



GOA STATE POLLUTION CONTROL BOARD  
गोंय राज्य प्रदुशण नियंत्रण मंडळ

# GOA STATE POLLUTION CONTROL BOARD



# “POLLUTION CONTROL MEASURES FOR HOSPITALITY, RESTAURANTS AND TRAVEL INDUSTRIES”

**By:**

**Mr. Pravin Fal Dessai**

**(Assistant Environmental Engineer)**

**(Goa State Pollution Control Board)**



# CONTENT

- 1. ABOUT CENTRAL POLLUTION CONTROL BOARD (CPCB) AND GOA STATE POLLUTION CONTROL BOARD (GSPCB)**
- 2. CONSENT MANAGEMENT SYSTEM**
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- 4. THE WATER (PREVENTION AND CONTROL OF POLLUTION) ACT 1974**
- 5. SOLID WASTE MANAGEMENT**
- 6. RULES UNDER ENVIRONMENT PROTECTION RULES 1986**



## ABOUT “CENTRAL POLLUTION CONTROL BOARD”

The **Central Pollution Control Board (CPCB)**, statutory organisation, was constituted in September, 1974 under the Water (Prevention and Control of Pollution) Act, 1974. Further, CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.

It serves as a field formation and also provides technical services to the Ministry of Environment Forests and climate change .

Principal **Functions** of the CPCB, as spelt out in the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981,





## ABOUT “GOA STATE POLLUTION CONTROL BOARD”



The Goa State Pollution Control Board is a statutory board constituted on 01/07/1988 under the Water (Prevention & Control of Pollution) Act, 1974.

### CHAIRMAN

Shri Mahesh Patil

### MEMBER SECRETARY

Dr. Shamila Monteiro



**Address:** Nr. Pilerne Industrial Estate,  
Opp. Saligao Seminary, Saligao, Goa  
403511



# 2. CONSENT MANAGEMENT SYSTEM



POLLUTION CONTROL LAW

The Water  
(Prevention and  
Control of Pollution)  
Act, 1974

The Goa water (Prevention and  
Control of Pollution) Rule 2021  
as amended

The Goa Air (Prevention and  
Control of Pollution) Rule 2021  
as amended

The Air (Prevention  
and Control of  
Pollution) Act, 1981

- Bio-Medical Waste Management Rules, 2016
  - Hazardous Waste Management and Transboundary) Rules, 2016
  - Solid Wastes Management, Rules, 2016 .
  - Batteries Waste Management Rule 2022
  - Plastics Waste Management Rules, 2016
  - E-Waste Management Rules, 2016 .
  - Noise Pollution (Regulation and Control )Rules 2000
- \*\*\* (Above rules as amended time to time)

The Environment  
Protection Act 1986

## CONSENT MANAGEMENT

The Board has an **Online System** for accepting and processing application for obtaining Consents under the Air Act and the Water Act. (OCMMS)

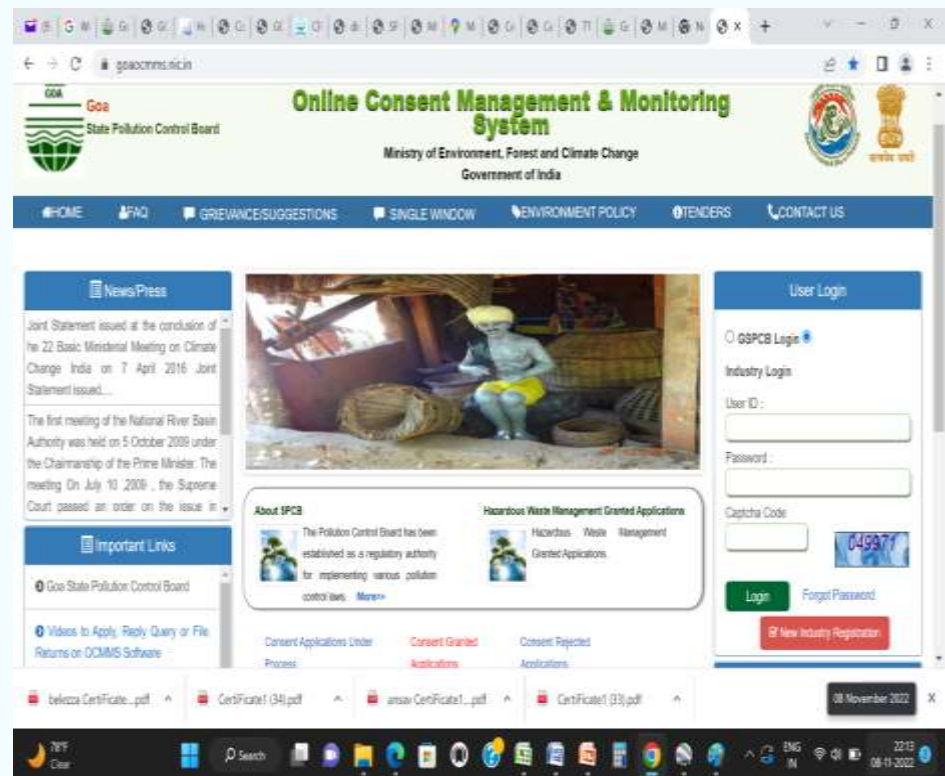
## CONSENT TO ESTABLISH

As per The water Act 1974 and Air Act 1981 the units obtains consent to establish (NOC) before commencement of the construction activities

## CONSENT TO OPERATE

As per The water Act 1974 and Air Act 1981 the units has to obtains consent to operate (CTO) before starting the operations

LINK: <https://goacmms.nic.in/>





## Authorizations/Registrations issued By the Board

The applicant desirous to obtain Authorizations/Registrations under various Rules framed under the Environment (Protection) Act, 1986 as specified below are required to apply in the prescribed forms as applicable and submit to the Board Office:-

- **Bio-Medical Waste Management Rules, 2016**
- **Hazardous Waste Management and Transboundary) Rules, 2016**
- **Solid Wastes Management, Rules, 2016 .**
- **Batteries Waste Management Rule 2022**
- **Plastics Waste Management Rules, 2016**
- **E-Waste Management Rules, 2016 .**

\*\*\*\*(Above rules as amended time to time)







## CATEGORISATION OF INDUSTRIES

Category	Types of Industries	Validity of Consent
<b>RED category</b>	Hotels and Resorts Generating more than 100KLD sewage or Hotel and resorts having Builtup area more than 20000Sqmeter,Airport,Cruise Terminals	5 years
<b>Orange Category</b>	Hotels and resorts above 20 rooms and restaurant facility, Food processing units, EDM events, Onshore and off shore Casinos	10 years
<b>GREEN category</b>	Restaurants, Shacks, Guest Houses, Temporary Huts/cottages,Banquette Halls	15 years
<b>WHITE Category</b>	Not applicable	Not applicable



