

**BEFORE THE NATIONAL GREEN TRIBUNAL SOUTHERN ZONE
AT CHENNAI**

OA No. 117 of 2021

Kottayam Nature Society,
Rep by its Secretary.

... Applicant

Vs

State of Kerala, Rep by its Principal Secretary,
Dept of Environment and Climate Change,
Thiruvananthapuram and others

...Respondent

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DATED AT CHENNAI ON THIS THE 30th DAY OF NOVEMBER 2022


M/s. VIDYALAKSHMI VIPIN

COUNSEL FOR RESPONDENT No.5



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കേരള സംസ്ഥാന ജൈവവൈവിധ്യ ബോർഡ്
KERALA STATE BIODIVERSITY BOARD

A statutory and autonomous body, Government of Kerala

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No.2258/A13/2021/KSBB

16.12.2021

To,

The Registrar
National Green Tribunal
Southern Zone
Chennai

Sir,

Sub.: Reply to the Hon. NGT order -OA 117 of 2021(SZ) and OA 184 of 2021 (SZ).

Ref.: 1) Hon. NGT OA 117 of 2021(SZ) and OA 184 of 2021 (SZ) order dated
02.12.2021
2) Email -Judicial Section, NGTSZ (judicial-ngtaz@gov.in) dated 13.12.2021,
Registrar, NGT, SZ, Chennai.

Kind attention is invited to the subject and reference cited above.

As per the Hon. NGT order cited above, it was directed to submit independent report regarding OA 117 of 2021(SZ) and OA 184 of 2021 (SZ). The Individual report of Dr. Pradeep C.G., Senior Research Officer, Kerala State Biodiversity Board (Representative of Kerala State Biodiversity Board - Member of the Committee formed by Hon'ble NGT) related to OA 117 of 2021 and OA 184 of 2021 is attached herewith for your kind information and necessary action.

Yours faithfully

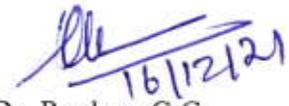
Dr. C. George Thomas
Chairman

Major findings and suggestions on Hon'ble NGT OA 117 of 2021(SZ) and OA 184 of 2021 (SZ).

As per the directions of Honb'le NGT, field visits have been conducted along with other members of the committee and the major observations are mentioned below:

1. Most of the visited sites of the river are badly affected by the flood. Branches of trees and bamboo clumps were seen fallen into the river which obstructs the natural flow of water causing flood during rainy season. Moreover, in many areas small islands were formed in the river due to the deposition of silt and mud which further narrowed the river. This change of course of river caused damage in river bank, during flood. *Ochreinaulea missionis* an endangered plant species is seen abundantly in the project area and most areas are filled with many other riverine plant species.
2. It is understood that the Major Irrigation Department of Kerala had initiated works to widen the river and remove the obstacles for its normal flow with the aim of mitigating ill effects of flood in Meenachil River and adjacent areas.
3. However, it is suggested that, these works should be conducted in a manner which will cause minimal or no loss to the rich biodiversity of the area. This can be achieved through involving proper scientific techniques in the planning as well as implementation level of this project. Similarly, planting more riverine plants and future maintenance of them in a people participatory approach will ensure the future conservation of the river and its health. Some of the suggestions are given below:
 - a. A scientific study may be conducted for desilting and dredging activities through a reputed agency like Centre for Water Resources Development and Management (CWRDM), Kozhikode.
 - b. The fallen branches of the bamboos and trees into the river which obstruct the normal flow can be cut down with utmost care not to uproot these plants.
 - c. The sand/silt deposits which made the small islands in the river can be removed and can be stored in a government owned land away from the riverine area to avoid future depositions to river during rainy season.
 - d. The illegal constructions/land encroachments along the river basin should be avoided and the river banks can be effectively protected through planting riverine area specific plants such as *Ochreinaulea missionis*, *Vetiver*, *Pandanus* etc with the support of local bodies.

