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കേരള ഗസറ്റ്
KERALA GAZETTE

അസാധാരണം
EXTRAORDINARY

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GOVERNMENT OF KERALA

Coastal Shipping and Inland Navigation Department

NOTIFICATION

G. O. (P) No. 1/2015/CSIND. *Dated, Thiruvananthapuram, 6th April, 2015 / 23rd Meenam, 1190.*

S. R. O. No. 209/2015.—In exercise of the powers conferred by sections 19(1), 19R, 29(1), 30, 30A, 52(1), 53(1), 54(1), 54(b) and 67(1) of the Inland Vessels Act, 1917 (Central Act 1 of 1917) the Government of Kerala hereby make the following rules further to amend the Kerala Inland Vessels Rules, 2010 issued by notification under G. O. (P) No. 5/2010/CSIND, dated 30th April, 2010 and published as S.R.O. No. 424/2010 in the Kerala Gazette Extraordinary No. 1055 dated 30th April, 2010, namely:—

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33/1370/2015/S-3.

RULES

1. *Short title and commencement*.—(1) These Rules may be called the Kerala Inland Vessels Rules, 2015.

(2) They shall come into force at once.

2. *Amendment of the Rules*.—In the Kerala Inland Vessel Rules, 2010,—

(1) in rule 2,—

(i) for clause (s), the following clause shall be substituted, namely:—

"(s) 'length and breadth of a vessel' means maximum length and breadth of a vessel; however the length for house boats and shikara boats shall be measured without the horns or 'kombu'. Breadth of house boat shall not exceed one fifth of the length of a vessel.";

(ii) after clause (ah), the following clauses shall be inserted, namely:—

"(ai) 'existing vessel' means a vessel of which keel laid before 15th September, 2010";

(aj) 'House boat' means traditional boats made in Kerala style with enclosed spaces such as bed rooms, bathroom, galley etc.;

(ak) 'shikara boats' means traditional Kerala style boats with open deck and is not enclosed;

(al) 'Stake holders' means those entities within or outside the organization who have an interest in the successful implementation of these rules or one affected by them;

Stake holders have been identified as Boat Owner, Boat Crew, Middlemen (marketing agents), Municipality, Tourism Department, Port Department, Water Resources Department, Tourism Police, Tour Operators, Approved Consultants Insurance Agencies, Kerala Maritime Institute.".

(2) in rule 3,—

(i) in sub-rule (4),—

(a) in sub-rule (4) for the words "twenty four" the words "thirty six" shall be substituted;

(b) in the existing proviso the following sentence shall be added, namely:—

"The onus of maintaining the hull in good condition shall be on the owner and shall intimate the surveyor of any major leakages or any deterioration of the hull at any time between survey on dock";

(ii) after sub-rule (4), the following sub-rule shall be inserted, namely:—

"(4a) Due to shortage of dry-docking facilities, the vessels shall be inspected in dry dock once in five years in the initial period of date of implementation of these rules (till 14-9-2015):

Provided that the Chief Surveyor, Classification Society is satisfied with the condition of the vessel. If not the Chief Surveyor, Classification Society shall have the authority to recommend dry docking as required. After the period mentioned above the vessel shall undergo dry-docking as in sub-rule (4) of rule 3.".

(3) in rule 4,—

(i) in Category A, for the existing entries the following entries shall be substituted, namely:—

(a) Vessels driven with more than 600 HP in board engine; and

(b) Hover crafts and Hydro foils.

(ii) for the existing entries in Category B, the following entries shall be substituted, namely:—

(a) all mechanically propelled vessels not included in Category A; and

(b) all Category A—Under Rule Exemption (URE) vessels. This includes all built Category A vessel which have started construction before 15th September, 2010. They may be given exemption from survey by classification society and these vessels may be treated as a separate category named "Category A under rule exemption. These vessels shall be treated at par with Category B vessels for survey purpose.".

(4) in rule 6,—

(i) in sub-rule (3), for clause (v) the following clause shall be substituted, namely:—

"(v) Demand draft evidencing payment of such fees as specified in Schedule I for the survey.";

(ii) for sub-rule (4), the following sub-rule shall be substituted, namely:—

"(4) For survey of vessel, either newly constructed or existing vessel being surveyed for the first time, application shall be accompanied by:

(a) particulars in Form No. 3;

(b) general arrangement plan (including accommodation details);

(c) lines plan and offset table (For stability calculations);

(d) structural drawings with shell thickness;

(e) freeboard markings;

(f) machinery layout (with pumps, shafting, stern gear and steering gear details etc.);

(g) piping arrangement (bilge, ballast, oil transfer etc.);

(h) ventilation plan;

(i) life saving appliances and fire fighting appliances plan;

(j) lights, sound, navigational and communication equipment plan;

(k) compartment subdivision and flooding calculation; and

(l) inclining experiment, trim and stability booklet (Clause 134).

Note:—For new construction, this shall be submitted after final inspection but before registration.".

(iii) after sub-rule (5), the following sub-rules shall be inserted, namely:—

"(6)(a) All new construction of vessels shall be intimated to the department in Form No. 1 of these rules;

(b) For inspection of new construction of vessels, fees as detailed in Sl. No. 11 in table of survey fees shall be remitted;

(c) The followimg stage inspection will be conducted for new construction:—

(a) scrutiny of submitted drawings and giving clearance to start of construction;

(b) inspection on completion of hull;

(c) inspection of erection of engines and other equipments; and

(d) completion of vessels.".

(7) for house boats the drawings containing following information shall be submitted,—

(a) General Arrangement (GA) with Life Saving Appliances (LSA) and Fire Fighting Appliances (FFA).

(b) engine room layout—showing the position of main engine, gearbox, schematic diagram of shafting and propeller, fuel system, cooling system, sea chest, bilge system;

(c) structural drawings: showing shell thickness, keel, deck, scantlings, profile drawings, BKHD position, bulkhead, connection detail, mid ship section;

(d) electrical drawing: Schematic representation of equipments and wiring; and

(e) freshwater and sewage system.".

(8) In the case of fiber glass boats with outboard engine and passenger boats with inboard engines, both not exceeding 12m length, drawings with following informations shall be submitted,—

(a) General Arrangement (GA) with details of Fire Fighting Appliances (FFA) and scantling/structures; and

(b) lines plan and offset table (for stability calculation)".

(5) for the existing sub-rule (1) of rule 8, the following sub-rule shall be substituted, namely:—

"The survey shall be made at such time, place and date, as may be specified in the intimation referred to in rule 7:

Provided that the surveyor may postpone the survey for reasons to be recorded and in the case of such postponement, the survey shall be made only after fresh intimation, in the manner herein before specified:

Provided further that, the surveyor may require the vessel to be brought over to dry dock or any other suitable place, if such a step is, for reasons to be recorded, considered necessary by the surveyor for the purpose of the survey and no survey need be made in pursuance of an application unless the directions of the surveyor in this regard are complied with by the applicant:

Provided also that no survey shall be made on a public holiday unless it is mutually convenient for the surveyor and the applicant and unless the double of survey fees as provided thereof in these rules shall be paid by the applicant.".

(6) the existing rule 12, shall be numbered as sub-rule (1), and after so numbered, the following sub-rule shall be added, namely:—

"(2) The surveyor who issued the survey certificate shall issue a duplicate of the certificate to replace the certificate lost, destroyed or mutilated upon payment of the fee as demand draft specified in Schedule 1:

Provided that no such duplicate certificate shall be issued unless,—

(a) in the case of a certificate lost, it is proved to the satisfaction of the surveyor that all measures possible for tracing out the certificate have been exhausted;

(b) in the case of a certificate destroyed, the surveyor is satisfied after due enquiry that the certificate has actually been destroyed; and

(c) in the case of mutilated certificate, the owner delivers up such certificate to the surveyor.".

