

Filed on: 10.01.2024

**BEFORE THE NATIONAL GREEN TRIBUNAL (SZ), CHENNAI
MEMORANDUM OF APPEAL**

(Under Section 18(1) read with Section 16 of the National Green Tribunal
Act, 2010)

APPEAL No. 55 of 2022

LUKOSE K T ALIAS LUKA & ANR : **APPELLANTS**

Versus

MINISTRY OF ENVIRONMENT, FOREST AND
CLIMATE CHANGE & ORS : **RESPONDENTS**

**ADDITIONAL REJOINDER AGAINST THE COUNTER AFFIDAVIT FILED
BY THE 5TH RESPONDENT**

HARISH VASUDEVAN (H-253) [K/779/2013]
RAJAN VISHNURAJ (R-1268) [K/653/2010]

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RAJAN VISHNURAJ



HARISH VASUDEVAN

Advocates
COUNSEL FOR THE APPELLANTS

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Versus

MINISTRY OF ENVIRONMENT, FOREST AND
CLIMATE CHANGE & ORS : **RESPONDENTS**

**ADDITIONAL REJOINDER AGAINST THE COUNTER AFFIDAVIT FILED
BY THE RESPONDENT NO.5**

I Lukose K T Alias Luka, aged 76 years, S/o Thomas, Kurijirappally House, Eruvatty PO, Thimiri, Chapparapadavu, Kannur - 670581, do hereby solemnly affirm and state as follows:

1. I am the 1st appellant in the memorandum of appeal and as such I am conversant with the facts of the case. I am competent to swear this affidavit on behalf of the 2nd appellant also.
2. In this Appeal, the 5th Respondent filed a Counter Affidavit on 26.03.2023. Averments in the said Counter Affidavit is not fully true and therefore I have preferred a rejoinder on 10.08.2023. Some crucial documents and information have been received recently, which is vital for the adjudication of this appeal, hence this additional rejoinder.
3. As per the Form-1M application filed by the 5th respondent the nearest water source is Thadikkadavu river. This is absolutely false. A natural stream of water namely, 'Munnoorkulam Thodu' is originating from the north boundary of the quarry site of the 5th respondent flows through



the western boundary of the said site. This stream was the water source of the presently defunct Munnoorkulam Pico Hydel Project of Chapparappadavu Grama Panchayath inaugurated by the then Kerala Planning Board Vice Chairman Dr.I.S.Gulathi on 30.06.1999. The sage stream (Munnoorkulam Thodu) is marked as Perennial stream in the official watershed management plan of the Grama Panchayath relevant pages of the watershed management plan of the Grama Panchayath along with its English translation is produced herewith and marked as **ANNEXURE A19.**

4. According to the report of the District Collector, Kannur dated 20.12.2022 to the Kerala State Youth Welfare Commission it is clearly reported that there are two water sources 96 meter away from border Point No. 6 of the quarry of the 6th respondent and there are two other similar water sources which are filled up by water which is square in shape and strengthened by laterite stone. It is also reported by the District Collector that the drinking water is being taken from the two water sources through small pipes running to the downhill by the local public. It is also reported that the water stream which is having one meter width flowing downwards is missing in the Village officer's report because it is not present in summer season. The District Collector reports that one residential House No. 597 situating at about 100m from the quarry site is not shown in the survey map submitted by the project proponent. It is also reported by the District Collector that the mining activity in the downhill of the public water source may adversely affect the local residents. This letter dated 20.12.2022 by the District Collector, Kannur was prepared as a result of the complaint given by Dr.Afil M Alex



to the State Youth Commission. True copy of the letter dated 20.12.2022 issued by the District Collector is produced herewith and marked as **ANNEXURE A20.**

5. According to the Form-1M application the nearest house is 138.2meter. Annexure A2 would clearly show that there were two deliberate suppression of material fact in the Form 1 application by the 5th respondent, one regarding the proximity of nearest water source and the other one is regarding the presence of a residential building about 100 meters with No.597. None of the reports prepared by the project proponent would address the possible environmental damage of mining on the nearest residential building as well as the public water source which is being used by the local residents for the drinking water. Therefore the very purpose of the environment clearance is defeated by the 5th respondent through deliberate suppression of material facts and fraud committed in this regard.
6. According to Form-1M application the mining site is hazard free zone but the report titled as “Studies on land disturbances due to soil piping affecting the critical zones in Western Ghats of Kerala (A project funded by the Kerala State Disaster Management Authority)” by the National Centre for Earth Science Studies (Ministry of Earth Sciences, Govt. of India) Thiruvananthapuram 695011, the area is critically affected with soil piping. The report states that the Kannur district is one of the severely prone among the fourteen other districts of Kerala regarding soil piping incidents. The field investigation has revealed more than 17 major soil pipes in the district. There are chances of more such pipes developed in the interior and forested areas. According to the report

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“The total area of the district is 2996 square kilometres in which 1224.931 km² is falling inside the Affected zone and 993.192 km² is falling inside the Probable zone which means a good portion of the district is vulnerable.” A copy of the zonation map along with the report is reproduced below

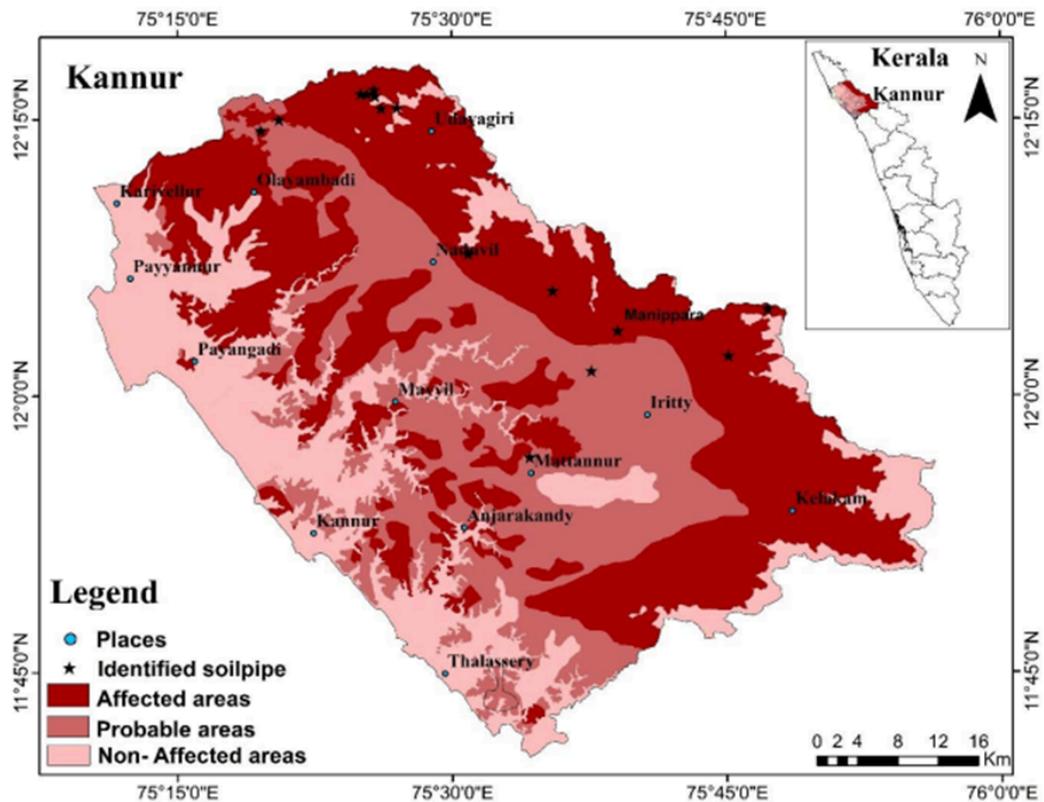


Figure 4.41: Zonation map of Kannur

7. A true copy of the relevant pages of Studies on land disturbances due to soil piping affecting the critical zones in Western Ghats of Kerala by NCESS is produced herewith as **ANNEXURE A21**.
8. The non-consideration of relevant documents including DSR prepared as per the notification dated 25.07.2018, and the procedure to be followed for Appraisal is addressed by the Principal Bench of this Hon'ble tribunal

