

MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH AND STUDIES

(Deemed to be University under section 3 of the UGC Act 1956)



Policy No. MRIIRS-IQAC-PL-GP/2019-20

MRIIRS GREEN POLICY (Effective from the date of notification)

Notified vide MRIIRS/REGR/2020/58 dated: 30th April, 2020

**MANAV RACHNA INTERNATIONAL INSTITUTE
OF RESEARCH AND STUDIES
Sector -46, Surajkund Badkhal Road, Aravali Hills, Faridabad- 121004
HARYANA**



MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH AND STUDIES

Deemed-to-be-University
Accredited by NAAC with A Grade in the First Cycle

MRIIRS GREEN POLICY

Number: MRIIRS-IQAC-PL-GP/2019-20

Committee Constituted for Preparation of draft on July 22, 2019

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GREEN POLICY

1. INTRODUCTION

Environmental degradation has been caused due to human activities all across the globe and has reached on alarming level. Climate change, natural resource depletion and pollution are contributed by and impacting upon each and every individual on Earth. MRIIRS is committed to confront these challenges in all possible ways and make the University ecosystem a sustainable one. As a step towards this endeavor, MRIIRS has formulated a Green Policy, which would maintain the sustainability of not only the University ecosystem, but also the surrounding environment by involving all its stakeholders and utilizing the skills, knowledge and technologies towards the improvement of environment. The Green Policy of MRIIRS will direct to include environment conservation in decision making at all levels by stakeholders and to ensure awareness about conservation of environment and natural resources, to encourage projects and initiatives on afforestation, landscape and ecosystem restoration, soil and water conservation, water quality maintenance, waste management, clean energy resources and climate change mitigation.

The Green Policy of MRIIRS will be a guiding document to every stakeholder that will provide the guidelines and steps to plan and execute the processes instrumental in environmental conservation in direct and indirect ways. The activities performed to meet the objectives of the policy will be planned, formulated, approved and implemented by the Green Committee of MRIIRS, through various environment conscious groups in the University. The drives undertaken for this purpose will encompass the activities for water conservation, energy conservation, use of clean fuels, reduction of greenhouse gas emissions, afforestation, waste reduction and recycling etc.

2. STATEMENT OF THE POLICY

The Green Policy of MRIIRS, Faridabad aims to institutionalize best practices for environment protection, natural resource conservation and sustainable development through a human– environment co-existence model. The university is committed towards sustainability through effective participation and supervision of institutional resources with assurance of providing excellent teaching, learning and research environment.

The goals to be achieved through this policy are-

- i) To conserve the natural environment and resources.
- ii) To develop sustainable solutions for environmental problems.
- iii) To promote and support innovations and start-ups aiming towards environmental sustainability.
- iv) To promote rural technologies and facilitate development of newer technologies in rural India for inclusive growth
- v) To control energy consumption, implement means of energy conservation and attempt to generate green energy.
- vi) To develop sense of responsibility among students and all other stakeholders towards conservation of natural resources and development of sustainable environment.
- vii) To adopt fair, ethical and environmentally friendly approach in all the communications and functions of the University.
- viii) To evolve futuristic technologies and develop engineering designs that could be pivotal for the sustainable utilization of augmented natural resources.
- ix) To help building up a society that has conservation oriented attitude and exist in harmony with nature.

- x) To create awareness about environmental issues and solutions through participation in related activities and competitions within and outside the campus.
- xi) To conduct Green audit/ Environment audit/ Sustainability/ Energy audit to evaluate the efficiency of existing systems and processes, and implement the recommendations in pursuit of sustainability.
- xii) To enter into MoUs and agreements with external agencies/ organizations/ industry for acquiring efficient technological solutions for conservation of environment such as renewable energy generation, waste management and other green processes.

3. SCOPE OF THE POLICY

This policy applies to all the members of the MRIIRS community including all the staff, faculty members, students, researchers and others. All natural resources including water and energy are under the scope of this policy.

4. POLICY OBJECTIVES

The MRIIRS green policy should make sure that the university works in a tenable manner by managing its water and energy consumption with a wise, responsible and efficient usage of water and energy. This policy contributes to the commitment of the university in meeting goals related to water and energy based problems and in maintaining environmental sustainability. This policy supports the change in individual actions and behaviors, and campus processes.

The objectives of MRIIRS Green Policy are:

- i) To educate and engage students, faculty and other stakeholders on environmental concerns and sustainability.
- ii) To lower the direct impact on the environment, that occurs due to University campus activities and management, to an appropriate level.

