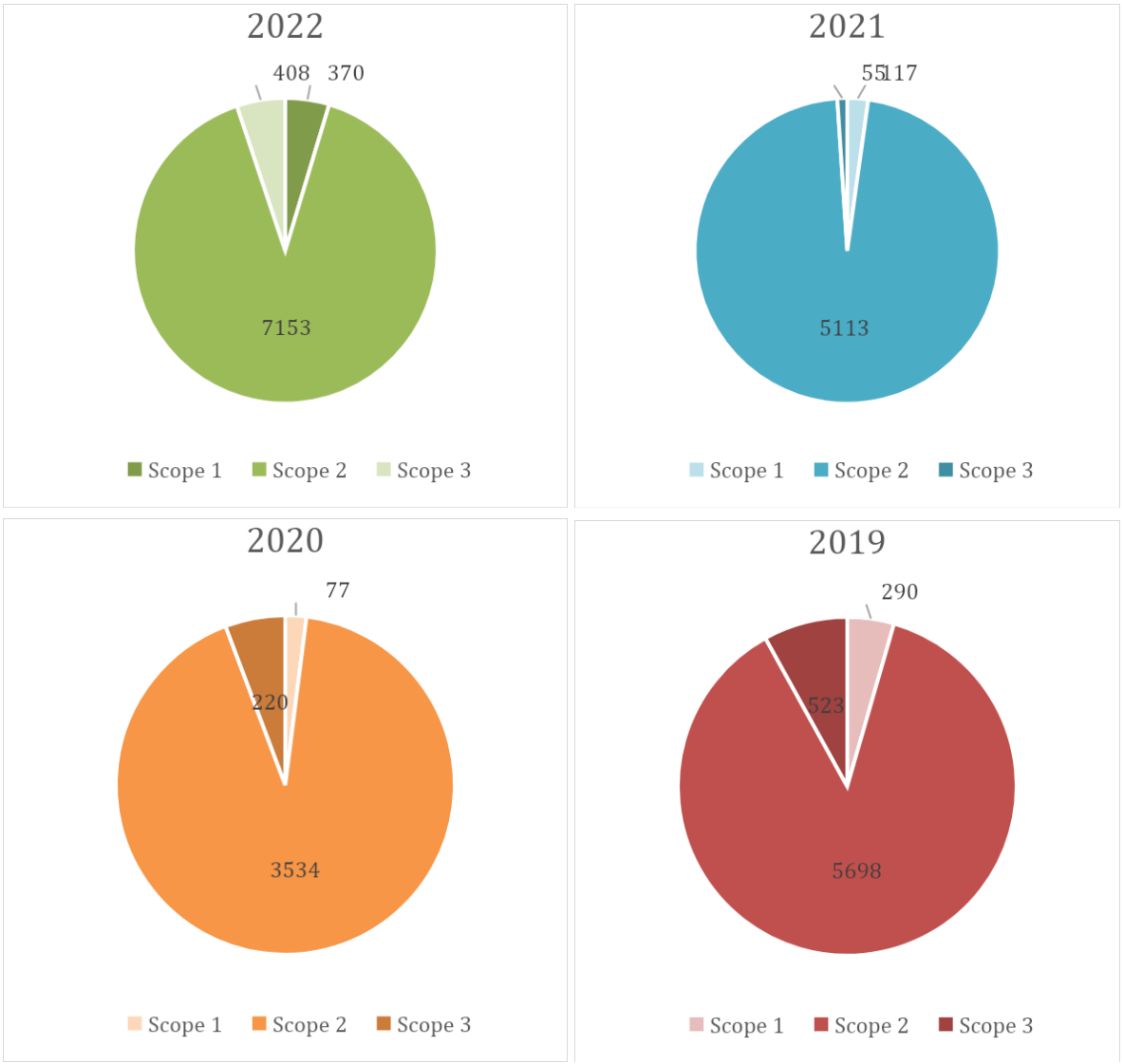
	DG power generation	Grid Electricity consumption	Employee travel by road- Distance travelled	Employee travel by railways- passenger kilometres	Employee travel by airways- passenger kilometres
Month	kWh	kWh	km	km	km
Jan-22	17169	740640	0	-	30742.95
Feb-22	18680	502770	29620	-	28331
Mar-22	18167	1	69268	-	170631
Apr-22	158352	1586010	71420	-	174352
May-22	140558	670050	68908	-	94133
Jun-22	132056	684221	57360	-	122017
Jul-22	101736	763471	59328	-	210852
Aug-22	84284	749205	58052	-	351186
Sep-22	303733	883233	72901.9	-	630534
Oct-22	76771	740310	72125	-	278314

Nov-22	38499	602490	73801	-	329810
Dec-22	18943	562445	77000	-	463450
Total	**1108948**	**8484846**	**709783.9**	**-**	**2884353**

Carbon Emissions				
	Scope 1 Emissions	**Scope 2 Emissions**	**Scope 3 emissions**	**Total**
Month	tCO2	tCO2	tCO2	
Jan-21	5.73	624.36	2.35	632.43
Feb-21	6.23	423.84	10	440.06
Mar-21	6.06	0	31.34	37.4
Apr-21	52.8	1337.01	32.19	1422
May-21	46.87	564.85	25.41	637.13
Jun-21	44.03	576.8	24.48	645.31
Jul-21	33.92	643.61	31.78	709.31
Aug-21	28.1	631.58	42.15	701.84
Sep-21	101.28	744.57	67.4	913.24
Oct-21	25.6	624.08	40.31	689.99
Nov-21	12.84	507.9	44.69	565.42
Dec-21	6.32	474.14	55.73	536.19
	369.78	7152.73	407.83	7930.33

Construction staff	0
Total no. of Faculty and staff	468
Total No. of Students	2715
Support Staff	609
Total Strength	3792
tCO2/Person	**2.09**

CDe Chart Year-wise



End of CDe report

In conclusion, Ashoka University in its commitment to improve sustainability in all its operations, has started measuring all requisite parameters. Using the current GHG protocols, Ashoka will take more and more sustainable, aggressive environmental goals too.

End of report.