(7) the existing rule 14, shall be numbered as sub-rule (1), and after so numbered, the following sub-rules shall be inserted, namely:—

"(2) The registration certificate issued to a vessel shall have a validity period of maximum five years. However, the Registering Authority may issue the registration certificate for a shorter period if registration is given with conditions for a vessel during registration process or considering ecological parameter of each water body.

(3) At the time of issuing of registration certificate, the Registering Authority shall record the passenger carrying capacity, cargo carrying capacity of vessels for each water body on which they operate.".

(8) in clause (c) of sub-rule (2) of rule 15, for the words "chalan receipt evidencing" the words "demand draft for" shall be substituted.

(9) in rule 18,—

(i) in sub-rule (1), for the words "star board or such other places and both sides of the vessel" the following words "on port and star board side of the vessel" shall be substituted;

(ii) in sub-rule (4), for the words "on the upper deck" the words "above main deck" shall be substituted.

(10) in rule 19, after sub-rule (2), the following sub-rule shall be inserted, namely:—

"(3) The book of registration shall be downloaded from the website of Port Department and shall be signed by the owner with date.".

(11) in clause (b) of sub-rule (1) of rule 21, for the word "chalan" the words "demand draft" shall be substituted;

(12) in sub-rule (2) of rule 22, the following shall be added, namely:—

"If a survey of the vessel post alteration is found necessary by the Registering Authority, same shall be carried out and new survey certificate may be issued, upon payment of fees as mentioned in Schedule 1.".

(13) in rule 23, for the marginal heading "Duplicate of the certificate", the following heading shall be substituted, namely:—

"23 *Duplicate of the certificate of registration*.".

(14) in sub-rule (1) of rule 24, for the sentence "thirty days of such transfer along with a chalan receipt evidencing of fees specified in Schedule II, for such transfer" the following sentence shall be substituted, namely:—

"whose jurisdiction the transferee resides or carries on business within thirty days of such transfer along with a demand draft evidencing payment of fees specified in Schedule II, for such transfer.".

(15) in rule 30,—

(i) in sub-rule (1), after the word "as" and before the word "surveyor" the word "Chief" shall be inserted;

(ii) in sub-rule (2), after clause (h), the following clause shall be added, namely:—

"(i) to conduct safety audit of Jetties and report to the Competent Authority.".

(16) in rule 33, for sub-rule (4), the following sub-rule shall be substituted, namely:—

"(4) For owner driven vessels of less than 75BHP, the owner may drive if he possesses a combined driver-cum-serang certificate. For any vessel having outboard engine with passenger capacity not exceeding 10 in number and

length not exceeding 12m, one serang-cum-driver possessing both driver and serang certificates issued under the Act may drive the vessel. If passenger exceeds 10 in number, the vessel shall have one Lascar also.".

(17) in rule 46, after sub-rule (4), the following sub-rule shall be added, namely:—

"(5)(i) A candidate for competency exam who does not meet the education criteria as mentioned in rule 34 to 41, shall undergo one month training course specifically designed for each cadre (certificate courses) at Kerala Maritime Training Institute and shall pass a written examination followed by a viva voce, by the Chief Examiner. After the viva voce, if in the opinion of Chief Examiner, the candidate is found appropriate for his rank, he shall be issued with a corresponding competency certificate for the corresponding cadre. This shall be applicable to candidates with minimum five years experience and were employed on the date of implementation of these rules in the correspoding rank;

(ii) *Training:*—

(a) The trainee cooks shall undergo one day safety training at the institute;

(b) The boat owners shall undergo safety and pollution control course conducted by the institute; and

(c) All certificate holders shall undergo one day annual safety training course once in a year.".

(18) in rule 54, after clause (5) the following clauses shall be added, namely:—

"(6) to carryout route density analysis of approved routes under these rules annually for traffic control.

Note:—Carrying capacity of lakes and reservoirs shall be assessed periodically towards this purpose. Carrying capacity of the lakes and reservoir will be fixed annually based on a study by centre for Water Resources Development and Management or Centre for Earth Science Studies. Further license will be issued only against deregistration and condemnation of existing vessels.

(7) to identify the channels and safe routes where most of the house boats operate and to notify as approved routes under these rules. Depth of the route (Channel) shall be maintained at a safe level for inland vessel operation. Night halt centres shall be identified considering safety and security aspects."

(8) to carry out safety audit of the routes annually, to maintain the safe navigability of the channel and issue fitness certificate to the custodian of the jetty.

(9) to classify inland water bodies into different categories depending on safety parameters.

(10) to issue route permits to all inland vessels.

(11) to publish data on safe inland vessels.

(12) to publish data on safe inland routes on the website.

(13) to issue permits to all Night halt centres of inland vessels.

(14) to make arrangements by self or through custodian of water body to channel mark all approved inland routes.

(15) to review the decisions taken by the Registering Authority/Chief Surveyor/Chief Examiner/Surveyor based on appeals received from any stake holders of these rules either by himself or through an Appellate Authority appointed by him for this purpose.".

(19) in rule 74, in clause (a) of sub-rule (1), for the figure '74', the figure '73' shall be substituted.

(20) in rule 103,—

(i) in sub-rule (1), in clause (d) for the sign "." the sign ";" shall be substituted and after clause (d) the following clause shall be added, namely:—

"(e) Class V—House boats.";

(ii) in sub-rule (2) for clause (a), the following clause shall be substituted, namely:—

"(a) One life jacket for 100% of the passengers and crew on board plus 10% extra;".

(iii) for clause (c), the following clause shall be substituted, namely:—

"(c) For vessels having outboard motors and length less than 10 metre, one life jacket each shall be provided for 100% of passengers and crew onboard plus 10% extra and lifebuoys are not necessary.";

(iv) in clause (a) of sub-rule (5), after the words "life buoys" and before the words "shall be provided" the following shall be inserted, namely:—

"(1 life buoy for 2 persons)";

(v) after sub-rule (5), the following sub-rule shall be added, namely:—

"(6) Requirements for Vessels of Class V:

(a) One life jacket for each person (passenger+crew) on board plus 10% extra;

(b) 4 life buoys if the length of vessel is up to 25m and 6 if length is above 25m.".

(21) in clause (1) of rule 108, after the word "voyages" the words "excluding existing vessels" shall be added.

(22) in rule 109,—

(i) clause (1) for the figures and words "150 tons or 12m" the figures and words "150 gross tons or 12m length" shall be substituted.

(ii) in clause (2), after the word "length", the following words shall be added, namely:—

"in lieu of power driven fire pump mentioned above.";

(iii) in clause (7), after the existing sentence, the following sentence shall be added, namely:—

"If the vessel is less than 10m, one portable foam fire extinguisher is sufficient.";

(iv) after clause (13) the following clauses shall be added, namely:—

"(14) In house boats, fire alarms/smoke alarms should be located in gallery and engine room.

(15) Fire pump should be capable of being switched on from main deck.

(16) For vessels having outboard motor and length up to 12m, one multi-purpose fire extinguisher is considered sufficient in addition to fire bucket and vessel may be exempted from providing a fire pump.

(17) All vessels shall have smoke/fire alarms fitted in engine room, in case of closed type.

(18) LPG cylinder used onboard should have gas fuse/spark arrestor fitted.".

(23) in rule 113 for sub-rule (2) the following sub-rule shall be substituted, namely:—

"(2) Vessels over 18 metres length except existing wooden boats shall be adequately subdivided as indicated in the drawing signed by naval architect/ firm/classification society approved by Government.