- iii) To make the MRIIRS green policy widely known and visible to all the stakeholders of the University so that their participation could be increased in all the endeavors related to this policy.
- iv) To participate in key government flagship programs and foster collaborations among academic institutions, knowledge partners, industry and local communities.

5. POLICY IMPLEMENTATION

All members of the University community will undertake to acquire efficient usage of water, energy and other natural resources in every possible way and spread consciousness to adopt systematic practices and procedures. The University community shall make all the endeavors to minimize the carbon footprint and consequently act to improve the University's environmental performance.

The implementation of MRIIRS Green Policy will include a directional process in which stage wise achievements of objectives will be planned and monitored by the Green Committee. The key components of the implementation plan are detailed further.

5.1 Green Committee

The Green Committee of MRIIRS will be as follows-

Chairman- Vice Chancellor of the University

Members-

Professors- 02

Associate Professors- 04

Assistant Professors- 05

Administrative Staff members- 03

Students- 05

Research Scholars- 02

Members from Industry/ Academia/ Parent community- 05

5.2 Roles and Responsibilities of the MRIIRS Green Committee

- i) Green Committee of MRIIRS will be constituted with representatives from faculty, students, researchers and staff, who will be the part of various environmental groups in the campus.
- ii) The committee will ensure the participation of the employees from all verticals, besides the faculty and students, such as administrative staff, engineering staff, house-keeping staff and others as nominated by the Vice Chancellor.
- iii) The committee would be constituted for a period of five years.
- iv) The committee will create action plans in accordance to the green policy of MRIIRS and would give necessary support to the various departments/ environmental groups in the university to implement the action plans.
- v) The committee will be sensitive towards the changing ecological needs of the society and of the university campus and therefore will have the authority to modify the action plan after a thorough review, in order to comply with the Green policy.
- vi) The committee will ensure that the environmental sustainability will be considered as of utmost importance and will approve the university development plans only when found complying with the Green policy.
- vii) The committee will support the green activities of the environmental groups like awareness campaigns and green drives to achieve the sustainability goals.
- viii) The committee will ensure the inclusion and implementation of interdisciplinary courses that address environmental issues in the curricula of various programs at different levels.
- ix) The committee will promote beyond campus environmental activities to enhance the participation of stakeholders and create awareness.
- x) The committee will promote interdisciplinary research focused towards bringing technological and innovative solutions to environmental problems.

- xi) The committee will conduct Green audit/ Environment audit/ Sustainability/ Energy audit and implement the audit committee recommendations towards sustainability.
- xii) The committee will encourage the University to enter into MoUs and agreements with external agencies/ organizations/ industry for acquiring technological solutions for environmental problems.

5.3 Key Components of Policy Implementation

The implementation of MRIIRS Green Policy will include a directional process in which stage wise achievements of objectives will be planned and monitored by the Green Committee. The key components of the implementation plan are detailed further.

i) Conservation of Natural Flora and Fauna for Environment Protection

MRIIRS always had been sensitive towards environmental conservation and have shown respect towards nature. All forms of life i.e. humans, animals and plants are closely interlinked and disturbance in one gives rise to an imbalance in others, therefore MRIIRS shall endeavor to preserve, protect and improve the environment and to safeguard the forests and wildlife in our vicinity, and to have compassion for the living creatures.

ii) Landscaping & Tree plantation

Green cover is to be maintained in the MRIIRS campus to ensure the ecological balance and reduce carbon footprint. Promotion of environmental consciousness is to be done by aesthetic landscaping, raising gardens, parks and open spaces in the campus. Landscaping should include planting of herbs, shrubs, trees and grass, taking into consideration the climate and topography of the region and conservation of existing environmental features

iii) Preventing Pollution

Water, soil or air pollution causes unsanitary conditions which leads to human health hazards and adversely affects the natural environment, perturbing the ecological balance. MRIIRS is committed to reducing and preventing pollution in and around the campus through effective strategies employing conventional and innovative measures. Some of the measures to curb pollution in the campus are-

- **Restricted entry of automobiles –**

Conventional fuel driven vehicles like cars and busses should be restricted to move inside the campus as they are the major contributors of pollution releasing green-house gases and other harmful pollutants into the environment like polycyclic aromatic hydrocarbons, nitrogen oxides carbon monoxide volatile organic compounds and particulate matter. These pollutants are potentially toxic to humans as well as the flora and fauna in the surroundings.

