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KERALA STATE POLLUTION CONTROL BOARD **കേരള സംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്**

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Guidelines for House Boats

1. There are two types of House Boats, namely, Stationary house boats and moving house boats. In India stationary house boats are in Dal Lake in Kashmir. The house boats in Dal Lake are anchored on lake banks and have permanent electricity/water connections and have individual/common treatment systems for treating the waste water generated. However, in Kerala we have moving house boats. Hence, unless adequate precautions are taken, there is every possibility of the backwater getting contaminated due to discharge of pollutants from the boat.
2. In Kerala we have house boats with facilities varying from one bed room to more than 10 bed rooms with investments (approximate minimum) varying from ₹35 lakhs for one bed room to ₹3 crore for 10 bedroom. The investment increases with luxury. Many house Boats have upper decks and conference facilities.
3. The house boats are required to register as per the Kerala Inland Vessel (KIV) Rules, 2010 in any of the Port of Registry in Kerala. Kerala has 6 Port of Registries, namely, Vizhinjam, Kollam, Alappuzha, Kodungaloor, Beypore and Azheekkal.

Port of Registry	Jurisdiction
Vizhinjam	Thiruvananthapuram District
Kollam	Kollam & Pathanamthitta Districts
Alappuzha	Alappuzha & Kottayam Districts
Kodungaloor	Eranakulam, Thrissur & Idukki Districts
Beypore	Kozhikode, Malappuram, Palakkad & Wayanadu Districts
Azheekkal	Kannur & Kasargode Districts

As per the records of the Directorate of Ports, total of 3144 vessels are registered under the KIV rules & they include House Boat, Motor Boat, Shikara, Speed Boat, Barge, Ferry and Dredger. Of this, 1621 (more than half) are registered with the Alappuzha Port Registry (covering Alappuzha & Kottayam Districts). Out of this 821 (more than half) are house boats. But the actual number of house boats plying in the Vembanadu Lake in Kottayam & Alappuzha Districts is estimated to be more than 1000. This means that either there are unregistered house boats or house boats registered in another Port of Registry is plying in this area.

4. A study report submitted to the Government by the Centre for Water Resources Development & Management (CWRDM) in 2013 states that the pollution of Vembanadu Lake due to House Boats is high and that the number of boats plying in the lake is more than the carrying capacity of the lake. Based on the report, the Advisory Committee of KIV in 2013 decided not to grant permission for new House Boats to ply in Vembanad Lake and that the house boats registered in other registries to shift to the area of their parent registry.
5. The Vembanadu Lake is the largest lake in Kerala with a surface area of 2033 sq km and borders Kottayam, Alappuzha and Ernakulam Districts. It is a Ramsar site. There are a number of factors contributing to the pollution in Vembanadu Lake. It includes disposal of sewage and waste water from residences located on the banks of the lake, discharges from agricultural fields, discharges from towns, discharges brought by Achankovil, Manimala, Meenachil, Muvattupuzha, Pamba & Perivar Rivers and discharge from industries located on the lake banks. The house boats also contribute to pollution in the Lake.
6. The source of waste water discharges into the lake from house boats include cooking & washing water, discharges from toilets and oil from engines. As of now the Board issues consent if the following conditions are satisfied:
 - a. Fitted with inboard engines (outboard engines are not permitted)
 - b. Bio-toilet is provided
 - c. Provided copy of receipts of transfer of septage (sludge accumulated in the bio-toilet) from bio-toilets into common treatment plants.

- d. Have own land Sewage Treatment Plant for treating the waste water generated. In case of house boats having own treatment plants, condition no. c above is not needed.
7. It is pertinent to note that in a house boat, cooking is done onboard at the backside. The cooking wash water and waste water is discharged directly into the lake by most of the house boats. Also, while flushing toilet, a quantity of water equivalent to the water flushed goes out directly into the lake. Hence, considerable quantity of waste water is discharged into the lake daily. Only, the septage (the settled solid matter in semi-solid condition usually a mixture of solids and water settled at the bottom of septic tank) generated in the bio-toilet is sucked once in three months into the common treatment plant. As per the Advisory of Ministry of Urban Development Govt of India, 920 l/year of fecal sludge is generated for a family of 4 members. Hence, 230 l/year of fecal sludge is generated for a person. As the usage is not on a regular basis, this quantity is much less in the case of house boats. Thus, this quantity is much less than the quantity discharged by way of discharges from kitchen and toilet flushing. Daily at least 50 litres is expected for cooking & hygiene in house boat per person per day.
8. Conditions for issue of consent henceforth shall be the following:
 - a. Only inboard engine is permissible. Outboard engines (even though 4 stroke) are not permissible. The exhaust pipe from the engine shall be above water level. The use of renewable energy in house boats shall be promoted and reduction in annual consent fee by 10% shall be granted for those boats using renewable energy like wind, solar and waves. This means that if the annual consent fee is 'x', then the annual consent fee for the boat using renewable energy is 0.9x.
 - b. House boats shall install bio-toilets of adequate capacity for treatment of sewage from toilets. It shall have facilities for aerobic/anaerobic digestion of human waste and facilities for removal of the fecal sludge by sucking using suckers. It shall have ball valve with handle for operation during emergencies for making direct discharge in case of choking. Separate sampling port shall be provided near the outlet discharge pipe (before chlorinator) for sampling of the outlet water for checking its quality. Facilities for disinfection using chlorination/ultra-violet rays shall also be provided. Chlorine tablets or KMnO_4 tablets can be used for this purpose.