[Handwritten signature]

in OA No.142 of 2022 in Jayant Kumar vs MoEF & CC and judgment was delivered on 07.12.2022. This was considered by the Ministry in detail and an Office Memorandum dated 28.04.2023 was issued clarifying the earlier legal positions, prescribing check list for the consideration of applications for EC for mining projects by the SEIAA. A true photocopy of the Office Memorandum dated 28.04.2023 is produced herewith and marked as **Annexure A22**. Since it is only a clarification of the legal position after 12.12.2018, and not any subordinate legislation or statutory notification, it is having retrospective effect, as declared by the Hon'ble Apex Court in several judgments.

9. In Annexure A22 also, the 1st respondent reiterated the position that DSR prepared as per 25.07.2018 and approved by SEIAA is a prerequisite for considering an application for EC and for Appraisal. The legal ground raised in this Appeal is virtually agreed by the Union of India by issuing Annexure A22 clarification.
10. As per the order of the Principal Bench of the National Green Tribunal in OA No.304 of 2019, a joint committee was constituted to conduct site visits, studies and make recommendations regarding the distance criteria and pollution issues regarding the Stone Quarry units. A detailed report was prepared by the Joint committee making categorical recommendations that the blasting of stone quarry will create pollution till 150 meters of the periphery. The recommendation is as follows:

As per the assessment study the influence zone of ground vibration is 50-100 m from the blasting zone. The maximum value of Air Over Pressure (AOP) recorded was at a distance of 100 m from the

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blasting face. The fly rock ejections were noticed in two instances and it were less than 25 m from the blast zone. As per the assessment of noise, the influence zone is up to 200 m and it was observed that extraneous noise from other sources spiked the readings at some of the 200 m stations. Hence, a distance of 150 m can be considered as the noise influence zone from the blasting zone. The particulate matter emissions were obvious up to a distance of 100 m from the blasting zone and hence it can be considered as the influence zone of dust emissions. Contribution to the ambient noise due to overall quarry operation is significant up to 200m

A true copy of the relevant pages of the report prepared on 02.03.2023 filed by the joint committee appointed by the National Green Tribunal in OA No.304 of 2019 is produced herewith and marked as **Annexure A23.**

11.It is the duty of the project proponent and the State to anticipate and prevent all sorts of environmental damage due to the project and it is the duty of the SEAC to see whether such environmental damage can be mitigated through imposing any conditions. If the project proponent had conducted proper studies, and the SEAC had asked the proponent to conduct such studies, the actual environmental damages as clearly stated in Annexure A23 report would have been revealed and addressed in the appraisal process. No such thing happened in the case of the impugned EC. Even the presence of a residential building within 100 meters was suppressed by the proponent, and therefore, the non-consideration of the relevant factors have defeated the very

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purpose of appraisal and EC is therefore liable to be set aside.

12.It is respectfully submitted that none of these facts are new to this appeal. The appellant is only producing certain documents to substantiate the facts and grounds already stated in the appeal. None of the factual contentions in the appeal is seen addressed by the 5th respondent in their counter affidavit and therefore the appeal is liable to be allowed.

13.Therefore, it is most humbly requested and prayed that, having regard to the above mentioned and other grounds that may be urged at the time of hearing, this Hon'ble Tribunal may be pleased to accept this additional rejoinder and allow this appeal, with cost to the 5th respondent, in the interests of justice.

All the facts stated above are true to the best of my knowledge, belief & information.

Dated this the 10th day of January, 2024



DEPONENT

Solemnly affirmed and signed before me by the deponent whom I know on this the 10th day of January, 2024 in my office at Ernakulam.



V.HARISH
Advocate

VERIFICATION

I, Lukose K T Alias Luka, aged 76 years, S/o Thomas, Kurijirappally House, Eruvatty PO, Thimiri, Chapparapadavu, Kannur - 670581, do hereby verifies that the contents of the above paragraphs 1 to 13 are true to the best of my knowledge and I have not suppressed any material facts.



DATE : 10.01.2024

PLACE : Ernakulam

SIGNATURE OF THE APPELLANT



33 k 15 a എരുവാട്ടി നീർത്തടം I

3.1 ആമുഖം

കണ്ണൂർ ജില്ലയിലെ ചപ്പാരപ്പടവ് ഗ്രാമപഞ്ചായത്തിലെ II-ാം വാർഡായ എരുവാട്ടിയിൽ സ്ഥാപിച്ചുകിടക്കുന്ന നീർത്തടമാണ് എരുവാട്ടി നീർത്തടം.

3.2 നീർത്തടവിവരങ്ങൾ

| | |
|--------------------------------------|------------------------|
| നീർത്തട നമ്പർ | : 33 k 15 a |
| ഉൾപ്പെടുന്ന നദീതടത്തിന്റെ പേര് | : എരുവാട്ടി നീർത്തടം I |
| നീർത്തടത്തിന്റെ ആകെ വിസ്തൃതി | : 376.3 ഹെക്ടർ |
| ചപ്പാരപ്പടവ് പഞ്ചായത്തിന്റെ വിസ്തൃതി | : 376.3 ഹെക്ടർ |

3.3 അതിരുകൾ

| | |
|-----------|------------------------|
| വടക്ക് | : മൗവ്വത്താനിക്കുന്ന് |
| കിഴക്ക് | : എരുവാട്ടി തോട് |
| പടിഞ്ഞാറ് | : ചാമയിട്ടമല, അടുകക്കം |
| തെക്ക് | : തലവിൽ റോഡ് മല |

3.4 ഭൂപ്രകൃതി

പടിഞ്ഞാറ് ഭാഗം തൃക്കായ പ്രദേശവും ബാക്കിഭാഗം ചെറിയ കുന്തുകളും ചേർന്നതാണ് എരുവാട്ടി നീർത്തടം I. നീർത്തടത്തിന്റെ കിഴക്ക് പടിഞ്ഞാറ് ഭാഗങ്ങളായ ചാമയിട്ടമല, അടുകക്കം പ്രദേശങ്ങൾ ശരാശരി 40 ചരിവുള്ളതും തെക്കും വടക്കും ഭാഗങ്ങളായ എരുവാട്ടി മൗവ്വത്താനിക്കുന്ന് പ്രദേശങ്ങൾ മിത ചെരുവിൽ വരുന്നതും എരുവാട്ടിയുടെ ഒരു ഭാഗം നിരപ്പായ പ്രദേശവുമാണ്.

3.5 പ്രധാനനീർച്ചാലുകൾ

എരുവാട്ടിതോട് (5 കിലോമീറ്റർ)

3.6 ചെറുനീർച്ചാലുകൾ

മലാടുർ തോട് (1 1/2 കിലോമീറ്റർ)

ചാമേട്ടമലയിൽ തുടങ്ങി മണിക്കലിൽ വച്ച് കുപ്പം പുഴയിൽ ചേരുന്നു.