- **Use of Bicycles/ Battery powered vehicles –**

To reduce the dependency on automobiles and promote greener and healthier ways of commuting within the campus, use of non-polluting vehicles like bicycles and battery powered vehicles like electronic carts should be encouraged. Awareness in this regards should be created among all stakeholders to implement the measures in an effective manner.

- **Pedestrian Friendly pathways –**

Walkways and pathways that are pedestrian friendly and safe, should be built and well maintained throughout the campus for ease of commuting. The pathway design should be transit-friendly and incorporate the features that promote the usage of pathways such as appropriate dimensions, strategic placement, safe and comfortable slope, ambience, lighting, marked cross-walks, unobstructed pathway for disabled persons and wheelchairs or pushchairs, and tactile paving for persons with visual impairment .

iv) Water Conservation & Management

MRIIRS realizes that water is a valuable resource and all possible measures should be taken for its conservation. There should be discipline on water usage, and consumption of water should be economized. Water is to be recycled and reused as much as possible aiming towards zero discharge. Drought tolerant plants should be preferred as far as possible in plant landscaping to minimize the water use.

v) Energy Conservation & Management

MRIIRS advocates for implementing processes for efficient management and conservation of energy. The use of clean fuels and clean technologies, energy efficient devices and non-conventional energy sources should be encouraged there should be enhanced use of environmentally benign energy systems.

vi) Waste Management

The MRIIRS members should strive to minimize generation of all forms of waste at individual or community level. There should be stringent preventive measures for indiscriminate disposal of solid wastes, effluents and hazardous substances in land and water in and around the campus. The principle of 3R's i.e. reduce, reuse and recycle should be followed by all associates of MRIIRS.

vii) Plastic Usage and Plastic Waste Management

While plastics have contributed to our lives in many ways, it is the environment which has been hit the most by the impact of them being non-degradable. Keeping that in mind, it is the responsibility of every person, to not only say a "No to Plastic", but also to create and raise awareness about the ills of the use of plastics and to save our environment. Therefore, the MRIIRS community has consciously chosen to REDUCE, REUSE, RECYCLE, REPAIR and REPLACE the plastic and implement a ban on the 'single use plastics'.

The plastic products that need a conscious decision for their usage, disposal and management include, but not limited to-

- Carry bags made of polyethylene, polypropylene, polystyrene resins or any similar material.
- Packaging material made from plastic or polyethylene for the purpose of carrying or dispensing commodities.
- Single use plastic utensils or products made by shaping the polymer.
- Any polymeric fragments or micro-plastics, which arise due to disintegration and physic-chemical breakdown of the plastic material.

There should be complete ban on the use non-biodegradable material such as polythene and plastic and any kind of waste generation should be minimized at individual and organization level.

viii) Campus Operations

All the campus operations including constructions, repairs and building maintenance should be done with minimum exploitation of natural resources and should have restorative impact on the surrounding environment. Measures should be taken to reduce all forms of pollution i.e. air, water and soil pollution. Sustainable transportation means should be adopted.

ix) Emissions & Footprint

The University should be well aware of its contribution to global climate change by estimating its own carbon footprint. Conscious steps should be taken to reduce green-house gas emissions and per-capita carbon footprint.

x) Environmental Audits-

The present day scenario of environmental degradation necessitates the accounting of all the processes of the organization for their impact on the

environment. This is done by carrying out green audits and energy audits. Green audit is the tool of management system that evaluates the sustainability of the organizational processes with least harm to the environment. The audit helps to detect and monitor sources of environment pollution and suggests different parameters and methods for environmental protection. The audit also emphasizes on management of wastes, energy consumption, quality and quantity of water, hazards, safety of stakeholders and also the management of disasters.

xi) Health & Well-being-

The health and well-being of all the members of Manav Rachna family is of utmost importance and all the green endeavors should be focused upon enhancement of health and productivity of Manav Rachna community. The campus environment should be pollution free and the exposure to toxic chemicals should be reduced. The use of chemical pesticides, food colorants and preservatives, chemical sanitizers and cleaning agents should be minimized and replaced with non-toxic material of biological origin. Air purifying plants should be incorporated to enhance indoor air quality and add aesthetics to the indoor environment.

xii) Inclusion in Curriculum

The courses that enhance the awareness about Environmental issues and impart knowledge for Environment protection, conservation and management should be included in the curricula of all undergraduate and post graduate programs. Environment awareness activities should be conducted in the student induction program. Research and innovation that could bring technological solutions to environmental problems should be promoted.

