

KARNATAK UNIVERSITY, DHARWAD

Environmental Policy



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Preamble:

India's National Environment Policy (NEP-2006) reflects commitment to clean environment as mandated in Articles 48A and 51A (g) of the Indian Constitution. The NEP reiterates that only such development is sustainable, which respects ecological constraints and the imperatives of social justice. The key objectives of NEP are conservation of critical environmental resources, intra-generational and inter-generational equity and integration of environmental concerns in economic and social development, efficiency in environmental resource use, environmental governance and enhancement of resources for environmental conservation. NEP also recognizes that maintaining a healthy environment is not only the state's responsibility, but also that of every citizen and thus encourages individual as well as institutional participation for maintaining and enhancing the quality of the environment.

In accordance with the India's National Environment Policy, the Karnatak University expresses its commitment to be a positive and creative catalyst in the protection and enhancement of the local and global environment and sustainable development through teaching, research, public service, administrative and support operations. Thus, the environmental policy is hereby crafted to ensure that the protection and improvement of the environment remains the guiding principle for all our activities within and across the university.

Purpose:

The Earth provides food, shelter and most of the requirements to meet the NEEDS for all the living organisms including ourselves. But, in order to meet our never ending GREEDS, every day we produce tons of degradable and non-degradable wastes and throw them everywhere recklessly. Smoke and harmful gases from our waste burnings, vehicles and industries are suffocating all living organisms. We are also disposing dirty sewage, drainage and even chemicals from the industries and educational institutions untreated into the water bodies thereby making them unfit for the utilization. We are destroying forests for agriculture and settlement or in the name of developments. We are building huge buildings, roads and factories beyond the carrying capacity of a particular habitat. We are the sole responsible persons for all the bad things seen on this earth.

Karnatak University, Dharwad was established in October 1949, and officially inaugurated in March 1950. The K. U. Campus (15° 26' 24" N and 74° 59' 3" E) is located at an elevation of 698.97m above MSL. It is commonly known as 'Chota Mahabaleshwar Hill' on the western frontier of the Dharwad city. It is spread over an area of 750 acres with undulating topography. Temperature ranges between 16 to 38°C throughout the year. It receives an annual rainfall of about 800 to 900 mm. The vegetation is of dry deciduous, endowed with more than 150 families of plants. The distribution of plant density within the campus varies, with densely at botanical garden and less dense towards the road sides, staff quarters, hostels and other various departments of the K.U. Campus. With so much of floral/faunal diversity and a responsible educational institution, Karnatak University realizes sustainable and holistic waste management system an essential component in reducing its carbon footprint and also providing a safe and healthy learning environment for the students along with the healthy work environment for teaching and non-teaching employees. And hence, now it becomes our own responsibility to rectify the same through thorough knowledge and information, this policy will guide us all to have a sustainable eco-campus.

Policy Statement:

Karnatak University will act on the aspect that, ‘Nothing is Waste’, and we call something as waste whose use we are not aware, hence, we adhere to the fact of utilizing all the resources genuinely and apply a ‘waste hierarchical approach’, to reduce, reuse, recycle and recover waste products in preference to the disposal of waste to landfill.. The University will also adopt the principles of the ‘best practicable environmental option’ in the delivery of its waste management services.

The University recognizes the importance of meeting the legal requirements and to manage its waste responsibly, reduce the volume of waste sent to landfill and maximise reuse and recycling wherever possible. The University requires all the students, teaching and non-teaching staff, guests and anyone else making use of the premises to comply with this Policy and associated “University Environmental Guidance” to ensure compliance with all waste legislations. Any solid waste generated in the campus shall be managed and handled in accordance with the compliance criteria and the procedure laid down in Municipal Solid Wastes (Management and Handling) Rules, 1999, published under the notification of the Government of India in the Ministry of Environment and Forests number S.O. 783(E), dated, the 27th September, 1999 in the Gazette of India, Part II, Section 3, Sub-section (ii).

There is a legal requirement for all who produce, keep or dispose hazardous / radioactive waste/chemical waste of any type to comply with the various regulations under national and international environmental protection legislation which will be followed.

Policy Principles:

The principles of this policy are:

1. To ensure that waste management is performed in accordance with all waste legislative requirements, including the duty of care, and to plan for future legislative changes and to mitigate their effects.
2. To minimize waste generation at source and facilitate repair, reuse and recycling over the disposal of wastes in a cost effective manner.
3. To provide clearly defined roles and responsibilities to identify and co-ordinate each activity of the waste management.
4. To promote environmental awareness in order to increase and encourage waste minimization, reuse and recycling.
5. To invest into the expansion of recycling opportunities on the University campus and transform waste into value added products.
6. To ensure the safe handling and storage of wastes on University campus.

