

Kerala Coastal Zone Management Authority

Sub-Committee on *Pokkali* and *Kaipad*

Report (Final)

September 2021

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Preface

Kerala Coastal Zone Management Authority (KCZMA) is proceeding with the finalisation of the Coastal Zone Management Plan (CZMP-2019) conforming to the Coastal Regulation Zone Notification of 2019 (CRZ-2019). The preliminary draft of the CZMP-2019 has been prepared by National Centre for Earth Science Studies (NCESS) and has been discussed at different levels. While the coastal environmental protection is necessary, there have been several difficulties arising from certain provisions of the regulation in the *pokkali/ kaipad* farming areas.

The greatest difficulty is the limitations imposed on dwellings of people living in these areas with livelihoods based on the *pokkali/ kaipad* farming, fisheries or related economic activities. These problems have arisen from the time the CRZ notification of 1991 came into force after the approval of CZMP in 1996. The KCZMA in a special meeting held on July 3, 2021, constituted a Sub-Committee¹ to examine the various aspects and the possibilities for finding solutions within the framework of the coastal regulation notification. The Sub-Committee consists of the following members:

1. Dr Chandanathil Pappachan Geevan
2. Dr P. K. Thulasidas
3. Ms Amrutha Satheesan
4. Dr Richard Scaria
5. Dr Dinesan Cheruvat

s/d

All five members of the sub-committee

September 3, 2021

¹ KCZMA Proceedings 08/A2/2019/KCZMA date: 23/07/2021 (Annexure-1)

Acknowledgements

We sincerely thank the members of the Local Self-Government Institutions who facilitated our field visit to the *pokkali* areas in Kadamakkudy, Varappuzha, Kottuvally and Ezhikkara Grama Panchayats of Ernakulam district on August 15, 2021. We have considered the views expressed by the people living in the area facing considerable difficulties and tried to include their concerns in this report. We record our thanks for the support provided by the Panchayat Presidents, other office bearers and members of the Gram Panchayats during the field visit. We have examined the ideas shared by the local leaders, activists, and the key persons from different sections of the communities. We thank the office bearers and board members of the Palliyakkal Service Co-Op. Bank for providing interesting perspectives about the current scenario of the *pokkali* farming and prospects for responsible tourism in the region. The list of key individuals we interacted with during the field visit is given in Annexure-2.

We thank Dr Venu V (IAS), Additional Chief Secretary and Chairperson of KCZMA for wholehearted support and sharing ideas. Our sincere thanks to Mr Suneel Pamidi (IFS), Member Secretary, KCZMA, Mr. Kalaiarasan P, Environmental Engineer, DoE&CC and other staff of KCZMA for all the cooperation.

Abbreviations

CRZ	:	Coastal Regulation Zone
CZMP	:	Coastal Zone Management Plan
DoE&CC	:	Directorate of Environment and Climate Change, Government of Kerala
GoK	:	Government of Kerala
Gol	:	Government of India
ha	:	Hectares
HTL	:	High Tide Line
IAS	:	Indian Administrative Service
IFDP	:	Integrated Fisheries Development Plan
IFS	:	Indian Forest Service
KCZMA	:	Kerala Coastal Zone Management Authority
LSGI	:	Local Self-Government Institution(s)
MoEF&CC	:	Ministry of Environment, Forest & Climate Change, Government of India
NCESS	:	National Centre for Earth Science Studies
NCSCM	:	National Centre for Sustainable Coastal Management
NCZMA	:	National Coastal Zone Management Authority
NDZ	:	No Development Zone
Sol	:	Survey of India

1 Pokkali/ Kaipad Farming Systems in Coastal Wetlands

Coastal wetlands are one of the most productive ecosystems on earth. Traditional agriculture, animal husbandry and fisheries in these coastal wetlands have supported the livelihood of local communities immensely over the last many centuries. Coastal wetlands, where salt tolerant paddy cultivation and traditional capture-based aquaculture have been practiced are seen in many parts of the world, particularly in tropical countries. Such traditional integrated paddy-shrimp farming system is popular in India and is known by different names locally such as *bheries/ bhasabhada* (West Bengal), *khazan* (Goa), *gazani* (Karnataka), and *pokkali/ kaipad* (Kerala).

The *pokkali* and *kaipad* farming systems are remarkable cases of agriculture in coastal wetlands. This system allows a mix of paddy cultivation and fisheries, usually flooded salt tolerant paddy. Most of the *pokkali* and *kaipad* wetlands come within the ambit of the Coastal Regulation Zone notification. The *pokkali* rice based on a symbiotic relationship between rice and shrimp received the Geographical Indication (GI) tag during the year 2007. Both *pokkali* and *kaipad* have common ecological features and complementary farming practices mutually supporting paddy farming and aquaculture. Therefore, they are for all practical purposes equivalent except for minor regional variations.

Traditional brackish water paddy-shrimp farming system of Central Kerala is called *pokkali* and that of Northern Kerala, *kaipad* wherein farming is an 'integrated organic farming system', where rotational as well as simultaneous farming of paddy and shrimps are practiced. During monsoon season, when the salinity is very low a crop of paddy is grown here. Shrimps/fish are grown mainly during the rest of the year. The fish farming practice followed is a traditional capture-based aquaculture system known as shrimp filtration. About four decades back, around 24,000 ha of *pokkali* land was under rice farming in central part of Kerala and 4,000 ha of *kaipad* lands in northern part of Kerala. Currently, only less than half of these areas exist with merely 2,000 ha of *pokkali* and 600 of *kaipad* under farming.

The district wise data as per CZMP-2019 (pre-Draft) and the report prepared by the Committee constituted for the preparation of Integrated Fisheries Development Plan (IFDP) for incorporation into the CZMP-2019 are presented in Table-1. The *kaipad* areas of North Kerala are conspicuous by their absence in the CZMP-2019 (pre-draft), which may be due to the inclusion of those areas under a different category. This must be examined and must be rectified. The IFDP does not have any data on the *pokkali* areas of Kottayam, which may be because the district was not covered under the *pokkali* development programme of the fisheries department.

Table 1: Pokkali/ Kaipad Wetland Area (ha) as per CZMP-2019 (pre-draft) & IFDP for CZMP-2019

District	CRZ-IB – Pokkali (ha) (CZMP-2019, pre-draft)	Nearly 40 years ago (ha), (IFDP)	Present Active Farming Area (ha) (IFDP)
Alappuzha	2,225	2,223	833
Kottayam	62	0	0
Ernakulam	4,752	5,039	1,499
Thrissur	125	958	287
Kozhikode	0	1,125	188
Kannur	0	2,233	599
Kasaragod	0	486	135
Total	7,164	12,063	3,542

Source: CZMP-2019 (pre-draft) and IFDP report prepared in 2021

Presently mapping of *pokkali* and *kaipad* wetlands in various districts are not adequately identified and represented in CZMP-2019 (pre-draft). The CZMP-2019 is not showing the *kaipad* lands in the northern districts while it is close to the area which was there four decades ago for Ernakulam and Alappuzha. In

many cases, such areas are marked as mangroves or mangrove buffer zone. Land-use maps of all the local bodies/villages within the purview of CRZ where these wetlands are present should be examined to rectify this. Inventory of village wise area details of *pokkali/ kaipad* wetlands can be prepared and updated every five years. A LSGI-level committee can monitor changes and report to District Level Committee.