6. Standard Operating Procedures

SOPs for Energy Conservation, Water Conservation, Waste Management, Environment Protection and Plastic Waste Management have been laid down for effective implementation of the Policy across the University.

Annexures-

- I. SOPs for Energy Conservation
- II. SOPs for Water Conservation
- III. SOPs for Waste Management
- IV. SOPs on Environment Protection
- V. SOPs on Plastic Waste Management

Annexure-I

MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH & STUDIES



**STANDARD OPERATING PROCEDURES
ON
ENERGY CONSERVATION**

Manav Rachna International Institute of Research & Studies

Sector -46, Surajkund Badkhal Road, Aravali Hills, Faridabad- 121004

SOPs on Energy Conservation

Aim and Scope

The aim of this SOP is to point out detailed rules, time-lines and responsibilities with regard to the Energy Conservation within the MRIIRS campus. All the conventional energy sources, renewable energy systems and energy management are to be driven by these SOPs.

Usage of Electrical and Electronic items

- Switch off all energy consuming equipment including lights, window air conditioners of offices, classrooms and laboratories while not being used.
- Switch off all equipment and lights of common areas at the end of the working day and throughout the weekend.
- Use devices that power down or switch off automatically when not in use; Switch off personal computers and equipments at the end of the workday and throughout the weekend.
- Close doors and windows of air conditioned rooms in the building to prevent loss of warm/ cool air and conserve energy.
- Use day lighting and task lighting in rooms and offices during work rather than constant overhead lighting.
- Prohibit the use of personal electric heaters in offices or any other areas of the building.
- ACs should be operated only when necessary.

Buildings and Constructions

- The decisions and processes of new building construction and renovation should consider energy life cycle costing and analysis.
- New building construction and renovation should be based upon maximizing energy efficiency.
- Decrease the energy consumption by promoting the use of alternative energy sources such as solar water heaters, solar lights, day lighting etc.
- Centralize the utility systems for heating, cooling and other mechanical processes wherever possible.
- Promote strategic use of metering in the campus for energy management.

Lighting

- Make maximum use of natural daylight and minimize indoor lighting whenever possible.
- Minimize the use of exterior decorative lights.
- Promote the use of highly efficient lighting systems and lighting controls made with emerging technologies.
- Use sensor based lighting system to reduce energy consumption.
- Replace conventional CFLs and other lighting appliances with energy efficient LEDs.

Heating and cooling

- Minimize energy usage by setting heating and cooling set points and maintaining the comfort of building occupant at the same time.
- Set temperatures for occupied space to ambient for cooling.
- Shut down the cooling systems in an unoccupied space.
- Set the schedules for Heating, Ventilation and Air Conditioning (HVAC) occupancy aiming towards minimum energy consumption.
- Restrict the exceptions to HVAC occupancy schedules only to special areas that require constant or specific temperatures such as research facilities.
- Usage of most energy efficient means for heating or cooling supply.
- Avoid heating or cooling during off-hours and holidays.
- Window installed air conditioners should be used only in areas that lack central cooling or proper air balance.
- Report areas that are too cold or too hot to the central facilities controller to avoid wastage of energy.

Purchases & Procurements

- Purchase Star rated electrical and electronic equipments and appliances to ensure minimum energy consumption.
- Procure energy efficient electronic office equipment, including but not limited to computers, monitors, printers, scanners, photocopy machines and other such items.

Transportation

- Encourage students and employees to use University Bus service or public transport system for commuting to and from the campus to reduce single occupancy vehicle trips.
- Alternatives means such as bicycling, walking, and carpools should be used instead of driving single occupancy vehicles within the campus.

- Ensure the safety and accessibility for all pedestrians, bicycle riders and visitors within the campus as a sustainability measure.
- Lower the utilization of petroleum products in the University by using low-emitting vehicles.
- Incorporate alternative fuel and technology in vehicles.
- Maintain and operate a cost-effective modes of transportation such as electrified transportation or battery operated carts that reduce dependence on petroleum fuels.

MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH & STUDIES



**STANDARD OPERATING PROCEDURES
ON
WATER CONSERVATION**

Manav Rachna International Institute of Research & Studies

Sector -46, Surajkund Badkhal Road, Aravali Hills, Faridabad- 121004

SOPs on Water Conservation

Aim and Scope

The aim of this SOP is to point out detailed rules, time-lines and responsibilities related to the Water Conservation within the MRIIRS campus. All the water sources, distributions systems, disposal and recycling facilities and water management are to be driven by these SOPs.

Water Distribution and Efficient Utilization

- Make use of water recycling, capturing and reuse systems, such as storm water collection and HVAC condensate recovery, for non-potable uses.
- Install low-flow fittings, water saving flush valves, sensors and flow restrictors on faucets and showers in shower facilities, labs, and restrooms.
- Do not use single-pass or one-way flow cooling water systems for mechanical equipments.
- Report water leakages, dripping through faucets and fixtures that do not shut off, repairable fittings, to the facilities administrator.
- Water reservoirs of Refrigerated Water Coolers should be regularly cleaned and filters should be replaced from time to time.

Water quality monitoring

- **Drinking Water Inspection-** Inspection of Drinking Water for its physico-chemical characteristics as mentioned below will be done by the supervisor on daily basis, , and will be informed immediately to the university administration if any discrepancy is observed:

The Physical characteristics of Water to be inspected are as follows-

Turbidity: It is the non-transparent appearance, cloudiness or haziness of water caused by particulate matter or suspended solids present in water as impurities, that make it to appear turbid.

Colour: Water should be colourless. Dissolved organic matter from decaying vegetation or other soluble inorganic impurities can provide certain colour to water and make it unsuitable for drinking purpose.

Taste and Odour: Any organic or inorganic compounds which contaminate the water and impart taste and odour to the water making it unfit for human consumption.

Temperature: The appropriate temperature of water for drinking purposes is 5 to 12 °C. Water temperature above 25 °C is not recommended for drinking.

- **Sanitary inspections-** Sanitary inspections of the water supply distribution system will be conducted by the supervisor weekly. The inspection should cover all water system, including the source, treatment plants, transmission mains, distribution system and storage reservoirs. The parameters of inspection should be qualitative to find out the deficiencies, inadequacies and hazards which could lead to contamination of water.
- **Repair and maintenance-** The general issues of repair and maintenance of water distribution system should be immediately addressed by the facility administrator. These include cleaning and de-silting of the water tanks and chlorination of water on a regular basis.
- **Cleaning and De-Silting of the Water Tanks:** De-silting of the water tanks should be done on monthly basis, but the frequency can be increased during rainy season and in case of any incident demanding instant cleaning of the water reservoirs. After de-silting the water should regain its colour and odour and inspected for its suitability for drinking purposes.

Chlorination: It is the process of water purification by killing certain bacteria and other microbes in water through addition of chlorine. Chlorination is also an effective way to prevent the spread of many waterborne diseases such as cholera, dysentery, and typhoid. The chlorination schedule should be followed strictly. During summers chlorination of the water should be done on monthly basis, while during the winter season chlorination of the water will be done less frequently.

Waste Water Recycling

- The domestic wastewater generated within the campus should be treated and reused for appropriate non-potable applications such as gardening and irrigation. Supply of fresh water shall be restricted only for potable purposes.

- A sewage treatment plant should be operational for treatment of domestic wastewater.
- Signs and symbols signifying and clearly indicating “treated unused water not fit for drinking” to be fixed on the outlets, hydrants, valves, both surface and sub-surface, covers and at all conspicuous places of re-cycled distribution system.
- No cross-connections shall be made or allowed to be made between the re-cycled water and potable water supply system to avoid contamination.
- Quality standards will be adopted so that the recycled water does not contaminate other sources of water- surface as well as ground water.
- A robust monitoring system shall be adopted for analysis of wastewater quality on a regular basis, with check points in place to identify any deviations from compliance and remedial actions for the same.
- Rain water and run-off water should be collected through rain water harvesting systems to enhance the ground water recharge.
- The over flow of OHT and RO reject should be recycled.

MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH & STUDIES



**STANDARD OPERATING PROCEDURES
ON
WASTE MANAGEMENT**

Manav Rachna International Institute of Research & Studies

Sector -46, Surajkund Badkhal Road, Aravali Hills, Faridabad- 121004

SOPs on Waste Management

Aim and Scope

The objective of this SOP is to specify detailed rules, time-lines and responsibilities related to the waste generation, identification, handling, storage, transport and disposal within the MRIIRS campus.