7. To provide appropriate training for students, teaching and non-teaching staff, residents, and other stakeholders on waste management issues.
8. To promote holistic approach of waste management in the campus.
9. To develop environmental auditing and monitoring procedures.
10. To provide overall safe and healthy environment for students, teaching and non-teaching staff.

Organization and Management:

The responsibilities and organizational arrangements for this Policy lie with a variety of officials within the University.

Advisory Board

- a) Vice-Chancellor - Chairman
- b) Dy. Registrar
- c) Resident Engineer
- d) Director/Dean Student Welfare
- e) NSS officer
- f) Dean (Life Sciences)
- g) Two outside expert (to be nominated by the Vice-Chancellor)
- h) Co-ordinator - Member Secretary

i) Functions of Advisory Board:

1. To ensure that, all the government regulations on environment policy are taken in to account during execution of the environment policy.
2. Coordinating the provision of the central waste and recycling activities by all within the campus.
3. The board shall review, appraise all technical proposals related to environment.
4. The board shall inspect and recommend the Waste Management Service Providers/Environment Service Groups for approval.
5. The board shall suggest improvements in the waste management system established.
6. The board shall initiate suitable campaign to increase awareness among the stakeholders to urge them to compost and to segregate the waste.
7. The board shall recommend and approve for conducting training on regular basis for staff who are engaged in waste management.
8. The Committee shall meet at least once in three months.

ii) Co-ordinator's responsibilities:

1. Provision of advice and guidance to the University on waste management.
2. Setting Environmental Performance Indicators for waste management.
3. Reporting annually to the University on progress against the 'Environmental Performance Indicators'.
4. Monitoring and auditing the management systems for all wastes, to ensure safety and legal compliance.
5. Monitoring and auditing all waste contractors working for the University.
6. Provision of appropriate training for all personnel who have responsibilities for waste management.
7. Coordinating the gathering of, and supplying all relevant information to appropriate enforcement agencies, when information relating to waste management is requested.
8. Investigation of any incidents or spillage relating to all type of hazardous and general waste management.

iii) Supporting staff's responsibilities:

1. Overseeing the day to day delivery of general waste and their recycling services.
2. Monitoring the performance of the university contractor against the contract agreements.
3. Liaising with the "Environment Sustainability Management Cell" to establish standard procedures for managing waste on the University campus.
4. Operational monitoring of waste management systems across the campus.
5. Compiling waste transfer data and statistics notes for centrally managed waste and recycling collections.

iv) Heads of Department/Director's responsibilities:

a) Non-hazardous Wastes

Ensuring that no hazardous waste is disposed of through the general or waste recycling streams.

b) Hazardous Wastes;

Nominating a '*responsible person*' within their department to coordinate waste disposal for any hazardous or laboratory wastes.

- c) Informing the **Co-ordinator** about the nominated '*responsible person*' and updating the information as and when the '*responsible person*' changes. The tenure of the person will be minimum two year.

v) Staff/Supervisor's (contractual) responsibilities:

1. Disposing of waste responsibly, through the appropriate waste disposal system (segregation of waste), in accordance with University policy and procedures.
2. Reporting any problems with waste collection schemes to the Co-ordinator.

vi) Students' responsibilities:

1. Disposing of waste responsibly, through the appropriate waste disposal system, in accordance with University policy and procedures.
2. Reporting any problems related department/laboratory waste or waste collection procedure to the 'Head of Department'.

Principles and best practices of waste management:

The best practices of waste management are as below:

i) Reduce-

- Reduce waste generation in the first place
- Consume less and Waste less
- Decline plastics and single use plastic products
- Decline packaging's and disposals
- Return packaging/dead product to manufacturers.

ii) Reuse-

- Find safe usage for leftover foods, vegetables, fruits, etc.,
- Reuse disposables safely at personal level
- Reuse packaging and wrapping
- Reuse Items as much as possible

iii) Recycle-

- Return waste materials back into consumption cycle and for resource recovery.
- Recoverable resources are to be recycled via the existing informal sector.
- Recyclables left to the informal sector

We intend to generate only 50-100 gms of non-biodegradable waste per capita per day. The last stage of the 3R waste hierarchy is to recycle. To recycle means that the waste will be transformed into a raw material for manufacturing a new item. There are hardly any materials on the earth that cannot be recycled, hence, it is very effective in waste management. Thus, the 3R approach lives at the very top of the waste management hierarchy.

iv) Segregation at source

Source segregation into dry and wet waste is vital for proper treatment of waste. It leads to effective waste treatment promoting recycling and reuse and safer disposal of waste that allows for cleaner campus.