## DOCUMENT REQUIRED

### DOCUMENTS REQUIRED:

The Following documents should invariably be attached alongwith the application as follows:

#### **A. Consent to Establish/Consent to Operate**

1. Land Allotment/earmarking letter or lease/Sale deed/Form I & XIV.
2. Flow Chart and detailed production process.
3. A copy of Project Report for projects costing Five crores and above.
4. Site plan (not required for units to be set up in Industrial Estates.)
5. Layout plan showing the location of manufacturing equipments, water supply/drainage lines, position of chimneys, effluent treatment plant and final discharge Point, Sludge solid waste disposal points and septic tanks/soak pits.
6. For industries/activities listed in Schedule I of the Environmental Impact Assessment (EIA) Notification 2006 copy of the EIA report/Form/Report submitted for obtaining Environmental Clearance and other survey, if required will have to be furnished in the prescribed time limit.
7. Photocopy of the prior Environmental Clearance (EC) issued by the Competent Authority, if applicable, for project listed in the Environment Impact Assessment (EIA) Notification, 2006, as amended from time to time.
8. Site plan showing surrounding Residential area , public places, water stream, etc., of the factory site within a radius of 5kms with waste water treatment and disposal systems clearly indicating where waste – water is proposed to be disposed off (for medium and large scale enterprises).
9. Schematic sketch of the proposed effluent/sewage treatment system/plant (ETP/STP) and/or septic tanks/soak pit, duly signed by authorized person, along with detailed design calculation.
10. Certificate from Chartered Accountant certifying the Total Estimated Investment (T.E.I). (refer sample specimen below). In case of leased/hired premises/plant/machinery/equipment a certificate from a Registered Valuer towards capital cost is to be submitted without appreciation and depreciation.
11. Original authorization letter of the person to whom authorization is made to sign this application form except individual proprietary concern.
12. Any other documents/clarification as requisition by the Goa State Pollution Control Board.

#### **B. Renewal of Consent to Operate**

1. Certificate from Chartered Accountant certifying the Total Estimated Investment (T.E.I). (refer sample specimen below). In case of leased/hired premises/plant/machinery/equipment a certificate from a Registered Valuer towards capital cost is to be submitted without appreciation and depreciation.
2. Previous Consent to Operate issued by the Board
3. Stack Analysis Report/Analysis report of Treated effluent/sewage.
4. Any changes/modifications in the industry after the consent obtained.
13. Application for auto renewal of Orange and Green category will be accompanied by an affidavit annexed hereto for an individual proprietary concern.
14. Any other documents/clarification as requisition by the Goa State Pollution Control Board.



## CONSENT COPY

### GOA STATE POLLUTION CONTROL BOARD

गोंय राज्य प्रदूषण नियंत्रण मंडळ

(An ISO 9001:2015, ISO 14001:2015, OHSAS 18001:2007 Certified Board)

Phone Nos: 0832- 2407700,  
2407701, 2407702  
Tel/Fax No: 0832- 2407700



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Member Secretary, GSPCB, [ms-gspcb.goa@nic.in](mailto:ms-gspcb.goa@nic.in)  
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Scientist, GSPCB, [scientist-gspcb.goa@nic.in](mailto:scientist-gspcb.goa@nic.in)  
Office, [goapcb@gspcb.in](mailto:goapcb@gspcb.in)

No.12/2020-PCB/786193/O0006148

07/09/2021

**Renewal of Consent to Operate under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 & under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and Renewal of Authorisation under Rule 6(i) of the Hazardous And Other Wastes (Management and Transboundary Movement) Rules as amended in 2018**

[To be referred as Water Act, Air Act and HW (M & T) Rules respectively]

RENEWAL OF CONSENT TO OPERATE AND AUTHORISATION is hereby granted to:

M/s. BELEZA BY THE BEACH  
(Best Location Properties Pvt. Ltd.)  
(Orange Category)

Survey no: 98/1, 99/8, 99/9, 99/12 to 99/16,  
House No. 45/A, Thondvaddo, Betalbatim, Salcete, Goa

Located in the area declared under the provisions of the Water Act, Air Act and Authorisation under the provisions of HW (M & T) Rules, subject to the provisions of the Act and the Rules and the Orders that may be made further and subject to the following terms and conditions:

1. This Renewed Consent to operate and Authorization is issued is valid upto six months from the date of issue of this consent.

2. This Renewed Consent to operate and Authorization is valid for the operation of:

Sr. No	Description	Capacity
1.	Hotel (rooms)	70 Nos
2.	Restaurant (seating capacity)	100 Nos
3.	SPA	1 No

3. **CONDITIONS REQUIRED TO BE COMPLIED UNDER THE WATER ACT:**

(i) The daily quantity of effluent from the hotel (sewage & sullage) shall not exceed 34.38 KLD.

Near Pilerne Industrial Estate, Opp.- Saligao Seminary, Saligao-Bardez Goa-403511

### GOA STATE POLLUTION CONTROL BOARD

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Phone Nos: 0832- 2407700,  
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Email Ids:  
Chairman, GSPCB, [chairman-gspcb.goa@nic.in](mailto:chairman-gspcb.goa@nic.in)  
Member Secretary, GSPCB, [ms-gspcb.goa@nic.in](mailto:ms-gspcb.goa@nic.in)  
Environment Engineer, GSPCB, [ee-gspcb.goa@nic.in](mailto:ee-gspcb.goa@nic.in)  
Scientist, GSPCB, [scientist-gspcb.goa@nic.in](mailto:scientist-gspcb.goa@nic.in)  
Office, [goapcb@gspcb.in](mailto:goapcb@gspcb.in)

No.12/2020-PCB/739487/G0005691

Date: 20<sup>th</sup> June 2021

**Renewal of Consent to Operate under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 & under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and Renewal of Authorization under Rule 6(i) of the Hazardous and other Wastes (Management and Transboundary Movement) Rules 2018.**

[To be referred as Water Act, Air Act and HW (M & T) Rules respectively]

RENEWAL OF CONSENT TO OPERATE AND AUTHORIZATION is hereby granted to:

M/s. VISHWA SARASWATI SOCIETY  
(HOTEL MANAGEMENT INSTITUTE)  
(Represented by: Mr. Ajit Manguesh Gude)  
(Orange Category)

Survey No. 301/1, Manora, Raia, Salcete - Goa

Located in the area declared under the provisions of the Water Act, Air Act and Authorization under the provisions of HW (M, H& T) Rules, subject to the provisions of the Act and the Rules and the Orders that may be made further and subject to the following terms and conditions:

1. This Renewal of Consent to operate and Authorization is issued in supersession of the earlier Consent Orders issued vide Order No. 5/5022/10-PCB/14333 dated 23/03/2015 is valid up to 27/12/2025.