2 Pokkali and Kaipad within the Coastal Regulation Framework

The degradation of coastal ecosystem including the coastal wetlands and its adverse impacts have drawn the attention of the government to take measures for protecting these areas. The Coastal Regulation Zone Notification first notified in 1991 has been amended in 2011 and 2019. The purpose of the notification as stated in the CRZ notification of 2019 is:

"... to conserve and protect the unique environment of coastal stretches and marine areas, besides livelihood security to the fisher communities and other local communities in the coastal areas and to promote sustainable development based on scientific principles taking into account the dangers of natural hazards, sea level rise due to global warming".

The coastal stretches were notified as regulated zones of coastal sea, coastal land area and inland water bodies and its bordering areas. As per the CRZ notification dated 18-01-2019 of Ministry of Environment, Forest and Climate Change (MoEF&CC) all coastal states must prepare Coastal Zone Management Plan (CZMP) and obtain approval. Development activities and land utilisation in the areas within CRZ will be subject to the zones demarcated in the CZMP.

The Coastal Zone Management Plan (CZMP) prepared as per CRZ 1991 notification considered *pokkali/ kaipad* as fish breeding areas and the 100 m CRZ adjoining the *pokkali* fields were categorized as No Development Zone (NDZ) of CRZ IA. The categorization under NDZ put the traditional coastal communities into great difficulties. This categorization continued till February 2019 when the CZMP as per CRZ 2011 was approved. The CRZ and CZMP 2011 categorise banks adjoining *pokkali/ kaipad* as CRZ IB, i.e., intertidal zone, within which many fisheries related infrastructure is permitted.

The section of CRZ-2019 pertinent to *pokkali /kaipad* wetlands defining CRZ-IA and CRZ-IB is reproduced below:

2.1 CRZ-I areas are environmentally most critical and are further classified as under:

2.1.1 CRZ-I A:

- (a) CRZ-I A shall constitute the following ecologically sensitive areas (ESAs) and the geomorphological features which play a role in maintaining the integrity of the coast viz.:
- (i) Mangroves (in case mangrove area is more than 1000 square meters, a buffer of 50 meters along the mangroves shall be provided and such area shall also constitute CRZ-IA);
 - (ii) Corals and coral reefs;
 - (iii) Sand dunes;
 - (iv) Biologically active mudflats;
 - (v) National parks, marine parks, sanctuaries, reserve forests, wildlife habitats and other protected areas under the provisions of Wildlife (Protection) Act, 1972 (53 of 1972), Forest (Conservation) Act, 1980 (69 of 1980) or Environment (Protection) Act, 1986 (29 of 1986), including Biosphere Reserves;
 - (vi) Salt marshes;
 - (vii) Turtle nesting grounds;
 - (viii) Horse shoe crabs' habitats;
 - (ix) Sea grass beds;
 - (x) Nesting grounds of birds;
 - (xi) Areas or structures of archaeological importance and heritage sites.

- (b) A detailed environment management plan shall be formulated by the States and Union Territories for such ecologically sensitive areas in respective territories, as mapped out by the National Centre for Sustainable Coastal Management (NCSCM), Chennai based on guidelines as contained in Annexure-I to this notification and integrated with the CZMP.

2.1.2 CRZ-I B:

The intertidal zone i.e., the area between Low Tide Line and High Tide Line shall constitute the CRZ-I B.

As per notification, HTL means the line on the landward side up to which the “highest water line reaches during the spring tide”, as demarcated by the National Centre for Sustainable Coastal Management (NCSCM) in accordance with the laid down procedures and made available to various coastal States and Union territories.

Preceding the final CRZ Notification of 2019 (CRZ-2019), in 2014, a six-member expert committee headed by Dr Shailesh Nayak undertook a review of all issues related to the implementation of coastal environmental regulation. The terms of reference of the committee included specifically the examination of all issues raised by the State of Kerala. The committee’s final report acknowledges the detailed submissions made by various state governments. It devotes a section for the submissions made by the Government of Kerala (GoK). The committee did not recommend changes such as re-categorization of the *pokkali/ kaipad* wetlands. Stakeholders including GoK had also submitted changes to the CRZ-2019 (draft) notification when MoEF&CC invited public response to the draft in 2018.

The CRZ-2019 does not explicitly mention the inclusion of *pokkali/ kaipad* wetlands within the CRZ. They come within the CRZ-IB when CZMP includes these areas when the criteria to determine tidal influence is applied without considering the outer bunds with sluice gates that regulate tidal flows in the delineation of the HTL. The CRZ status of many *pokkali/ kaipad* wetlands depends on the criteria employed for delineation of the HTL. The *pokkali/ kaipad* rice-and-shrimp farming practiced since hundreds of years depends on the traditional outer bunds with sluice gate for regulating the inflows and outflows for pokkali rice cultivation during monsoon followed by shrimp farming during rest of the year.

The norm in HTL delineation is to consider protection structures such as seawall, embankment, bunds, and revetments as the tidal limit. The section 2.4 of the technical manual for the demarcation of HTL (HTL Manual) deals with the ‘identification of HTL using geomorphological features in aerial photographs and satellite images’. It states as follows²:

“Coastal protection structures such as seawall, embankment, bunds and revetments also limit the intrusion of tide and can be easily detected in images. Such features are time tested to withstand the onslaught of the highest of the high spring tides.” (page 7)

The category Khar-Land is used in the HTL Manual to refer to areas with diverse local names such as *pokkali* (Kerala), *khar* (Maharashtra), *khazan* (in Goa), *kharepat*, *gazni*, and other such tidally influenced areas. The glossary of the HTL Manual defines it as follows:

“Khar land refers to tidal land which is made cultivable or otherwise beneficial in any matter whatsoever by protecting it, by means of an embankment, from the sea or tidal river, and includes all such land in whatever manner described, whether as khar (in Maharashtra), khazan (in Goa), pokkali (in Kerala), kharepat, gazni or otherwise.” (HTL Manual, p 36)

The same glossary describes Khazan land in Goa to be “ecosensitive low lying areas influenced by tidal action seasonally used for paddy cultivation.” (HTL Manual, p 36)

² Manual on Demarcation of High Tide Line and Low Tide Line and Preparation of CZMP of the Coast of India

3 Amendment to CRZ-2011: HTL Delineation, Implications for CZMP-2011 and 2019

The 39th meeting of NCZMA held on 13.01.2020 deliberated on the issue of delineating the HTL in *khazan* wetlands as per request of Goa seeking a significant change. The minutes of 39th meeting of NCZMA states as follows:

"In case, there exists a bund or a sluice gate constructed in the past, prior to the date of notification issued vide S.O. 114(E), dated 19.02.1991, the HTL shall be restricted to the line along the bund or the sluice gate. In such a case, area under mangroves arising due to saline water ingress beyond the bund or sluice gate shall be classified as CRZ-1A, irrespective of the extent of the area beyond the bund or sluice gate".

The NCZMA also decided that the state government shall immediately take up work for restoration of the bunds/ sluice gates and its proper operation and maintenance.

The National Coastal Zone Management Authority (NCZMA) in its 42nd meeting held on March 23, 2021 reviewed the request of the Government of Goa to restrict HTL up to the line along the bund or the sluice gate in Khazan land. The minutes of the meeting mentions as follows:

"The NCZMA observed that the proposed amendment is a provision in CRZ Notification, 2011 which has been included vide Notification S.O.1422(E) dated 01.05.2020, after finalization of CRZ Notification, 2019 and there is a valid reason to be included in the new CRZ Notification, 2019."