The Solid Waste Management Rules, 2016 defines segregation as sorting and separate storage of various components of solid waste namely, biodegradable wastes, non-biodegradable waste including recyclable waste, non-recyclable combustible waste, sanitary waste and non-recyclable inert wastes, domestic hazardous wastes, and construction & demolition waste. Segregation of waste at source will reduce injuries to waste-pickers, thus minimizing health hazards.

Priority areas:

i) Energy:

The university shall conserve energy by minimizing its usage to significantly reduce the university's carbon footprint by pursuing a low carbon regime pathway. The university shall strive to maximize energy efficiency in existing buildings, during renovations and while constructing new buildings.

Most of the Higher Educational Institution campuses consume very good quality of energy in good quantity, hence, they need to work on energy conservation. There is a need to utilise best quality energy for best use. Utilise solar drying and solar heating for those aspects which could be handled by direct access to sun's energy. Many campuses are working towards energy conservation these days because it makes not only environmental but also economic sense. A systematic energy audit by the Swachh Student Team and recommendations of the Swachh Team would help the campus in framing energy policy for the institution covering both consumption and production of energy.

Energy Conservation requires cost centre approach, where each building will have an energy consumption sub-meter, which is to be read and recorded for its monthly consumption. Buildings are then ranked from the highest to the lowest energy consumers. Monthly and season wise variations in the power consumption are to be recorded and compared. Energy consumption between the months of same year and for similar months in a span of two years is to be recorded building wise. Similar record of conservation needs to be developed to identify consumption and conservation patterns. Building wise strategy should be developed focusing on the activities and operations which are energy guzzlers in each building. Increasing the efficiency of present and future heating and cooling systems, improving insulation, increasing

efficiency of building scheduling at nights and on weekends and holidays, using alternative transportation, and planting trees to provide cooling in the summer and wind breaking in the winter, are all ways campuses can save money and be made more environmentally sound.

Recommendations for Designated Authorities

The campus need to engage an energy manager to initiate energy audit and coordinate efforts to promote energy-efficiency. Allocate funds for capital expenditures to increase efficiency.

Recommendations for Staff

- Install meters to measure use of heat, electricity and water of each building or each department. Take ongoing meter measurements to set baseline data and determine progress.

Energy Efficiency

- Install efficient heating, cooling, lighting fixtures in all new buildings and retrofit inefficient fixtures in all existing buildings.
- Create incentives for energy-efficiency by billing individual departments for heat, electricity use.
- Invest in energy efficient technologies for heating, cooling, lighting systems in all existing and future campus buildings and earmark the savings for further improvements in environmental performance.
- Monitor the campus regularly for thermal leaks, lighting efficiency (new and retrofit), and equipment selection, maintenance and use. Repair or insulate as per response to findings.
- Develop coordinated heating, cooling, energy use practices to conserve resources. For instance, heat, cool and light buildings only when people are there. Plant native plants that require only the amount of water that falls as rain.

Solar Energy

- Develop a long-term plan to incorporate safe and renewable solar energy.
- Swachh Student Team needs to be constituted which measures the total surface areas of various buildings where solar panels can be installed. The total solar power that can be generated by the roof tops of various buildings to be calculated.
- The solar power generated from each building is to be linked to the grid by reverse metering technology. In this, basing on the production and consumption matching,

excess power which is produced over that which is consumed is shared with the grid. The meter runs in reverse when the solar power generated by the campus is supplied to the grid. Whenever there is consumption exceeding the production, it gets metered. All buildings, quarters and independent units are to be metered for measurement, monitoring and management.

- Raise campus awareness about the need for energy conservation and provide incentives for action, such as by establishing campus wide “Eco-friendly” competitions among buildings and departments.