(24) in rule 114,—

(i) in sub-rule (1), for the brackets and words "except wooden house boats)" the words "except wooden boats" shall be substituted.

(ii) in sub-rule (2), for the brackets and words "(except wooden house boats" the words "except wooden boats" shall be substituted.

(iii) in sub-rule (3), after the words "made of steel" and before the words "and insulated" the words "or equivalent fire retardant" shall be inserted and the remaining sentence shall be omitted.

(25) in rule 115,—

(i) for sub-rule (1), the following sub-rule shall be substituted, namely:—

"(1) All waterway inlet and overboard discharge pipes shall be fitted with flanged globe/gate valves secured direct to shell plating or water boxes. All overboard discharge pipes (except for exhaust outlet) shall be fitted with flanged non-return valves secured direct to shell plating or water boxes. Engine exhaust outlet together with water discharge, if provided, shall be located above waterline and the hull shall be made watertight in way of penetration.";

(ii) in sub-rule (2), after the word "approved" the word "tested" shall be inserted;

(iii) after sub-rule (4), the following sub-rule shall be inserted, namely:—

"(5) Grey water discharge shall be made through suitable flanged non-return oil bound distemper valves above water level.";

(26) in rule 118,—in the existing sub-rule (1), the following shall be added at the end, namely:—

"Moreover all such vessels shall be fitted with pollution control measures such as bio-toilet/sewage treatment plant or facility to pump out to shore disposal facilities. Outgoing water from the bio-tank shall be treated and can be discharged to the water, if it is of a quality which is acceptable as

notified by the central pollution control board (BOD below 30) until shore facilities are in place at terminals for disposal or zero discharge technology is available. Under no circumstances discharge of sewage to water shall be allowed.

(27) in rule 119,—

(i) for the figure and words '65kg' the figure and words '75kg' shall be substituted;

(ii) after rule 119, the following rule shall be inserted, namely:—

"119A. *Freeboard of Passenger Vessels.*—

(1) Minimum Freeboard.—

The minimum freeboard for a vessel shall be calculated according to sub-rule (1), subject to the concessions permitted as per clause (ii). For lengths less than or equal to 6m, the minimum freeboard shall be 380mm and for lengths greater than or equal to 12m, the minimum freeboard shall be 760mm. For intermediate lengths, the minimum freeboard shall be calculated by interpolation according to the following formula, namely:—

$$f = 380 + 31.667\ (L-6) \text{mm}$$

Where *L* is the length of the vessel in *m*. Table given below gives minimum freeboard for lengths from 6m to 12m.

TABLE

Length (m)	*Freeboard (mm)*
6.0	380
6.5	396
7.0	412
7.5	428
8.0	444
8.5	460
9.0	475
9.5	491

Length (m)	*Freeboard (mm)*
10.0	507
10.5	523
11.0	539
11.5	555
12.0	570
12.5	586
13.0	602
13.5	618
14.0	634
14.5	650
15.0	665
15.5	681
16.0	697
16.5	713
17.0	729
17.5	745
18.0	760

Provided that for existing vessels, except those in dam sites, carrying less than 12 persons, a minimum freeboard of 250mm is allowed. This minimum freeboard shall be followed until new technology boats with less freeboard come into existence.

(2) *Concessions to Minimum Freeboard*.—The following concessions to minimum freeboard may be permitted by the Registering Authority, namely:—

(a) In the case of ships heeling less than 7° but not meeting the minimum freeboard requirement, a reduced minimum freeboard may be accepted provided that the actual freeboard in the heel test condition is not less than the residual freeboard would have been, had the prescribed minimum freeboard criteria been complied with and the ship had heeled to the full 7°.

(3) *Assigning of freeboard*.—The assigned freeboard will be taken as the greatest of the following:

(a) The minimum freeboard shall be calculated as per the Table.

(b) The freeboard during the heel test condition when a heel test is applicable according to the Table.

(c) The freeboard corresponding to the deepest approved loading condition recorded in the Stability Information Booklet shall be according to the Table.

(4) (a) *Freeboard Marking*.—Every ship shall be marked on each side of the ship at amidships with its assigned freeboard. The location and accuracy of the freeboard mark shall be witnessed and confirmed by the surveyor.

(b) *Size of Freeboard Marks*.—Freeboard marks shall consist of horizontal lines 25mm in height and 300mm in length.

(c) *Location of Freeboard Marks*.—The marks shall be located with its centre at midship whenever practicable and in such a way that the assigned freeboard is measured vertically from the lowest point of deck at side or lowest point of gunwale, whichever is higher, to the top edge of the mark.

(d) *Method of Marking*.—The marks shall be painted in white or yellow if the background is dark or in black if the background is light. If the sides of the ship are of metal, the marks shall be cut in, centre punched or indicated by welded beads; if the sides of the ship are of wood, the marks shall be cut into the planking to a depth of not less than 3 millimetres; if the sides are of other materials to which the foregoing methods of marking cannot effectively be applied, the marks shall be permanently affixed to the sides of the ship by bonding or some other effective method. Normally the freeboard mark shall be centred at midships LBP but if this cannot be done for any reason it shall be placed as near to that point as possible and the distance of any deviation noted.

(5) *Draught Marking*.—Every ship shall have a scale of draughts marked clearly at the bow and stern. The accuracy of the draught marks shall be witnessed and confirmed by the Registering Authority.

(6) *Measurement of Actual Freeboard*.—Actual freeboard in any loading condition shall be measured at midship on both port and starboard sides, vertically from the lowest point of deck at side or lowest point of gunwale, whichever is higher, to the waterline. The average of the two readings shall be

taken as the mean actual freeboard of the ship in that particular loading condition. The mean actual freeboard in any loading condition of the ship shall not be less than the assigned freeboard of the ship.".

(28) In rule 123,—for rule 123, the following rule shall be substituted, namely:—

"123. *Internal Combustion Engines*.—Internal Combustion Engines shall be new and shall be driven by heavy oil, paraffin or other similar fuel. For house boats petrol engines shall not used:

Provided that the used engines shall be overhauled and certified by the Government approved Engine Builders.".

(29) after sub-rule (4) of rule 128, the following sub-rule shall be inserted, namely:—

"(5) Engine room wiring shall be of industrial wiring standard.".

(30) for sub-rule (1) of rule 131, the following sub-rule shall be substituted, namely:—

"(1) All vessels shall have bilge alarm and an efficient pumping system having the suctions and means for drainage so arranged that any water within any compartment of the vessel, or any watertight section of any compartment can be pumped out. Independent suction valves for each compartment shall be arranged in engine room.".

(31) in rule 134,—

(i) in sub-rule (2),—

(a) after the words "upper most deck", the following words shall be substituted, namely:—

"for calculation purpose,

(b) in the last sentence for the figure and words "65kg", the figure and words "75kg" shall be substituted;

(ii) after sub-rule (5), the following sub-rules shall be inserted, namely:—

"(6) Single deck vessels with passenger capacity less than 50 will be given the option to carryout heel test to assess stability. The procedure for conducting heel test given as Annexure V.

(7) Vessels with single deck and with passenger capacity less than 50 to be subjected to heeling test except for sail assisted yachts. However for vessel operating in dam sites like Thekkady, Neyyar, Malampuzha, Idukky and Banasura Sagar, the inclination tests shall be conducted on all boats if passenger capacity exceeds 12.

(8) Vessel with no deck shall be subjected to swamp test. All open deck vessels already constructed is exempted from this provision. Vessels applied for construction from the date of this notification will not be exempted under this test.