2. This Renewal of Consent to operate and Authorization is valid for the manufacture of:

Sr. No.	Description	Capacity
1.	Operation of Sewage Treatment Plant for a Hotel Management Institute	60 KLD

3. **CONDITIONS REQUIRED TO BE COMPLIED UNDER THE WATER ACT:**

(i) The daily quantity of industrial effluent from the factory shall not exceed NIL.

(ii) The daily quantity of domestic effluent from the factory shall not exceed 56 KLD.

Near Pilerne Industrial Estate, Opp.- Saligao Seminary, Saligao-Bardez Goa-403511



# **3. THE AIR (PREVENTION AND CONTROL OF POLLUTION) ACT 1981**

# AIR POLLUTIONS

## POSSIBLE SOURCES OF AIR POLLUTIONS

- Emissions from Operations of Diesel Generator Sets
- Emissions from Operations of Boilers
- Emissions from Operations of Thermic Fluid Heater
- Kitchen Exhaust gases,Tandoor emissions
- Noise Pollutions (Loud Music, Events, Machine Noise)
- Odour Pollution due to inefficient operations of STP



## COMPLIANCES UNDER AIR ACT

### 4. CONDITIONS REQUIRED TO BE COMPLIED UNDER THE AIR ACT:

- (i) The hotel unit shall maintain and operate air pollution control system of adequate capacity for the following equipments

Sr. No.	Name of Equipments/ Installation	No of Installation	Capacity	SO <sub>2</sub> Kg/Hr	(g/kw-hr)			
					NO <sub>x</sub>	HC	CO	PM
1	D.G. Set	1	125 KVA	1.44	9.2	1.3	3.5	0.3

- (ii) The hotel unit shall erect the chimney(s) of the following specifications:

Sr. No	Chimney attached to	Height
1	D.G. Set	4.8 mts

- (iii) The hotel unit shall observe the following standards:-

Sr. No	Type of fuel	Quantity /hr
1	H.S.D	20 lts/hr

- (iv) The Stack Port Hole and Platform is to be designed as per CPCB guidelines Method 1 Part 1 of Stack Monitoring –Material & methodology for isokinetic sampling.

- (v) The hotel unit should comply with all the standards for D.G. Sets prescribed at Sr. no. 94, 95 and 96 of Schedule I of the Environment (Protection) Rules, 1986.

- (vi) The hotel unit should carry out emission monitoring from the stacks once every year from a laboratory recognized by Ministry of Environment and Forest under the Environment Protection Act, 1986 and the result shall be submitted to this Board by the 15<sup>th</sup> of subsequent month.





## COMPLIANCES UNDER AIR ACT



The hotel unit shall take adequate measures for control of noise levels from its own sources within the premises in respect of noise. The limits are as follows

Category of Area/Zone	Limits in dB (A) Leq	
	Day time	Night time
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Silence Zone	50	40

Day time is reckoned between 6 a.m. to 10 p.m. and night time is reckoned between 10 p.m. to 6 a.m.



## AIR POLLUTION CONTROL MECHANISM

- Using cleaner and approved fuels such as biodiesel,CNG,LPG,HSD,
- Reducing fuel consumptions and monitoring fuel consumptions
- Solar concentrators for water heating,
- Acoustic enclosures for the blowers and noise generating equipment/Machines,DG set.
- Periodically monitor the emissions from chimneys.
- Monitoring Noise levels
- Channelizing cooking and kitchen emissions by proper ducting/hood arrangements.
- Chimney of required height for boilers, DG sets,
- Use Electric Vehicles





# **4. THE WATER (PREVENTION AND CONTROL OF POLLUTION) ACT 1974**

# WATER POLLUTION

## POSSIBLE SOURCES OF WASTE WATER

- DOMESTIC WASTE WATER FROM TOILETS
- WASHING OF UTENSILS ,FLOOR WASHINGS
- COOLING TOWER BLOWDOWN
- SWIMMING POOL BACKWASH WATER
- LAUNDARY EFFLUENTS
- UNTREATED SEWAGE DISPOSAL FROM STP





## Consent to operate Conditions

## Environment Protection Act 1986

### 3. CONDITIONS REQUIRED TO BE COMPLIED UNDER THE WATER ACT:

(i) The daily quantity of effluent from the Hotel Unit (sewage & sullage) shall not exceed **14.65 K.L.D.**

#### (ii) Sewage Treatment Plant:

The Hotel Unit shall treat the domestic effluent in the existing Sewage treatment plant (32 KLD capacity) based on MBBR technology consisting of primary, secondary and tertiary treatment, as is warranted with reference to influent quality and operate and maintain the same continuously so as to achieve the quality of the treated effluent to the following standards:

Parameter	Standard	Value
pH	Between	5.5 & 9.0
Total Suspended Solids	Not to exceed	Not more than 100
BOD, 3 days, 27°C	Not to exceed	30 mg/l
COD	Not to exceed	250 mg/l
Oil & Grease	Not to exceed	10 mg/l

#### (iii) Sewage Disposal:

The treated effluent shall be recycled to the maximum extent and remaining shall be used on land for gardening, floor washing, toilet flushing etc. There shall not be any discharge outside the hotel premises.

(iv) The Hotel Unit shall operate and maintain a proper Oil and Grease Trap for effluent arising from its kitchen and laundry and shall have to comply with the 'General Standards for Discharge of Environmental Pollutants Part-A: Effluents' notified under Schedule-VI.

(v) The Hotel Unit shall at his own cost get the effluent samples collected both before and after treatment and analyse, every month the parameters indicated above from a laboratory recognized by Ministry of Environment and Forest under the Environment Protection Act, 1986 and rules there under and results shall be submitted regularly to this Board.

(vi) A good house-keeping shall be maintained within the hotel premises. All pipes, valves and drains shall be maintained in leak-proof condition. Floor washings shall be maintained to the effluent collection system only and shall not be allowed to find way in open areas.

S. No.	Industry	Parameter	Standards		
1	2	3	4		
139	Hotel Industry	<b>Effluent Standards</b>			
		(i) Hotel with atleast 20 bedrooms	Limiting concentration in mg/l Except for pH		
			Inland Surface Water	On land for Irrigation	
		pH	5.5-9.0	5.5-9.0	
		BOD 3 days 27 °C	30	100	
		Total Suspended Solids	50	100	
		Oil & Grease	10	10	
		Phosphate as P	1.0	-	
		(ii) Hotel with less than 20 bedrooms or a Banquet Hall with minimum floor area of 100 m <sup>2</sup> or a Restaurant with minimum seating capacity of 36			
		pH	5.5-9.0	5.5-9.0	
		BOD 3 days 27 °C	100	100	
		Total Suspended Solids	100	100	
		Oil & Grease	10	10	
		<b>Notes:</b>			
		i. Hotels, banquet halls, restaurants, etc. located in coastal area shall also comply with the provisions of the Coastal Regulation Zone, as applicable.			
ii. If, the effluent is discharged into a municipal sewer leading to a Sewage Treatment Plant, the hotel or restaurant or banquet hall, as the case may be, shall provide a proper Oil and Grease Trap for effluent arising from its kitchen and laundry and shall have to comply with the 'General Standards for Discharge of Environmental Pollutants Part-A: Effluents' notified under Schedule-VI.]					