Energy Conservation

- Cost centre Approach with focus on high energy consuming units and blocks and consumption needs to be monitored closely.
- Inefficient sodium vapour high mast lamps on the internal roads in campus are to be replaced with low height (garden type) LED lighting.
- Conduct energy audit of the campus and its independent units for necessary inputs and recommendations.
- In the academic and administrative block, study whether a centralised AC or replacement of old ACs with energy efficient ACs would be economical and efficient.
- Install MCBs for arresting use of high power consuming appliances in all hostels.
- Install access card (key insert type) based entry to guest house and air conditioned rooms so that when out of use, power gets switched off.
- Old high energy consuming fans need to be replaced.
- Replace CFL lamps with LED lamps in a phased manner.
- Auto door closers with no stoppers need to be installed in rooms with air conditioning.
- Air filters of all ACs need to be cleaned every 3 months.
- All hostels and kitchens are to be installed with solar water heaters.
- All street lights including common areas are to be linked to pole-top solar panels to be cost-effective.
- Instead of permanently sealed windows in air-conditioned rooms, allow for windows that can be opened, while still providing good sealing when kept shut.
- A combination of ceiling fan and AC gives a better cooling effect at warmer settings. In this way, AC can be avoided during pleasant weather.

ii) Water:

The basic rule of water conservation is that running rain water should be made to 'walk', walking water to 'stand' and standing water to 'seep' into the ground. Choice of vegetation on campus can go a long way in maintaining quality of ground water and surface water. For

example, Palmyra palm (*Borassus* spp.) plays a major role in maintaining water table, while Eucalyptus sucks away groundwater reserves. First we need to find out quantity of water used in the campus every day.

Water Quantity and Quality

University campus should have continuous supply of water. India is using only 35 per cent of the rainwater it receives. If rainwater harvesting projects are effectively implemented, 65 per cent of the rainwater which is wasted can be used. We degrade the water quality and take water from wherever we can. In return, we give back waste water. So we produce waste water out of every drop of water used. About 80-85 per cent of the water we use comes out as waste water. Much of this waste water reaches our water sources i.e, lakes, ponds, rivers and finally seas. Used water can even pollute land if it has contaminants.

Way out is

Regulated use of ground and surface water along with rainwater harvesting are some of the ways out. We need to use best quality of water for best use and lower quality of water for cleaning and washing as well as flushing. This lower quality and larger quantity of water is available through recycling. Rainwater harvesting can solve the crises in campus that face acute water shortages. What is measured gets monitored, let's adopt this cardinal principle of measured consumption of water for every purpose. Hence we need to install water meters and flow meters.

Monitor overhead tanks

We need to monitor the overhead tanks noting the difference in levels of water in the overhead tank from the beginning to the end of the day. Ensure that the tanks are full when the day begins. Check the water level when the teaching / learning activity in the campus ends in the day. Note the difference in levels of water for estimating the consumption of the day.

Motor method

Per minute pump wise out flow of water is measured and the number of hours the water pump is switched on is measured and water output is calculated. Every time the motor runs, this is counted and added to understand it during withdrawal of water. The administrative staff and the plumber can help in calculating. We need to conduct the water audit followed by the preparation of water budget for the campus. This water budget can be based on the quantity wise quantities required for each purpose

Know the source of the campus water

Find out the source of the campus water and the capacity of it to yield water. Find out competing demands that the source experiences from surface and subsurface. Also we need to find out the water table of our campus and the changing dimension of it seasonally and over a period of time. This gives an understanding travails in the way water travels.

Start water conservation

Mend the leaks in taps and pipes. Work on the toilet flushes and the optimum water use from the flush by installing two levels of flushing. An Indian household uses five litres of water per person per day for cooking and drinking but every time we flush our toilet, we use up to 9-12 litres of water. That is huge amount of water that is getting wasted.

Manage water

The campus garden also consumes water, sometimes a lot depending on the area it covers and the type of plants that are grown. Sticking to indigenous variety of plants and less water requiring plants, not only increases the aesthetic beauty of the garden but also goes a long way in water conservation. Watering the plants to be done either very early in the morning or very late. The best way to water plants is to focus on the root zone.

Harvesting water

India receives ample rainfall. The best way to conserve and replenish our water sources is by harvesting rainwater. Rainfall is the primary source of freshwater for us. The campus must have its own rain gauge and its own rain recording system. This also helps in understanding the micro climate and as well as designing the recharge structures. The contour trenches, artificial ponds and roof top water harvesting structures could be designed as per the local water yield capacity, terrain, gradient of land, soil porosity and rain fall.