(9) For identical vessels only one representative vessel need undergo stability/heeling test;

(10) The heeling test is applicable to those vessels which satisfy the provision in sub-rule (6) of rule 134 and operate in areas which are declared as Category Impounded water bodies by notification.".

(32) in rule 136,—

(i) in sub-rule (1), for the word "tonnes" the words "gross tonnage" shall be substituted;

(ii) in sub-rule (2), for the word, 'ton' the words "gross tonnage" shall be substituted;

(iii) in sub-rule (3), for the words "three oars", the words "two oars" shall be substituted; and the words "three rowlocks" shall be omitted;

(iv) after sub-rule (5), the following sub-rule shall be added, namely:—

"(6) For the purpose of safety the crew and staff of all vessels shall practice the following safety codes, namely:—

(a) avoid alcohol;

(b) In spend boats wear life jackets at all times;

(c) never go out in bad or questionable weather;

(d) have valid licence to operate boats and comfortable with boating operations;

(e) ensure that the boat is fit to sail out in all means before any voyage;

(f) keep first aid kit on board which shall be easily accessible;

(g) keep fire extinguishers on board; and

(h) schedule of the journey shall be made available at off-shore office.

(33) after rule 139, the following rules shall be added, namely:—

140. (1) *Annual Safety Audit of Inland Vessel Jetties*.—As a safety precaution against accidents during embarking and disembarking of passengers it is necessary to avoid overcrowding of vessels at some jetties. Jetty shall have safe boarding arrangements. Hence jetties have to be identified and selected as approved jetty for vessels. Safety Audit of the jetties shall be carried out every year.

(2) Public transport vessels which operate on a schedule will be given preference over other vessels on berthing at any jetty.

141. *Accreditation to Shipyard*.—To check unauthorized construction of boats and also to ensure quality it is necessary to make a panel of accredited boat builders for Vessels. Accreditation of Vessels shall be given/done according to Form No. 34;

142. *Safe Boat List*.—A list of vessels which fulfil all safety standards shall be given 'Safety Certified Stamping' and a list of such vessels shall be published every year.

143. *Establishing Enforcement Wing*.—(1) For proper implementation of the provisions of the Act and the rules it is necessary to establish an Enforcement Wing at the following places for periodic inspection of the operation of the vessels. Enforcement Wing under a Deputy Superintendent of Police shall have three divisions reporting to Registering Authority, as given below:—

(a) one Sub-Inspector of Police and ten Civil Police Officers for Alappuzha District.

(b) one Sub-Inspector of Police and ten Civil Police Officers for Ernakulam District.

(c) one Sub-Inspector of Police and five Civil Police Officers for Kottayam District.

They shall carryout patrolling in the inland water and shall ensure safety and security of persons onboard vessels including at night shelter points."

144. *Expert Services by Officers of the Competent Authority*.—The fee for rendering the service to the boat owners shall be taken as

centage charge/consultancy charge, payable to the Port Department will be 8% of the estimated amount/actual cost of the repair whichever is lower. *Service tax (currently 12.2%) on the charges/fees (and not on the project cost) can also be charged.*

Note:—Work shall include preparation of rough cost estimate, preparation of detailed estimate, tender documents and tender notices, evaluation of tenders, supervision of repair, passing of bills etc.

145. *Safety Training for Vessels/Boat Owners.*—

(1) Training courses have been introduced for crew as well as owners of the Vessel on safety aspects. Crew hereinafter shall undergo one day annual training programme organised by the Government through the Directorate of Port.

(2) Twenty five percentage of the fees collected from the training of Vessel crew shall be utilised for pollution mitigation of Vembanad Lake.

146. *Pollution Control Measures.*—The Vessel owner shall make arrangement for segregation of garbage in the following manner, namely:—

(1) plastic waste shall be stored in yellow colour carry bag:

(2) glass/crockeries/metal waste shall be stored in red colour carry bag.

(3) food waste shall be stored in black colour carry bag; and

(4) paper waste shall be stored in blue colour carry bag.

147. *Identification Card to Vessel Crew.*—(1) All vessel crew including the Cook shall have identity cards issued by the Registering Authority. The vessel owner shall ensure that all crew including the Cook shall have ID Cards and shall dress neatly and shall undergo safety training.

148. *Keeping of List of Passengers.*—Vessel owner has to ensure that each Vessel shall maintain a passenger register in its office on shore.

149. *Online Application.*—All the Application/Certificates submitted/issued under these shall be through online only. The applications can also be downloaded from Department website and can be submitted directly.

150. *Engine Type.*—(1) All shikara boats applying for survey after the date of implementation of these rules shall provide new latest technology non-polluting engines.

(2) All new vessels for House Boats/Motor Boats shall be provided with non polluting inboard engines.

(3) All vessels having engines which are more than fifteen years old shall be replaced by new latest technology non-polluting engines.".

(34) in Form No. 1,

(i) in Serial No. 2 in the entries after the word 'address' the following words shall be added, namely:—

"with phone number and Email ID";

(ii) in Serial No. 13 after the existing entry in (e) and before the words "signature of the owner" the following shall be inserted at the left side, namely:—

"Certified that all the information given above are correct.";

(iii) after the existing entries in the Enclosures, the following shall be added, namely:—

"In case no response is received from the concerned authorities within twenty days from the date of application, kindly contact the Competent Authority/Appellate Authority in the following Address:

Competent Authority: director.port@kerala.gov.in

Appellate Authority: cme.port@kerala.gov.in.".

(35) in Form No. 2,—

(i) in Serial No. 11 in the existing entry after the word "address" the following shall be added, namely:—

"with Phone Number and Email ID";

(ii) after the existing entry in Sl. No. 12, and before the "Enclosures" the following shall be inserted, namely:—

"Certified that all the information given above are correct.";

(iii) after the existing entries in the Enclosures, the following shall be added, namely:—

"In case no response is received from the concerned authorities within 20 days from the date of application, kindly contact the Competent Authority/ Appellate Authority in the following Address:

Competent Authority: director.port@kerala.gov.in

Appellate Authority: cmedop.port@kerala.gov.in.".

(36) in Form No. 8,—

(i) in 'From address', after the word the 'Master of the vessel' the following words shall be added, namely:—

"with Phone Number and Email ID.";

(ii) after the words "Name of the Owner" the following shall be added, namely:—

"In case no response is received from the concerned authorities within twenty days from the date of application, kindly contact the Competent Authority/Appellate Authority in the following Address:

Competent Authority: director.port@kerala.gov.in

Appellate Authority: cmedop.port@kerala.gov.in.".

(37) in Form No. 10,—

(i) after Serial No. 3 and the entries, the following Number and entries shall be added, namely:—

"3A. Contact Phone No. and Email ID.";

(ii) in No. 9 for the word "Net" the word "Gross" shall be substituted;

(iii) in No. 13 after the entry "Details of crew required for the vessel" the following shall be added, namely:—

"(Name and Licence No.)";

(38) in Form No. 12,— in the "DECLARATION OF OWNERSHIP" after the "Note and the sentence" the following shall be added, namely:—

"In case no response is received from the concerned authorities within twenty days from the date of application, kindly contact the Competent Authority/Appellate Authority in the following Address:

Competent Authority: director.port@kerala.gov.in

Appellate Authority: cmedop.port@kerala.gov.in.".