Box-1
Notification S.O. 1422(E) dated 01.05.2020
<p>S.O. 1422(E).— WHEREAS by notification of the Government of India in the Ministry of Environment and Forests number S.O. 19(E), dated the 6th January, 2011 (hereinafter referred to as the Coastal Regulation Zone Notification, 2011), the Central Government declared certain coastal stretches as Coastal Regulation Zone and restrictions were imposed on the setting up and expansion of industries, operations and processes in the said zone;</p> <p>AND WHEREAS, the Central Government have received representations from various stakeholder including the State Governments regarding need for restricting demarcation of HTL in Khazan Land to the bund/sluice gate, and delineation of HTL and CRZ categories in the Sundarbans Biosphere Reserve under the provisions of the said notification;</p> <p>AND WHEREAS, the National Coastal Zone Management Authority in its 39th meeting held on 13th January, 2020 had also decided that the above-mentioned issues need consideration;</p> <p>AND WHEREAS, the Central Government, having regard to the provision of sub-rule (4) of rule 5 of the Environment (Protection) Rules, 1986, is of the opinion that it is in public interest to dispense with the requirement of notice under clause (a) of sub-rule (3) of rule 5 of the said rules for amending the said Coastal Regulation Zone Notification, 2011.</p> <p>NOW THEREFORE, in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following further amendments in the Coastal Regulation Zone Notification, 2011, namely: -</p> <ol style="list-style-type: none">1. In paragraph 2, the following proviso shall be inserted, namely: -"Provided that in case there exists a bund or a sluice gate constructed in the past, prior to the date of notification issued vide S.O. 114(E) dated 19th February, 1991, the HTL shall be restricted up to the line long along the bund or the sluice gate and in such a case, area under mangroves arising due to saline water ingress beyond the bund or sluice gate shall be classified as CRZ-1A irrespective of the extent of the area beyond the bund or sluice gate. Such areas under mangroves shall be protected and shall not be diverted for any developmental activities.2. In paragraph 7, in sub-paragraph (i), in clause A, in sub-clause (e), after the words "Biosphere Reserves", the following shall be inserted, namely: -<p>"except in the case of the Sundarbans Biosphere Reserve, wherein, the categorization of CRZ and delineation of the HTL and CRZ boundaries shall be done in consonance with the provisions of the CRZ Notification, 2011</p><p>Note: The CVCA delineated within the Sundarbans Biosphere Reserve shall be managed by the Integrated Management Plan prepared by the State Government and approved by the Central Government".</p>3. Under paragraph 8.V relating to Areas requiring special consideration, in clause 3, for sub-clause (iv), the following sub-clause shall be substituted, namely: -<p>"(iv) the eco sensitive low lying areas which are influenced by tidal action known as khazan lands shall be mapped and in case there exists a bund or a sluice gate constructed in the past, prior to the date of notification issued vide S.O. 114(E) dated 19th February, 1991, the HTL shall be restricted up to the line long along the bund or the sluice gate and in such a case, area under mangroves arising due to saline water ingress beyond the bund or sluice gate shall be classified as CRZ-1A irrespective of the extent of the area beyond the bund or sluice gate. Such areas under mangroves shall be protected and shall not be diverted for any developmental activities</p>

The minutes of the NCZMA meetings (39 and 42) and S.O. 1422(E) dated 01.05.2020 show that conceding to the request from Goa, NCZMA decided to make the boundary of the bunds in existence as of 1991 as the HTL for *khazan* lands. The altered provision incorporated in the CRZ 2011 through an amendment vide Notification S.O. 1422(E) dated 01.05.2020³ is given in the Box-1.

The S.O. 1422(E) of 01.05.2020 is *applicable CRZ-2011 for the delineation of HTL* corresponding to *khazan*-land. As already noted, the *khazan* lands of Goa are equivalent to *pokkali/ kaipad* lands of Kerala and is just one of the local names for various similar types clubbed under *khar-land* in the HTL Manual. Importantly, since it applies to the equivalents of *khazan*-land in all states, *KCZMA should apply this to the CRZ clearance applications from the relevant areas currently being processed under CRZ-2011*. In fact, there is no need for CRZ clearances in the areas excluded from the ambit of CRZ-2011 when the HTL for *pokkali* and *kaipad* wetlands is delineated as per S.O. 1422(E) of 01.05.2020 in CZMP-2011, i.e., when CZMP-2019 is revised as per this amendment.

Therefore, KCZMA should urgently initiate revision of the HTL in *pokkali* and *kaipad* areas as per the amended provision and revise the CZMP-2011 accordingly. After completing that, KCZMA should review all the applications received after May 1, 2020 for CRZ clearances from the *pokkali* and *kaipad* areas and nullify all the denial of permissions. Since it applies to CRZ-2011 and KCZMA is currently processing applications under CRZ-2011, this would be the correct step to take. Since S.O. 1422(E) of 01.05.2020 does not mention any state-specific limitation and specifically mentions what pertains exclusively to Sundarbans Biosphere Reserve, it should be assumed that it applies to *pokkali* and *kaipad* lands in Kerala as well.

Though the S.O. 1422 (E) of May 1, 2020 applicable to CRZ-2011 has not yet been notified for CRZ 2019, the decisions of NCZMA discussed earlier makes it clear that this will follow. Therefore, we can expect a pertinent notification to that effect soon. Hence, anticipating the change and subject to clarification in this regard from the NCZMA, the CZMP-2019 (pre-draft) may require modification before it is finalised by revising the HTL delineation adjoining *pokkali/ kaipad* based on bunds/ sluices existing as on 19 February 1991. All these require necessary steps from the NCZMA and MoEF&CC. Only after they issue necessary clarifications and enabling orders it will be possible to take the steps required for making S.O. 1422 (E) of May 1, 2020 operational.

The implications of S.O. 1422 (E) issued on May 1, 2020, amending the delineation of HTL for *khazan* wetlands that are equivalent to *pokkali* and *kaipad* and is clubbed under the more general category *khar-land* in the HTL manual, are summarised below:

- 1) The Amendment S.O. 1422 (E) of May 1, 2020 has amended CRZ-2011
- 2) The amendment S.O. 1422 (E) of May 1, 2020 to CRZ-2011 entails applying the change to CZMP-2011
- 3) All the CRZ clearances processed from May 1, 2020 must necessarily be reviewed and all the decisions thereto be kept in abeyance until CZMP-2011 is appropriately revised to incorporate the changes to HTL delineation
- 4) After the S.O. 1422 (E) of May 1, 2020 is enforced by revising the CZMP-2011 it should be disclosed to the public
- 5) After S.O. 1422 (E) of May 1, 2020 is enforced, relevant instructions may be issued to the DLC for exempting the areas excluded from the purview of CRZ notification
- 6) Permission must be sought for NCZMA for revising CZMP-2011 to conform with S.O. 1422 (E) of May 1, 2020
- 7) Request must be made to NCZMA to a) make S.O. 1422 (E) of May 1, 2020 applicable to CRZ-2019, b) incorporate necessary changes to the CZMP-2019 technical guidelines, c) revise HTL

³ Annexure-3: Gazette Notification of S.O. 1422(E) of 01.05.2020

Manual and d) notify that CZMP-2019 should be amended in those states where the S.O. 1422 (E) of May 1, 2020 is relevant

4 Additional Considerations on S.O. 1422 (E) of May 1, 2020

The provisions of S.O. 1422 (E) of May 1, 2020 will apply only to the locations where the outer bunds are in existence currently. It should not apply to the outer bunds that existed in 1991 but are no longer in existence. Further, when a bund is removed after the finalization of CZMP-2019, the HTL should be delineated again based on the salinity criteria. A mechanism for annual monitoring of the bunds by the State Coastal Zone Management Authority would be needed. The monitoring can be carried out through the District Level Committee if required. The directive of NCZMA that the “*state government shall immediately take up work for restoration of the bunds/ sluice gates and its proper operation and maintenance*” should also be noted.