മേന്മുറ തോട് (200 മീറ്റർ)

എരുവാട്ടി റേഞ്ചൻകടയ്ക്ക് സമീപപ്രദേശത്തുനിന്ന് ആരംഭിച്ച് എരുവാട്ടി തോടിൽ ചേരുന്നു.

ഉമ്മൻകുട്ടിയുടെ വീടിനടുത്തുകൂടിയുള്ള തോട് (500 മീറ്റർ)

ഉമ്മൻകുട്ടിയുടെ വീടിനു സമീപം ആരംഭിച്ച് എരുവാട്ടി തോടിൽ ചേരുന്നു.



മുന്നുറുകിളം തോട് (2 1/2 കിലോമീറ്റർ)

മുന്നുറുകുളത്ത് നിന്ന് ഉത്ഭവിച്ച് വണ്ണാത്തിക്കടവിൽ വച്ച് എരുവാട്ടി തോടിൽ ചേരുന്ന പഴയിടത്തുപടിക്കലുടെയുള്ള നീർച്ചാൽ (100 മീറ്റർ)

ഓലിക്കൽപടിയിൽ ഉദ്ഭവിച്ച് എരുവാട്ടി വായനശാലയ്ക്കു സമീപം മുന്നുറുകു തോട്ടിൽ ചേരുന്നു.

കൊട്ടക്കോയിൽ തോട്

കൊട്ടക്കോയിൽ മലയിൽ നിന്നാരംഭിച്ച് എരുവാട്ടി തോടിൽ ചേരുന്നു.

ഉഴുന്നുപാറതോട് (500 മീറ്റർ)

കായിത്തറ എസ്റ്റേറ്റിൽ നിന്ന് ആരംഭിച്ച് ഉഴുന്ന് പാറപടിയിൽ എരുവാട്ടിത്തോട് ചേരുന്നു.

പാറോൽ സിദ്ധിഖിന്റെ പറമ്പിൽ കൂടിയുള്ള തോട് (200 മീറ്റർ)

പാറോൽ സിദ്ധിഖിന്റെ വീടിനുസമീപം ആരംഭിച്ച് എരുവാട്ടി തോടിൽ ചേരുന്നു.

പാറോൻ തോട് (400 കിലോമീറ്റർ)

പാറോൻ അബൂബേക്കറിന്റെ വീടിനു സമീപം ഉത്ഭവിച്ച് എരുവാട്ടി തോടിൽ ചേരുന്നു.

കാളിക്കുളം തോട് (200 മീറ്റർ)

ടോമിയുടെ പറമ്പിൽ നിന്നാരംഭിച്ച് കാട്ടിക്കുളം പടിക്കൽ വച്ച് എരുവാട്ടിത്തോട് ചേരുന്നു.

നീർച്ചാലുകളിലെ ജലലഭ്യത സംബന്ധിച്ച വിവരങ്ങൾ ചുവടെ ചേർക്കുന്നു

| ക്രമ നമ്പർ | നീർച്ചാലിന്റെ പേര് | വറ്റുന്നത്/വറ്റാത്തത് | നീരൊഴുക്ക് ഇല്ലാത്ത മാസങ്ങൾ |
|------------|--|-----------------------|-----------------------------|
| 1. | മൈലാടുർ തോട് | വറ്റാത്തത് | |
| 2. | അംഗൻവാടി തോട് | വറ്റുന്നത് | മാർച്ച്-മെയ് |
| 3. | ഉമ്മർകുട്ടിയുടെ വീടിനടുത്തു കൂടിയുള്ള തോട് | വറ്റുന്നത് | മാർച്ച്-മെയ് |
| 4. | മുന്നുറുകുളം തോട് | വറ്റാത്തത് | |
| 5. | പഴയിടത്ത് പടിക്കലുടെയുള്ള നീർച്ചാൽ | വറ്റാത്തത് | |
| 6. | കൊട്ടക്കോയിൽ തോട് | വറ്റാത്തത് | |
| 7. | പാറോൽ സിദ്ധിഖിന്റെ പറമ്പിൽ കൂടിയുള്ള തോട് | വറ്റുന്നത് | ജനുവരി-മെയ് |
| 8. | ഉഴുന്നുപാറ തോട് | വറ്റുന്നത് | ജനുവരി-മെയ് |
| 9. | പാറോൽ തോട് | വറ്റുന്നത് | ജനുവരി-മെയ് |
| 10. | കാളിക്കുളം തോട് | വറ്റുന്നത് | ജനുവരി-മെയ് |



4.5.7 മൺതരങ്ങൾ

നീർത്തടത്തിൽ പലതരം മണ്ണിന്റെ ഭാഗങ്ങൾ ഉണ്ട്. നീർത്തടത്തിന്റെ മദ്ധ്യഭാഗത്ത് ചുവന്ന മണ്ണാണ്. പടിഞ്ഞാറ് ഭാഗത്ത് ചെങ്കൽമണ്ണും മറ്റുഭാഗങ്ങളിൽ കറുത്ത മണ്ണുമാണ് കാണപ്പെടുന്നത്. എല്ലാവിധ കൃഷിക്കും അനുയോജ്യമായ മണ്ണാണ് പൊതുവേ കണ്ടുവരുന്നത്.

4.5.8 പ്രധാന വിളകൾ

റബ്ബർ, തെങ്ങ്, കവുങ്ങ്, കുരുമുളക്, കശുമാവ്, കൊക്കോ, കാപ്പി, വാഴ ഇതുകൂടാതെ കിഴങ്ങ് വർഗ്ഗങ്ങളും പച്ചക്കറികളും കൃഷിചെയ്തുവരുന്നു.

4.5.9 പൊതു ആസ്തികൾ

- താടിൽ അംഗൻവാടി
- കയ്യണിറ്റി ഹാൾ
- മുസ്ലിംപള്ളി
- മു. ഘാദിസെന്റർ
- മഷൻകട
- പരുന്നൂ മരംഗ് ആർട്സ് ക്ലബ്
- പി.മലശ്ശേരി ക്ഷീരോല്പാദക സംഘം
- താടിൽ ഭക്താ വായനശാല
- കുരിശുപള്ളി (കത്തോലിക്ക)
- കുടുംബശ്രീകൾ
- മനശ്രീ സ്വാശ്രയസംഘം
- റബ്ബർ ഉല്പാദക കർഷകസംഘം
- മുടർവിദ്യാകേന്ദ്രം
- സ്വാശ്രയ സംഘങ്ങൾ
- ഇൻഫാം സംഘങ്ങൾ

4.5.11 നീർത്തടത്തിലെ പ്രധാന വികസന പ്രശ്നങ്ങൾ

കാർഷിക മേഖലയിലെ ഏറ്റവും വലിയ പ്രശ്നം കാർഷികരോഗങ്ങളാണ്. ശാസ്ത്രീയ മാർഗ്ഗങ്ങൾ അനുസരിച്ചുള്ള മണ്ണ്-ജല-സംരക്ഷണ മാർഗ്ഗങ്ങളുടെ കുറവ്. സംഭരണസംവിധാന കുറവ്. മഴവെള്ളം പാഴായി പോകാതെ സംരക്ഷിക്കാനുള്ള സംവിധാനം ഇല്ലായ്മ. ജല-മലിനീകരണം തടയാനുള്ള മാർഗ്ഗം ഇല്ലായ്മ. അമിതമായ ജല ചൂഷണം കൃഷ്ണകിണരുകളുടേയും മറ്റു നിർമ്മാണം നിയമത്തിന്റെ പരിധിയിൽ കൊണ്ടുവരാത്ത പ്രശ്നം. പുതിയ ജലസേചന സൗകര്യങ്ങൾ വർദ്ധിപ്പിക്കാത്തത് മാലിന്യ സംസ്കരണ സംവിധാനം തടയാപിക്കാത്തത്. ശാസ്ത്രീയ ജൈവകൃഷി പ്രചരണം ഇല്ലായ്മ. മണ്ണിടിക്കൽ നിയന്ത്രിക്കാത്ത പ്രശ്നം. ഇ-മാലിന്യങ്ങളുടെ സംസ്കരണ സംവിധാനങ്ങളുടെ കുറവ്. പ്ലാസ്റ്റിക്കിന്റെ ഉപയോഗം കുറയുന്നില്ല. ഇങ്ങനെ നിരവധി പ്രശ്നങ്ങൾ ഈ നീർത്തടത്തിന്റെ വികസനപ്രശ്നങ്ങളാണ്.