Recycling

Water recycling is the process of treating wastewater in order to upgrade its quality. This recycled water can be used again for other purposes as per the quality of water. In drinking water, the first-in first-out method is adopted for retaining the quality. This also wastes lot of water. The first out of the Best Quality Water could become first use of the second best quality. This would be for bathing for instance. This understanding and water use method is to be introduced in the hostels, residences, canteens, laboratories and lavatories alike.

Plugging leakages

Water saved from leakage is water secured through pumping or rains. The leakage of water from storage points and pipelines is waste of not only water, but also the power that is used for pumping the water. Hence arresting water leakage needs to get the top most priority. Plumbers are the most important partners in the water conservation programme of the campus. Their immediate attention to leakages can arrest the water wastage. A method of geo-tagging the water leaking points and app-based alerts of the plumbers in the campus can arrest even water stagnation-related challenges.

iii) Waste Management:

After conducting a detailed study on the segregation of the campus waste, the Swachh Student Team can discuss with stakeholders how best to categorize waste in the campus. They can keep aside old newspapers, batteries and bottles at source, until it is a substantial volume. Later give these items to waste collection team at intervals (e.g. once in 3 months), to reduce the burden on the waste collectors and segregators during secondary and tertiary segregation.

Plan for waste handling

1. Compost structure
2. Biomedical wastes, must be securely and properly sent to biomedical waste treatment and disposal facilities as per the procedures laid out by the Pollution Control Board.
3. Plan to establish Bio-methane plant for wet waste.
4. Set up an incinerator for hazardous dry / waste.
5. Strict rules need to be implemented to prevent littering on the campus.
6. Declare the entire campus as 'Single Use Plastic Free Zone'.
7. Water dispensers need to be set in several locations on campus with durable and reusable cups (bottled water as well as sale point of soft drinks and water in pet bottles on campus need to be banned).
8. Reusable tableware and eco-friendly parcelling need to be enforced in all food joints on campus.
9. A small part of the land on campus needs to be earmarked to set up four separate waste processing units: one for organic waste (biogas plant/ compost), one for secondary and tertiary segregation of dry wastes, yet another for shredding and incinerating, and a fourth one to store recyclable wastes, construction rubble and waste residue intended for municipal landfill and e-waste that need to leave the campus in a designated way.
10. E-waste is to be deposited with designated contractor duly authorised by the Pollution Control Board. Refurbished computers, monitors, scanner and printers may be donated.

11. Avoid paper pamphlets and flex banners. Instead, use reusable cloth banners and notice boards.
12. Wet waste can be treated at source itself for the benefit of other organisms. The wet waste from the kitchen and the canteen is to be collected at a place so that birds, cows, dogs, goats and small animals can feed on it. If unused food is in large quantity and not spoiled, it can be channelled to the needy through 'Food Bank' system on the campus.
13. When institutes and offices become paperless, a lot of trash can be reduced. Hence use emails, SMS, WhatsApp and Facebook and other social media platforms and online resources to a certain extent.

Reduce, Reuse, Recycle and Compost Plan

Increase the percentage of waste reduced, reused, recycled, and composted annually. Expand the scope of waste reduction programmes to include the following: glass, steel/aluminum cans, plastic, food waste, cardboard, bond and computer paper, mixed paper, magazines, newspapers, construction, oil, leaves, tyres, scrap metal, hazardous chemicals, telephone books, contaminated soil, and mattresses at all areas and facilities of the campus.

Campus Projects on Solid Waste Management

Campus can successfully identify solid, hazardous, and radioactive waste problems and find eco-friendly solutions that save money. Solid waste on campus includes food, non-reusable cups, plates, paper, throwaway convenience items, and more. Adopt waste reduction as a goal in the university mission statement. Plan for annual improvement in the percentage of the campus waste streams that are reduced, reused, recycled or composted beyond what is mandated by law.

Publicise Methods

Prepare easy-to-understand educational materials describing the campus waste management system for sharing with all campus community members. Collect data on current and future waste costs for both the campus and community to demonstrate that waste reduction can save money. Incorporate waste storage and disposal costs into department and research budgets.

Solid Waste

Provide labelled disposal cans/boxes for each category of recyclables in convenient locations. Explore the feasibility of co-mingling materials in the campus recycling program. Establish food recovery program, where food that is not used is given to the needy. Compost

garden waste leaf litter and dining hall food waste. Work with students to minimize waste when students move in, and when they move out of the campus.