## STP DISCHARGE STANDARDS ADOPTED BY BOARD

1. Treated effluent discharge standards for Sewage treatment plants of above 150KLD capacity for Industries, Residential complex/societies, STP operated by SIDCGL/PWD and Hotel industries above 50KLD STP are :

Parameters	Discharge on land for irrigation, Inland surface water	
pH	Between	5.5 & 9.0
Total Suspended Solids	Not to exceed	Not more than 20
BOD, 3 days, 27° C	Not to exceed	10 mg/l
COD	Not to exceed	50 mg/l
Phosphorus Total (Discharge in lakes / water bodies)	Not to exceed	1.0 mg/l
N-total	Not to exceed	10mg/l
Fecal Coliform	Less than	100mg/l
Oil & Grease	Not to exceed	10mg/l
NH-4-N (Discharge in lakes / water bodies)	Not to exceed	5 mg/l

2. Treated effluent discharge standards for Sewage treatment plants of upto 150 KLD capacity for Industries, Residential complex/societies, STP operated by SIDCGL/PWD etc and Hotel industries upto 50 KLD STP are :

Parameters	Discharge on land for irrigation	
pH	Between	5.5 & 9.0
Total Suspended Solids	Not to exceed	Not more than 100
BOD, 3 days, 27° C	Not to exceed	30 mg/l
COD	Not to exceed	250 mg/l
Oil & Grease	Not to exceed	10mg/l
Phosphorus Total (Discharge in lakes / water bodies)	Not to exceed	5.0 mg/l



## CONSENT TO OPERATE CONDITIONS

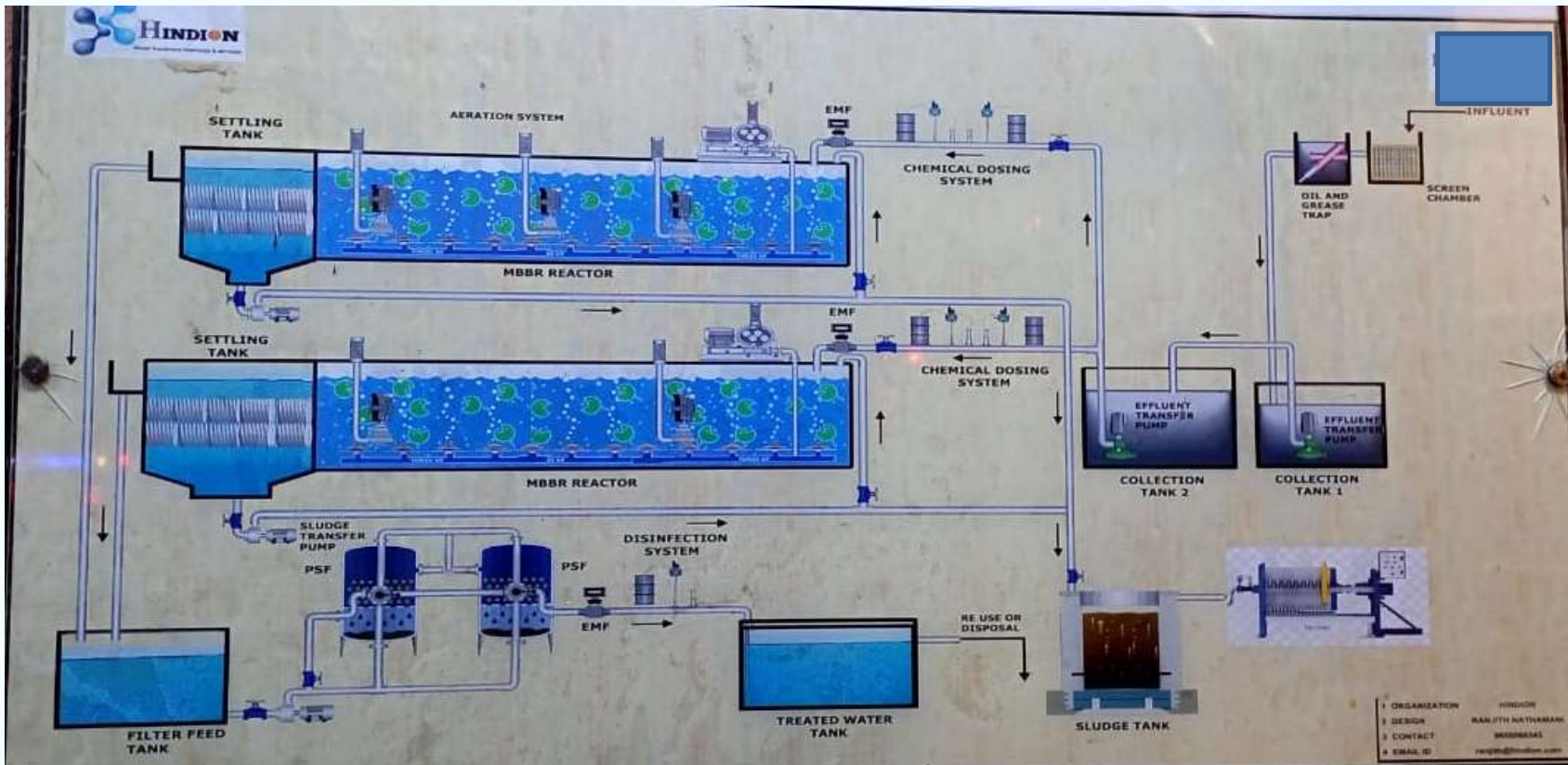
### 3. CONDITIONS REQUIRED TO BE COMPLIED UNDER THE WATER ACT:

- (i) The daily quantity of effluent from the Hotel Unit (sewage & sullage) shall not exceed **14.65 K.L.D.**
- (ii) **Sewage Treatment Plant:**  
The Hotel Unit shall treat the domestic effluent in the existing Sewage treatment plant (32 KLD capacity) based on MBBR technology consisting of primary, secondary and tertiary treatment, as is warranted with reference to influent quality and operate and maintain the same continuously so as to achieve the quality of the treated effluent to the following standards:
- |                        |               |                   |
|------------------------|---------------|-------------------|
| pH                     | Between       | 5.5 & 9.0         |
| Total Suspended Solids | Not to exceed | Not more than 100 |
| BOD, 3 days, 27°C      | Not to exceed | 30 mg/l           |
| COD                    | Not to exceed | 250 mg/l          |
| Oil & Grease           | Not to exceed | 10 mg/l           |
- (iii) **Sewage Disposal:**  
The treated effluent shall be recycled to the maximum extent and remaining shall be used on land for gardening, floor washing, toilet flushing etc. There shall not be any discharge outside the hotel premises.
- (iv) The Hotel Unit shall operate and maintain a proper Oil and Grease Trap for effluent arising from its kitchen and laundry and shall have to comply with the 'General Standards for Discharge of Environmental Pollutants Part-A: Effluents' notified under Schedule-VI.
- (v) The Hotel Unit shall at his own cost get the effluent samples collected both before and after treatment and analyse, every month the parameters indicated above from a laboratory recognized by Ministry of Environment and Forest under the Environment Protection Act, 1986 and rules there under and results shall be submitted regularly to this Board.
- (vi) A good house-keeping shall be maintained within the hotel premises. All pipes, valves and drains shall be maintained in leak-proof condition. Floor washings shall be maintained to the effluent collection system only and shall not be allowed to find way in open areas.