കാർഷികമേഖല

- ❖ മണ്ണിന്റെ ഗുണമേന്മക്കുറവ്
- ❖ കുറഞ്ഞ ഉല്പാദനം
- ❖ ജലസേചനസൗകര്യങ്ങളുടെ അപര്യാപ്തം
- ❖ വിലസ്ഥിരത ഇല്ലായ്മ
- ❖ ഉയർന്ന ഉല്പാദന ചിലവ്
- ❖ സബ്സിഡികളുടെ കുറവ്
- ❖ തൊഴിലാളികളുടെ അപര്യാപ്തത
- ❖ ജൈവകൃഷിസമ്പ്രദായങ്ങളുടെ പ്രചരണകുറവ്
- ❖ ക്ഷേപിത കൃഷിയുടെ കുറവ്
- ❖ നല്ല നടീൽ വിത്തുകളുടെ ലഭ്യത കുറവ്
- ❖ കീടങ്ങളുടെ ആക്രമണം

മണ്ണ് ജലം സംരക്ഷണമേഖല

- കിണറുകൾ-കുളങ്ങൾ കെട്ടി സംരക്ഷിച്ചവയാണെങ്കിലും തുടർപരിപാലനത്തിന്റെ കുറവ് നശിച്ചുപോകുന്ന അവസ്ഥ
- മണ്ണ് സംരക്ഷണ പ്രവർത്തനങ്ങളുടെ കുറവുമൂലം രൂക്ഷമായ കരയിടിച്ചിലും മണ്ണിടിച്ചിലും
- വലിയ തോടുകളിൽ ജലം സംഭരിക്കുന്നതിന് ആവശ്യമായ തടയണകളുടെ കുറവ്
- തോടുകൾക്ക് സംരക്ഷണഭിത്തി ഇല്ലാത്ത ഭാഗങ്ങളിൽ കരയിടിച്ചിൽ



33 K 15 b എരുവാട്ടി നീർത്തടം II

4.7.1 ആമുഖം

കണ്ണൂർ ജില്ലയിലെ ചപ്പാരപ്പടവ്, ആലക്കോട് പഞ്ചായത്തുകളിലായി വ്യാപിച്ചുകിടക്കുന്ന നീർത്തടമാണ് എരുവാട്ടി നീർത്തടം. ചപ്പാരപ്പടവ് പഞ്ചായത്തിന്റെ 2-ാം വാർഡ് ഈ നീർത്തടത്തിൽപ്പെടുന്നു.

4.7.2 നീർത്തടവിവരങ്ങൾ

| | |
|--------------------------------------|-------------------------|
| നീർത്തട നമ്പർ | : 33 k 15 b |
| ഉൾപ്പെടുന്ന നദീതടത്തിന്റെ പേര് | : എരുവാട്ടി നീർത്തടം II |
| നീർത്തടത്തിന്റെ ആകെ വിസ്തൃതി | : 111 ഹെക്ടർ |
| ചപ്പാരപ്പടവ് പഞ്ചായത്തിന്റെ വിസ്തൃതി | : 111 ഹെക്ടർ |

4.7.3 അതിരുകൾ

| | |
|-----------|----------------------------|
| വടക്ക് | : മേരിഗിരി |
| കിഴക്ക് | : ബീംബുംകാട് നീർത്തടം |
| പടിഞ്ഞാറ് | : എരുവാട്ടി നീർത്തടം I, II |
| തെക്ക് | : കുപ്പംപുഴ |

4.7.4 ഭൂപ്രകൃതി

വടക്ക് പടിഞ്ഞാറ്ഭാഗം തുക്കായ പ്രദേശവും ബാക്കി ഭാഗം ചെറിയ കുനുകളും ചേർന്നതാണ് എരുവാട്ടി II നീർത്തടം. നീർത്തടത്തിന്റെ കിഴക്ക് പടിഞ്ഞാറ് ഭാഗങ്ങളായ അടുകക്കം പ്രദേശങ്ങൾ ഉൾന്ന പ്രദേശങ്ങളാണ്. തെക്കും വടക്കും ഭാഗങ്ങൾ മിതചെരിവുള്ളതും കുറച്ച് പ്രദേശങ്ങൾ നിരപ്പായ പ്രദേശവുമാണ്.

4.7.5 പ്രധാന നീർച്ചാലുകൾ

എരുവാട്ടി തോടാണ് ഈ നീർത്തടത്തിലെ പ്രധാന നീർച്ചാൽ.

4.7.6 ചെറു നീർച്ചാലുകൾ

പ്രധാന നീർച്ചാലായ എരുവാട്ടി തോട്ടിലേക്ക് വന്നു പതിക്കുന്ന അഞ്ചോളെ ചെറു നീർച്ചാലുകളും ഈ നീർത്തടത്തിലുണ്ട്.

പലാത്തറ തോട് (300 മീറ്റർ)

പുവമ്പുഴ പറമ്പിൽ നിന്നും ആരംഭിച്ച് പാലാഴി പാടിയിൽ എരുവാട്ടി തോടിൽ ചേരുന്നു.



പഴയിടത്തു തോട് (100 മീറ്റർ)

കാരിക്കമലയിൽ തുടങ്ങി പഴയിടത്തുപടിയിൽ എരുവാട്ടി തോടിൽ ചേരുന്നു.

കാരിക്കൽ തോട് (100 മീറ്റർ)

ചീയ്യഞ്ചേരി മലയിൽ തുടങ്ങി കാരിക്കൽ പടിയിൽ എരുവാട്ടി തോടിൽ ചേരുന്നു.

കൊച്ചുമുറി തോട് (100 മീറ്റർ)

ചീയ്യഞ്ചേരി മലയിൽ നിന്നും ആരംഭിച്ച് കൊച്ചുമുറിപടിയിൽ എരുവാട്ടി തോടിൽ ചേരുന്നു.

ഞള്ളിമാക്കൽ തോട് (100 മീറ്റർ)

മേരിഗിരി മലയിൽ നിന്ന് ആരംഭിച്ച് ഞള്ളിമാക്കൽ പടിയിൽ വച്ച് എരുവാട്ടി തോടിൽ ചേരുന്നു.

