



OFFICE OF THE DEAN, INTERNAL QUALITY ASSURANCE CELL,
KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY
DEEMED TO BE UNIVERSITY, BHUBANESWAR-24

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Strategic Action Plan on Coastal and Aquatic Ecosystem Conservation at KIIT University

Coastal and aquatic ecosystems are vital for biodiversity and protection but face threats from urbanization, pollution, and climate change. KIIT University's action plan promotes their conservation and sustainable management through research, technology, and community engagement to protect habitats and ensure long-term resilience.

1. **Identification and Protection of Buffer Zones:** Coastal and aquatic regions will be mapped using Geographic Information Systems (GIS) to identify natural buffer zones, which will be legally protected, regulated, and sustainably managed with community participation. Policies will also be promoted to limit harmful construction, pollution, and unsustainable farming in these sensitive areas.
2. **Research, Education, and Outreach:** Efforts will focus on researching solutions to ecological disruptions in aquatic systems, alongside educational programs and campaigns to enhance public awareness. A multidisciplinary approach integrating technology, community participation, and policy frameworks will drive sustainable ecosystem management.
3. **Floodplain and Levee Conservation:** Floodplains will be mapped to assess risks from human activities, with natural levees and floodplains designated as protected zones to prevent harmful interventions such as drainage or dam construction. Flood risk management will be integrated into planning through zoning, while awareness programs will educate authorities, landowners, and the community on their ecological value.
4. **Integrated Water and Sustainability Strategies:**
 - **Efficient Water Management:** Implement campus-wide guidelines to optimize water use across academic, administrative, residential, and agricultural areas, employing technologies like low-flow fixtures and drip irrigation, supported by regulations and incentives to minimize wastage.
 - **Rainwater Harvesting Initiatives:** Promote and integrate rainwater harvesting systems in campus buildings, particularly in water-scarce areas, with incentives and awareness programs to ensure proper adoption and maintenance.
 - **Sewage and Wastewater Management:** Establish and maintain efficient sewage and wastewater treatment systems to prevent pollution, complemented by green infrastructure such as constructed wetlands to naturally filter contaminants.
 - **Sustainable Development Integration:** Incorporate sustainability principles into campus planning and development, align projects with UN SDGs—especially SDG 14: Life Below Water—mandate Environmental Impact Assessments for aquatic projects, and adopt green building standards and energy-efficient technologies.
5. **Plastic Waste Reduction and Management:** Policies will be implemented to minimize single-use plastics, while waste management practices will prevent contamination of nearby rivers and ecosystems. Biodegradable alternatives will be encouraged, and cleanup drives alongside enhanced recycling infrastructure will be promoted, particularly near aquatic and coastal areas.
6. **Biodiversity Conservation and Mapping:** Regular surveys will document key aquatic species, with a focus on endangered or vulnerable ones, while protected areas will be established to support their natural habitats. Collaboration with conservation organizations and citizen science programs will enhance ecosystem protection and encourage community participation in monitoring biodiversity.





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7. **Mangrove Restoration and Conservation:** Large-scale mangrove restoration projects will be undertaken in degraded areas, supported by public education on their ecological benefits, including shoreline protection and carbon sequestration. Collaboration with NGOs and local communities will guide planting efforts in high-risk zones, with funding secured from government sources to sustain conservation activities.
8. **Coral Reef Monitoring and Conservation:** Regular assessments will track coral health, fish populations, and water quality, using remote sensing and diving surveys for comprehensive monitoring. Community engagement and educational programs will promote reef conservation, while restoration initiatives, including coral farming, will support the recovery of degraded reef areas.
9. **River Management and Restoration:** Rivers will be regularly surveyed for pollution, sedimentation, and flow disruptions, with dredging and removal of obsolete dams or barriers to restore natural channels. Sediment control measures will also be implemented to prevent soil erosion and maintain healthy river ecosystems.
10. **Long-Term Ecosystem Monitoring:** A long-term program will track water quality and species populations through strategically placed monitoring stations. Collected data will guide adaptive management and policy decisions, with findings shared transparently with stakeholders and the public to support informed ecosystem conservation.
11. **Sustainable Fishing and Aquaculture:** Fishing practices will be promoted that minimize bycatch and protect habitats, alongside eco-friendly aquaculture methods to reduce pollution and environmental impact. Regulations such as quotas, size limits, and seasonal bans will support fish population recovery, encouraging responsible and sustainable fisheries management.
12. **Integration of Advanced Technologies:** Artificial intelligence, machine learning, and generative tools will be utilized to enhance ecological research, providing data-driven insights that improve understanding of complex ecosystems and support informed conservation strategies.

This action plan demonstrates a strong commitment to conserving coastal and aquatic ecosystems by integrating scientific research, community participation, policy initiatives, and advanced technological solutions. Its goal is to promote sustainable management practices and ensure the long-term health and resilience of these vital environments.