When the outer bund and sluice gate becomes the default HTL, large areas that were in the NDZ as per current CRZ norms would cease to be within the ambit of CRZ notification. This would result in a situation where there are practically no norms to protect the customary rights of the *pokkali/ kaipad* farmers and fisher folk. The *pokkali/kaipad* system and the backwater fisheries depend on shared use of the backwaters as common property resources through various formal and informal institutional arrangements, all of which may not have a legal status. They represent remarkable institutional arrangements for common property resource management which are crucial for livelihoods of significant sections of people with limited land assets. Some form of protective legal framework would be needed and that should be prepared in consultation with the stakeholders.

The proposed changes in CRZ as per minutes of the 39th Meeting of NCZMA and the S.O. 1422 (E) of May 1, 2020 itself requires that when the outer bund/ sluice gate becomes the default HTL, the mangroves present beyond the bund on the side which will not be in CRZ should be “classified as CRZ-1A, irrespective of the extent of the area beyond the bund or sluice gate”. Therefore, along with delineating HTL at the outer bund of *pokkali/kaipad* land, all ecologically important sites in these areas should also be identified and classified as CRZ-IA as appropriate.

Since HTL must be approved by NCSCM and the preparation of the CZMP must be in accordance with the technical guidelines issued by the MoEF&CC, KCZMA must take up all these matters with the MoEF&CC and NCZMA on an urgent footing. Only after the necessary orders and guidance are issued, it will be possible to make corresponding changes in the CZMP-2019.

5 Outer Bunds – Feasibility of Identification and Mapping

The previous section establishes that there are reasonable grounds to consider the outer bund of *pokkali/ kaipad* as the HTL where the bunds currently exist where it was in existence in 1991 or earlier. The related question is feasibility of objectively finding the existence of the bund in 1991 or earlier. We have examined this problem to ensure that this is, indeed, a feasible proposition. There are broadly, three stages:

- a) Enumerating all the existing outer bunds of *pokkali/ kaipad* wetlands and their current status
- b) Finding authentic sources or proof of the existence of bund at nearly the same location in 1991
- c) Confirmation and authentication of the currently existing structures

The first task of compiling the list of all existing outer bunds of *pokkali/ kaipad* is necessary because the technical agency entrusted with preparing CZMP must have a list to verify. The technical agency preparing the CZMP must carry out the second and third tasks. Here, we are limiting ourselves to examining the feasibility of carrying out all these and suggesting a framework for completing them as quickly as possible in an authentic way (see Annexure-4 for an explanatory note).

The Local Self-Governing Institutions (LSGI) and other key stakeholders (*pokkali/ kaipad* farmers, fisherfolk, local communities, etc.) can prepare the preliminary list of all the existing outer bunds. They can also record the geo-coordinates at least 3 times at each point every 20 metres along the length of the bund using one of the free to use mobile phone-based GPS apps (example, Fig. 1.) The LSGI can compile basic information, year of establishment, present condition, etc. for each outer bund as per guidance given by KCZMA. Older satellite imageries can also be used to verify the existence of the bund/ sluice gate (example, Fig. 2).

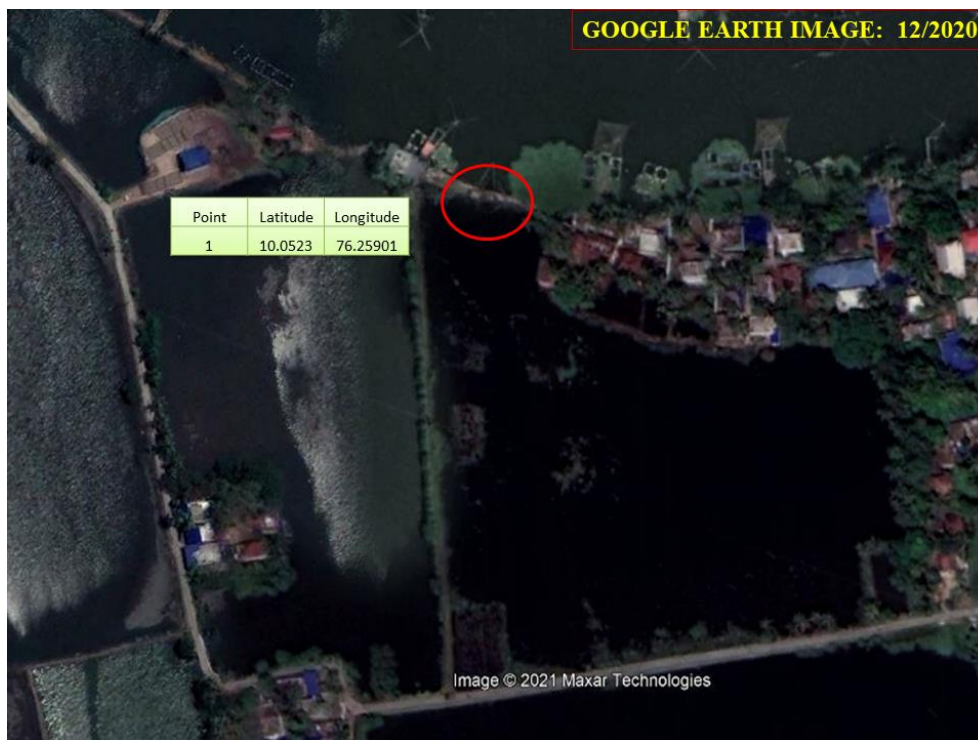


Figure 1: Recording Geo-Coordinates of the bunds/ sluice gates (example)



Figure 2: LANDSAT Satellite imagery of 1990 showing the existence of bund/ sluice gate structure.

The authorised agency can refer to the toposheets prepared by the Survey of India (SoI) available for any time between 1985 and 1995 to verify the existence of the bund (example Fig. 3). We are suggesting 1985 to 1995 anticipating the situation where the required toposheets are not available for 1991. If necessary, the authorised technical agency (e.g., NCESS) can also use available aerial photos of the Directorate of Air Survey (SOI 1990; 1: 25,000 scale) to verify the information provided by the LSGIs as mentioned earlier. Such data and maps are accessible by authorised agencies like the NCESS.

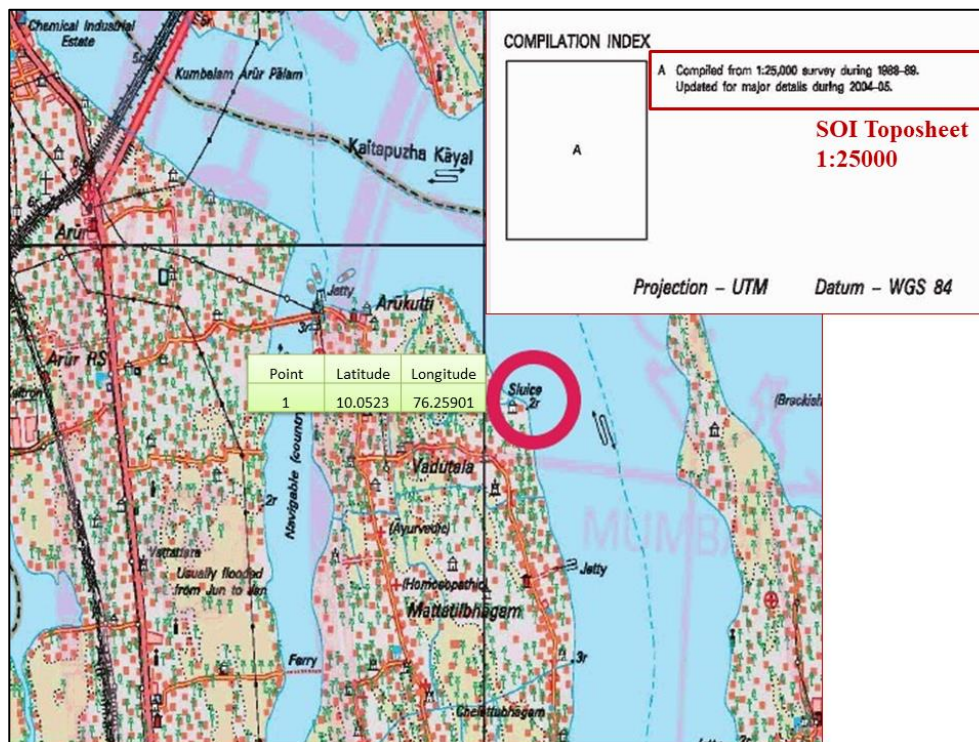


Figure 3: Survey of India, toposheet of 1988-89 showing the existence of the bund/ sluice gate structure

NCESS can verify again the current existence of the identified outer bund using the same high resolution satellite imagery employed by them earlier in the preparation of CZMP-2019. Where it is needed, NCESS can carry out ground truth exercise or verification through site inspection.