- e. Ward level action groups may be constituted with the support of local bodies for the monitoring, maintenance and management of the river basin for the future.
- f. Similarly, as per the Biological Diversity Act 2002, Section 41; Biological Diversity Rules 2004, Rule (22) and Kerala Biological Diversity Rules 2008, Rule (20), Government of Kerala has formed Biodiversity Management Committees (BMCs) in all the three tier Panachayats, Municipalities and Corporations. Hence, with the help of BMCs, the future management and maintenance of the Meenachil river banks can be effectively achieved.



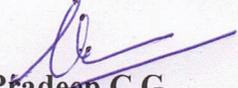
Dr. Pradeep C G
Senior Research Officer
Kerala State Biodiversity Board

Site Inspection Report

Experts from various department led by Hon. District Collector, Kottayam, conducted a site inspection on June 24, on a complaint related to the construction work carried out by the Irrigation Department at Meenachil River in Kottayam district. The following are the observations and suggestions made by Dr. Pradeep C G, a member of expert in the committee:

1. Riparian vegetation plays a vital role in ecosystem function. A number of threatened or rare plants and animals are closely associated with creeks and riparian vegetation.
2. On spot verification, a rare and endangered species of plant, locally named as 'Attuvanchi' (*Ochreinauclea missionis*) is found along the banks of Meenachil and tributary rivers. They are endangered due to habitat loss and are listed on the IUCN Red List II.
3. In addition to that, there are about 12 rare and endangered plants on the IUCN red lists were also reported from the banks of Meenachil River. All these plants are restricted to riparian habitats.
4. These plants play an important role in protecting the river bank from landslides and maintaining the stability of river.
5. The riparian vegetation filters the sediment-laden runoff by slowing its movement, promoting its infiltration into the soil, and causing the sediment, and its attached nutrients, to be deposited on the land before reaching the waterway.
6. The flow of the river can be facilitated /enhance the flow of water in such a way that, by cutting down the branches of fallen trees and plants including bamboo as they obstruct the natural flow of water and this will lower the intensity and threat of flood.
7. The root systems of riparian shrubs and trees reinforce and help bind stream bank soils. Erosion of unstable stream banks has the potential to deliver more sediment into the river and it cause in decreasing the carrying capacity of river. So, riparian vegetation plays an important role in maintaining stable stream and river banks. If these plants were uprooted or cutting down will be subject to landslides on the river banks, which will cause in change in the natural habitat of river and also leads to the extinction of rare plants.
8. Riparian vegetation regulates in-stream primary production and supplies energy and nutrients, its removal can radically change the quality and quantity of energy in food webs and the function of aquatic ecosystems. Many species of fish and aquatic invertebrates seek shelter and food among the roots of waterside trees. Loss of this habitat will adversely affect the survival these organisms and leads to the extinction of such species.
9. However, Islands formed by the deposition of silt inside the river can be removed in a manner that does not cause much harm to the river habitat, thereby facilitating the flow of the river and avoiding the threat of flood.
10. The excavated sediments should be deposited in suitable places/banks of the river and native species of plants (riparian plants) should be planted here for river bank protection. Where riparian vegetation has been degraded or removed, effective vegetation enhancement and restoration programs need to be implemented wherever possible.
11. Revenue land along the banks of the river can be surveyed and a bio-fence can be constructed here to protect the river banks. Plants like 'Kaitha' (*Pandanus* sp.) 'Ramacham' (Vetiver) (*Chrysopogon zizanoides*) can be grown here and also in excavated sediment deposited places.

12. Urbanisation and development have led to increased levels of solid waste materials including plastics into the river and river bed blocking the flow of water. These can be removed to facilitate the flow of water.
13. A large number of endangered species of plants 'Attuvanchi' (*Ochreinauclea missionis*) were found in the area formed by silt deposition near the suspension bridge in Peroor village. As per the Biodiversity Act 2002, section 37 (Conservation of endangered flora & fauna and unique ecosystem), Ettumanoor Municipality Biodiversity Management Committee (BMC) proposed this area to declare as a Local Biodiversity Heritage Site (LBHS) to conserve this endangered plants and unique ecosystem. Any kind of work in this area can be done only after consulting with the concerned Biodiversity Management Committee.
14. An ecological and biodiversity study related to the present river projects should be done accordingly.
15. It would be appropriate to set up a local public monitoring cell to evaluate the ongoing projects in the area and can render their help in studying the problems and do follow up activities.