### 6. GENERAL CONDITIONS:

- (i) The hotel unit shall not change or alter the quantity, quality of discharge, temperature or the mode of the effluent/ emission or hazardous wastes or control equipments provided for without previous permission of the Board.
- (ii) The hotel unit shall provide facility for collection of samples of effluent, air emissions and hazardous wastes to the Board staff.
- (iii) An application in prescribed form along with the prescribed fees for renewal of Consent shall be submitted at least 60 days before the expiry of validity of this Consent. An application for renewal of Consent submitted after expiry of the validity shall accompany with penalty of 50% of the Consent fees in addition to the prescribed consent fees.
- (iv) The Board shall be forthwith informed of any accident or unforeseen event involving discharge of any poisonous, noxious or polluting matter into a stream or well or on land or into the atmosphere, as result of such discharge water/ air is being polluted.
- (v) This Consent to operate is granted without any prejudice to any of the permission(s) required under any law, by laws and regulations in force.
- (vi) The Board reserves the right to amend or add any conditions in this consent and the same shall be binding on the applicant.
- (vii) The hotel unit shall submit to this office, the Environmental Statement Report in Form V for the Financial Year ending April to March by 30<sup>th</sup> September of the succeeding year as per the provisions of the rule 14 of the Environment (Protection) (Second Amendment) Rules, 1992.
- (viii) This Consent does not entitle the party to commence activities until and unless all the other ~~Permissions~~ as required under the relevant statutes are obtained by the party and this Consent to Operate is confined to matters arising out of the Air Act and Water Act only.
- (ix) Reliable flow meter shall be installed to maintain record of water consumption/waste water

# SEWAGE TREATMENT PLANT

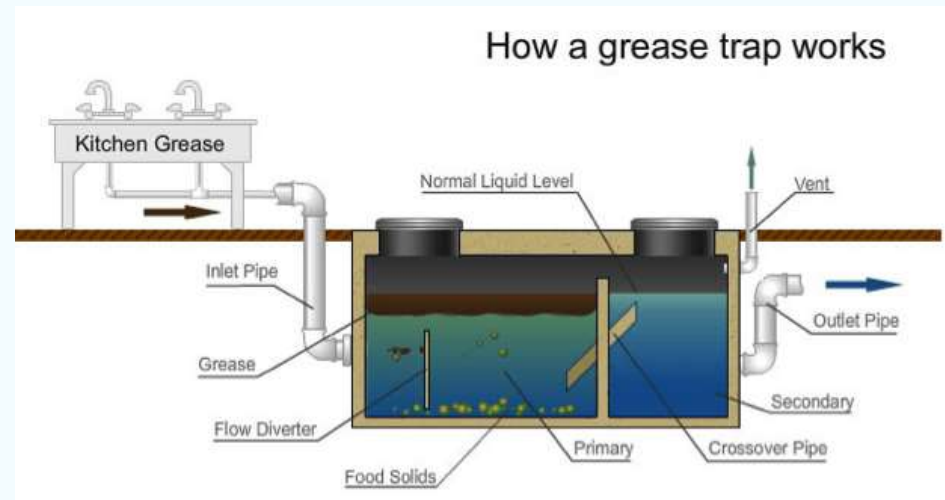




## SEWAGE TREATMENT PLANT



## OIL AND GREASE TRAP KITCHEN



## BIODIGESTER FOR SEWAGE



BIODIGESTOR TANK



TEMPORARY HUTS AND SHACKS

## SEPTIC TANK AND SOAK PIT SYSTEM





## CONTROL OF WATER POLLUTION

- Installation of sewage treatment plant (STP)
- Using stp treated water for toilet flushing, gardening, floor washing, cooling tower makeup.
- Installation of oil and grease trap for kitchen outlet.
- Never mix storm water with sewage drains.
- Pre neutralisation of laundry waste water
- Using biodegradable detergents
- Regular monitoring and maintain the STP.
- Install electronic flow meter for water consumption and waste water generation and treatment Maintain records

## ENERGY CONSERVATIONS

- Application of Solar energy for illuminations, water heating
- Solar Power supply (renewal energy sources)
- VFD based Energy efficient Chiller
- Use of LED lights
- Use of heat pumps to utilise waste heat



## WATER CONSERVATIONS

- Installation of reliable Flow meters
- Ground water withdrawal borewells has to be registered and flow monitored
- Roof top rain water Harvesting, Ground waste recharge
- Efficient fixture such as low flow showers heads,bath sinks
- Ultra filtration of STP water for toiler flushing.





# 5. SOLID WASTE MANAGEMENT

## SEGREGATION OF DRY AND WET WASTE



My kitchen is Zero Waste Kitchen  
I SEGREGATE MY WASTE

DRY WASTE		WET WASTE	
PAPER & CARDBOARDS	PLASTIC BOTTLES	FRUIT PEELS AND PIECES	VEGETABLE PIECES
TIN CANS	TETRAPACKS (MILK/JUICE)	FISH SCALES AND BONES	EGG SHELLS
PLASTIC BAGS	GLASS BOTTLES	COOKED FOOD	BONES AND ENTRAILS
SHAMPOO/ SOAP BOTTLES	FOOD/PIZZA BOXES	TEA SACHETS & LEAVES, COFFEE	COCONUT



## SOLID WASTE MANAGEMENT



CRATES

NURSERY



COMPOST



CRATE COMPOSTING

## BIOGAS PLANT



## IN VESSEL COMPOSTING UNIT



COMPOST



## IN VESSEL COMPOSTING UNIT



## COMPOST

## VERMICOMPOSTING PIT





## IMPROPER SAGRECATION VS PROPER SAGREGATION

## WASTE COOKING OIL

- Used Cooking Oil generated in the hotels has to be given for manufacture biodiesel. M/s Muenzer Bharat Pvt Ltd is presently collecting cooking oil.
- Used Cooking oil collected by the M/s Muenzer Bharat Pvt Ltd is recycled and converted Bio Diesel



## ACTION TAKEN AGAINST NON COMPLAINTS

- ❖ DIRECTIONS UNDER SECTION 33A OF THE WATER (PREVENTION AND CONTROL OF POLLUTION)ACT 1974
- ❖ DIRECTIONS UNDER SECTION 31A OF THE AIR (PREVENTION AND CONTROL OF POLLUTION)ACT 1981
- ❖ DIRECTIONS UNDER SECTION 5 OF ENVIRONMENT PROTECTION ACT 1986
- ❖ ENVIRONMENTAL COMPENSATION UNDER POLLUTER PAY PRINCIPAL
- ❖ CLOSURE OF INDUSTRY IF NOT COMPLIED TO DIRECTIONS





## GRIEVANCE REDRESSAL MECHANISM:-

The aggrieved public can file their grievance in writing with the Member Secretary or meet personally the Officials concerned during 9.30a.m to 5.45p.m The Goa State Pollution Control Board is not a licensing authority, but its clearance is essential for every industrial unit.