6 Question of Dwellings in the NDZ of CRZ

The visit to some of the *pokkali* areas in Kadamakkudy, Varappuzha, Kottuvally and Ezhikkara Grama Panchayats of Ernakulam district (Fig. 1) on August 15, 2021 provided an opportunity to see the pitiable plight of many dwellings and the poor people living there. These are ecosystem people, and many are the traditional practitioners of these farming systems. They, in fact, protect and conserve these areas. The Sub Committee members visited some of the dwellings for which KCZMA had denied permission for reconstruction. The members also saw the sites where KCZMA had denied permission to build a dwelling due to non-conformance with CRZ norms. All of the dwellings visited are on small landholdings, few of which are on the land given as dwelling rights by the land reforms of the 1960's. There are no clear records of the huts that existed prior to 1996 and in many cases where it is recorded, the plinth area recorded in old records is often very small even when the area in 1991-1996 may be much more due to extension or reconstruction of the old huts/ tiny dwellings. Further, there are several houses rebuilt as safer dwellings after the flood of 2018 in this flood prone area.



Figure 4: Areas covered during field visit to pokkali wetland areas, Ernakulam district (Aug. 2021)

We can only describe the condition of almost all the dwellings we saw as unliveable and unsafe (Fig. 2, 3). Many are in unsafe and dilapidated condition. There are several cases where permissions under government housing schemes have been held up due to the ineligibility to get CRZ clearance. Some of the plots have backwater on more than one side and it is impossible to build any dwelling strictly in conformity with the CRZ norms due to the inability to provide prescribed setback from the HTL. There are many dwellings within close proximity to backwaters, road on the other side and the total width of land area is just 100 to 200 meters on either side. A few of the current occupiers do not seem to have clear ownership title to the land.



Figure 5: A small dwelling unable to get the benefit of govt. housing scheme



Figure 6: A house in dilapidated condition. Mark of the 2018 flood level can also be seen.

We undertook a quick compilation of the CRZ clearance applications related to dwellings from *pokkali* areas that had been discussed by KCZMA directly or in the DLC minutes presented to KCZMA members. The data is compiled from all the available applications and can be considered reasonably representative. The summary of the averages obtained from the data and the number of applications relevant (N) are presented in Table-1.

Table 2: CRZ clearance applications for dwellings from pokkali areas – A summary

SN	Aspect of the Dwelling	Average Value	N
1	Plinth Area	67.02 sq. m	134
2	Plot Area	6.39 cents	99
3	Built Area to Plot Area Ratio	27.36%	99
4	Existing Plinth Area	48.38 sq. m.	36
5	Extension (addition to existing)	36.72 sq. m.	36
6	Extension/ Existing Ratio	75.90%	36

The average plinth area is about 67 sq.m. and the plot area about 6.4 cents. Of the applications for extension of the existing dwelling, the average existing plinth area is 48.4 sq.m while the average extension sought is 36.7 sq.m. or an average increase by nearly 76 percent of the plinth area. From 99 cases we can see that on an average, the families in these areas are using only about 27.4 percent of the plot for dwelling, mainly due to the CRZ norms and partly due to lack of resources. The site visits showed that most of these unsafe dwellings are in urgent need of rebuilding as safe housing. The current CRZ norms are the biggest impediment. We are of the view that KCZMA should view the problem of dwellings as a common problem of all the traditional coastal dwellers – be it fishing folk in backwaters or the coast, the *pokkali* and *kaipad* farmers, or all those living in the NDZ of CRZ.

7 Re-assessment of Plinth Area of the Dwellings

The CRZ notification 2011 states that in the case of dwellings that existed prior to 1991 that have not obtained formal approval, they can be regularised. The excerpt from the CRZ notification 2011, the relevant Section-6, is reproduced below:

6. Enforcement of the CRZ, notification, 2011

The dwelling units of the traditional coastal communities including fisherfolk, tribals as were permissible under the provisions of the CRZ notification, 1991, but which have not obtained formal approval from concerned authorities under the aforesaid notification shall be considered by the respective Union territory CZMAs and the dwelling units shall be regularized subject to the following condition, namely:

- (i) these are not used for any commercial activity
- (ii) these are not sold or transferred to non-traditional coastal community.

It is necessary that the LSGIs should verify again the status (whether resident prior to 1996) and the plinth area of the dwellings of all residents in the NDZ of CRZ through direct assessment. The LSGI can infer the likely plinth area in 1996 using local resources and information. The plinth area should be of 1996 (year of first CZMP) and not as per old records made long before that. In our view, the CRZ notification allows such a re-assessment. The notification does allow verification of the conditions laid down in the notification (see excerpt given above). It would be grave injustice to consider the plinth area in 1996 as per records made much earlier when these dwellings were mere shanties or thatched huts.

The LSGI can arrive at a reasonable assessment of the plinth area and update the records for further reference. We suggest that a re-verification exercise may be undertaken to identify the traditional coastal dwellers and along with that the likely plinth area of existing dwellings may also be undertaken. It should be noted that the question applies primarily to coastal dwellers when the notification first came into force in 1991 and that should be based on land ownership records.

Some of these have ramifications for other coastal dwellers especially the fisherfolk community. Therefore, the re-verification exercise should cover all those dwelling in the NDZ of the CRZ. Such a re-assessment covering all those dwelling in the NDZ would be the fair way rather than carrying out such an exercise only in the *pokkali* and *kaipad* wetlands.

8 Need for Safety Audit of Existing Dwellings in NDZ

During the field visit, we noticed that the flood of 2018 almost fully submerged most of the dwellings. As per prevailing CRZ norms, the plans for rebuilding of dwellings requiring urgent reconstruction in a safe and better manner cannot get CRZ clearance. There are also several houses rebuilt after the 2018 flood without applying for prior CRZ clearance. Many that applied for condonation of delay have been denied permission. They are living there without electricity connection and safe drinking water.

Recognising the urgency of renovation to be make large number of dwellings safer to cope with various hazard risks (flood, sea surges, cyclones), and considering the recent experiences of coping with disaster situations as well as increasing risks from hydro-meteorological hazards, we have no hesitation in suggesting that LSGIs should also undertake a safety audit of all these small dwellings along with the re-verification exercise to determine plinth area of the dwellings in 1991. Possibility of developing appropriate designs for multi-hazard resistant housing for the poor in the NDZ of CRZ should be considered by the state government. The options for enabling settlements with adequate sanitation and disaster risk reduction planning should also be examined. The state government should consider taking necessary steps to identify unsafe houses within the NDZ of CRZ and prepare a framework for disaster risk resilient settlements.