(39) in Form No. 14,—after the sentence "Certified under my hand this day of 20.....", and before the entry "Description of Engines", the following shall be inserted, namely:—

"Capacity of person on board";

(40) in Form No. 16,—(i) for the existing heading "BEFORE THE SECRETARY TO GOVERNMENT, COASTAL SHIPPING AND INLAND NAVIGATION DEPARTMENT" the following heading shall be substituted, namely:—

"BEFORE THE COMPETENT AUTHORITY/APPELLATE AUTHORITY";

(41) in Form No. 17,—

(i) for the existing entries in "From address" the following entries shall be substituted, namely:—

"Competent Authority/Appellate Authority";

(ii) in "To address", in the existing entry, after the words "Registering Authority" and before the bracket the following shall be added, namely:—

"/Chief Surveyor/Chief Examiner";

(iii) after the words "Yours faithfully" for the entry "The Secretary to Government" the following entry shall be substituted, namely:—

"Competent Authority/Appellate Authority";

(42) in Form No. 18,—

(i) in the entry "Alterations" the following entry shall be substituted, namely:—

"Certified that all the information given above are correct.";

(43) after FORM No. 33 the following FORMS shall be inserted, namely:—

"FORM NO. 34

[*See* Rule 141]

APPLICATION FORM FOR ACCREDITATION OF SHIP/BOAT YARD

To

The Registering Authority

1.	Name of the yard and location	:	
2.	Address with pin code	:	
3.	Name of the owner/with Phone Number and Email	:	
4.	Type of activities	:	Boat building/boat repair/both
5.	Type of vessel constructed/capable to construct/repair	:	□ Passenger boat □ Cargo vessels □ Fishing vessels □ House boats □ Ferries and Junkars □ Fiber glass boat □ Barge □ Dredger □ Others
6.	Year of commissioning of the yard	:	
7.	Number of constructions during last 3 years	:	
8.	No. of permanent employees, name and years of experience of each staff with details	:	*Name Age Address Expertise Years of experience* 1. 2. 3. 4. 5. 6.

9. No. of orders pending with details :

Name of client *Vessel type* *Consultant if any,*

1.

2.

3.

10. Facility of the yard-check list:

	Yes	*No*
1. Approach channel available		
2. Turning Basin available		
3. Slip rails/Dock provided		
4. Trolley to keep the vessel available		
5. Repair Yard available		
6. Electric Supply (Three phase) available		
7. Water connection (fresh water) available		
8. Sewage disposal available		
9. Garbage disposal available		
10. Oil reception facility available		
11. Gas freeing facility for vessels tanks available		
12. Gas cutting machine available		
13. Welding machine available		
14. Certificate of welder available		
15. Road connectivity available		

16. Laith machine available		
17. Covered space available for keeping stores/spares		
18. Watchman available during night time		
19. Whether work can be carried out by paying overtime charges		
20. Communication facility available		
21. Record of all maintenance carried out available		
22. Record of stores consumed available		
23. Record of spares consumed available		
24. The premises kept neat and clean		
25. All safety precaution taken for workers		
26. Whether layup berth available		
27. Whether black listed by any firm		
28. Whether previous works completed as per schedule/ Project Evaluation and Review Technique		
29. No. of Indian Register of Shipping/classification society approved welder		
30. Insurance coverage to employees		
31. Fire fighting equipments available		

32. Pollution control steps/certificate	
33. No. of vessels repaired during the last three years	
34. Any other	

11. Area/extent of the yard and ownership of land:

DECLARATION

Certified that the above facts are correct. I also hereby agree to intimate all the construction/repair undertaken by the yard to the Registering Authority under the Kerala Inland Vessels Rules, 2010 in Port Department.

Place: Signature of the owner of the boat yard with date:

Date: Name:

In case no response is received from the concerned authorities within twenty days from the date of application, kindly contact the Competent Authority/Appellate Authority in the following Address :

Competent Authority:director.port@kerala.gov.in

Appellate Authority: cmedop.port@kerala.gov.in

FORM NO. 35

(*See* Rule 141)

ACCREDITATION CERTIFICATE OF SHIP/BOAT YARD

This is to certify that the following yard has been given Accreditation under the Kerala Inland Vessels Rules for a Period of three years from .....to.....

Name of the yard and location	
Address with pin code	
Name of the owner/with Phone Number and Email	

Type of activities	Boat building/boat repair/both
Type of vessel constructed/capable to construct/repair	□ Passenger boat □ Cargo vessels □ Fishing vessels □ House boats □ Ferries and Junkars □ Fiber glass boat □ Barge □ Dredger □ Others
Year of commissioning of the yard	
Number of constructions earned during last 3 years	
No. of permanent employees, name and years of experience of each staff with details	*Name Age Address Expertise Years of experience* 1. 2. 3. 4. 5. 6.

Place:
Date:

Registering Authority:
Port of Registry:

FORM NO. 36

(*See* Rule 140)

APPLICATION FOR SAFETY AUDIT OF BOAT JETTIES

Name of the Applicant		:
Address of the Applicant with phone number and email ID		: :
Audit items:		
1.	Jetty name	:
2.	Location of Jetty	:
3.	Road connectivity	:
4.	Jetty material	:
5.	Piles, material	:
6.	Depth of Pile	:
7.	Present condition	:
8.	Draft available	:
9.	Bollards	:
10.	Hand rails	:
11.	Strength	:
12.	Handling capacity	:
13.	Safe for House Boats	:
14.	Other informations	:

Certified that all the information given above are correct.

Place :
Date : *Signature of Applicant*

In case no response is received from the concerned authorities within twenty days from the date of application, kindly contact the Competent Authority/Appellate Authority in the following Address:

Competent Authority : director.port@kerala.gov.in
Appellate Authority : cmedop.port@kerala.gov.in

FORM NO. 37

(*See* Rule 140)

SAFETY CERTIFICATE OF JETTY

Jetty No. ..... Place.....

This is to certify that the jetty .....(Name of Jetty) at ..... (location) under the ownership/custodianship of .....(Name of Applicant) has undergone safety audit on .....and has been found suitable for berthing of boats up to a length of .....and embarking and disembarking of not more than.....passengers at a time.

Date of issue : *Chief Surveyor,*

Date of expiry of validity : *Port of Registry* .

FORM NO. 38

[*See* Rule 54(10)]

APPLICATION FOR ROUTE PERMIT

To

Port of Registry.

1	Name of the applicant	
2	Address with phone number and email ID	
3	Relationship with vessel	Owner/Operator/Others (Specify)
4	Name of vessel	
5	Type of vessel	House boat/Passenger Vessel/ Speed boat with OB engine/ Cargo Vessel/Dredgers/Others
6	Registration Number of Vessel	
7	Certificate of survey number	
8	Date of expiry of validity of certificate of survey	
9	No. of crew assigned to the vessel	
10	Details of crew	Name Category Certificate Number Date of Expiry
11	Name and place of Assigned Jetty	
12	Name and place of Mooring Point	
13	Type of Route Permit required	Tourist permit/passenger service/ cargo service/special service

<table>
<tr><td rowspan="2">14</td><td rowspan="2">Route details</td><td>Starting point</td><td>End point</td></tr>
<tr><td></td><td></td></tr>
<tr><td>15</td><td>No. of trips required</td><td colspan="2"></td></tr>
<tr><td rowspan="2">16</td><td rowspan="2">Trip details (To be furnished only for Passenger Service route permit)</td><td>Departure Time</td><td>Arrival Time</td></tr>
<tr><td></td><td></td></tr>
<tr><td>17</td><td>Permitted Speed of the Vessel as per Registration Certificate</td><td colspan="2"></td></tr>
<tr><td>18</td><td>Details of stability test conducted</td><td colspan="2"></td></tr>
<tr><td>19</td><td>Details of Insurance Policy</td><td colspan="2"></td></tr>
<tr><td>20</td><td>Enclosures</td><td colspan="2">1. Identification proof of Applicant
2. Copy of Registration Certificate
3. Copy of Certificate of Survey
4. Copy of all Crew Certificate
5. Copy of Stability Certificate
6. Copy of Insurance Certificate
7. Copy of Pollution Certificate
8. Proof of Payment of the required fees</td></tr>
</table>

DECLARATION

Certified that all information above are correct.

