Committee for Green, Energy, Environmental Audit Report
Internal Quality Assurance Cell
Dravidian University
Srinivasavanam, Kuppam -517 426
Chittoor District, Andhra Pradesh
2020-21

1. Prefatory Note

The University located in a serene rural setting with pleasant greenery spread over the spacious campus of about 1000 acres endowed with huge deposits of granite, giving a picture of rock garden, is one of the most ideally suited institution for quiet and dedicated studies and research harmonizing the individual, both internally and externally. The campus absolutely pollution free and got **9th place in Swachh Campus Ranking**.

The initiatives that are taken by the University in the last two decades yielded good results in terms of promoting and maintaining the campus greenery. The campus now looks like green field with all the plantations, grown up trees, natural and artificial ponds. Check dams, Soak Pits (Inkudu Guntalu) increased the level of water-table. The greening process and the plantation could keep the campus free from soil erosions. Even in times of drought conditions in and around Kuppam, Dravidian University has been free from such conditions. When there are no rains in the surrounding villages of Kuppam, the campus experiences occasional drizzling, if not rains. The levels of oxygen in the air are highly conducive for healthy living.

The survival of Golden Lichen is an indication for the measures that have been taken for creating the green campus. As part of it, the University proposed to establish **Resource Recovery and Reuse (RRR) program** in the campus for conservation of natural resources, natural ecosystems and waste management.

The Internal Quality Assurance Cell with the assistance of the Engineering Section of Dravidian University has conducted a survey in the campus for purpose of preparation of the Green Audit Report. Dravidian University, being rural university committed to generate wealth from the waste on its campus in various departments, centres, sections and other facilities. The University already took environmental initiatives like use of renewable solar energy, rain water harvesting, sewage disposable plan, No smoking zone, waste management system etc are being implemented. Environment consciousness is embodied in the heart of the campus by tree plantations from NSS teams which is the predominant motive of the management to maintain the

pristine purity and beauty of the campus and also to provide a congenial atmosphere for the academic and non-academic pursuits.

2. Methodology

The survey has been conducted to gather the data. Nine parameters have been fixed for the survey by keeping in view the Quality Indicator Framework of National Assessment and Accreditation Council (NAAC), Bengaluru with specific reference to Green Practices, Rain Water Harvesting, Waste Management, Renewable Energy Sources etc., including certain eco - friendly aspects.

Relevant office records and self-study report submitted to NAAC have been perused including observation visits in this regard.

The parameters/ observations are furnished in the following section.

3. Parameters / Observations

Nine parameters and related observations are detailed below.

Parameter 1: Use of Renewable Energy Systems:

Observation:

In tune with the National Energy Policy, Dravidian University entered into an MoU with NEW & RENEWABLE ENERGY DEVELOPMENT CORPORATION OF AP LTD (NREDCAP) and M/s. RICH PHYTOCARE PRIVATE LIMITED has installed Rooftop Solar panels in an area 60,000 square feet, producing 430 KWP, which is more than required for the consumption of the University campus. It provides the University with the facility to follow the directions of energy audit and to avoid consumption of diesel in emergencies. The use of solar energy contributes to the green economy. Solar power is incredibly efficient with minimal maintenance and uninterrupted power supply and most importantly, solar panels have zero emission. As there won't be any power fluctuations, the electrical and electronic equipments of the campus cannot be damaged. The University is able to save up to Rs.1.50 lakhs in its electricity bills.

- **Solar Energy Installations on the roof-top of different buildings in the campus**
  1. Vemana Bhavan
  2. Tiruvalluvar Bhavan
  3. Narayanaguru Bhavan
  4. Basava Bhavan
  5. New Library Building

6. University Auditorium
7. University Guest House (M.B.Emeneau House)
8. Sri Giri Hostel

Also, it has been gathered that the solar water heater systems have been inducted into service for more than 10 years in Men's Hostels, Women's Hostels, and Mythri mess.

Parameter 2: Disposal of Waste - Solid and Liquid Wastes including E-Wastes:

Observation:

a) The University is generating organic compost by decomposing the fallen and pruned leaves from the plants and trees in the campus and the same is used for maintaining university gardens.

