



Updates on Industrial Wastewater management in Sri Lanka

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1. Industrial Water Pollution & sources



1.1 Main Water Polluting Sources

- **Untreated wastewater discharge**
 - Domestic
 - **Industrial**
- **Haphazard dumping of solid waste.**
- **Agricultural run off**
 - **Agro chemicals**
 - **Fertilizers**
- **Sand mining activities**
- **Unplanned development activities**
- **Recreational activities**

1.2 Major Industry Sectors & Categories



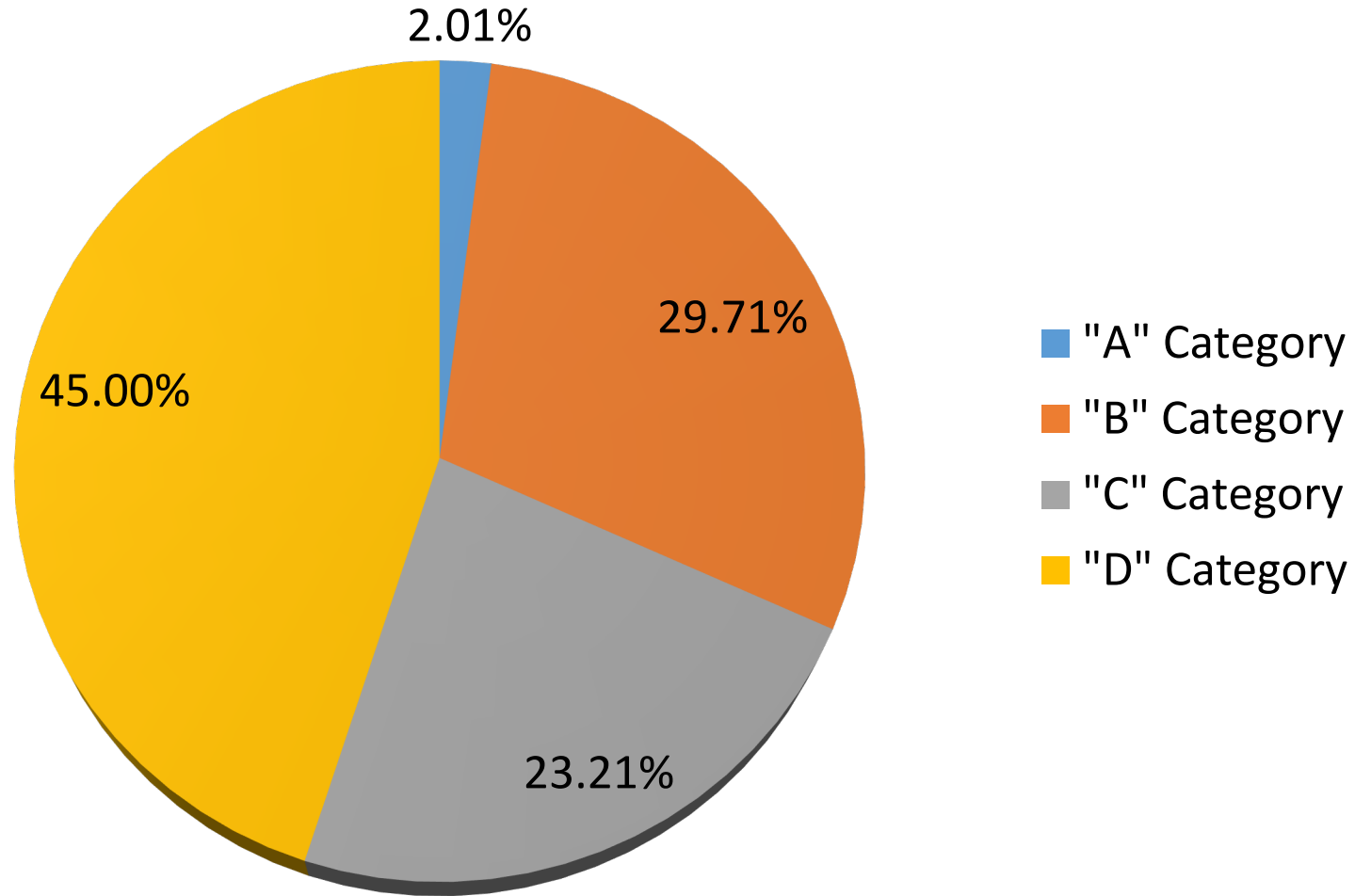
- **Textile**
- **Food & Beverages**
- **Alcohol & Alcoholic Beverages**
- **Tanneries**
- **Metal Finishing & Surface Treatment**
- **Dairy**
- **Rubber (Latex)**
- **Agrochemical**
- **Pharmaceutical**
- **Clay, Glass & Ceramic**
- **Health Care Services**
- **Transport & Vehicle service**
- **Paper & Pulp**
- **Chemical**

