

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

Original Application No. 17 of 2023 (SZ)

IN THE MATTER OF:

Link Valley Residents Association,
Rep by its General Secretary, Kochi.

...Applicant(s)

Versus

Union of India, MOEF & CC,
Represented by its Deputy Director,
General of Forests (C), Bangalore and Ors.

...Respondent(s)

REPORT FILED BY THE DISTRICT COLLECTOR, ERNAKULAM
/4th RESPONDENT

<u>SI.NO</u>	<u>DOCUMENTS</u>	<u>PG NO.</u>
1.	Report filed by District collector Ernakulam	1-4

Dated at Chennai on this 11th day of November, 2025

for G. J. J. 11/11/25

M/s. E.K. Kumaresan
Standing Counsel for Government of Kerala.

(1)

Pursuant to the directions dated 23.10.2024 in Hon'ble National Green Tribunal OA No. 17 of 2023 (SZ) & IA. No. 24 of 2023 (SZ), a meeting was convened on 14.03.2025 under the chairmanship of the Hon'ble District Collector of Ernakulam, as per the decision of the meeting held on 14.03.2025, a team comprising officials from Major Irrigation, District Disaster Management Authority, and Infopark Engineering Wing conducted a joint site inspection and identified the following details.

Contributing Factors to Flooding

Several key factors contribute to the chronic flooding in the Link Valley area

1) **Low Elevation:** Link Valley is situated at a lower elevation compared to adjacent properties, which causes stormwater from higher ground to accumulate in the community. The minimal elevation difference between Link Valley and Edachira Thodu also results in poor gravity flow and can lead to backwater effects.

2) **Drainage System Issues:** Two major open drains surround Link Valley. The northern drain (Drain 1) runs along the northern boundary, while the southern drain (Drain 2) runs along the southern boundary. These drains are part of the larger drainage network that eventually discharges into Edachira Thodu are of not insufficient width.

3) **Undersized Culvert:** The combined drain from Link Valley passes under the Karimugal-Kakkanad road through a small-diameter pipe culvert. This culvert restricts the discharge of water during peak flows, causing flooding upstream.

4) **Unregulated Pumping:** The Prestige residential property, which has a 14-acre catchment area, collects stormwater in an underground sump well. This water is then pumped into the drains. The timing and rate of this pumping significantly increase the discharge load on the downstream drainage system, especially during rainfall events. Heavy rains combined with this unregulated pumping contribute to the rapid overloading of the drains and cause localized flooding.

5) **Disrupted Drainage Pattern:** It is suspected that the southern drain may have originally connected directly to Edachira Thodu. The current diversion of the southern drain's flow to the northern drain may have disrupted the natural drainage pattern and contributed to flooding in the area.


DEPUTY COLLECTOR (D M)
COLLECTORATE
KAKKANAD P. O., ERNAKULAM

Proposed Solutions

A. Proposed Integrated Drainage Master Plan

1) A comprehensive and integrated approach is essential to sustainably resolve the flooding issue. The following measures should be implemented as a combined phase, based on an Integrated Drainage Master Plan.

2) Hydrological and Hydraulic Study: A detailed hydrological and hydraulic study for the 55-acre catchment area is required to finalize design calculations and infrastructure layout. This study should include field verification of drainage levels, slopes, and obstructions.

B. Infrastructure Upgrades and Construction:

1. To improve stormwater conveyance and address flooding issues in the area, it is proposed to upgrade the existing undersized culvert located beneath the Karimugal-Kakkanadu road with a height capacity box culvert. The new culvert is designed to be approximately 23 meters in length and 3 meters in width, ensuring adequate capacity to handle increased stormwater flows during peak rainfall events. In addition, a sluice arrangement is proposed across the Infopark road to regulate water flow and prevent backflow during high tides or intense storm conditions. This infrastructure upgrade is expected to significantly enhance the hydraulic efficiency of the drainage network in the region and support effective flood management.

2. To enhance the flow efficiency of the existing stormwater system, it is proposed to restore the original direct connection of the southern drain to Edachira Thodu, subject to feasibility. This intervention will re-establish the natural drainage path, which may have been altered or obstructed over time, thereby improving overall discharge capacity and reducing localised flooding. For implementing this measure it will require a detailed land survey and a thorough review of old survey sketches and alignment records to verify the original drainage path and assess the viability of restoration. Feasibility will also depend current land use, encroachments, and hydraulic considerations.

3. Constructing a gated structure such as a regulator at Kozhichira across the Kadambayar River, is highly necessitated for the efficient control on preventing the salinity intrusion at the same time to manage the water level, flow of the


DEPUTY COLLECTOR (D M)
COLLECTORATE
KAKKANAD P. O., ERNAKULAM

Kadambayar river/Edachira thodu more efficiently and effectively. The proper functioning of regulator ignorantly significantly increase the hydraulic gradient between Link Valley and Edachira Thodu. This could increase the open drains' discharge capacity and reduce the load on the proposed pumping system.

C. Stormwater Management System:

1. To effectively manage the excess storm water that cannot be discharged through gravity-based drainage, a mechanical pumping system is proposed. The preliminary design indicates to include the installation of four automated pumps, each rated at 80 HP, along with appropriate delivery pipelines. The system also features the construction of four sump wells, each measuring 5m x 5m x 4 m. This system can handle an estimated residual flow of 4 m³/s, which the existing drainage network is unable to accommodate during peak storm conditions. The present proposal is based on preliminary hydrological assessments, which estimate a peak stormwater discharge of 5 m³/s under a rainfall intensity of 10 cm over a 24-hour period. The mechanical pumping system will address the shortfall of 4 m³/s, which is not manageable by gravity flow.

2. To prevent overloading of the drainage system during peak rainfall events, it is proposed to regulate and schedule the pumped discharge from the Prestige Flat Complexes and other nearby properties. Uncoordinated discharge during storm events will significantly contribute to peak flow volumes, leading to system inefficiencies and localized flooding. A coordinated discharge schedule, particularly during periods of rainfall, should be implemented to stagger outflows and avoid peak load overlap.

D. Routine Maintenance:

To maintain optimal performance of the stormwater drainage system, it is essential to ensure regular cleaning and maintenance of all existing main and internal drains, as well as culverts. Accumulation of silt, debris, and vegetation growth can significantly reduce the carrying capacity of these structures, leading to waterlogging and flood risk during heavy rainfall events. A maintenance schedule should be implemented, including periodic desilting, removal of blockages to guarantee unobstructed flow throughout the drainage network.

A coordinated solution involving engineering solutions and proper regulatory controls is necessary for mitigating flooding risks in Link Valley. Immediate

H
DEPUTY COLLECTOR (D M)
COLLECTORATE
KARKANAD P O. FRANKULA

steps should also include the verification of historical drainage patterns and planning for a detailed drainage study to carry out the project execution. It is also important to note that a recent cloudburst with an intensity of 10 cm of rainfall in one hour was not considered in the current discharge calculation, so the actual peak runoff during such events can be significantly higher than the present estimated 5 m³/s.



DEPUTY COLLECTOR (D M)
COLLECTORATE
KAKKANAD P. O., ERNAKULAM