## RIGHT TO INFORMATION ACT 2005:-

Any person can obtain information under the above act.





# 6. RULES UNDER ENVIRONMENT PROTECTION ACT 1986

## BIO-MEDICAL WASTE MANAGEMENT RULES, 2016

This Rule is applicable to all the health care Facilities (HCF) including hospitals, clinics, dispensaries, blood banks, Heath clinic in Hotels if any etc.

Application for authorisation to be submitted online on OCMMS to the Board.

Presently Common Biomedical Waste Treatment Facility operated by M/s Biotic Waste Solutions Private Limited Goa is established at Kundaim Industrial Estate

Sanitary waste, Diapers are non BMW. But arrangements done to dispose the such waste at M/s Biotic Solutions



## IMAGE Bio-Medical Waste Segregation Chart

Category	Type of Waste
<p><b>YELLOW</b></p>  	<ul style="list-style-type: none"> <li>• Post Operative Body Parts</li> <li>• Placenta</li> <li>• Plaster of Paris (POP)</li> <li>• Pathological Waste</li> <li>• Cotton Waste</li> <li>• Dressing Materials</li> <li>• Beddings</li> <li>• Body Fluid Contaminated Paper and Cloth</li> <li>• Face Mask, Cap</li> <li>• Cytotoxic, Expired &amp; Discarded Medicines</li> <li>• Microbiology, Biotechnology Lab Waste</li> </ul>
<p><b>RED</b></p>  	<ul style="list-style-type: none"> <li>• Syringe with out needles</li> <li>• I.V.Set</li> <li>• Catheters</li> <li>• Gloves</li> <li>• Urine Bag</li> <li>• Dialysis Kit</li> <li>• IV Bottles</li> </ul>
<p><b>WHITE (Translucent)</b></p>  	<ul style="list-style-type: none"> <li>• Needles</li> <li>• Syringes with fixed needles</li> <li>• Blades</li> <li>• Scalpels</li> </ul> <p><small>* Use 1% Hypo Chloride Solution for disinfecting Glass &amp; Metal Sharps</small></p>
<p><b>BLUE</b></p>  	<ul style="list-style-type: none"> <li>• Glass             <ul style="list-style-type: none"> <li>- Broken Glass</li> <li>- Ampoules</li> <li>- Lab Slides</li> </ul> </li> <li>• Metals             <ul style="list-style-type: none"> <li>- Nails</li> <li>- Metallic Body Implants</li> <li>- Scissors</li> </ul> </li> </ul> <p><small>* Use 1% Hypo Chloride Solution for disinfecting Glass &amp; Metal Sharps</small></p>



## **HAZARDOUS WASTE MANAGEMENT AND TRANSBOUNDARY)** **RULES, 2016**

These Rules focus on **waste minimization, recycling, reuse, recovery, co-processing and safe disposal**

For the management of hazardous and other wastes, an occupier shall follow the following steps, namely:-

- (a) prevention;
- (b) minimization;
- (c) reuse;
- (d) recycling;
- (e) recovery, utilization including co-processing;
- (f) safe disposal;

## HAZARDOUS WASTE MANAGEMENT AND TRANSBOUNDARY) RULES, 2016

“Hazardous waste” means any waste which by reason of characteristics such as physical, chemical, biological, reactive, toxic, flammable, explosive or corrosive, causes danger or is likely to cause danger to health or environment, whether alone or in contact with other wastes or substances, and shall include as specified in Schedule I /II/III.





# HAZARDOUS WASTE MANAGEMENT AND TRANSBOUNDARY RULES, 2016

• In Schedule 1, 38 processes are included with 125 waste streams.

**SCHEDULE I**  
[See rule 3 (1) (17) (i)]

**List of processes generating hazardous wastes**

S.No. (1)	Processes (2)	Hazardous Waste* (3)
1.	Petrochemical processes and pyrolytic operations	1.1 Furnace or reactor residue and debris 1.2 Tarry residues and still bottoms from distillation 1.3 Oily sludge emulsion 1.4 Organic residues 1.5 Residues from alkali wash of fuels

(1)	(2)	(3)
		1.6 Spent catalyst and molecular sieves 1.7 Oil from wastewater treatment
2.	Crude oil and natural gas production	2.1 Drill cuttings excluding those from water based mud 2.2 Sludge containing oil 2.3 Drilling mud containing oil
3.	Cleaning, emptying and maintenance of petroleum oil storage tanks including ships	3.1 cargo residue, washing water and sludge containing oil 3.2 cargo residue and sludge containing chemicals 3.3 Sludge and filters contaminated with oil 3.4 Ballast water containing oil from ships
4.	Petroleum refining or re-processing of used oil or recycling of waste oil	4.1 Oil sludge or emulsion 4.2 Spent catalyst 4.3 Skop oil 4.4 Organic residue from processes 4.5 Spent clay containing oil
5.	Industrial operations using mineral or synthetic oil as lubricant in hydraulic systems or other applications	5.1 Used or spent oil 5.2 Wastes or residues containing oil 5.3 Waste cutting oils
6.	Secondary production and / or industrial use of zinc	6.1 Sludge and filter press cake arising out of production of Zinc Sulphate and other Zinc Compounds. 6.2 Zinc fines or dust or ash or skimmings in dispersible form 6.3 Other residues from processing of zinc ash or skimmings 6.4 Flue gas dust and other particulates
7.	Primary production of zinc or lead or copper and other non-ferrous metals except aluminium	7.1 Flue gas dust from roasting 7.2 Process residues 7.3 Arsenic-bearing sludge 7.4 Non-ferrous metal bearing sludge and residue. 7.5 Sludge from scrubbers
8.	Secondary production of copper	8.1 Spent electrolytic solutions 8.2 Sludge and filter cakes 8.3 Flue gas dust and other particulates
9.	Secondary production of lead	9.1 Lead bearing residues 9.2 Lead ash or particulate from flue gas 9.3 Acid from used batteries
10.	Production and/or industrial use of cadmium and arsenic and their compounds	10.1 Residues containing cadmium and arsenic
11.	Production of primary and secondary aluminum	11.1 Sludges from off-gas treatment 11.2 Cathode residues including pot lining wastes 11.3 Tar containing wastes 11.4 Flue gas dust and other particulates 11.5 Drosses and waste from treatment of salt sludge