1.3 wastewater generated from export processing zones



	Export Processing Zone	TP capacity/m ³ /d	Treatment method	Operated by
1	Biyagama	21,000	Mechanically Aerated lagoon system, oxidation ditch system	NWSDB
2	Seetawaka	13,000	Oxidation Ditch System	NWSDB
3	Koggala	675	Activated Sludge Extended Aeration system	NWSDB
4	Katunayaka	3000	Flow through Aerated Lagoons system	BOI
5	Mirigama	400	Activated Sludge Extended Aeration system	BOI
6	Wathupitiwala	900	Sequencing Batch Reactor system	BOI
7	Polgahawela	450	Oxidation Ditch system	BOI
8	Mawathagama	500	Oxidation Ditch system	BOI
9	Horana	1,000	Rotating Biological Contactors system	BOI
10	Malwatta	450	Oxidation Ditch system	BOI
	Total	37,825		

1.4 Total Number of high , medium & low polluting industries December 2022 (CEA / EPL DATA BASE)





2. Legislative Framework for Industrial Wastewater Management

2.1 Legislative Framework for Industrial Wastewater Management



- **1980** - **National Environmental Act (NEA) No. 47**
- **1981** - **Established CEA as the Implementing Institution**
- **1988** - **NEA Amended to include more Regulatory Provisions – Amendment Act No. 56 of 1988.**
- **2000** - **Amendment Act No 53 of 2000 – minister to determine the prescribed activity for which an EPL is required.**

PART IV Environment Protection & Management

- **PART IVA Environmental Protection Provisions (EPL and SWML)**
- **PART IV B Environmental Quality standards & criteria**
- **PART IV C Environmental Impact Assessment Procedure (EIA)**

2.2 Legal tools to manage & protect the environment



i. Environment Protection License (EPL) Procedure

- Activities, EPL is required are published, Gazette No. 2264/18 of 27.01.2022

ii. Scheduled Waste Management License (SWML) Procedure

- Scheduled wastes listed, in Gazette No 1534/18 of 25.01.2008
- SWML required if generate/ store/ transport/ treatment of such wastes

iii. Environmental Impact Assessment (EIA)

- Prescribed Projects and PAAs, Gazette No 772/22 of 24.06.1993, amendments.
- EIA need prior to start such projects

2.3 Quality Regulations & Policies to Protect Water Resources



i **Effluent Discharge Standards**

Gazette Extraordinary No. 2264/17 dated 27.01.2022 22

ii **Impose more stringent standards & criteria**

iii **Ambient Water Quality Standards**

Gazette Extraordinary No. 2148/20 dated 11.05.2019

iv **Committee for siting of High & Medium Polluting Industries**

Vii **Registration of gully bowsers transporting industrial effluent**

Viii **Environmental Protected Areas**

ix **Directives to LGA s on SWM**



3. Industrial Effluent Discharge Standards

3.1 Effluent Discharge standards No 2264/17 dated 27.01.2022



1. Marine Waters;

near shore water, short sea outfall, long sea outfall

2. Coastal Waters

3. Inland Surface Waters

4. On land for agriculture purposes

5. Landfill leachates

6. Common treatment plant

(can be down loaded from www.cea.lk)

3.2 Basic concept, or philosophy, for setting the standard values



- Previous gazette 1534/18 dated 01.02.2008 (standard rescinded in 2022)
- Reviewed through expert technical committees
- Referred related International organization's guidance such as WHO & other country background & standards.
- Removed industry specific relaxed standards – textile, tanning, rubber -technology has developed for treatment.
- Applicable for prescribed industries
- More options for wastewater discharge modes such as out falls
- Protect coastal waters / near shore waters
- Facilitate waste disposal ie leachate standards
- Consideration of Radio Active pollution
- Irrigation standard with accurate loading rates

3.3 Ambient Water Quality Standards No. 2148/20 dated 11.05.2019



Parameter	Category A Water source for simple treatment	Category B Bathing & contact Recreational water	Category C Fish & Aquatic life water	Category D Water source for general treatment	Category E Irrigation & Agriculture	Category F Minimum water quality
TSS (mg/l)	25	-	40	1500	2100	-
DO at 25C	6	5	5	4	3	3
BOD (mg/l)	3	4	4	5	12	15
COD (mg/l)	10	10	15	30	-	40
Total Coli form (MPN/100ml)	10,000	10,000	-	10,000	-	-
NO ₃ ⁻ (mg/l) ^{*3}	10	10	10	10	-	10
PO ₄ ⁻ (mg/l) ^{*4}	0.7	0.7	0.4	0.7	-	-