Place : Name :

Date : Signature :

The guidelines given below shall be followed while granting the route permit, namely:—

1. All inland vessels shall have a route permit depending on type of operation.
2. A vessel having a tourist permit can operate on all notified routes.
3. A Passenger vessel can operate only on permitted route on scheduled time. All service boats and ferries will come under this category.
4. Boats with cargo service route permit and special service route permit shall be permitted to operate on more than one route. Time schedule will not be applicable; the permitted route will be entered in the certificate. Special permits will be given to dredgers, survey vessels, patrol vessels etc.
5. Application shall be addressed to the port where the vessel is to be registered.
6. The validity of route permit shall be two years.

In case no response is received from the concerned authorities within twenty days from the date of application, kindly contact the Competent Authority/Appellate Authority in the following Address:

Competent Authority : director.port@kerala.gov.in
Appellate Authority : cmedop.port@kerala.gov.in

FORM NO. 39

[*See* Rule 54 (10)]

ROUTE PERMIT

This is to certify that I....., the Competent Authority have issued.....(type of permit) to.....(vessel name) having registration number.....on .....

Particulars of vessel

1	Name of the owner of the vessel		
2	Address		
3	Name of the vessel	Owner/Operator/Others (Specify)	
4	Type of vessel		
5	Registration Number	House boat/Passenger vessel/ Speed boat with OB engine/ Cargo vessel/Dredgers/Others	
6	Certificate of Survey number		
7	Date of expiry of validity of certificate of survey		
8	No. of crew assigned to the vessel		
9	Name and place of Assigned Jetty		
10	Name and place of Mooring Point		
11	Type of Route Permit		
12	Route details	Starting point	End point
13	No. of trips required		

14	Trip details (Applicable only for Passenger Service route permit)	Departure Time	Arrival Time
15	Details of Insurance Policy		
16	Validity period of Route Permit 2 years		

Port of Registry: Name of Competent Authority:

Date of Issue: Signature:

(44) after Annexure IV, the following Annexure shall be added, namely:—

ANNEXURE—V

I. (a) Procedure for conducting Heel test

The vessel shall be subjected heel test where applicable as per requirements of rule 134 (6) (a). A total heeling moment of WB/12 shall be imposed on freely floating vessel by shifting known weights through known distance, where

W=weight of all persons on board including passengers and crew @ 75 kgs. per persons.

B=extreme breadth (m) of the vessel to the outside of hull plating, excluding any fendering or rubbing strakes.

A step-by-step procedure for conducting the test is given below.

(b) Preparation of the vessel for Heel test

1. The vessel shall be complete in all respects and freely floating without grounding.
2. All extraneous items that do not belong to the vessel shall be removed except those items or equipment required on board for conducting the heel test.

3. All tanks meant for storage of liquids shall be kept 95% full.

4. Two independent devices for measuring the angle of inclination of the vessel shall be provided. These can consist of pendulum, calibrated inclinometer, water-tube or pre-marked battens, including a combination of 2 different devices.

5. Persons on board for conducting the test shall be assigned positions on the centre line of the vessel and these positions shall be marked on deck with a suitable marker. All persons on board shall stand at their assigned positions while the readings of the angle of inclination are taken.

6. Measure the extreme breadth of the ship to the outside of the hull plating, excluding any fendering or rubbing strakes.

7. Measure and record density of water by hydrometer or any other means.

8. The total weight W to be placed on board including person/s on board conducting the test shall be calculated as follows:

   W = 75xN kg.

   where N is the total number of persons the vessel is intended to carry, including passengers and crew.

   The weights to be placed on board excluding persons is then given by W_1 = W—Wp.

   where Wp is the weight of person/s on board conducting the test.

9. Arrange the weights in batches on port and starboard sides symmetrically with respect to the centerline of the vessel. Ensure that the vertical centre of gravity (VCG) above the deck/platform of each batch of weights is same as the assumed VCG of standing or seated passengers. Mark the position of each batch of weights.

10. Weights to be shifted shall consist of 2 batches on each side (2 port & 2 stbd.) and shall be marked W_{S1} and W_{S2}.

11. Determine the distances d_1 and d_2 through which weights W_{S1} and W_{S2} will be shifted:

    Total heeling moment to be applied to one side = W.B/12 = $W_{S1}.d_1 + W_{S2}. d_2$.

    Weight shifted during first shift = W_{S1} (kg)

Distance through which W_{S1} is shifted = d_1

Heeling moment due to first shift = W_{S1}. d_1

Total heeling moment to be applied = W.B/12

Heeling Moment to be applied in second shift = W.B/12 – W_{S1}. d_1

Weight shifted in second shift=W_{S2}

Distance through W_{S2} which is to be shifted, d_2=(W.B/12–W_{B1}.d_1)/W_{S2}

(c) Heel test

12. Take readings of pendulum/inclinometer/water tube as provided in the upright condition.
13. Shift first weight W_{S1} transversely through the calculated distance d_1.
14. Take readings of pendulum/inclinometer/water tube.
15. Shift second weight W_{S2} in the same direction through the calculated distance d_2. Now bothW_{S1} and W_{S2} are on the other side and the required total heeling moment=W.B/12 has been applied.
16. Take readings of pendulum/inclinometer/water tube. At this stage check to see whether the average angle of inclination exceeds 7^0.
    (a) If the angle of inclination exceeds 7^0, the number of passengers the vessel is intendend to carry can be reduced in consultation with the owner and the test restarted from step 8.
    (b) If the average angle of inclination does not exceed 7^0, proceed to step 17.
17. Shift first weight W_{S1} back to its initial position.
18. Take readings of pendulum/inclinometer/water tube.
19. Shift second weight W_{S2} back to its initial position. Now the vessel is back in the original upright condition.
20. Take readings of pendulum/inclinometer/water tube.
21. Repeat steps 13 through 20, shifting similar weights in the opposite direction.
22. The boat passes the heel test if the mean total angle of inclination to any side corresponding to the applied heeling moment of WB/12 does not exceed 7^0.

(d) Precautions

1. The vessel shall be freely floating without grounding and free from all restrains when readings are taken. Mooring ropes shall be kept slack when readings are taken.
2. The test shall be conducted in calm weather with no significant wind, waves or current.
3. Only person/s essential for conducting the test shall be permitted on board during the test and shall wear life jacket/s. Such person/s shall stand still at their assigned positions when readings are taken.
4. If at any stage of the test, the vessel is found to heel dangerously, the test shall be stopped immediately.
5. Sounding shall be taken and recorded for all tanks.

II. Heel Test Standard

(a) Condition of Vessel

The heeling test shall be conducted in fully loaded condition with passenger and crew substituted by equivalent weight having the same assumed vertical centre of gravity as given in section 3 (f). During heel test fuel and water tanks 95% full. Any ballast present on the vessel shall be recorded for reference at future stability verifications. Photographs of the vessel should be taken to aid recording of the condition of the vessel during the test. The heel test should be conducted in fresh water, the density of the water shall be measured using a hydrometer and recorded.

(b) Weights

Any form of weights may be used where the mass is known or can be checked using a suitable weighing device. Care shall be taken when using sandbags or similar where moisture ingress may have a significant effect on their weight. The use of people for performing heeling tests is not permitted due to safety and accuracy considerations.