നീർച്ചാലുകളുടെ ജലലഭ്യത സംബന്ധിച്ച വിവരങ്ങൾ ചുവടെ ചേർക്കുന്നു.

| ക്രമ നമ്പർ | നീർച്ചാലിന്റെ പേര് | വറ്റുന്നത്/വറ്റാത്തത് | നീരൊഴുക്ക് ഇല്ലാത്ത മാസങ്ങൾ |
|------------|--------------------|-----------------------|-----------------------------|
| 1. | പാലാത്തറ തോട് | വറ്റുന്നത് | ജനുവരി-മെയ് |
| 2. | പഴയിടത്ത് തോട് | വറ്റുന്നത് | ജനുവരി-മെയ് |
| 3. | കാരിക്കൽ തോട് | വറ്റുന്നത് | ജനുവരി-മെയ് |
| 4. | കൊച്ചുമുറി തോട് | വറ്റുന്നത് | ജനുവരി-മെയ് |
| 5. | ഞള്ളിമാക്കൽ തോട് | വറ്റുന്നത് | ജനുവരി-മെയ് |

4.7:7 മൺതരങ്ങൾ

നീർത്തടത്തിൽ പലതരം മണ്ണിന്റെ ഭാഗങ്ങൾ ഉണ്ട്. നീർത്തടത്തിന്റെ മധ്യഭാഗത്ത് ചുമന്ന മണ്ണും പടിഞ്ഞാറ് ഭാഗത്ത് ചെങ്കൽ മണ്ണും മറ്റ് ഭാഗങ്ങളിൽ കറുത്ത മണ്ണുമാണ്. എല്ലാവർക്കും കൃഷിക്ക് അനുയോജ്യമായ മണ്ണാണ് ഈ നീർത്തടങ്ങളിൽ പൊതുവെ കാണപ്പെടുന്നത്.

4.7:8 പ്രധാന വിളകൾ

തെങ്ങ്, കവുങ്ങ്, രബ്ബർ, കുരുമുളക്, കശുമാവ്, വാഴ, കൊക്കൊ തുടങ്ങിയവയ്ക്ക് കൂടാതെ പച്ചക്കറികളും കൃഷി ചെയ്തു വരുന്നു.

4.7:9 പൊതു ആസക്തികൾ

കുടുംബശ്രീകൾ
സ്വാശ്രയസംഘങ്ങൾ

4.7:10 നീർത്തടത്തിലെ പ്രധാന വികസനപ്രശ്നങ്ങൾ

ശാസ്ത്രീയ മാർഗ്ഗങ്ങൾ അനുസരിച്ചുള്ള മണ്ണ്-ജല സംരക്ഷണ മാർഗ്ഗങ്ങളുടെ കുറവ്, കാർഷിക രോഗങ്ങൾ, ജലം സംരക്ഷിക്കുവാനുള്ള സംവിധാനം ഇല്ലായ്മ, ജല മലിനീകരണം



അമിതമായ ജല ചൂഷണം, അമിതമായ കുഴൽകിണർ നിർമ്മാണം, പുതിയ ജലസേചന സൗകര്യങ്ങളുടെ കുറവ്, മാലിന്യ സംസ്കരണ സംവിധാനം സ്ഥാപിക്കാത്തത്, ഇ-മാലിന്യങ്ങളുടെ സംസ്കരണ സംവിധാനങ്ങളുടെ കുറവ്, അമിതമായ മണ്ണിടിക്കൽ ഇങ്ങനെ നിരവധി പ്രശ്നങ്ങൾ ഈ നീർത്തടത്തിന്റെ വികസന പ്രശ്നങ്ങളാണ്.

കാർഷിക മേഖല

- ✦ മണ്ണിന്റെ ഗുണമേന്മക്കുറവ്
- ✦ കുറഞ്ഞഉല്പാദനം
- ✦ ജലസേചനസൗകര്യങ്ങളുടെ അപര്യാപ്തത
- ✦ വിലസ്ഥിരത ഇല്ലായ്മ
- ✦ ഉയർന്ന ഉല്പാദന ചിലവ്
- ✦ സബ്സിഡികളുടെ കുറവ്
- ✦ തൊഴിലാളികളുടെ അപര്യാപ്തത
- ✦ ജൈവകൃഷി സമ്പ്രദായങ്ങളുടെ പ്രചരണകുറവ്
- ✦ ഭക്ഷ്യവിള കൃഷിയുടെ കുറവ്
- ✦ നല്ല നടീൽ വിത്തുകളുടെ ലഭ്യത കുറവ്
- ✦ കീടങ്ങളുടെ ആക്രമണം

മണ്ണ്-ജലസംരക്ഷണ മേഖല

- മണ്ണ് സംരക്ഷണപ്രവർത്തനങ്ങളുടെ കുറവുമൂലം രൂക്ഷമായ മണ്ണൊലിപ്പും കരയിടിച്ചിലും
- വലിയ തോടുകളിൽ ജലം സംഭരിക്കുന്നതിനാവശ്യമായ തടയണകളുടെ കുറവ്
- തോടുകൾക്ക് സംരക്ഷണഭിത്തി ഇല്ലാത്ത ഭാഗങ്ങളിൽ കരയിടിച്ചിൽ

Translation of Annexure A19**33 k 15 a Eruvatty Watershed 1****47.1 Introduction**

Eruvatty watershed is a watershed located in Eruvatty ,Ward II of Chapparapadavu Grama Panchayath in Kannur District.

47.2 Details of watershed

| | |
|----------------------------------|------------------------|
| Watershed No. | : 33 k 15 a |
| Name of the river basin | : Eruvatti watershed 1 |
| Total area of water shed | : 376.3 Hectare |
| Area of Chapparapadav Panchayath | : 376.3 |

47.3 Boundaries

| |
|--------------------------------|
| North : Mouathani Hill |
| East : Eruvatty Channel |
| West: Chamayitta Hill, Adukkam |
| South : Thalavil road hill |

47.4 Landscape

The Eruvatti watershed is composed of sloping land in the west and small hills in the rest. The east and west parts of the watershed such as Chamayattihill and Adukkam land have an average slope of 40 degree and the Southern and Northern parts of Eruvatty, Mouthani hill area are moderately sloping and a part of Eruvatty is flat land.

47.5 Major water courses

Eruvatty Channel (% Kilometer)

47.6 Small watercourses

Myladoor Channel(1 ½ Kilometer)

Starting from Chamettu hill and joining Kuppam river at Manikkal

Anganvady Channel (200 Meter)

Starts near the Eruvatty Public distribution shop and joins Eruvatty Channel.

Channel near the house of Ummankutty (500 Meter)

It starts near to Ummankutty's House and joins Eruvatty Channel

Munnurukilam Channel (2 ½)

Starts from Munnurkulam and joins Eruvatty channel at Vannathikadavu.

Channel through Pazhayidathpadikkal (100 meter)

Originated from Olikkalpadi and joins Munnurkilam Channel near to Eruvatty Library.

Kottakkoyil Channel

Originated from Kottakkoyil hills and joins Eruvatty watercourse

Uzhunnupara Channel (500 Meter)

Starts from Kayithara Estate and joins Eruvatty Channel at Uzhunnupara padiyil

Channel through the property of Parel Sidique (200 Meter)

Starts near from the house of Parel Sidique and joins Eruvatty Channel

Paron Channel (400 Kilometer)

Starts near from the house of Parel Aboobacker and joins Eruvatty Channel

Kalikkulam Channel

Starts from the property of Tomy and joins in Eruvatty Channel at Kattikulam Padikkal.