Hazardous Chemical Waste

Educate the campus community to minimize the drain disposal of chemicals and the use of toxic substances in workshops, research labs and the classrooms. Reduce hazardous wastes and properly dispose materials for recycling waste oil, used batteries and solvents.

Waste Reduction

Raise campus awareness about the need for waste reduction:

1. organise a “Carry-Your-Own-Garbage” week, in which students (and, if possible, teaching and non-teaching staff too) agree to carry their accumulated garbage all week to see how much is produced;
2. educate first-year students about the campus recycling programs as soon as they arrive;
3. prepare and distribute a short manual on what individuals can do in their daily lives; and
4. conduct a public “waste sort” at a central campus location to demonstrate how much and what type of waste is normally produced.

Reuse Strategies

Promote the use of reusables by giving away or selling them to members of the campus community and organizing discounts at local and campus stores. Work with the university stores to reduce waste:

1. establish a bag/carton return program (in which there is a small refund for returning them),
2. Promote the use of cloth bags instead of disposable bags,
3. encourage the sale of goods with less packaging; and
4. create a market for used books and other items.

Mainstream Pilot Projects

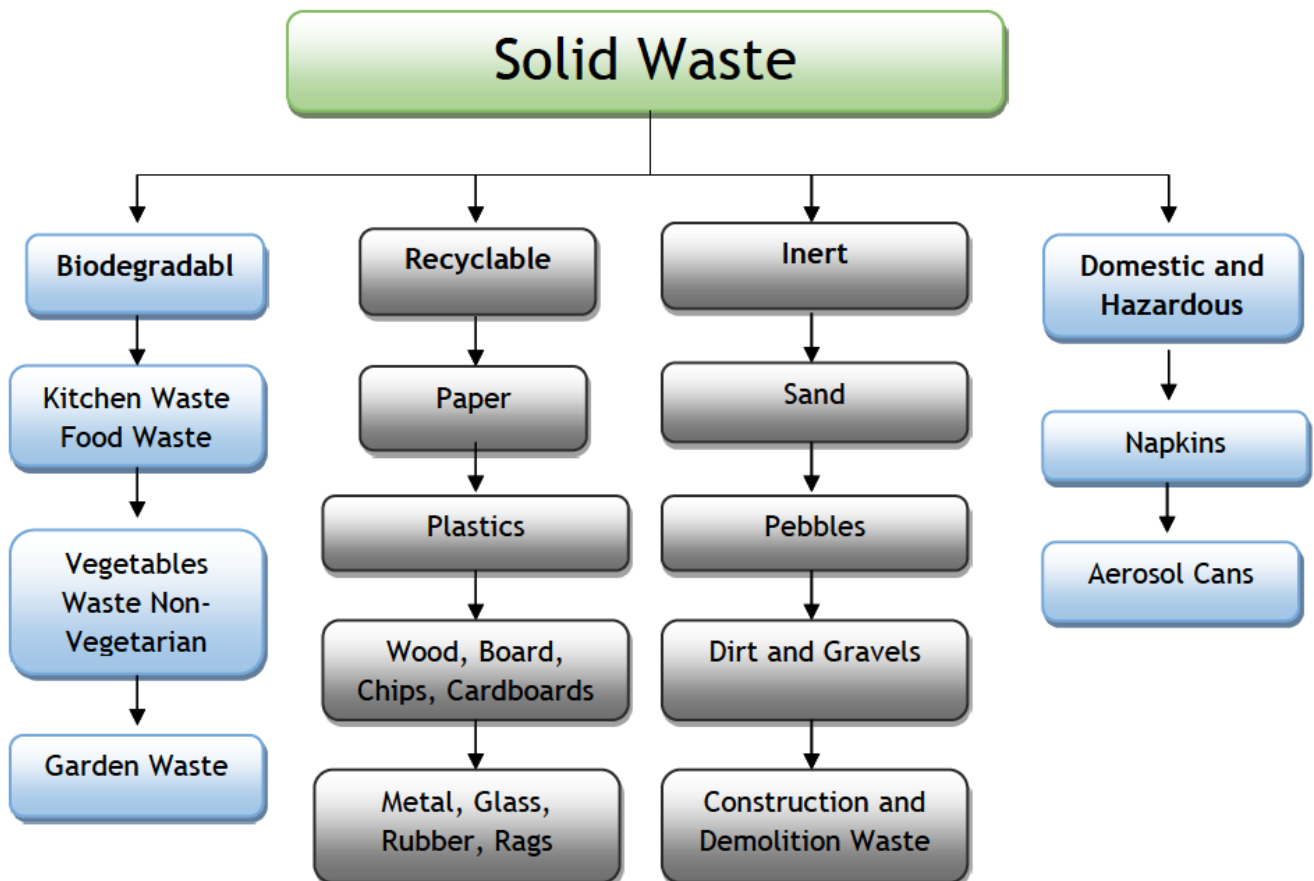
Successful, student-initiated pilot recycling projects can be assumed by the campus as a permanent program. Create waste reduction competitions, such as between hostels and departments. Organize an adopt-an area or building program, in which campus groups or departments adopt a section of the campus and make sure waste is being reduced, reused, or