(c) Movement of weights

The total heeling moment of WB/12 shall be imposed in 2 shifts of approximately WB/24, with the angle of heel being recorded at each stage. This staged heeling allows for subsequent analysis in borderline cases, helps avoid experimental errors and reduces the risk of excessive heel angles being achieved on newly considered vessels. The process shall be performed for shifts both to port and to starboard. It is not necessary to utilise all the weights on board to produce the required heeling moment; the amount of weight used to provide the heeling moment will depend upon the distance it is able to be shifted. The type of weights, distribution and movement shall be agreed with the owner or representative prior to the test.

(d) Measurement of Angle of Heel

The Angle of heel may be measured using battens pre-marked with freeboard corresponding to 5° and 7° of heel. In most cases, however, it is considered easier to calculate the angle of heel by use of a pendulum, calibrated inclinometer, water tube or by freeboard measurements. The angles of heel shall be measured by two separate methods where practicable to provide a means of verification. For example, this could be two pendulums (forward and aft), a pendulum and freeboard measurements or pendulum and inclinometer. When a pendulum is used to measure the heel angle the pendulum shall ideally be of sufficient length to produce a deflection of 35 mm for each weight shift. The angle of heel shall be recorded in the spaces provided on the proforma. Care shall be taken to ensure the vessel is floating freely and avoid the influence of wash from passing vessels, wind heeling and mooring line tension on heel angle measurements.

(e) Assumed Disposition of Passenger Loading

Passenger numbers are allocated on a basis of $0.36m^2$ per passenger for the clear deck area. Clear deck area excludes any permanent fixtures that reduce the deck area available to standing passengers. Where permanently fitted seating is present, the area taken up by the seating is subtracted from the clear deck area, and the number of seats added to the passenger allocation for that deck. If the seating is in the form of benches, the number of passengers is to be calculated by dividing the length of the bench in mm by 460 and rounding to the nearest integer passenger value. However, the total passenger allocation shall not exceed that permitted by Registering Authority.

(f) Assumed Centre of Gravity of Passengers

The vertical centre of gravity of standing passengers shall be assumed to be 760 mm above the deck on which they are standing. VCG of the seated passengers shall be assumed to be 300 mm above the seat base. During the heel test, equivalent weight shall be substituted for passengers such that the VCG of the weights shall confirm to the assumed VCG of the passengers as detailed above.

(g) Passenger Heeling Moment

The two thirds-one third passenger distribution equates to the standard passenger heeling moment of WB/12. W is the weight of passengers (@ 75 kg. each) and B is the extreme breadth to the outside of the hull plating (excluding any fendering or rubbing strakes). This heeling moment may be applied using any weight and shift distance combination, provided it produces the required heeling moment (heeling moment = weight × distance moved).

III. Classification of water bodies and intact stability requirements

The intact stability requirements are dependent on the area of operation, the number of passengers onboard and the number of decks. Table A.1 below indicates which requirements apply to each water category and vessel type.

Table A. 1—Applicable Standards

Water category	*Maximum Number of passengers*	*Number of Decks*	*Applicable Standards*
(1)	(2)	(3)	(4)
IWA	<=50	0 or 1	Heel Test
IWA	<=50	>1	Righting Lever Criteria
IWA	>50	Any	Righting Lever Criteria
IWB	<=50	0 or 1	Heel Test

(1)	(2)	(3)	(4)
IWB	<=50	>1	Righting lever Criteria
IWB	>50	>=1	Righting Lever Criteria
IWC	Any	>=1	Righting Lever Criteria, Heel on Turn, SWRC
IWD	Any	>=1	Righting Lever Criteria, Heel on Turn, SWRC

Notes:—

(a) In the "Decks" column in the above table, "0" means a vessel which is completely open, "1" means a partially or fully decked vessel.

(b) Category "IWA" means narrow rivers and canals where the depth of water is generally less than 1.5 metres.

(c) Category "IWB" means wider rivers and canals where the depth of water is generally 1.5 metres or more and where the significant wave height could not be expected to exceed 0.6 metres at any time.

(d) Category "IWC" means tidal rivers and estuaries and large, deep lakes where the significant wave height could not be expected to exceed 1.2 metres at any time.

(e) Category "IWD" means tidal rivers and estuaries where the significant wave height could not be expected to exceed 2.0 metres at any time. In the "Decks" column in the above table, "0" means a vessel which is completely open, as depicted in Annex 7. "1" means a partially or fully decked vessel.

IV. Righting Lever Criteria

1. The area under the righting lever curve (GZ curve) shall not be less than 0.055 metre-radians up to φ = 30° angle of heel and not less than 0.09 metre- radians up to φ = 40° or the angle of down-flooding φ_f [1] if this angle is less than 40°. Additionally, the area under the righting lever curve (GZ curve) between the angles of heel of 30° and 40° or between 30°and φ_f, if this angle is less than 40° shall not be less than 0.03 metre-radian.

2. The righting lever GZ shall be at least 0.20 m at an angle of heel equal to or greater than 30°.

3. The maximum righting lever shall occur at an angle of heel not less than 30°. This angle may be permitted to be reduced to 25° having regard to the design of a particular vessel.

4. The following shall be applied where a vessel's characteristics render compliance with the criterion of A.4.(1) to (3) impracticable:

   The area under the curve of righting levers (GZ curve) shall not be less than 0.070 metre-radians up to an angle of 15° when the maximum righting lever (GZ) occurs at 15° and 0.055 metre-radians up to an angle of 30° when the maximum righting lever (GZ) occurs at 30° or above. Where the maximum righting lever (GZ) occurs at angles of between 15° and 30°, the corresponding area under the righting lever curve shall be:

   $0.055 + 0.001\ (30° - \varphi_{max})$ metre-radians[2]

5. The initial meta-centric height GM_0 shall not be less than 0.15m

6. The angle of heel on account of crowding of passengers to one side as defined below shall not exceed 10°

Note:—1. φ_f is an angle of heel at which openings in the hull, superstructures or deckhouses which cannot be closed weather tight immerse. In applying this criterion, small openings through which progressive flooding cannot take place need not be considered as open.

Note:—2. φ_{max} is the angle of heel in degrees at which the righting lever curve reaches its maximum.

V. Heel on Turn Criterion

The angle of heel on account of turning shall not exceed 10° when calculated using the following formula:

$$M_R = 0.2 \frac{V_O^2}{L_{WL}} \Delta \left(KG - \frac{d}{2} \right)$$

where:

M_R	=	heeling moment (kNm)
V_O	=	service speed (m/s)
L_{WL}	=	length of vessel at waterline (m)
Δ	=	displacement (t)
d	=	mean draught (m)
KG	=	height of centre of gravity above baseline (m)

VI. Severe Wind and Rolling Criterion (Weather Criterion)

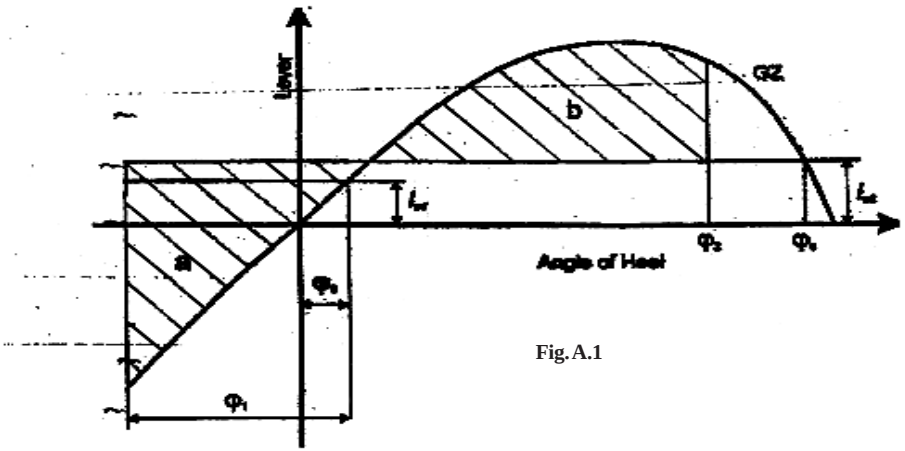

Fig. A.1

(1) The ability of a vessel to withstand the combined effects of beam wind and rolling shall be demonstrated, with reference to the figure A.1 as follows:

(a) the vessel is subjected to a steady wind pressure acting perpendicular to the vessel's centreline which results in a steady wind heeling lever (l_w1).