Waste Classification

- i) **Non-hazardous waste:** Wastes that are not hazardous or harmful to the environment, such as domestic waste, food waste, etc.
- ii) **Hazardous waste:** These wastes are categorized as special wastes due to some characteristics such as toxicity, corrosiveness, flammability and reactivity as they contain certain chemicals, metals and pathogenic organisms that cause severe damage to the environment even at low levels of concentration.
- iii) **Biomedical waste:** Biomedical waste comprises of the waste that includes human anatomical waste (not including teeth, hair and nails), human and animal cultures, animal waste, stocks or specimens, cell lines, live or attenuated vaccines, microbiological waste and material that has come into contact with any of these items, human blood/blood products and body fluids, items contaminated with blood/blood products and body fluids, biologically contaminated sharps including needles, needles attached to syringes, and blades, and pathogenic/transgenic plants/plant parts including plant pests.
- iv) **e-waste:** Waste electrical and electronic equipment, whole or in part or rejects from their repair process, which are intended to be discarded, is called e-waste.

Handling and Transportation of Waste

- ❖ Waste should be handled in such a way that it does not pose any threat to human health and the environment.
- ❖ Proper precautions should be taken in order to avoid accidents that could lead to soil or water pollution, fire or explosion and element generation.
- ❖ Internal transportation of waste should be done properly. Containers with liquid waste should always be closed. Containers carrying solid or liquid waste should also be secured in order to avoid any spills.

Waste Storage

- ❖ Storage areas for waste should be planned correctly.
- ❖ Spills and leakages should be minimized or avoided wherever possible.
- ❖ Sites of hazardous waste should be covered and have suitable containment alongwith proper drainage facilities.
- ❖ Spills should be avoided wherever possible or contained and collected so as to prevent contamination of soil or water.
- ❖ Waste storage areas must be isolated and identified properly
- ❖ Each waste unit should be marked clearly and all operators including those involved in waste collection and transportation should be aware and have proper understanding of each unit.
- ❖ Any hazard risks (flammable, toxic, etc.) should be clearly legible and immediately identifiable.
- ❖ Chemical wastered that are incompatible should be segregated accordingly.
- ❖ Easy access to suitable first aid emergency equipment during fire and spills should be available.
- ❖ A Safety Data Sheet should be available for hazardous waste.

Procedure for non-hazardous waste

- ❖ Waste generated in three separate streams should be segregated and stored in three separate bins namely bio-degradable, non-biodegradable and domestic hazardous wastes
- ❖ Sanitary waste should be wrapped in a suitable wrapping material and disposed in the bin meant non- bio-degradable waste.
- ❖ Construction and demolition waste, as and when generated, in campus should be disposed off separately.

- ❖ Most of the horticulture waste and garden waste generated from the campus should be used mostly for composting. Remaining horticulture waste should be collected as bio-degradable waste.
- ❖ The solid waste generated in the campus, on streets, or public spaces outside the campus should not be thrown, burnt, buried or disposed in the drain or water bodies.
- ❖ Handover segregated wastes to authorized waste collector as per the direction or notification by the authorities from time to time.

❖ **Waste segregation**

Waste should be segregated in 2 dustbins.

- a) **Green bin for Wet waste.** The wet waste including cooked and uncooked food wastes like eggshells and bones, flower, fruit and vegetable peels, garden/plant wastes, Soiled paper should be thrown in green bin.
- b) **Blue for dry waste.** The dry waste including any kind of paper, cardboard & cartons, plastics, wood, containers & packaging of all kinds excluding those containing hazardous materials and compound packaging (Tetra pack etc.) should be thrown in blue bin.



Procedure for hazardous waste

- ❖ In case of hazardous waste, each container having the waste should be labeled with the words "Hazardous Waste."
- ❖ Containers having chemical waste should be clearly labeled with the full name of the chemical and concentration, if known.
- ❖ When using a container which differs from the original chemical to collect waste, always obliterate the original label to avoid confusion, then re-label as hazardous waste and list the contents.
- ❖ Unused chemical reagents, in original containers, with intact labels that are deemed waste, only need to be labeled Hazardous Waste as the original label has all other required information.
- ❖ Hazardous waste should not be combined with any other materials or wastes. If so, the entire mixture should be classified as hazardous waste.
- ❖ Non-hazardous or less hazardous materials should be used in place of hazardous ones wherever possible.
- ❖ Disposal of hazardous waste actually occurs only at permitted Treatment, Storage, and Disposal Facilities.