Details regarding the availability of water in the watersheds

| Sl.No | Name of the watershed | Seasonal/Perennial | Months in which no water flow |
|-------|-----------------------|--------------------|-------------------------------|
| 1 | Myladoor Channel | Perennial | |
| 2 | Anganvady Channel | Seasonal | March-May |
| 3 | Channel near to | seasonal | March-May |

| | | | |
|----|---|-----------|-------------|
| | the house of Umman kutty | | |
| 4 | Munnurukulam Channel | Perennial | |
| 5 | Channel through Pazhayidath Padikkal | perennial | |
| 6 | Kottakoyyil Channel | perennial | |
| 7 | Channel through the property of Parol Sidique | seasonal | |
| 8 | Uzhunnupara channel | sesaonal | January-May |
| 9 | Parol Channel | Seasonal | January-May |
| 10 | Kalikkulam Channel | seasonal | January-May |

Types of soil

There are many different soil types in the watershed. In the center of the watershed is red soil. Red soil is found in the western part and black soil in other parts. The soil is generally suitable for all types of agriculture

Major crops

Rubber, coconut, gourd, black pepper, cashew, cocoa, coffee, banana besides this, tubers and vegetables are cultivated.

Common assets

Thadil Anganwadi
 Community Hall
 Mosque
 Khadhicentre
 Public distribution shops
 Tarang Arts Club
 Vimalassery Milk Producers Group
 Thattil Janata Reading Room
 Church (Catholic)

Kudumbashree
Janashree Self Help Society
Rubber Producer Farmers Association
Higher Education Center
Self Help Groups
In farm groups

Major development issues in the watershed

Agricultural diseases are the biggest problem in agriculture sector. Lack of soil and water conservation methods according to scientific methods. Lack of storage. Lack of system to save rainwater from going to waste. Lack of means to prevent water pollution. The issue of over exploitation of water by tube wells and other constructions is not brought under the purview of the Act. Non-increase of new irrigation facilities and non-establishment of sewage treatment systems. Lack of scientific organic farming propagation. Landslide uncontrolled problem. Lack of e-waste treatment systems does not reduce the use of plastic. Thus many problems are the development problems of this watershed.

Agriculture sector

- * Poor soil quality
- * Low production
- * Inadequacy of irrigation facilities
- * Lack of price stability
- * High cost of production
- *Reduction of subsidies
- *Inadequacy of workers
- *Lack of promotion of organic farming practices
- *Decreased food crop production

Lack of availability of good planting seeds

* Pest infestation

Soil Water Conservation Area

Wells-ponds are protected but lack of follow-up maintenance

Severe landslides due to lack of soil protection measures

Lack of adequate dams to store water in large flooded streams

Landslides in areas where streams do not have retaining walls.

33 k 15 b Eruvatty Watershed II

Introduction

Eruvati Watershed is a watershed spread over Chapparapadav and Alkode panchayats in Kannur district. 2nd Ward of Chapparapadav Panchayat falls under this territory.

Details of watershed

| | |
|----------------------------------|-------------------------|
| Watershed No. | : 33 k 15 b |
| Name of the river basin | : Eruvatti watershed II |
| Total area of water shed | : 111 Hectare |
| Area of Chapparapadav Panchayath | : 111 hECTARE |

Boundaries

| |
|-------------------------------|
| North : Merigiri |
| East : Bembumkadu watercourse |
| West: Eruvatty Watershed 1.II |
| South : Kuppam River |

47.4 Landscape

Eruvatti watershed II consists of a slop area in the north-west and rest of the small hills .The adjoining areas on the east and west sides of the adukkam area

of watershed are steep areas. The southern and northern parts are moderately sloping and a few areas are flat.

Major Watersheds

Eruvatty Channel is the major water source in this watershed.

Small Water channels

There are 5 small channels joining the this Eruvatty Channel.

Palathara channel (300 Meter)

It starts from poovampuzha property and joins Eruvatty Channel at Palazhi Padiyil.

Pazhayidath Channel (100 Meter)

It starts from Karikkahills and joins at Eruvatty Channel at Pazhayidathpadi.

Karikkal Channel (100 Meter)

It starts from Cheeyancheri Hills and joins in Eruvatty Channel at Karikkal Padi

Kochumuri Channel (100 Meter)

It starts from Cheeyancheri hills and joins Eruvatty Channel at Kochumuripaiyil.

Njallimakkal Channel (100 Meter)

It starts from Merigiri Hills and joins Eruvatty Channel at Njallimakkal Padiyil

Details of availability of water in water sources

| Sl.No | Name of the watershed | Seasonal/Perennial | Months in which no water flow |
|-------|-----------------------|--------------------|-------------------------------|
| 1 | Palathara Channel | Seasonal | January-May |
| 2 | Pazhayidath Channel | Seasonal | January-May |
| 3 | Karikkal Channel | seasonal | January-May |
| 4 | Kochumuri Channel | Seasonal | January-May |

| | | | |
|---|----------------------|----------|-------------|
| 5 | Njallimakkal Channel | Seasonal | January-May |
|---|----------------------|----------|-------------|

Types of soil

There are many different soil types in the watershed. The central part of the watershed is alluvial soil, the western part is red clay and other parts black soil. These watersheds generally have soils suitable for all types of agriculture.

Major Crops

coconut, gourd, rubber, black pepper, cashew, banana, cocoa and vegetables are also cultivated.

Common Assets

Kudumbashree

Self Help Groups

4.7:10 Major development issues in the watershed

Lack of Soil and water conservation methods as per scientific method, agricultural diseases , Lack of water conservation system, water pollution,Over-exploitation of water, over-construction of bore wells, lack of new irrigation facilities, non-establishment of waste management systems, lack of e-waste management systems, and excessive landslides are the development problems of this watershed.

Agricultural sector

*Poor soil quality

*Low production

*Inadequacy of irrigation facilities

* Lack of price stability

*High production cost

- *Reduction in subsidies
- *Inadequacy of workers
- *Lack of propagation of organic farming practices
- *Shortage of food crop cultivation
- * Less availability of good planting seeds
- *Pest infestation

Soil and Water Conservation Sector

- * Severe soil erosion and landslides due to lack of soil conservation activities
- *Lack of dams to store water in large streams
- * Landslides in areas where ditches do not have protective walls

I/204147/2022



ജില്ലാ കലക്ടറുടെ കാര്യാലയം, കണ്ണൂർ
തീയതി: 20-12-2022
e-mail: dcknr.ker@nic.in
Phone: 0497-2700645

20/3/22

റഫ് നമ്പർ :
DCKNR/10351/2022-DM6

പ്രേഷകൻ

ജില്ലാ കലക്ടർ,
കണ്ണൂർ

സ്വീകർത്താവ്

സെക്രട്ടറി
കേരള സംസ്ഥാന യുവജന കമ്മീഷൻ
തിരുവനന്തപുരം

സർ,

വിഷയം:- കരിങ്കൽ ക്വാറി - സംസ്ഥാന യുവജന കമ്മീഷൻ മുമ്പാകെ ഡോ അഫീൽ എം അലക്സ് സമർപ്പിച്ച പരാതി- തുടർ റിപ്പോർട്ട് സമർപ്പിക്കുന്നത് സംബ

- സൂചന:-
1. കേരള സംസ്ഥാന യുവജന കമ്മീഷന്റെ 20.08.2022 ലെ 1472/എ2/2022/കേ.സം.യു.ക. നമ്പർ കത്ത്
 2. ഈ ആപ്പീസിലെ 02 .11 .2022 , 23 .11 .2022 തീയതികളിലെ ഇതേ നമ്പർ കത്തുകൾ
 3. തളിപ്പറമ്പ് തഹസിൽദാരുടെ 16 .12 .2022 ലെ ടി ഒ ടി എൽ പി ബി / 1853 / 2022 - കെ 1 നമ്പർ കത്ത്

.....