Dr. Pradeep C G
Senior Research Officer
Kerala State Biodiversity Board
Thiruvananthapuram

Field visit report on NGT - OA 184 of 2021

Along with the District Collector, Kottayam & Executive Engineer, Irrigation Department, Kottayam, I, Dr. Pradeep C G, Senior Research Officer, Kerala State Biodiversity Board have conducted a site visit at Velloor Village, Kottayam on 9th September 2021, regarding the complaint filed by Shri. Abraham Mathew, Kottayam before Hon'ble NGT- OA 184 of 2021.

The following are the observations made by me.

1. As per the petitioner, part of his tax payable land eroded due to dredging activities taken by Irrigation department. The river Meenachil is flowing through on either side of his land property (west and north side). The alleged land is located on the left bank of Meenachil river. According to the survey/revenue departments, the alleged land was actually 'river puramboke' and it is the flood plain of the river. This was verified true on the site visit.
2. No loss in property was noticed in this area as alleged by the petitioner but an encroachment (approximately 6 cents) was observed. The petitioner stated that this land was passed down and used for generations. He put forward the allegation based on the assumption that it was his land. This was wrong according to the survey and revenue department and found to be the actual river land itself.
3. On western side of the alleged property, in the bank of the river, the petitioner made boundary walls with rocks (in the encroached land), which caused the loss of the natural flood plain of the river and its riparian vegetation and river ecosystem.
4. No such desilting or construction works were undertaken by Irrigation department in and around the Meenachil River adjacent to the alleged property till date as claimed by the petitioner.
5. No recent dislocations or damage in the river bank of northern side was noticed.
6. On the northern side of the petitioners' property, in the silt deposited area, large number of Bamboo were grown in clusters. He also claims that this area also belongs to him and he pays the tax.
7. Here in this area, observed some clumps of bamboo were cut down by irrigation department during their first phase of their work but now stopped as per the directions from NGT.
8. Irrigation department claims that, only the leaned and fallen branches of bamboo and other trees which obstruct the free flow of water were cut down. Otherwise it will

cause more damages to the river banks and will worsen the situation during flooding. All these plants were not uprooted but cut down the branches using machineries. At present it was seen that new shoots of bamboos are sprouting from the base. On spot verification, this was found true. Due to the obstruction in the natural flow of river; the course of the river changed, diverted towards right bank, and here the river bank, nearby buildings, public roads were collapsed and damaged causing serious threats to the environment and property.

9. In the allegation, petitioner claims many plantations crops such as coconut and areca nut plants were cut down and damaged. However, no remnants of such trees were seen around there except bamboo clumps. Irrigation department claims they have not undertaken any kind of desilting or removal of soil from the river or banks in this area. So, it is suspected that the plants found in the 'puzha puramboke' were fell down into the river and damaged during last flood.
10. It is recommended to cut down (not uprooting) the leaned and fallen branched of trees an bamboo clumps to facilitate easy draining of flood water so as to mitigate the ill effect of flood.
11. Irrigation department stated that no dredging or desilting activates was proposed in this area. So there is no claim for damage of river bed, riparian vegetation and no harm to biodiversity as well. Irrigation undertaken this work with the aim only to clear the obstruction along the waterway and enhance discharge capacity of the river.
12. No claim for damage to the property as stated by the petitioner, that damage was not due to the work undertaken by Irrigation department. The eroded portions are actually projected land/flood plain formed due the deposition of silt for many years and stay as a natural barrier and protect the river bank from erosion as well private properties.
13. Due to the narrowness of the river in this area, the area is more prone to flood damage during monsoon seasons. Therefore the ongoing work carried out by Irrigation department is justifiable in view of the above situation but these activities should be done in a manner that does not harm the unique habitat and biodiversity of the river.



Dr. Pradeep C G
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