Procedure for Biomedical waste

- ❖ All the Biomedical wastes should be segregated properly within the lab so that it is disposed properly.
- ❖ Biomedical waste should not be contaminated with any radioactive material or chemicals.
- ❖ Biomedical waste in lab should be collected and kept in approved clear autoclave bags within bins clearly labeled as "Biohazardous Waste".
- ❖ General lab waste such as paper towels and bench coverings should be kept to a minimal.
- ❖ Use of Autoclave bags having biohazard symbol is NOT permitted.
- ❖ Only half of the autoclave bags MUST be filled with waste. Over filled bags or bags filled with more than half full will be returned for re-packaging.
- ❖ Half-filled autoclave bags should be tied with biomedical/biohazardous waste tags containing the detailed description of the waste.
- ❖ Sharps should be disposed in suitable solid containers and not in autoclave bags.
- ❖ General surface decontamination and decontamination of solutions containing microbes and toxins should be done using chemical decontaminants such as chlorine, iodine and alcohols, using an appropriate decontamination method approved by the Institutional Biosafety Committee.

- ❖ Infectious materials and toxins, together with associated waste can be effectively decontaminated by autoclaving.

Procedure for e-waste management

- ❖ Most electronic equipments contain a various hazardous substances and toxic metals such as lead, mercury, cadmium, nickel, polychlorinated biphenyl (PCB) oils, and radioactive materials. Therefore, such waste should be managed properly and never be disposed in the solid waste bin.
- ❖ If the equipment still functions properly before its disposal, other University departments can be to see if it can be of any use to them.
- ❖ If other departments can use the equipment, notify University Inventory Services of the transfer. If no University department can use the equipment, contact University Inventory Services to have them delete the equipment from the inventory system.
- ❖ The e-waste should then be channelized to authorized collection center or registered dismantler or recycler or is returned to the pick-up or take back services provided by the producers.
- ❖ Records of e-waste generated should be maintained and made available for scrutiny by the concerned authorities.

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Annexure-IV

MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH & STUDIES



**STANDARD OPERATING PROCEDURES
ON
ENVIRONMENT PROTECTION**

Manav Rachna International Institute of Research & Studies

Sector -46, Surajkund Badkhal Road, Aravali Hills, Faridabad- 121004

SOPs on Environment Protection

Aim and Scope

The aim of this SOP is to protect the environment in and around the University campus. The usage, management, conservation and preservation of all kinds of natural resources are to be done through these SOPs.

Environment Protection

Any kind of anthropogenic activity has direct or indirect impact on the environment. Over-exploitation of resources has led to the situation where natural resources such as water, forests, conventional energy sources coal and petroleum, minerals etc. are depleting at a very fast rate. Developmental activities of human race like urbanization and industrialization is the major cause of environmental pollution, green-house effect and subsequently climate change.

The SOPs for Environment Protection thus should encompass diligent measures towards protection of all the aspects of environment including both abiotic and biotic factors. The measures are as follows-

- Promote afforestation activities within and around the campus and maintain green cover.
- Minimize the exploitation of resources from their natural sources by avoiding extraction of ground water, cutting of trees, any mining activity.
- Conserve fresh water and harvest rain water.
- Conserve conventional energy by limiting the use of electricity and fossil fuels.
- Generate energy by using renewable resources such as solar energy.
- Minimize pollution to protect air, water, soil and human health.
- Conserve biodiversity by not encroaching upon the natural habitats.
- Reduce, reuse and recycle waste.
- Restrict the use of automated and technology intensive products and processes to reduce the impact of technology on environment.
- Reduce personal Carbon footprint.
- Regularly evaluate the impact of human activities at personal and organizational level, identify the gaps and implement measure to enhance sustainability.
- Embrace environment friendly life style.
- Create awareness about environmental protection among all stakeholders and abide them to follow an environmentally sustainable life style.

MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH & STUDIES



**STANDARD OPERATING PROCEDURES
ON
PLASTIC WASTE MANAGEMENT**

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SOPs on Plastic Waste Management

Aim and Scope

The objective of this SOP is to specify detailed rules and responsibilities regarding ban on use and management of plastic and similar material within the MRIIRS campus.