(b) from the resultant angle of equilibrium (φ_0), the vessel is assumed to roll owing to wave action to an angle of roll ($\varphi 1$) to windward. The angle of heel under action of steady wind (φ_0) shall not exceed 16° or 80% of the angle of deck edge immersion, whichever is less.

(c) the vessel is then subjected to a gust wind pressure which results in a gust wind heeling lever *($l_w 2$)*;

(d) under these circumstances, area *b* shall be equal to or greater than area *a*

The angles in the above figure A. 1 are defined as follows:

φ_0 = angle of heel under action of steady wind

$\varphi 1$ = angle of roll to windward due to wave action (The angle of roll for vessels with anti-rolling devices should be determined without taking into account the operation of these devices unless the authority is satisfied with the proof that the devices are effective even with sudden shutdown of their supplied power.)

φ_2 = angle of down-flooding (φ_f) or 50° or φ_c, whichever is less

where:

φ_f = angle of heel at which openings in the hull, superstructures or deckhouses which cannot be closed weather tight immerse. In applying this criterion, small openings through which progressive flooding cannot take place need not be considered as open.

φ_c = angle of second intercept between wind heeling lever l_{w2} and *GZ* curve.

(2) The wind heeling levers l_{w1} and l_{w2} referred to in A.6.(1) are constant values at all angles of inclination and shall be calculated as follows:

$$l_{w1} = \frac{PAZ}{1000g\ \Delta}\ (m)$$

$$l_{w2} = 1.5\ l_{w1}\ (m)$$

where:

P = wind pressure of 168 Pa (N/m^2);

A = projected lateral area of the portion of the vessel and deck cargo above the waterline (m^2);

Z = vertical distance from the centre of *A* to the centre of the underwater lateral area or approximately to a point at one half the mean draught (m);

Δ = displacement (t);

g = gravitational acceleration of 9.81 m/s^2.

(3) Alternative means for determining the wind heeling lever (lw_1) may be accepted, to the satisfaction the authority, as an equivalent to calculation in A.6.(2). Here the wind velocity used in the tests shall be 15 m/s in full scale with uniform velocity profile.

(4) The angle of roll (φ_1) referred to in A.6.(1) shall be calculated as follows:

$$\phi 1 = 109 k X_1 X_2 \sqrt{rs}$$

Where:

X_1, X_2 are factors obtained from Tables A.2 and A.3 respectively.

k is a factor defined as follows:

k = 1.0 for round-bilged vessel having no bilge or bar keels

k = 0.7 for a vessel having sharp bilges (*See* note below)

k = as shown in Table A.1 for a vessel having bilge keels, a bar keel or both, where

L_{wl} = length of the vessel at waterline (m)

B = moulded breadth of the vessel (m)

A_k = total overall area of bilge keels, or area of the lateral projection of the bar keel, or sum of these areas (m^2).

Note:—"Sharp bilge" shall be considered a bilge radius < 0.01B and an angle between piecewise lines representing the bilge smaller than 120 degrees.

r is a factor given by

$$r = 0.73 + 0.6\ OG/d$$

where:

$OG = KG\text{-}d$

d = mean moulded draught of the vessel (m)

s is a factor as shown in table A. 4 as a function of $T\phi$, the vessel's natural roll period. In the absence of sufficient information, the following approximate formula can be used to calculate $T\phi$ *:*

$$T_\phi = \frac{2CB}{\sqrt{GM}}$$

Where:

$$C = 0.373 \div 0.023\ \frac{B}{d} - 0.043\ \frac{L_{wL}}{100}$$

GM = metacentric height corrected for free surface effect (m).

Table A.2—Values of factor *k*

$(A_k \times 100)/(L_{wL} \times B)$	*k*
0	1.0
1.0	0.98
1.5	0.95
2.0	0.88
2.5	0.79
3.0	0.74
3.5	0.72
≥ 4.0	0.70

A_k = *total overall area of bilge keels, or area of the lateral projection of the bar keel, or sum of these areas* (m^2).

Table A.3—Values of factor X_1

*B/d**	X_1
≤2.4	1.0
2.5	0.98
2.6	0.96
2.7	0.95
2.8	0.93
2.9	0.91
3.0	0.90
3.1	0.88
3.2	0.86
3.4	0.82
3.5	0.80
3.6	0.79
4.0	0.78
4.5	0.76
5.0	0.72
5.5	0.68
6.0	0.64
6.5	0.62

** B is the breadth of the vessel and d is the draft.*

Table A.4—Values of factor X_2

C_B*	X_2
≤ 0.45	0.75
0.50	0.82
0.55	0.89
0.60	0.95
0.65	0.97
≥ 0.70	1.00

* *C_B is the block coefficient of the vessel*

Table A.5—Values of factor *s*

T_ϕ*	*s*
3.5	0.100
4.0	0.099
4.5	0.096
5.0	0.090
7.0	0.064
9.0	0.042
9.5	0.038
10.0	0.037
10.5	0.035

* *T_ϕ is the natural roll period of the vessel.*

VII. Standard Loading Conditions

Wherever applicable, *Righting Lever Criteria*, *Heel on Turn Criterion* and *Severe Wind and Rolling Criterion* shall be applied to the following loading conditions:

Vessels with 1 deck only

(1) Light ship

(2) Fully loaded departure with all persons standing on one side

(3) Fully loaded arrival with all persons standing on one side.

Vessels with 2 decks

(1) Light ship

(2) Fully loaded departure with all persons standing

(3) Fully loaded arrival with all persons standing

(4) Partially loaded departure with passengers on upper deck only at the rated capacity of upper deck, all persons standing.

(5) Partially loaded arrival with passengers on upper deck only at the rated capacity of upper deck, all persons standing.

Note:—Additional loading conditions can be specified by the authority when it is deemed that such conditions are critical with regard to the intact stability of the vessel.

Weight and Centre of Gravity of Passengers and Crew.

The weight of a person shall be taken as 75 kgs. The vertical centre of gravity of a standing person shall be taken as l m above the deck on which the person is standing and that of a seated person shall be taken as 0.5m above the deck on which the person is seated.".

By order of the Governor,

V. J. KURIAN,

Additional Chief Secretary to Government.

Explanatory Note

(This does not form part of the notification, but is intended to indicate its general purport.)

As per notification issued under G. O. (P) No. 5/2010/CSIND, dated 30th April, 2010 and published as S.R.O. No. 424/2010 in the Kerala Gazette Extraordinary No. 1055 dated 30th April, 2010 Government have issued the Kerala Inland Vessels Rules, 2010. Vide G. O. (Rt.) No. 1293/2013/Tourism, dated 15th February, 2013 a nine member Committee was constituted for making recommendations to Government of Kerala to foster backwater tourism without compromising on safety, efficiency and pollution aspects through a consultative process. Based on the report of the Committee, Government have decided to amend the Kerala Inland Vessels Rules, 2010 by incorporating provisions for safety, security, pollution control and quality service.

This notification is intended to achieve the above object.