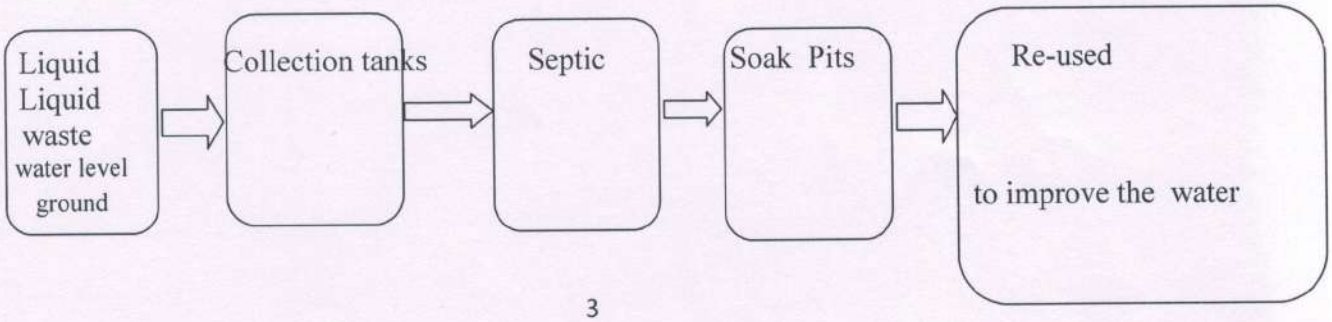
b) Solid waste management

The waste generated in the campus includes wrappers, glass, metals, paper, plastics, etc. Old newspapers, used papers and journal files, workshop scrap etc. are given for recycling to external agencies. Glass, metals, plastic and other non-biodegradable wastes are given to external agencies where they are segregated and disposed/ recycled according to the nature of the waste. Leaf litter is allowed to decompose systematically over a period of time to be used as manure for the gardens in the institute. Excess leaf litter is disposed off to vendors who use it for composting/ agricultural purposes. Apart from dry solid waste, the campus generates an average of 50 kgs of organic waste per day and 150 kgs of processed food waste per day from canteens and hostels which is sent to piggeries.

The solid sewage waste such as the septic tank waste is drawn by compressor sewage vehicle engaged on hire basis from the University campus to outskirt of the campus and is dumped in deep earth pits which are covered by a layer of soil without creating health hazard to public. Decomposing process involves preparation of decomposing from the organic matter waste to bio fertilizer by aerobic micro organisms. After some days, the composed solid product becomes ready for use as manure and is utilized for the plantations within the campus.

c) Liquid waste management

The liquid wastes generated in the campus include Sewage, Laboratory, Laundry, hostel and canteen effluent waste. These liquid waste are processed as follows.



Soak pits are constructed nearby each and every septic tank for collecting the liquid waste from septic tanks and is used for soaking the water in ground and the remaining waste solid material that collects on the surface of the soak pits is dumped to deep earth pits for preparing the bio fertilizers for usage in the gardens of the campus periodically.

d) E-wastes like used computers, printer cartridges etc., are disposed through auction in "as-is-where-condition". Nearly 15 years old electronic goods like computer, printers, scanners, photocopy machines, UPS, batteries, lab equipments etc., are collecting from various departments/ sections by the engineering section. After thorough verification by the technical personnel the un-repairable electronic goods are selling out through public auction with vide publicity. Some e-goods which are repairable are being rectified and re-modified with minor repairs with minimum cost are being reused in the office/ labs / departments and wherever necessary or need.

The waste compact discs and other disposable non-hazardous items will be used by students for decoration during University fests as a creative means of showcasing the waste management practice that has been induced in the minds of the students.

The e-waste material is audited and documented. In every six months time waste recovered at source and how much re-used will be estimated. Based on the audited documents and estimations the RRR program will be updated in every academic year.

The other solid waste material like old newspapers used papers, books, workshop scrap and other discarded plastic and iron material is sold out through public auction with wide publicity.

Parameter 3: Conservation of Water
Observation:

a) Water is consumed on the campus by regulating the release of water from the overhead water reservoirs from 6.00 a.m., to 9.00 a.m., and from 3.00 p.m., to 6.00 p.m. every day for offices, students' hostels as well as residential consumption, thereby water is made available to all in the campus all through 24 x7

b) Conservation of water is done by means of drip system and lawn sprinklers for maintenance of gardens and plantations, for example, Dravidian Mllkika Vanam etc.

Parameter 4: Rain Water Harvesting
Observation:

a) Kuppam's climate is classified as tropical. The rain fall is very low. Water conservation and maintenance of the water-table levels are essential to avoid drought conditions.

b) A sump is constructed with 1.00 lakh litres capacity for collecting the rain water at major buildings and utilise the water for gardening in University Campus.

c) 16-major Check Dams besides 6 Farm Ponds with a capacity of nearly 787 lakh and 51 lakh litres respectively are existing on the campus.

d) Also, 40,000 metres long contour trenches are dug for retention of run-off rain water and 35 water Soak Pits (Inkudu Guntalu) are provided for infiltration of rain water besides 400 rock fill dams for preservation of water and stop the soil erosion.

A) Check dams:

1. At Bhairappagudi Vanka with a storage capacity of 16,000 cubic meters.
2. At Bhairappagudi Vanka with a storage capacity of 5850 cubic meters.
3. At Smashanam Vanka (Pachharla Palli) with a storage capacity of 10,500 cubic meters.
4. At Bodi Nayani Kunta vanka with a storage capacity of 668.25 cubic meters.
5. At Lightla Muneppa Chenu Vanka with a storage capacity of 972.40 cubic meters.
6. At Somayya Cheruvu Vanka with a storage capacity of 24,252 cubic meters.
7. Param pad – Near Ammavari gudi with a storage capacity of 7980 cubic meters.
8. At Lotus pond- University canteen (front) with a storage capacity of 5,292 cubic meters.
9. At Prasaaranga (front) with a storage capacity of 744 cubic meters.
10. At VC Bungalow (front) with a storage capacity of 648 cubic meters.
11. At Ammavarigudi (backside) with a storage capacity of 943 cubic meters,.
12. At Bijigani palli Smashanam with a storage capacity of 1,684 cubic meters.
13. At Yerramannu Gunthalu vanka with a storage capacity of 240 cubic meters.
14. At Varikasuvula Gundu vanka (Gaybean) with a storage capacity of 343.2 cubic meters.
15. At Pasupu Gutta vanka with a storage capacity of 1,791 cubic meters.
16. At Bellappa chenu vanka with a storage capacity of 1,453.4 cubic meters.