സൂചനയിലേക്ക് അങ്ങയുടെ ശ്രദ്ധ സാദരം ക്ഷണിക്കുന്നു.മേൽ പരാതിയിൽ തളിപ്പറമ്പ് തഹസിൽദാർ വഴി അന്വേഷണം നടത്തിയതിൽ താഴെ പറയുന്ന വസ്തുതകൾ ബോധിപ്പിക്കുന്നു.

ക്വാറി ലൈസൻസ് അനുവദിക്കുന്നതിനായി തിമിരി വില്ലേജിൽ നിന്നും അനുവദിച്ച സർവ്വേ മാപ്പിൽ ബി പി നമ്പർ 6 ൽ നിന്നും 96 മീറ്റർ ദൂരത്തായി , 2.8 മീറ്റർ * 5 മീറ്റർ , 2.7 മീറ്റർ * 4.8 മീറ്റർ വിസ്തൃതിയിൽ ചെങ്കല്ല് കൊണ്ട് കെട്ടി വെള്ളം നിറഞ്ഞിരിക്കുന്ന ചതുരാകൃതിയിൽ ഉള്ള രണ്ടു ജലസ്രോതസ്സുകൾ ഉണ്ട്. അതിനു മുകളിലായും സമാന സ്ഥിതിയിൽ ഒന്നിലധികം ജലസ്രോതസ്സുകൾ കാണുന്നു.

ബി പി നമ്പർ 6 ൽ നിന്നും 96 മീറ്റർ ദൂരത്തായി കാണുന്ന രണ്ടു ജല സ്രോതസ്സുകളിൽ നിന്നും 2 ചെറിയ പൈപ്പ് ഉപയോഗിച്ച് കുടിവെള്ളം താഴെ ഭാഗത്തേക്ക് കൊണ്ടുപോകുന്നുണ്ട്. ടി പൈപ്പ്

പോകുന്ന ചാൽ ക്രമേണ ഒരു മീറ്ററിനടുത്ത് വീതിയിൽ താഴെ ഭാഗത്തേക്ക് പോകുന്നുണ്ട്. എന്നാൽ വേനൽക്കാലത്ത് മേൽ തോട് ദൃശ്യമല്ലാത്തതിനാലാകാം വില്ലേജ് ഓഫീസർക്ക് ആയത് വിട്ടു പോയത് എന്ന് കരുതുന്നു. സാധാരണ കളം എന്നത് കൊണ്ട് ഉദ്ദേശിക്കുന്ന രീതിയിലല്ലാതെ ചെങ്കല്ല് കൊണ്ട് കെട്ടിയ ചതുരക്കിണർ പോലെയാണ് പരാതിയിൽ സൂചിപ്പിച്ച ജലസ്രോതസ്സ് സ്ഥിതി ചെയ്യുന്നത്. ആയതിനു സമീപം രണ്ടാം വാർഡിൽ 597 നമ്പർ പതിപ്പിച്ച ഒരു വീട് കൂടിയുണ്ട് എന്നുള്ള വിവരവും പ്ലാനിൽ രേഖപ്പെടുത്തിയതായി കാണുന്നില്ല. ടി വീട് ബി പി നമ്പർ 6 ൽ നിന്നും 100 മീറ്ററിലധികം ദൂരത്താണ് എന്നും ബോധിപ്പിക്കുന്നു.

ജലസ്രോതസ്സിന്റെ താഴെ ഭാഗത്ത് ഖനനം നടത്തുന്നത് സമീപവാസികളെ പ്രതികൂലമായി ബാധിക്കാനിടയുണ്ട് എന്ന വിവരം സവിനയം ബോധിപ്പിച്ചു കൊള്ളുന്നു.

വിശ്വസ്തയോടെ
 ജില്ലാ കലക്ടർ
 കണ്ണൂർ
 DISTRICT COLLECTOR

Signed by
 Chandrasekar S
 Date: 20-12-2022 15:13:41

Translation of Annexure A20

Office of District Collector, Kannur

Ref No:

Date: 20.12.2022

DCKNR/10351/2022-DM6

e-mail:dcknr.ker@nic.in

Phone:0497 2700645

From

District Collector

Kannur

To Secretary

Kerala State Youth Commission

Thiruvanthapuram

Sir,

Sub:- Stone Quarry—Representation submitted before State Youth Commission by Dr. Afil M Alex-Submission of follow-up report-reg

Ref: 1.Letter No. 1472/A2/2022/K.S.Y.C dated 20.08.2022 issued by Kerala State Youth Commission

2.Same letter dated 02.11.2022,23.11.2022 of this office

3.Letter No.T/L/P/B/1853/2022 dated 16.12.2022 issued by the Thahasildar,Thaliparamb

Your attention is respectfully invited to the above references. That in the above complaint the investigation conducted by Tahsildar Taliparamba brings to light the following facts.

In the Survey Map provided from Thimiri Village for allowing quarrying permit from B.P No.6 two rectangular ponds 2.8 meter* 5 meter,2.7 meter* 4.8 meter

filled with water bounded by red stone are situated and above them several wells in the same nature are found.

The two water sources found at a distance of 96 meters away from BP No.6 , 2 small pipes carry drinking water to the lower part .

The channel through which the pipe is going is gradually one meter in width. But it is believed that the village officer may have missed it because the upper stream is not visible in summer. The water source mentioned in the complaint is situated like a square well lined with red stone, not in the usual way. The plan also does not show that there is another house numbered as 597 in the second ward near the property. That it is informed that this house is more than 100 meters away from BP No. 6.

It is humbly informed that the mining in the lower part of the water source may adversely affect the nearby residents.

Sincerely

District Collector

Kannur

Signed

Chandrasekar S

Date-20-12-2022 15.13.41

Studies on land disturbances due to soil piping affecting the critical zones in Western Ghats of Kerala

(A project funded by the Kerala State Disaster Management Authority)

Final Report

Submitted to



State Disaster Management Authority

Government of Kerala



ESSO-National Centre for Earth Science Studies

(Ministry of Earth Sciences, Govt. of India)

Thiruvananthapuram 695011

January 2020

Studies on land disturbances due to soil piping affecting the critical zones in Western Ghats of Kerala

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January 2020

Studies on land disturbances due to soil piping affecting the critical zones in Western Ghats of Kerala

(A project funded by the Kerala State Disaster Management Authority)

Project team

| | |
|-----------------------|-----------------------------|
| G. Sankar | Senior Consultant |
| Dr. D. S. Suresh Babu | Principal Investigator |
| Midhun T. M. | Project Scientist (2017-19) |
| Sarath Kumar | Project Scientist (2016) |