- c. Daily, weekly & annual maintenance schedule shall be displayed near the bio-tank. Copy of Annual Maintenance Contract shall be produced along with the application for the consent of the Board.
- d. Tanks for collection of entire waste water generated in the house boat shall be provided in the hull. This includes waste water discharge from bio-toilet, cooking wash water, sullage etc. It shall be ensured that the discharge from the bio-toilet is directed permanently to this tank using rigid pipeline (no flexible hose is permissible) and that no direct discharge from the boat to the lake occur. The capacity of the tank shall be decided using the thumb rule 650 litres for a double bedded room. The house boats shall be granted a time period of two years (from the date of issue of this document) for complying with this direction. Stability test shall be conducted after installing the tank mentioned above from safety point of view.
- e. The contents in the tank mentioned in item d shall be discharged into a disposal system on land comprising of minimum facility of screening, septic tank and soak pit system. The septic tank shall have minimum detention time of one day, ie, the minimum capacity of the septic tank shall not be less than capacity of the collection tank mentioned in item d. Different house boats can share the facility. However, Sewage Treatment Plant comprising of primary, secondary and tertiary treatment shall be installed if the total discharge quantity is greater than 5000 l/day or if the total number accommodation facilities of the boats taken together is greater than 7 double bedded rooms. The treated water attaining quality can be discharged into the lake itself if the standards are met with. Mobile type STP cannot be permitted as there is no credibility on the quality of treatment and no accountability for the discharges made. Modular type treatment facility can be provided in landing areas. The treated effluent can be diverted for phyto-remediation for the removal of phosphate and nitrate.
- f. The fecal sludge from bio-toilets shall be disposed into the Common Septage Treatment Facility (CSTP) at least thrice a year (it may be noted that the size of the bio-toilet is small and hence de-sludging is required frequently depending on the size) . CSTP shall be as far as possible near the landing area. If there is no CSTP in the district or the existing one is not operational, it shall be disposed through any of the Board approved CSTP and receipt in this regard produced at the time of renewal of consent. This can be accepted only if the CSTP is non-operational on the date of removal

of fecal sludge from that boat. The 'gulper' system provided by the House Boat Associations is most welcome trend in this regard. The system consists of a barge in which tank of capacity 15,000 litres is provided into which the fecal sludge from bio-toilets of house boats is sucked and transported to the common STP at Kumarakom. The Board is now levying a fine of ₹4000/- per non-submission of each receipt. For example, if a boat fails to produce 3 receipts then they are charged ₹12,000/- as fine and then consent renewed. Most of the boat owners are willing to remit this fine as it is a meager amount. Hence, the fine is raised to ₹75,000/- per receipt. This amount shall be remitted into the Environment Protection Fund of the Board (Name of the account holder: Chairman, KSPCB, account number: 67366954329, Bank: SBI, IFSC code: SBIN0070212). This amount shall be utilized for the protection, conservation and improvement of the quality of backwaters of Kerala. It may also be transferred to the Water Resources Department or any other Government agencies for the specific purpose of the protection, conservation and improvement of the quality of backwaters of Kerala. Disposal into Common Septage Treatment Plant is not applicable for those house boats having own land Sewage Treatment Plant.

- g. Facilities for proper segregation and collection of solid waste should be provided. For this containers with colour coding shall be used (for example brown for bio-degradable waste, green for recyclable waste, blue for plastic and metal waste and yellow for sanitary waste and other hazardous waste). Banned plastic items shall not be permitted in the boat. Agreement shall be made with the authorized collectors like Haritha Karma Sena for removal of solid waste.
 - h. Common Septage Treatment Plants are essential in all districts. The treatment methodology shall preferably be MBBR, MBR or SBR technologies. As per the advisory of Ministry of Urban Development Govt of India, it is always better to mix sewage and septage for treatment. Immediate action needs to be taken augmenting the Common STP at Kumarakom and for the revamping of STP at Kunnumma in Alappuzha district. Alternate arrangements for ensuring continuous power supply are essential in such plants.
9. The house boat owner shall submit application for consent of the Board to the District Office of the Board under whose jurisdiction the land disposal facility is located. The Board officers shall conduct inspection based on the application for consent. The inspecting official shall enter into the the hull

of the boat and check whether conditions 8.a, b, c and d are complied with? The land treatment facilities shall also be verified. No consent shall be issued without conducting inspection. The water quality in the major boat boarding and landing centres shall be checked periodically by the Board. Consent to establish need not be insisted for houseboats.

10. The progress made in containing the pollution problems due to houseboats and other aspects needs to be reviewed by a District Level Monitoring Committee comprising of the District Collector as the Chairman and representatives from Pollution Control Board, Kerala Maritime Board, Irrigation Department, police and District Tourism Promotion Council at least once in a month.
11. Pollution in backwaters is not caused by house boats alone. However, in order to contain pollution from house boats, the present practice of draining out the fecal sludge from the bio-toilets once in 3 years alone is not at all adequate. The purpose of this guideline is to bring out change in the mindset of all the concerned and to provide a way for the improvement of backwaters of the Kerala.

15.02.2023

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CHAIRMAN**

FORWARDED/BY ORDER

SENIOR ENVIRONMENTAL ENGINEER-3