

Environmental Studies Division (ESD)

Overview

The **Environmental Studies Division (ESD)** is committed to conducting comprehensive research on inland, coastal and marine environments in Sri Lanka. ESD serves as a critical watchdog for the nation's aquatic ecosystems, providing essential environmental assessment services and emergency response capabilities to protect and preserve Sri Lanka's water resources.

The division plays a vital stakeholder role in Technical Evaluation Committees of Environmental Impact Assessments (EIA) for development projects of national importance and responds to emergency incidents such as fish kills, oil spills, and algal blooms.

Leadership & Contact

Head of Division

- **Name:** Dr. K.A.W. Shyamali Weerasekara
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Research Staff

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Key Functions & Responsibilities

Water Quality Monitoring

- Comprehensive assessment and monitoring of inland, coastal and marine water quality
- Regular physicochemical analysis of water bodies across Sri Lanka
- Pollution status evaluation of fishery harbours and coastal areas
- Lagoon and estuary environmental status assessment

Pollution Assessment

- Identification and assessment of pollution sources affecting aquatic environments
- Investigation of pollution impacts on aquatic fauna and flora
- Bioaccumulation studies of harmful chemical substances including heavy metals and agrochemicals
- Monitoring of industrial and agricultural pollution affecting water bodies

Environmental Impact Studies

- Conducting Environmental Impact Assessments (EIA) for major development projects
- Preparation of Initial Environment Examination (IEE) reports
- Technical evaluation services for nationally important infrastructure projects
- Advisory services to Environmental Management Committees

Emergency Response

- Rapid investigation of fish kill incidents
- Assessment and monitoring of oil spill impacts
- Algal bloom identification and impact studies
- Provision of expert reports and recommendations to relevant authorities

Services Offered

Laboratory Services

ESD operates an **accredited water and wastewater testing laboratory** certified by the Sri Lanka Accreditation Board. The laboratory provides:

- Physicochemical analysis of water and wastewater
- Testing services for state and private institutions
- Individual customer water quality analysis
- Cost-effective and reliable testing with fast turnaround times

Environmental Licensing Support

- Facilitation of Environmental Protection Licensing (EPL) procedures for Central Environment Authority
- Water quality testing reports for EPL applications
- Compliance monitoring for industries
- Technical guidance on environmental standards

Consultancy Services

- Environmental impact assessment consultancy
- Pollution control strategy development
- Water quality management planning
- Expert advisory for aquatic environmental issues

Current Research Projects

Project 5.1: Coastal Water Quality Index Development

Development of Coastal Water Quality Index (WQI) for Southern Beaches: A Road to Blue Flag Certification

This pioneering project aims to develop a standardized water quality index specifically for Sri Lankan coastal beaches. The research will establish benchmarks for achieving Blue Flag Certification, an internationally recognized eco-label for beaches that meet strict environmental, safety, and accessibility criteria.

Project 5.2: Emergency Incident Investigation

Investigation of Causes for Emergency Incidents

Ongoing program responding to:

- Oil spill incidents and marine pollution events
- Algal bloom occurrences and toxic algae proliferation
- Fish kill investigations in marine and freshwater environments
- Rapid assessment and remediation recommendations

Project 12: X-Press Pearl Environmental Monitoring

Comprehensive Environmental Monitoring Following X-Press Pearl Maritime Disaster

Long-term monitoring program assessing the environmental impacts of the 2021 X-Press Pearl ship fire and chemical spill. This major initiative tracks:

- Coastal water quality parameters
- Marine ecosystem recovery
- Bioaccumulation of pollutants in marine organisms
- Ecosystem health indicators
- Long-term environmental recovery trajectories

Facilities & Equipment

Accredited Testing Laboratory

The ESD laboratory maintains accreditation from the Sri Lanka Accreditation Board, ensuring international quality standards. The laboratory is equipped with:

- Advanced spectrophotometers for chemical analysis
- Atomic absorption spectrometry for heavy metal detection
- Dissolved oxygen meters and multiparameter probes
- pH meters and conductivity analyzers
- Turbidity meters and colorimeters
- Sample preparation and preservation equipment

Field Equipment

- Portable water quality testing kits
- GPS-enabled sampling devices
- Plankton nets and biological sampling tools
- Sediment sampling equipment
- Field microscopes and analysis tools

Data Management Systems

- Environmental database management systems
- GIS mapping capabilities for spatial analysis
- Statistical analysis software
- Report generation and documentation systems

Major Achievements

- Established as a key stakeholder in national EIA processes
- Provided critical environmental monitoring data for numerous national development projects
- Rapid response capabilities for environmental emergencies
- Laboratory accreditation maintaining international standards
- Contributed to Blue Flag Certification initiative for Sri Lankan beaches
- Comprehensive environmental assessment following X-Press Pearl disaster

Collaboration & Partnerships

ESD works closely with:

- Central Environment Authority
- Department of Fisheries and Aquatic Resources
- Ministry of Environment
- Provincial environmental authorities
- Marine Environment Protection Authority (MEPA)
- International environmental organizations
- University research departments
- Private sector industries requiring EPL compliance

Future Directions

- Expansion of water quality monitoring network
- Development of early warning systems for environmental incidents
- Enhancement of laboratory capabilities with advanced instrumentation
- Establishment of coastal ecosystem health monitoring programs
- Capacity building for environmental assessment professionals
- Integration of remote sensing and GIS technologies
- Climate change impact assessment on aquatic environments

Contact Information

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