# HAZARDOUS WASTE MANAGEMENT AND TRANSBOUNDARY

## RULES, 2016

(1)	(2)	(3)
		11.6 Used anode butts 11.7 Vanadium sludge from alumina refineries
12.	Metal surface treatment, such as etching, staining, polishing, galvanizing, cleaning, degreasing, plating, etc.	12.1 Acidic and alkaline residues 12.2 Spent acid and alkali 12.3 Spent bath and sludge containing sulphide, cyanide and toxic metals 12.4 Sludge from bath containing organic solvents 12.5 Phosphate sludge 12.6 Sludge from staining bath 12.7 Copper etching residues 12.8 Plating metal sludge
13.	Production of iron and steel including other ferrous alloys (electric furnace; steel rolling and finishing mills; Coke oven and by products plant)	13.1 Spent pickling liquor 13.2 Sludge from acid recovery unit 13.3 Benzol acid sludge 13.4 Decanter tank tar sludge 13.5 Tar storage tank residue 13.6 Residues from coke oven by product plant.
14.	Hardening of steel	14.1 Cyanide-, nitrate-, or nitrite -containing sludge 14.2 Spent hardening salt
15.	Production of asbestos or asbestos-containing materials	15.1 Asbestos-containing residues 15.2 Discarded asbestos 15.3 Dust or particulates from exhaust gas treatment.
16.	Production of caustic soda and chlorine	16.1 Mercury bearing sludge generated from mercury cell process 16.2 Residue or sludges and filter cakes 16.3 Brine sludge
17.	Production of mineral acids	17.1 Process acidic residue, filter cake, dust 17.2 Spent catalyst
18.	Production of nitrogenous and complex fertilizers	18.1 Spent catalyst 18.2 Carbon residue 18.3 Sludge or residue containing arsenic 18.4 Chromium sludge from water cooling tower
19.	Production of phenol	19.1 Residue or sludge containing phenol 19.2 Spent catalyst
20.	Production and/or industrial use of solvents	20.1 Contaminated aromatic, aliphatic or naphthenic solvents may or may not be fit for reuse. 20.2 Spent solvents 20.3 Distillation residues 20.4 Process Sludge
21.	Production and/or industrial use of paints, pigments, lacquers, varnishes and inks	21.1 Process wastes, residues and sludges 21.2 Spent solvent
22.	Production of plastics	22.1 Spent catalysts 22.2 Process residues
23.	Production and /or industrial use of glues, organic cements.	23.1 Wastes or residues (not made with vegetable or animal materials)

(1)	(2)	(3)
	adhesive and resins	23.2 Spent solvents
24.	Production of canvas and textiles	24.1 Chemical residues
25.	Industrial production and formulation of wood preservatives	25.1 Chemical residues 25.2 Residues from wood alkali bath
26.	Production or industrial use of synthetic dyes, dye-intermediates and pigments	26.1 Process waste sludge/residues containing acid, toxic metals, organic compounds 26.2 Dust from air filtration system 26.3 Spent acid 26.4 Spent solvent 26.5 Spent catalyst
27.	Production of organic-silicone compound	27.1 Process residues
28.	Production/formulation of drugs/pharmaceutical and health care product	28.1 Process Residue and wastes 28.2 Spent catalyst 28.3 Spent carbon 28.4 Off specification products 28.5 Date-expired products 28.6 Spent solvents
29.	Production, and formulation of pesticides including stock-piles	29.1 Process wastes or residues 29.2 Sludge containing residual pesticides 29.3 Date-expired and off-specification pesticides 29.4 Spent solvents 29.5 Spent catalysts 29.6 Spent acids
30.	Leather tanneries	30.1 Chromium bearing residue and sludge
31.	Electronic Industry	31.1 Process residue and wastes 31.2 Spent etching chemicals and solvents
32.	Pulp and Paper Industry	32.1 Spent chemicals 32.2 Corrosive wastes arising from use of strong acid and bases 32.3 Process sludge containing adsorbable organic halides(AOX <sub>2</sub> )
33.	Handling of hazardous chemicals and wastes	33.1 Empty barrels/containers/liners contaminated with hazardous chemicals /wastes 33.2 Contaminated cotton rags or other cleaning materials
34.	De-contamination of barrels / containers used for handling of hazardous wastes/chemicals	34.1 Chemical-containing residue arising from decontamination. 34.2 Sludge from treatment of waste water arising out of cleaning / disposal of barrels / containers
35.	Purification and treatment of exhaust air/gases, water and waste water from the processes in this schedule and common industrial effluent treatment plants (CETP's)	35.1 Exhaust Air or Gas cleaning residue 35.2 Spent ion exchange resin containing toxic metals 35.3 Chemical sludge from waste water treatment 35.4 Oil and grease skimming 35.5 Chromium sludge from cooling water
36.	Purification process for organic	36.1 Any process or distillation residue

(1)	(2)	(3)
	compounds/solvents	36.2 Spent carbon or filter medium
37.	Hazardous waste treatment processes, e.g. pre-processing, incineration and concentration	37.1 Sludge from wet scrubbers 37.2 Ash from incinerator and flue gas cleaning residue 37.3 Concentration or evaporation residues
38.	Chemical processing of Ores containing heavy metals such as Chromium, Manganese, Nickel, Cadmium etc.	38.1 Process residues 38.2 Spent acid



## HAZARDOUS WASTE MANAGEMENT AND TRANSBOUNDARY) RULES, 2016

Sr. No.	Category	Type of waste	Quantity	Mode of disposal
1	5.1	Used /Spent Oil	0.027MT/ annum	To recycler registered with SPCB and having valid authorization of SPCB.
2.	5.2	Waste or residue containing oil	0.027MT/ annum	To be sent for incineration to CHWTSDF of To co processing in cement Kiln
3	33.1	Empty Barrells contaminated with chemicals	0.027MT/ annum	To be sent for incineration or To be sent to utiliser or To CHWTSDF of To co processing in cement Kiln



## HAZARDOUS WASTE MANAGEMENT AND TRANSBOUNDARY) RULES, 2016 OTHER WASTE (DOMESTIC HAZARDOUS WASTE)



LANDFILLABLE, INCINERABLE AND DOMESTIC HAZARDOUS WASTE HAS TO BE SENT TO COMMON HAZARDOUS WASTE TREATMENT STORAGE AND DISPOSAL FACILITY (CHWTSDF) CONSTRUCTED BY PONDA ENVOICARE LTD ,AT PISSURLEM GOA



## HAZARDOUS WASTE MANAGEMENT AND TRANSBOUNDARY RULES, 2016

### MANIFEST SYSTEM (MOVEMENT DOCUMENT) FOR HAZARDOUS WASTES

Copy number with colour code	Purpose
Copy 1 (White)	To be forwarded by the sender to the State Pollution Control Board after signing all the seven copies.
Copy 2 (Yellow)	To be retained by the sender after taking signature on it from the transporter and the rest of the five signed copies to be carried by the transporter.
Copy 3 (Pink)	To be retained by the receiver (actual user or treatment storage and disposal facility operator) after receiving the waste and the remaining four copies are to be duly signed by the receiver.
Copy 4 (Orange)	To be handed over to the transporter by the receiver after accepting waste.
Copy 5 (Green)	To be sent by the receiver to the State Pollution Control Board.
Copy 6 (Blue)	To be sent by the receiver to the sender.
Copy 7 (Grey)	To be sent by the receiver to the State Pollution Control Board of the sender in case the sender is in another State.