recycled there. Organize a “goodwill day” at the end of each semester to collect discarded goods and give to those in need of them. Discourage excessive posterling.

iv) Plastic waste management:

The quantum of solid waste is ever increasing due to increase in population, developmental activities, changes in life style, and socio-economic conditions. Plastic garbage is seen littered all over the country and has started causing several problems. Plastic waste clogs drains, causing floods. It chokes animals which eat plastic bags, etc. Plastics found in fields blocks germination and prevents rainwater absorption. Plastics waste is a significant portion of the total solid waste. Thin single-use plastic waste is the biggest problem and its economic use needs to be explored to reduce the menace. To provide a regulatory frame work for management of plastic waste generated in the country a “Plastic Waste Management Rules, 2016” is framed to give thrust on plastic waste minimization, source segregation, recycling and so on. Hence, in this context, the Karnatak University campus also should adopt some strict measures to curb the plastic menace within the campus. Here, the role of the students, teaching and non-teaching staff and other stake holders play a major role. They should be given awareness on regular intervals on the ways to reduce the plastic use and make the campus ‘single use plastic free zone’.

WASTE BY TYPES:



v) Open burning:

Burning of any solid waste is a destructive and polluting process; hence any type of waste should not be allowed to get disposed through open or closed burning, incineration, co-incineration, or thermal processes. Burning of biodegradable/recyclable materials shall be strictly prohibited within the campus. Relevant technologies shall be adopted to treat non biodegradables well as bio-degradable discards. Aerobic composting and or hi-tech anaerobic digestion are to be adopted as technologies to manage bio degradable discards.

vi) Bio Medical waste management:

Medical waste is one special kind of hazardous wastes. If mishandled, it could cause disease spread and secondary pollution of dioxin. It is a potentially infectious waste materials generated at health care facilities, such as hospitals, clinics, dental practices, blood banks, and as well as medical research facilities and laboratories. Therefore, in addition the above stated strategy on Solid Waste Management, the Bio-medical waste must be properly managed by segregation, treatment, transportation and disposal by adhering to “Bio-Medical Waste Management Rules, 2016”. The waste generated at University health center such as gloves, syringes, cotton, strips cover and bandage waste etc. is around 10 kg/ month in the form of biomedical waste is to be safely disposed off by following all the protocols.

vii) E-Waste management:

Electronic waste (e-waste) comprises waste electronics/ electrical goods that are not fit for their originally intended use or have reached their end of life. This may include items such as computers, servers, mainframes, monitors, CDs, printers, scanners, copiers, calculators, fax machines, battery cells, cellular phones, transceivers, TVs, medical apparatus and electronic components besides white goods such as refrigerators and air-conditioners. In addition to the Action Points given in the Solid Waste Management above, the “E-Waste Management Rules,” shall be followed; besides:-

- i) Collection by authorized dealers authorized by Pollution Control Board.
- ii) Storage and transportation to authorized recyclers by scrap dealers or any other agency registered with Pollution Control Board and sent to Recyclers/Refurbishers/Dismantlers approved by Central Pollution Control Board.

Capacity building and information education and communication (IEC):

i) Dignity of Labour

The people engaged in waste management jobs will be technically trained and updated periodically to elevate the status of such jobs. The services of people engaged in Solid Waste management will be recognized as environmental services and the people will be considered as skilled laborers and or technicians. The services of cleaning, waste collection, transportation, sorting, disassembly, processing, recycling will be considered as environmental services which ensures environmental and public health. Authorities will ensure the dignity of labour by providing safe working environment, economic opportunity and social security for the people engaged in the environmental services. Campaigns will be directed towards marketing services as well related to waste as a skilled and technical job which solves the issue of resource management and climate change.