B) Water Ponds (Kuntalu):

1. At Bairappagudi with a storage capacity of 1239.6 cubic meters,.
2. At Mamidi cheruvu vanka with a storage capacity of 579.6 cubic meters.
3. At Varikasuvula gundu vanka with a storage capacity of 11664 cubic meters.
4. At Veerappa chenu with a storage capacity of187.5 scubic meters.
5. At Kanuma vanka with a storage capacity of 1934.4 cubic meters.
6. At Bairappagudi with a storage capacity of 1239.6 cubic meters

C) Cantour Trenches (kandakalu) with a storage capacity of 40,000 meters.

D) 400 Rock-fill dams for preservation of water and stop the soil erosion.

E) 35 Water Soak Pits (Inkudu Guntalu) with a storage capacity of 3,500 cubic meters each.

Parameter 5: Providing Safe Drinking Water Facility

Observation:

27 Reverse Osmosis (RO) Water Plants have been installed in all departments, offices, hostels, and University Guest House (MBE mencau House) towards providing hygienic water to the students and staff of the University. These are being maintained by the Engineering Section, Dravidian University from time to time.

Parameter 6: Use of LED bulbs for reducing the electricity power consumption

Observation:

50 LED street lights have been mounted so far in the University campus and also a few more have been put in different departments.

Parameter 7: Promoting Greenery

Observation:

a) At outset, it is observed that promoting greenery is one of the best practices of the University. The University in collaboration with TTD has initiated the project of plantation on the campus, spread over 1090 acres. Initially 75000 saplings at cost of Rs. 35.00 lakhs were planted, Now, the saplings have grown in to big trees encircling and beautifying the entire campus. This process of greening has been continued for the last two decades, because of which the University campus is pollution-free.

b) With an intention to preserve the ancient medicinal knowledge and systems, Dravidian University has earmarked 10 acres of land on which rare medicinal plants are grown. These practices not only preserve the classical system of medicine but also useful to cure the routine and normal health disorders, So far the University has been maintaining 4500 plants of 250 species of medicinal plants in the herbal garden.

c) The Andhra Pradesh Urban Greenery & Beautification Corporation has selected the University and planted 4800 saplings at a cost of Rs.40.00 lakhs during the last year including maintenance for 3 years.

The 71st Vanamahotsav programme was conducted on 22nd July, 2020.

d) Clearance of withered Acacia trees is prioritized on the campus and fruit bearing plantation is made near Ganesha temple.

Parameter 8: Reducing wastage of electricity power consumption

Renewable energy for sustainable development:

1. **Solar Energy:** Since last 5 years the university has generated the solar energy (400 KW/p.m.) with existing solar panels placed in all top of the buildings. The solar energy are being utilized instead of H.T. electricity power supply to all building like administrative, academic, hostels, residential quarters. From solar energy the university is saving Rs. 2/ per unit. (Approximately 3 lakh per month) and also solar heaters are being using for supplying hot water in the **Energy saving activities :**

a. Constructed Ground Level Service Reservoirs (GLSRs) especially for supplying the water to most of the buildings and residential area with gravity and saving electrical energy.

b. Hot water are being supplied to the hostels by using solar water heaters and saving the electrical energy.

c. Constructed steam cooking plants for which the waste fire wood collected from the weathering plants in the campus are being used for cooking purpose in the hostels and saving the L.P. gas.

Observation:

The security guards and subordinate staff switch off different electrical appliances soon after leaving of the office staff thereby effecting the reduction of wastage of electricity power consumption.

Parameter 9: Green Practices

Observation:

a) **Plastic free Campus:** the University is maintaining a plastic-free campus by instructing the campus community by numerous circulars and placing sign boards, Orders are issued to the University canteen owner not to use plastic cups, plates and plastic bags.

b) **Minimal use of paper:** the University in most of the cases sends e-circulars, notices, and other communications instead of printed ones. As the departments are provided with intent facility, most of the communication on campus takes place through mail because of which there is drastic reduction in the consumption of paper.

c) **Use of bicycles etc.:** the University is located in a hilly terrain and is using university buses for transportation of staff and students. A few student and employees use bicycles besides children of campus residents.

d) **Academic and administrative correspondence is made through E-office thus ensuring paperless administration.**

It has also been observed that the Engineering Section of Dravidian University has been vested with responsibility of maintenance of all above mentioned installations in the University Campus.

Members	Signature with date
1. Prof.K. Shyamala	15/2/22
2. Prof.M. Doraswamy	15/2/22
3. Sri.K. Anil Kumar Reddy, DEE	15/2/22

23/2

Registrar