KCZMA should request the NCZMA to suitably amend CRZ-2019 allowing the reconstruction/ renovation in excess of the plinth area in 1991 of the dilapidated dwellings of coastal dwellers in NDZ that may be needed to make them safer and multi-hazard resistant. The CRZ notification restricts the plinth area to what existed three decades ago (i.e., 1991) and limits the overall height to 9 meters with maximum of two floors (ground + one floor). Multi-hazard resistant safe housing designs may require rebuild using location-appropriate safe designs. Such rebuilding may be in on raised platforms or stilts (pile or lake dwellings). The safe rebuilding may require the overall height to exceed 9 m and the plinth area more than what existed in 1991.

An agency authorised can verify the safe housing design for reconstruction. The KCZMA can further scrutinise the applications on a case-to-case basis and allow cases where safe housing requires rebuilding exceeding the plinth area existing on or before 1991. The State Coastal Zone Authority should have the power to scrutinise and decide on the CRZ clearance taking the help of experts if the application for reconstruction in excess of the existing plinth area in 1991 is justified as per norms approved by the state government as standards for safe housing in multi-hazard risk prone areas.

We would like to emphasise that the discussion on the problems of safe and multi-hazard-resistant housing is equally valid for *pokkali/ kaipad* wetland areas, fishing communities, and all those residing in the risk-prone NDZ of CRZ. Therefore, our recommendations relating to dwellings are not restricted to the *pokkali* and *kaipad* areas but to all the residents in the NDZ of CRZ (all categories) who face severe constraints for rebuilding their dwellings as multi-hazard resistant houses. *Safe housing for the poor and multi-hazard resistant rebuilding for disaster resilient housing in conformity with approved norms should be made a permissible activity even in NDZ of CRZ in those cases where the occupant has no other choice.* The NCZMA should consider amending the CRZ-2019 to facilitate construction, renovation and rebuilding of safe, multi-hazard-resistant housing in NDZ of CRZ.

9 Siltation and Flooding

Improved hydrological connectivity, reduction of siltation and general improvement of water quality are necessary for the sustainability of the system. There is considerable silt accumulation in the backwaters associated with *pokkali/ kaipad* wetlands that has occurred incrementally over the years and as large depositions during major flood events. The barrier formed by the outer bunds could be contributing to this process, which seems to be causing reduction the depth of the *pokkali /kaipad* backwaters. This could be a major factor aggravating the flood risk in the region. Not only is desilting a major challenge, but also proper approach for siltation control is needed. Such planning must aim at both reducing the silt accumulation as well as periodic desilting for restoration of the natural depth of the backwaters. Many ecological aspects have to be considered in such plans.

Given the ecological considerations and regulatory regime, the region urgently needs a framework for environment-friendly disposal of the sludge that is approved by KCZMA and other relevant agencies. While the local communities may be able to use a part of the sludge removed during desilting (e.g., for strengthening the outer bund and roads in the respective grama panchayaths), large quantities would have to be transferred or transported outside the region while ensuring that the chances of the material returning to the backwaters is minimised. In our view, a detailed study by an expert group of the problem of siltation, flood management and flood risk reduction for the inhabitants in the *pokkali/kaipad* areas is urgently needed.

10 Summary

The main inferences of this report are summarised here:

- 1) Safe or multi-hazard resistant housing is the biggest challenge for those living in the NDZ of CRZ and recognising this, KCZMA should engage with NCZMA to find a solution.

- 2) The LSGIs should verify again the status (whether resident prior to 1996) and the plinth area of the dwellings prior to 1996 of all residents in the NDZ of CRZ through direct assessment.
- 3) LSGIs should also undertake a safety audit of all dwellings in the NDZ of CRZ and the state government should examine appropriate designs for multi-hazard resistant housing for the poor in the NDZ of CRZ.
- 4) Rebuilding/ renovating the existing dwellings in NDZ of CRZ to make them safer and multi-hazard resistant as per norms should be allowed as a permissible activity even if it may exceed the plinth area that existed in 1991 if there is no other choice as ascertained by relevant authority. KCZMA should take this up with the NCZMA to amend the notification appropriately adding this as a permissible activity in the NDZ of CRZ.
- 5) The *pokkali* and *kaipad* farming systems are remarkable cases of agriculture in coastal wetlands sharing common ecological features and complementary farming practices mutually supporting farming practices for both paddy cultivation and aquaculture.
- 6) An amendment to CRZ-2011, notified by MoEF&CC as S.O. 1422(E) dated 01.05.2020 makes the boundary of the bunds in existence as of 1991 as the HTL for khazan lands that is equivalent to *pokkali* and *kaipad*.
- 7) The *kaipad* areas in northern Kerala are not correctly included in the CZMP-2019 (pre-draft). The *pokkali* wetlands in other districts depicted in CZMP-2019 also needs review. However, all these must be revised as per S.O. 1422(E) dated 01.05.2020 provided it may be made applicable to CRZ-2019.
- 8) The category *khar*-land is used in the HTL Manual to refer to areas with diverse local names such as *pokkali/kaipad* (Kerala), *khar* (Maharashtra), *khazan* (Goa), *gazni* (Karnataka), *bheries/bhasabada* (West Bengal), and other such tidally influenced areas.
- 9) The HTL for *pokkali* and *kaipad* wetlands in CZMP-2011 needs to be revised as per S.O. 1422(E) of 01.05.2020 applicable to CZMP-2011.
- 10) After S.O. 1422(E) dated 01.05.2020, the amendment to CRZ-2011, is enforced, all the CRZ clearances processed by KCZMA after May 1, 2020 pertaining to construction/reconstruction in NDZ must necessarily be reviewed and all the decisions thereto be kept in abeyance until CZMP-2011 is appropriately revised to incorporate the changes to HTL delineation
- 11) KCZMA must seek permission from NCZMA for revising CZMP-2011 to conform with S.O. 1422 (E) of May 1, 2020.
- 12) Request must be made to NCZMA to a) make S.O. 1422 (E) of May 1, 2020 applicable to CRZ-2019, b) incorporate necessary changes to the CZMP-2019 technical guidelines, c) revise HTL Manual and d) notify that CZMP-2019 should be amended in those states where the S.O. 1422 (E) of May 1, 2020 is relevant.
- 13) When the outer bund/ sluice gate becomes the default HTL, the mangroves present beyond the bund on the side which will not be in CRZ should be “classified as CRZ-1A, irrespective of the extent of the area beyond the bund or sluice gate”. Therefore, along with delineating HTL at the outer bund of *pokkali/kaipad* land, all ecologically important sites in these areas should also be identified and classified as CRZ-IA as appropriate.
- 14) Immediate steps must be initiated for enumerating all the existing outer bunds of *pokkali/kaipad* wetlands and their current status and the technical agency asked to make revisions to CZMP-2011 and the CZMP-2019 (pre-draft).
- 15) Given the ecological considerations and regulatory regime, the *pokkali/kaipad* wetlands urgently needs a framework for desilting of adjoining water bodies and environment-friendly disposal of the sludge as the cumulative siltation is reducing the depth of the backwaters, obstructing flow, and contributing to flooding.
- 16) Dredged sludge/silt can be effectively utilised for raising or strengthening of bunds along the periphery of the *pokkali/kaipad* paddy polders to protect them from sudden tidal surges or flood.