In order to facilitate segregated waste collection, workers should be provided separate equipment for collection and transportation of both dry and organic wastes. Dry resource collection centres should be set up for segregating and recycling dry waste.

ii) Capacity Building

The success of waste management will depend largely on the dedication and efficiency of the Authorities. Training, orientation, sensitizing and motivation are required to build capacity in people who implement the project as well as the beneficiaries.

- a. Technical knowledge on composting/biogas.
- b. Operation and maintenance of Resource Recovery/Segregation.
- c. Public health monitoring and reporting
- d. Basic knowledge in eco system and Biodiversity

iii) Awareness Campaign

Awareness campaign is crucial in bringing about behavioural change.

1. Authorities shall carry our extensive multimedia Campaign through various medium such as- WhatsApp groups, Facebook pages, emails etc.
2. Extensive involvement of Volunteers to carry on the mass movements.
3. Department wise announcements to inform and educate the public about this initiative.

4. Planning meeting with all stakeholders such as departments, Schools, Commercial Establishments, Hospital etc.
5. Involvement of students and employees associations of the university to make efforts for dissemination of messages on Waste Management.

iv) Community Participation

The community participation can be achieved through involving NSS, NCC, NGOs, SHGs, Students and Youths. Success of the campaign will depend on the strength of community participation. Campaigns, projects and activities shall be designed for involving students and youths in the campus to invoke sense of ownership and to sustain the campaign. Relevant Departments shall create opportunities for academic exercises on waste, material use, behaviour change communication, social work, rural planning etc., where the students and youths can participate. The University authorities shall initiate the process to integrate eco clubs in the campus to create an environment for the campaign on waste management.

v) Involvement of Private Parties

The University authorities may explore possibility of outsourcing waste management including department and door to door collection from staff quarters, transportation and disposal through private partners.

vi) Resource mobilization

- a) The University shall empower the departments financially, so as to effectively tackle the problems of waste management.
- b) Partial financial support shall be provided to enterprising people who are interested in taking up the businesses of alternate eco-friendly products and services.
- c) The university shall approach the State Government with a proposal for providing necessary manpower and machineries for management of wastes within the campus that also adds to the value added approach towards attaining Green Campus.

Reducing our Carbon Footprint

Carbon footprint is the amount of carbon (usually in tonnes) emitted by an organization, event, product or individual directly or indirectly. Everyone's carbon footprint is dependent on location, habits and personal choice. We all contribute to greenhouse gas emissions by the way we travel, the food we eat and the amount of electricity we consume.

Our living habits make up our carbon footprint. We need to calculate our footprint and adopt a strategy to reduce it as one of the ways to being a Swachh Campus. Our food contributes to

24% of carbon, residence 6%, travel 43% while the material that we use contributes to 27% of our carbon foot print.

When we use fuel in kitchen, it generates certain amount of CO₂ in the atmosphere. When we cool our buildings, it also generates CO₂ assuming that electricity is coming from coal powered plants. Similarly, when we consume food in the hostel, it also generates some quantities of CO₂ as the food gets processed. Carbon Footprint reductions require drastic changes to lifestyles and current ways of doing things.

i) Contributors to Carbon Footprint:

- **Our Procurement:** Purchase decisions contribute mainly to the emissions directly by way of our consumption patterns and also indirectly encouraging the production patterns.
- **Energy:** In energy, carbon footprint emissions are collective, coming from a variety of sources, namely transport, electricity and fuel emissions.
- **Waste:** Our waste comes from any process or activity and has impact on the earth's natural resources and hence it increases carbon footprint.
- **Human action (and inaction):** Our pursuit of quickness and convenience contributes to the excessive power usage and exponential increase in carbon footprints.

ii) Swachh Procurement:

Way to reduce our Carbon Footprint, waste management begins with purchasing choices. Procurement plays a key role in ensuring 100% waste segregation at the university level. The campus must ensure procurement of suitable equipment such as dustbins, segregated auto tippers, composting machines, etc.

The University authorities should first engage or train the Purchasing Officer to monitor carbon footprint in purchasing of all types material required (including paper, computers, furniture, etc.) in the campus. He needs to check if any items are really needed or not, or if quantity can be reduced. He needs to be effectively supported by the administration for his work. Swachh teams educate all stakeholders in the campus to decrease their materials usage. Swachh purchasing, attempts to identify and reduce environmental impact of purchasing some items. It maximizes resource efficiency. This purchasing policy includes not only that of goods but also of services.