The sender of the waste should prepare seven copies of the manifest in **Form 10** comprising of colour code indicated below and all seven copies shall be signed by the sender

## COMMON HAZARDOUS WASTE TRETMENT STORAGE AND DISPOSAL FACILITY (CHWTSDF) OF M/s PONDA ENVOCARE ,PISSURLEM GOA



## E- WASTE MANAGEMENT RULES, 2016

'E-waste' means electrical and electronic equipment, whole or in part discarded as waste by the consumer or bulk consumer as well as rejects from manufacturing, refurbishment and repair processes;

'Electrical and Electronic equipment' means equipment which are dependent on electric current or electro-magnetic field in order to become functional;



## E- WASTE MANAGEMENT RULES, 2016

### Common E waste Generated from Hotels

Television sets

Refrigerator

Washing Machine

Air-conditioners excluding centralised air conditioning plants

Fluorescent and other Mercury containing lamps

Personal Computers Laptop Computers(Central Processing Unit with input and output devices)

Printers including cartridges

Any other Electrical and electronic equipment dependent on electric current or electro-magnetic field



## CONSTRUCTION AND DEMOLITION WASTE RULES, 2016

The rules shall apply to every waste resulting from construction, re-modeling, repair and demolition of any civil structure of individual or organisation or authority who generates construction and demolition waste such as building materials, debris, rubble.



“Construction and Demolition waste” means the waste comprising of building materials, debris and rubble resulting from construction, re-modeling, repair and demolition of any civil structure;

Presently state is in process of installation of Construction and Demolition waste processing plant at Bicholim



RECYCLED PRODUCTS

## NOISE POLLUTION (REGULATION AND CONTROL) RULES 2000

The hotel unit shall take adequate measures for control of noise levels from its own sources within the premises in respect of noise. The limits are as follows

Category of Area/ Zone	Limits in dB (A) Leq	
	Day time	Night time
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Silence Zone	50	40

Day time is reckoned between 6 a.m. to 10 p.m. and night time is reckoned between 10 p.m. to 6 a.m.





## NOISE POLLUTION (REGULATION AND CONTROL )RULES 2000

### ACTION PLAN



A loud speaker or Public Address system or any sound producing instruments or musical instruments or sound amplifier shall not be used in open areas without the prior permission of the Authority

Persons requiring use of loud speaker have to submit application in prescribed format to the “authority”

In case of Open Air venues for marriages/ /weddings/functions/parties etc. each such venue shall install online noise level monitoring system and shall also provide a display board along the periphery of the venue so as to display the noise levels recorded at the venue for the benefit of the public.

## BATTERIES WASTE MANAGEMENT RULES, 2022

S.No.	Type of Battery
1.	Portable
2.	Automotive
3.	Industrial
4.	Electric Vehicle



THE USED BATTERIES HAS TO EXCHANGED FOR NEW BATTERIES  
 (BUY BACK POLICIES)



## BAN ON USE OF SINGLE USE PLASTIC

**SINGLE USE PLASTIC (SUP)  
BANNED**

**SAY NO TO**  
PLASTIC  
SPOONS  
FORKS  
STRAWS  
STIRRERS

GOA STATE POLLUTION CONTROL BOARD

**SINGLE USE PLASTIC (SUP)  
BANNED**

**SAY NO TO**  
SINGLE USE  
PLASTIC CUPS  
PLATES  
TUMBLERS

GOA STATE POLLUTION CONTROL BOARD

## BAN ON USE OF SINGLE USE PLASTIC



**SINGLE USE PLASTIC (SUP)  
BANNED**

**✓ PERMITTED ITEMS**  
VIRGIN / RECYCLED PLASTIC BAG

With the following things clearly imprinted along it's side:

- ▶ Name of the Manufacturer.
- ▶ Registration number issued by the State Pollution Control Board.
- ▶ Should be Thicker than 75  $\mu$  - Microns.

Should be thicker than 75  $\mu$  - Microns.

NAME OF MFG. & REGISTRATION NUMBER.



GOA STATE POLLUTION CONTROL BOARD



**SINGLE USE PLASTIC (SUP)  
BANNED**

**SAY NO TO**  
PLASTIC  
PACKETS  
USED FOR  
PACKING  
FRUITS &  
VEGETABLES



 GOA STATE POLLUTION CONTROL BOARD



Sr. no	ACT	COMPLIANCES
1	The Water (Prevention & Control of Pollution) Act, 1974 & under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981	<ul style="list-style-type: none"><li>•Obtaining Consent to Operate and Consent to establish</li><li>•Submitting Environmental Statement Form V annually</li><li>•Monitoring Air emissions and water parameters and submitting reports to Board</li><li>•Obtaining CTE and CTO for expansion</li></ul>
2	The hazardous and other wastes (management and transboundary movement) rules 2016	<ul style="list-style-type: none"><li>•Submitting HZW annual return Form IV</li><li>•Manifest copies</li><li>•Form 3</li></ul>
3	The E- waste (management) rules 2016	<ul style="list-style-type: none"><li>•Disposing E waste to registered E waste Facility</li><li>•No specific registration and filling required</li></ul>
4	The Plastic waste (management) rules 2016	<ul style="list-style-type: none"><li>•Disposing Dry waste to GSPCB registered agencies</li><li>•Single Use Plastic has to be stopped</li><li>•No specific filing or registration required</li></ul>
5	The Batteries (Management & Handling) Rules 2022	<ul style="list-style-type: none"><li>•Disposing and Exchanging batteries with the registered Producers (buy back)</li><li>•No specific filing or registration required</li></ul>
6	The C and D waste Management Rule 2016	<ul style="list-style-type: none"><li>•Construction and demolition waste waste to be disposed to facility.</li><li>•No specific filing or registration required</li></ul>
7	The Solid waste management Rule 2016	<ul style="list-style-type: none"><li>•Wet waste has to be composted and Dry waste to registered recyclers</li><li>•No specific filing or registration required</li></ul>