4. Status of Effluent monitoring & Inspections



4.1 Status of Effluent monitoring & Industrial Inspections

- High & medium polluting industries- CEA
- Low polluting industries- Delegated to Local Government Authorities
- **Regular inspections in Industries**
 - **High Polluting-** Issue EPL for max 01 year period & monitor twice a year
 - **Medium Polluting-** Monitor once in year
 - Self monitoring reports to be submitted by the industrialist from CEA registered Labs & one from CEA Lab -
 - High polluting need quarterly basis
 - Medium polluting need biannually or annually



4.2 Compliance Monitoring

No of industries Inspected				
	2022	2021	2020	2019
High	1562	1312	1640	3158
Medium	1489	1237	1609	3366
Total	3051	2549	3249	6524

Inspections carried out in Industries located in river basins			
	Kelani river	Kalu river	Other river basins
2022	38	16	21
2021	28	10	12
2020	122	15	-
Total	188	41	33



5. Compliance with Regulations for Effluent Standards

5.1 Industrial Compliance, 2022



Category	No. of Industries	Compliance Status (EPL)
A (High)	1000	960 (96.0%)
B (High)	14292	14189 (99.2%)
C (Medium)	11162	11019 (98.7%)
D (Low)	21644	17855 (82.5%)
Total	48098	91.5%



5.2 Industrial Compliance- 2021,2020,2019, and 2018

Industry Category	2021	2020	2019	2018
High Polluting Industry	14,854 (99.42%)	14,078 (99.47%)	13,582 (99.42%)	12,976 (99.37%)
Medium Polluting Industries	10,340 (99.72%)	10,522 (99.11%)	10,476 (99.50%)	10,527 (99.30%)
Low Polluting Industries	21,648 (79.29%)	20,725 (77.90%)	20,053 (79.56%)	18,958 (74.65%)



6. Issues & Challenges in Wastewater Management



6.1 Issues & Challenges in Industrial Wastewater

- **EPL system applied only for Pollutant Concentrations not for the load.**
- **Law Implementation difficulties for Government services**
- **Non compliance (Time to time) of Industrial Zones/estates.**
- **Improper MSW management by Local Government Authorities**
- **Financial constraints to establish continuous monitoring programmes**
- **Lack of facility for hazardous waste management**
- **No proper methods for sewerage sludge & industrial sludge disposal**
- **Financial constrains in SMEs for pollution control.**



6.2 Targets for Proper Effluent Management

- Implementation of load based standards – **need technical & financial support**
- Implementation of siting regulations – **NEA amendments**
- Enhance monitoring of industries and water bodies- **need technical & financial support**
- Low cost treatment technologies for very common, small & medium types industries.- **need technical support**
- Develop final disposal facilities for MSW, sludge including hazardous waste



7. Recent Developments in Water Environment Governance

7.1 Recent developments in Water Environmental Governance



Amendments to the National Environmental Act No 47 of 1980 - CEA

- Inclusion of Levy of charges for the wastewater discharged to the environment based on the Polluter Pays Principle
- Payment of the wastewater charge or the surcharge
- Natural resources damage assessment and valuation
- Initial approval for siting of industries (new site approval)
- Extended Producer Responsibility for management of waste
- strengthened the punishments

Other Institutions

- Drafted Water Policy coordinated by all the stakeholders - **by the Department of Irrigation**
- Introduction of Sanitation Master Plan – **National Water Supply & Drainage Board**

7.2 River Water Quality Improvement & Monitoring Programs



- **River Survey** - *Two weeks Rapid survey was conducted to identify river water pollution in the year 2020 –10244 pollution points, 942 are due to industrial WW*

- ❖ Based on the Survey data “**Surakimu Ganga**” Program was initiated

- ❖ Prepared programme for improve water quality of rivers.



- **Kelani River Industry Survey**

- ❖ Up dating industry data base, for strict monitoring of polluting activities along Kelani river (within 500m distance).

- **Laboratory Facilities**

- ❖ Accredited Central laboratory and 9 provincial laboratories

- 74 CEA registered private laboratories

- Real time water quality monitoring station located at Ambatale, 02 stations proposed by “**Surakimu Ganga**” project



Thank You!