Annexure-1: Notification constituting the sub-committee

KERALA COASTAL ZONE MANAGEMENT AUTHORITY

Directorate of Environment & Climate Change

4th Floor, KSRTC Bus Terminal, Thampanoor, Thiruvananthapuram - 695 001

Ph. 0471-239696, E-mail: kczmasandtd@gmail.com

Proceedings of the Member Secretary

(Present: SUNEEL PAMIDI IFS)

No 08/A2/2019/KCZMA

Dated:

Sub:- KCZMA – Re-categorisation of Pokkali Field areas from CRZ IB to NDZ of CRZ III – Sub-Committee constituted- Orders Issued

Read :- 1. Notification No.G.S.R.37 (E) dated 18.01.2019 from Ministry of Environment Forest & Climate Change, Government of India

2. G.O (Rt).No.80/2019/Envt dated 20.08.2019

3. Decision in item No.1 of the special meeting of KCZMA held on 03.07.2021

ORDER

Government have entrusted National Centre for Earth Science Studies (NCESS), Thiruvananthapuram for preparing draft Coastal Zone Management Plan based on CRZ Notification 2019 read as 1st above. As per the pre-draft CZMP submitted by NCESS, the Pokkali fields are classified as CRZ IB. Hence in the special meeting of KCZMA held on 03.07.2021 in item No.1 KCZMA decided to constitute a Sub-Committee for examining the possibility of Re-categorisation of Pokkali Fields with the following members:

1. Dr. Chandanathil Pappachan Geevan, Member (NGO), KCZMA
2. Dr.P.K. Thulasidas, Member (Expert), KCZMA
3. Smt. Amurtha Satheesan, Member (Legal), KCZMA
4. Dr. Richard Scaria, Member (Expert), KCZMA
5. Dr. Dinesan Cheruvat, Member (Expert), KCZMA

In the circumstances, a Sub-Committee is hereby constituted with the above members for examining the possibility of Re-categorisation of Pokkali Fields in the Coastal Zone Management Plan prepared on the basis of the CRZ Notification 2019.


Member Secretary, KCZMA
23/12/21

1. Dr. Chandanathil Pappachan Geevan, ARWA-52, Chandanathil, 2nd floor, Manakkaparambathu Lane, Azad Road, Kaloor, Kochi-682017, Kerala
2. Dr.P.K. Thulasidas, Senior Scientist and Head(Retd) Wood Science & Technology Division & Former TEAKNET Co-ordinator International Teak Information Network, Kerala, Forest Research Institute, Peechi- 680653, Kerala
3. Smt. Amurtha Satheesan, Assistant Professor, Mar Gregorious , College of Law, Nalanchira, Thiruvananthapuram
4. Dr. Richard Scaria, Assistant Professor, Department of Geography, Government College Chittur, Palakkad- 678104, Kerala
5. Dr. Dinesan Cheruvat, Director, National Institute of Fisheries, Administration and Management (NIFAM), East Kodungallur, U.C.College Post, Aluva, Ernakulam District- 683102, Kerala
6. PA to Chairman/ACS (Environment), KCZMA
7. PA to Member Secretary, KCZMA
8. SF/OC

Annexure-2: List of Key Persons Met During the Field Visit

The Sub-Committee members visited the *pokkali* areas in Kadamakkudy, Varappuzha, Kottuvally and Ezhikkara Grama Panchayats of Ernakulam district on August 15, 2021.

1. Ms. Kochurani Joseph, President, Varapuzha Gram Panchayat
2. Ms. Mary Vincent, President, Kadamakudy Gram Panchayat
3. Ms. Sheela Ashokan, Ward member, Varapuzha Gram Panchayat
4. Mr. Jayachandran, President, Palliakkal Co-Bank President
5. Mr. Shinoj, Asst. Secretary, Kadmakudy Gram Panchayat
6. Mr. Vincent, President, Ezhikkara Gram Panchayat
7. Mr. Vinod, Former President, Ezhikkara Gram Panchayat
8. Mr. Pratapan K. K., Member CRZ Committee
9. Mr. Chandrabose, M. B., Activist (Fish Workers)
10. Mr. Dileesh A. S., Local Leader
11. Mr. Prakashan, K. K., Local Leader, Ezhikkara Village
12. Mr. Ravi P. V., Palliyakkal Service Co-Op. Bank, Board Member
13. Mr. Santhosh Kumar, N. P., Palliyakkal Service Co-Op. Bank, Board Member
14. Mr. Vinod, K. N., Activist (Fish Workers)
15. Mr. Rathish N. S.
16. Mr. Shan, A. C.

In addition to the individuals listed here, members of the sub-committee interacted with another 20 to 25 persons including residents in the NDZ areas and people whose livelihoods depend on the *pokkali* wetland in one way or other.

Annexure-3: Notification S.O. 1422(E) of 01.05.2020 for CRZ-2011, delineation of HTL for *khazan* land

रजिस्ट्री सं. डी.एल.- 33004/99

REGD. No. D. L.-33004/99


सत्यमेव जयते

भारत का राजपत्र

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पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 1 मई, 2020

का.आ. 1422(अ).— भारत सरकार के पर्यावरण और वन मंत्रालय की अधिसूचना संख्या का.आ. 19(अ.), तारीख 6 जनवरी, 2011 (जिसे इसमें इसके पश्चात् तटीय विनियमन क्षेत्र अधिसूचना, 2011 कहा गया है) द्वारा केंद्रीय सरकार ने कतिपय तटीय विस्तारों को तटीय विनियमन क्षेत्र के रूप में घोषित किया था और उक्त क्षेत्र में उद्योगों को स्थापित करने और विस्तार करने, प्रचालन और प्रसंस्करण पर निर्वहन अधिरोपित किये गए थे ;

और, केंद्रीय सरकार ने विभिन्न पणधारियों, जिनके अंतर्गत राज्य सरकारें भी हैं, से उक्त अधिसूचना के उपबंधों के अधीन खजान भूमि से बंड/ गीली भूमि तक एच टी एल के चिन्हांकन, और सुंदरवन जैव आरक्षित में एच टी एल और सी आर जेड प्रवर्गों की रूपरेखा हेतु अभ्यावेदन प्राप्त हुए हैं ;

और, 13 जनवरी, 2020 को हुई अपनी 39 वीं बैठक में राष्ट्रीय तटीय क्षेत्र प्रबंध प्राधिकरण ने भी यह विनिश्चित किया था कि ऊपर वर्णित मुद्दों पर विचार करने की आवश्यकता है ;

और, केंद्रीय सरकार की, पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (4) के उपबंधों को ध्यान में रखते हुए यह राय है कि उक्त तटीय विनियमन क्षेत्र अधिसूचना, 2011 के संशोधन के लिए उक्त नियमों के नियम 5 के उपनियम (3) के खंड (क) के अधीन नोटिस की अपेक्षा को समाप्त करना लोक हित में होगा,

अतः, अब केंद्रीय सरकार, पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (3) के खंड (घ) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उपधारा (1) और उपधारा (2) के खंड (v) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, तटीय विनियमन क्षेत्र अधिसूचना, 2011 में निम्नलिखित और संशोधन करती है, अर्थात:-

1954 GI/2020

(1)

1. पैरा 2 में निम्नलिखित परन्तुक अंतः स्थापित किया जाएगा अर्थात्:-

"परंतु का. आ.114(अ), तारीख 19 फरवरी, 1991 द्वारा अधिसूचना जारी करने की तारीख के पूर्व, बंद विद्यमान होने या गीली भूमि द्वार का सन्निर्माण होने के मामले में, एच टी एल का निर्बंधन बंद या गीली भूमि द्वार रेखा तक होगा और ऐसे मामले में बंद या गीली भूमि द्वार से आगे खारे पानी के कारण उद्भूत कच्छ वनस्पति के अधीन क्षेत्र, बंद या गीली भूमि द्वारा से आगे क्षेत्र का विस्तार होते हुए भी सी आर जेड-14 के रूप में वर्गीकृत किए जाएंगे। कच्छ वनस्पति के अधीन ऐसे क्षेत्र संरक्षित किए जाएंगे और उनका किन्हीं विकास संबंधी क्रियाकलापों के लिए परिवर्तन नहीं किया जाएगा।"