About Plastics

Plastics have become inevitable and pervasive in everyday life of all. There is wide range of plastic materials and thereby plastic products which are under common usage by people. Of these, only some are recyclable, while most are non-biodegradable. The term 'plastic' encompasses any polymer of chemical nature which is non-biodegradable, made of high or low density polyethylene, multi-materials like acrylonitrile butadiene styrene (ABS) or polycarbonate (PC), or material of similar chemical composition which is harmful for environment.

Any kind of single use plastic is a major pollutant to environment as its degradation in a landfill can take several hundred years, releasing potentially toxic and hazardous microplastics. This makes it obligatory to completely ban the usage, production and disposal of single use plastics.

Plastics can be broadly categorized as-

- 1. Polyethylene Terephthalate (PET or PETE)-** It is used commonly as water bottles and carbonated drink packaging bottles.
- 2. High-Density Polyethylene (HDPE)-** It is thick, durable, opaque plastic used as containers for chemicals, juice, milk, as shampoo bottles and medicine bottles.
- 3. Polyvinyl Chloride (PVC)-** It is used to make pipes, toys, detergent bottles, blister wrap, cling wrap, and tubings.
- 4. Low-Density Polyethylene (LDPE)-** It is most widely occurring form of plastic, used in grocery bags, garbage bags, agriculture bags, bread packagings, frozen food bags, plastic wraps and lining or coatings for paper cartons and cups for hot & cold beverages.
- 5. Polypropylene (PP)-** It is strong, stiff and heat resistant, and is widely used as containers for hot food, as tiffins and water bottles.
- 6. Polystyrene (PS)-** It is commonly known as the Styrofoam and is widely used as disposable food containers, egg cartons, disposable cups and bowls and packaging material.

7. Others- This category includes plastics that are composed of more than one form of plastic mentioned above or made of alternative material known as bioplastics. Polycarbonates (PC) also appear in this category, which is used to make baby feeding bottles, sipper cups, water bottles and ketchup bottles.

Guide to usage of Plastics in MRIIRS campus

- Limiting the use of plastics by every individual as far as possible in their daily lives, which would subsequently reduce the dependence on plastics and would further decrease the production of plastics.
- Minimize generation of plastic waste at both individual and organizational level.
- Instruct canteens to sell and serve food in eco-friendly packaging only.
- Avoid littering, dumping and burning of plastics to prevent air, soil and water pollution.
- Segregate plastic waste at source in color-coded garbage bins.
- Segregation of non-biodegradable plastics by house-keeping staff for safe disposal of the same through authorized agencies.
- Conduct training sessions of house-keeping staff to impart knowledge about mechanism and importance of waste segregation.
- Ensure segregated storage of waste at source and handover segregated waste to urban local body or agency registered as recycler.
- Replace plastics by using eco-friendly products like renewable cotton bags, recycled paper products, wooden or pulp utensils, plant based packaging materials, etc.
- Shift to bio-degradable and compostable plastics.
- Carry out awareness drives to sensitize people and raise awareness on the harmful impact of the usage of Single-use plastic.
- Extend pledge to every member of MRIIRS community to strive to make his/her household plastic free.
- Install necessary alternative facilities like water units to avoid the purchase and use of plastic water bottles.
- Dissuade every stakeholder of MRIIRS and general public in the adjoining approachable communities against the use of plastics.
- Spread awareness intensively about alternatives to plastics like paper bags, cloth bags, kulhars in place of plastic containers.
- All messes, food joints within the campus and hostels shall adhere to these norms strictly.

Rules for Ban on Plastics in MRIIRS campus

The following are completely banned for usage in the University campus-

- Disposable Polyethylene Terephthalate (PET) water bottles
- Disposable Plastic cutlery, plates and cups
- Garbage bags made of polythene
- Shopping bags and carry bags made of polythene
- Plastic straws
- Plastic trays
- Plastic food containers
- Food packaging film;
- Plastic ice cream tubs or containers
- Hot and cold drink cups
- Insulated food packaging
- Protective packaging for fragile items
- Chips bags
- Bottle caps
- Juice/milk packets/tetra-packs with plastic lining
- Single-use plastic sheet banners and posters
- All single use plastic products

The following items are restricted for usage in the University campus, should be reused and/ or recycled to the maximum extent-

- Dispensing containers for water
- Dispensing containers for cleaning fluids
- Microwave dishes
- Cutlery - Trays, plates, bowls, cups, glasses for repeated use
- Refillable pens
- Plastic-ware used in laboratories
- Plastic bins and buckets
- Biodegradable plastic