2. पैरा 7 के उप पैरा (i) के खंड अ के उपखंड (ड) में "जैव आरक्षित" शब्दों के पश्चात् निम्नलिखित अंतः स्थापित किया जाएगा, अर्थात् :-

"सुन्दर वन जैव आरक्षित के मामले के सिवाय, जिसमें सी आर जेड का प्रवर्गीकरण और एच टी एल तथा सी आर जेड सीमाओं की रूपरेखा सी आर जेड अधिसूचना, 2011 के उपबंधों के अनुरूप की जाएगी।

टिप्पण : सुंदरवन जैव आरक्षित के भीतर रेखांकित सी वी सी ए ,राज्य सरकार द्वारा तैयार और केंद्रीय सरकार द्वारा अनुमोदित एकीकृत प्रबंधन योजना द्वारा प्रबंधित किया जायेगा।"

3. विशेष ध्यान की अपेक्षा वाले क्षेत्रों से संबंधित पैरा 8.V के अधीन, खंड(3) में, उपखंड(iv)के स्थान पर, निम्नलिखित उपखंड रखा जाएगा, अर्थात् :-

"(iv) पारिस्थितिक संवेदनशील निम्नस्थ क्षेत्र जो ज्वार भाटा द्वारा प्रभावित होते हैं और खजान भूमि के नाम से ज्ञात हैं, उनका नक्शा तैयार किया जाएगा और का. आ.114(अ),तारीख 19 फरवरी, 1991 द्वारा अधिसूचना जारी करने की तारीख के पूर्व, बंद विद्यमान होने या गीली भूमि द्वार का सन्निर्माण होने के मामले में, एच टी एल का निर्बंधन बंद या गीली भूमि द्वार रेखा तक होगा और ऐसे मामले में बंद या गीली भूमि द्वार से आगे खारे पानी के कारण उद्भूत कच्छ वनस्पति के अधीन क्षेत्र, बंद या गीली भूमि द्वारा से आगे क्षेत्र का विस्तार होते हुए भी सी आर जेड-14 के रूप में वर्गीकृत किए जाएंगे। कच्छ वनस्पति के अधीन ऐसे क्षेत्र संरक्षित किए जाएंगे और उनका किन्हीं विकास संबंधी क्रियाकलापों के लिए परिवर्तन नहीं किया जाएगा।"

[फा. सं. 19-27/2015 आई ए III (भाग)]

अरविंद कुमार नौटियाल, संयुक्त सचिव

टिप्पण: मूल अधिसूचना, भारत के राजपत्र, असाधारण, भाग II, खंड 3, उप-खंड (ii) में संख्या का.आ. 19 (अ), तारीख 6 जनवरी, 2011 द्वारा प्रकाशित की गई थी और उसमें अंतिम संशोधन का.आ. 1002(अ), तारीख 6 मार्च, 2018 द्वारा किया गया।

**MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
NOTIFICATION**

New Delhi, the 1st May, 2020

S.O. 1422(E).— WHEREAS by notification of the Government of India in the Ministry of Environment and Forests number S.O. 19(E), dated the 6th January, 2011 (hereinafter referred to as the Coastal Regulation Zone Notification, 2011), the Central Government declared certain coastal stretches as Coastal Regulation Zone and restrictions were imposed on the setting up and expansion of industries, operations and processes in the said zone;

AND WHEREAS, the Central Government have received representations from various stakeholder including the State Governments regarding need for restricting demarcation of HTL in Khazan Land to the bund/sluice gate, and delineation of HTL and CRZ categories in the Sundarbans Biosphere Reserve under the provisions of the said notification;

AND WHEREAS, the National Coastal Zone Management Authority in its 39th meeting held on 13th January, 2020 had also decided that the above-mentioned issues need consideration;

AND WHEREAS, the Central Government, having regard to the provision of sub-rule (4) of rule 5 of the Environment (Protection) Rules, 1986, is of the opinion that it is in public interest to dispense with the requirement of notice under clause (a) of sub-rule (3) of rule 5 of the said rules for amending the said Coastal Regulation Zone Notification, 2011.

NOW THEREFORE, in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following further amendments in the Coastal Regulation Zone Notification, 2011, namely: -

1. In paragraph 2, the following proviso shall be inserted, namely: -

"Provided that in case there exists a bund or a sluice gate constructed in the past, prior to the date of notification issued vide S.O. 114(E) dated 19th February, 1991, the HTL shall be restricted up to the line long along the bund or the sluice gate and in such a case, area under mangroves arising due to saline water ingress beyond the bund or sluice gate shall be classified as CRZ-IA irrespective of the extent of the area beyond the bund or sluice gate. Such areas under mangroves shall be protected and shall not be diverted for any developmental activities."

2. In paragraph 7, in sub-paragraph (i), in clause A, in sub-clause (e), after the words "Biosphere Reserves", the following shall be inserted, namely: -

"except in the case of the Sundarbans Biosphere Reserve, wherein, the categorization of CRZ and delineation of the HTL and CRZ boundaries shall be done in consonance with the provisions of the CRZ Notification, 2011"

Note: The CVCA delineated within the Sundarbans Biosphere Reserve shall be managed by the Integrated Management Plan prepared by the State Government and approved by the Central Government".

3. Under paragraph 8.V relating to Areas requiring special consideration, in clause 3, for sub-clause (iv), the following sub-clause shall be substituted, namely: -

"(iv) the eco sensitive low lying areas which are influenced by tidal action known as khazan lands shall be mapped and in case there exists a bund or a sluice gate constructed in the past, prior to the date of notification issued vide S.O. 114(E) dated 19th February, 1991, the HTL shall be restricted up to the line long along the bund or the sluice gate and in such a case, area under mangroves arising due to saline water ingress beyond the bund or sluice gate shall be classified as CRZ-IA irrespective of the extent of the area beyond the bund or sluice gate. Such areas under mangroves shall be protected and shall not be diverted for any developmental activities".

[F. No. 19-27/2015-IA III (pt)]

ARVIND KUMAR NAUTIYAL, Jt. Secy.

Note: The principal notification was published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii), vide number S.O. 19 (E), dated the 6th January, 2011 and was last amended vide number S.O. 1002(E), dated 6th March, 2018.

Annexure-4: Explanatory Note on Verification of the Existence of Outer Bund/ Sluice Gate on or before 1991

1. Toposheets of 1:25000 scale from Survey of India can be used as the base maps for authenticating the existence of the sluice on or before 1991. The toposheets of the coastal area though restricted are used by authorised agencies.
2. Aerial photographs (on or before 1991) of the respective area of interest can also help in verification and authentication of the presence or absence of the outer bund/ sluice gate. Officially, aerial photography in India is carried out for the entire country under the overall supervision of the Directorate of Air Survey (Survey of India) New Delhi. There are three flying agencies, i.e. Indian Air Force, Air Survey Company, Kolkata and National Remote Sensing Agency, Hyderabad have been officially authorized to take aerial photographs in India.
3. The local residents can provide the information about the year of establishment of a particular sluice and also its present condition, if it required. The LSGI can compile this information regarding outer bund and sluice gate. This information can be examined to determine whether the structures were in existence on or before 1991.
4. Further verification current existence of the bund/ sluice gate needed for CZMP-2019 can be done using high resolution satellite imageries already used for preparing the CZMP-2019.