January 2020



ESSO-National Centre for Earth Science Studies

Thiruvananthapuram 695011

DOCUMENTATION PAGE
NATIONAL CENTRE FOR EARTH SCIENCE STUDIES

| | | |
|-----------|-------------------------------|--|
| 1. | REPORT NUMBER | NCESS-PR-01-2020 |
| 2. | TYPE OF REPORT | PROJECT FINAL REPORT |
| 3. | TITLE | STUDIES ON LAND DISTURBANCES DUE TO SOIL PIPING AFFECTING THE CRITICAL ZONES IN WESTERN GHATS OF KERALA |
| 4. | AUTHORSHIP | G. Sankar, D. S. SureshBabu, T. M. Midhun, Sarath Kumar |
| 5. | KEY WORDS | Land disturbance, Soil Piping |
| 6. | ABSTRACT | <p>Western Ghats often experiences flooding, mass-movements in the form of landslides and land-subsidence. Studies conducted by NCESS revealed that land subsidence is often due to a process occurring in the subsurface known as soil piping or tunnel erosion. Land disturbances due to soil piping are noticed in all districts in Kerala except Kollam and Alappuzha. In 2016 NCESS in collaboration with SEOC has completed a 3 years long study funded by the NDMA, GoI on soil piping related problems in the State. This study has been carried out as a follow up of the NDMA funded programme. NCESS has identified more than 139 regions in the Western Ghats severely affected by soil piping. A detailed field related study to demarcate areas affected was needed to know the extent of damages occurred due to soil piping. This project was taken up to fulfill some of the missing aspects in the NDMA funded programme.</p> <p>The critical zone in the Western Ghats which is the permeable near surface layer from the top of the trees to the bottom of the saturated zone is a very important layer where various geo environmental parameters interact. This zone is very often subjected to changes by many processes such as anthropological activities, neo-tectonic activities, natural hazards etc. during high rainfall seasons like monsoons.</p> <p>It is recommended that site-specific and detailed studies are required to understand the soil piping affected areas in the state for proposing mitigation plans at each affected location. In the affected areas the laterite mining should be discouraged or the depth of the mine to be restricted 1m above the lithomarge clay. In no case the clay should be mined or exposed. It is recommended that usage of hydrated Lime along with the fertilizers should be encouraged to neutralise dispersive sodium in the clay at the already affected localities. Major developmental projects should be taken up in highlands only after proper geologic / geophysical studies to rule out existence of subsurface tunnels. The soil survey department may take proper initiatives to determine the areas where dispersive soils are present in the State. The areas where earth dams are present in the state should be watched closely to rule out the presence of dispersive soils. Since dispersive soils are located nearby the Banasurasagar Dam in the Wayanad district, the location should be supervised carefully for any possible soil piping erosion. Dewatering is the best method to deescalate the formation of soil pipes. Overland flow may be diverted to a nearby nala / stream without allowing to infiltrate the affected zone will reduce pipe development.</p> |
| 7. | DISTRIBUTION STATEMENT | FOR LIMITED CIRCULATION |
| 8. | INSTITUTION | NATIONAL CENTRE FOR EARTH SCIENCE STUDIES ESSO, MINISTRY OF EARTH SCIENCES, GOVERNMENT OF INDIA P.B.NO,7250, AKKULAM, THIRUVANANTHAPURAM-695011 Phone: 0471-2442454 Fax: 0471-2442280 |

Conclusion

The total area of the district is 1992 square kilometres in which 1018.533 km² is falling inside the Affected zone and 713.113 km² is falling inside the Probable zone which means a good portion of the district is vulnerable. The remaining 260.355 km² area is falling inside Non-affected zone which including coastal alluvium and hard rock exposures. Kuttikol, Panoor, Nelliyaadukkam, Karadka and Paivalike are the places where the greatest number of pipes are seen and affected severely. For zoning an area in terms of soil piping susceptibility the following aspects were considered

1. Recommendations for the “Affected areas”

In the critically affected areas infrastructure such as roads, buildings etc will be affected. Restrictions on high rise buildings or detailed surveys before the construction is needed. A proper water management plan should be developed for restricting the spread of soil piping. Geophysical surveys are suggested for locating large and typical pipes. **Laterite mining may be restricted in the critically affected localities or the depth must restrict well above (at least 1m) the lithomarge clay layer is recommended. In no case clay layer should be exposed for water to infiltrate.**

2. Recommendations for “Probable areas”

These are areas prone to soil piping or mildly affected regions. In these areas juvenile and younger pipes are developed as an indicator of soil piping processes happening there. In such places well sections and laterite cutting are to be examined in detail for pipes and caves. Geophysical surveys may not help in identifying juvenile and younger pipes as they are smaller in size. Water management practices and usage of lime powder in the soil will retard the soil piping activities. **Laterite mining the depth must restricted well above (at least 1m) the lithomarge clay layer is recommended. In no case clay layer should be exposed for water to infiltrate.**

In both areas’ usage of hydrated lime along with the fertilizers should be encouraged to neutralise dispersive sodium in the clay

Dewatering is the best method to deescalate the formation of soil pipes. Overland flow may be diverted to a nearby nala without allowing to infiltrate in the affected zone will reduce pipe development.



Bethurpaera



Padiyotuchal



Kizhakanodi



Nelliyadukkam



Bethurpara-Komali



Bethurpara



Mali cave



Bethurpara

Figure 4.30: Field photos from Kasaragod District

4.2 Kannur

The district Kannur (Cannanore) is one of the northern districts of Kerala covers an area of 2966 sq. km bounded by North latitudes 11° 40' and 12° 48' and East longitudes 74° 52' and 75° 56'. It is bounded by Kasaragod district in the north, Kozhikode district in the south, Coorg district of Karnataka and Wayanad district in the east and the Lakshadweep Sea in the west. It is bounded by Lakshadweep Sea to the west and Karnataka state to the east. The terrain is rugged and slopes west from Western Ghats to the coast.

Kannur district is divided into 3 taluks (Taliparambu, Kannur and Thalassery), 5 municipalities (Payyanur, Taliparambu, Kannur, Azhikode and Koothuparambu), 9 blocks (Payyanur, Kannur, Thalassery, Taliparambu, Edakkad, Irikkur, Iritty, Peravur and Koothuparambu), 81 panchayats and 129 villages.

Geomorphology

The district is divisible into three distinct geomorphological units Based on physiography.

1. The coastal plains and lowlands in the western part.

The coastal plain occurs as a narrow belt of alluvial depositional landforms running parallel to the coast with a maximum width of about 15 km. It comprises narrow beaches interrupted by cliffs, promontories and rocky beaches. Estuaries, lagoons, tidal flats, floodplain and palaeo-beach ridges are the other landforms of the area. The region has a maximum height of 7m in the east.

2. The central undulated terrain comprising the midland region.

The midland region, a relatively wide zone represents denudational landforms exhibiting laterite capped flats, mesas ridges, spurs, laterite interfluves and narrow alleviated valleys. Midland region forms a plateau land at certain places covered by a thick cover of laterite. Elevation of this region displays remnants of planation surfaces as well. Two former planation surfaces with fairly extensive remnants are characterised by laterite cappings. Vestiges of still older surfaces are identifiable at higher altitudes.

3. Eastern highland region.

The hilly region in the east is a structural cum denudational landforms, where the elevation is generally above 500m. Hills have very steep slopes. Landforms of intrusive origin are also noticed near Peralimala and Ezhimala. The hilly tract in the eastern part consists of highly rugged terrains. The Ezhimala peak with the characteristic N-S alignment is a distinct

physiographic unit in the coastal plains. Minor cliffs of laterite generally rising to an elevation of 50 to 60 m above mean sea level are found at Mahe, Thalasserry and Bekal coast. The midland region presents a plateau land covered by a thick cover of laterite. This is immediately to the east of the coastal strip, rising from 40 to 100 m above msl. The valleys in the plateau are gorge like and V shaped cut by youthful streams. The hilly tract along the eastern part of the district constitutes the highland region and is highly rugged. Development of bad land topography along the margins of the valley is a common feature observed in the district.

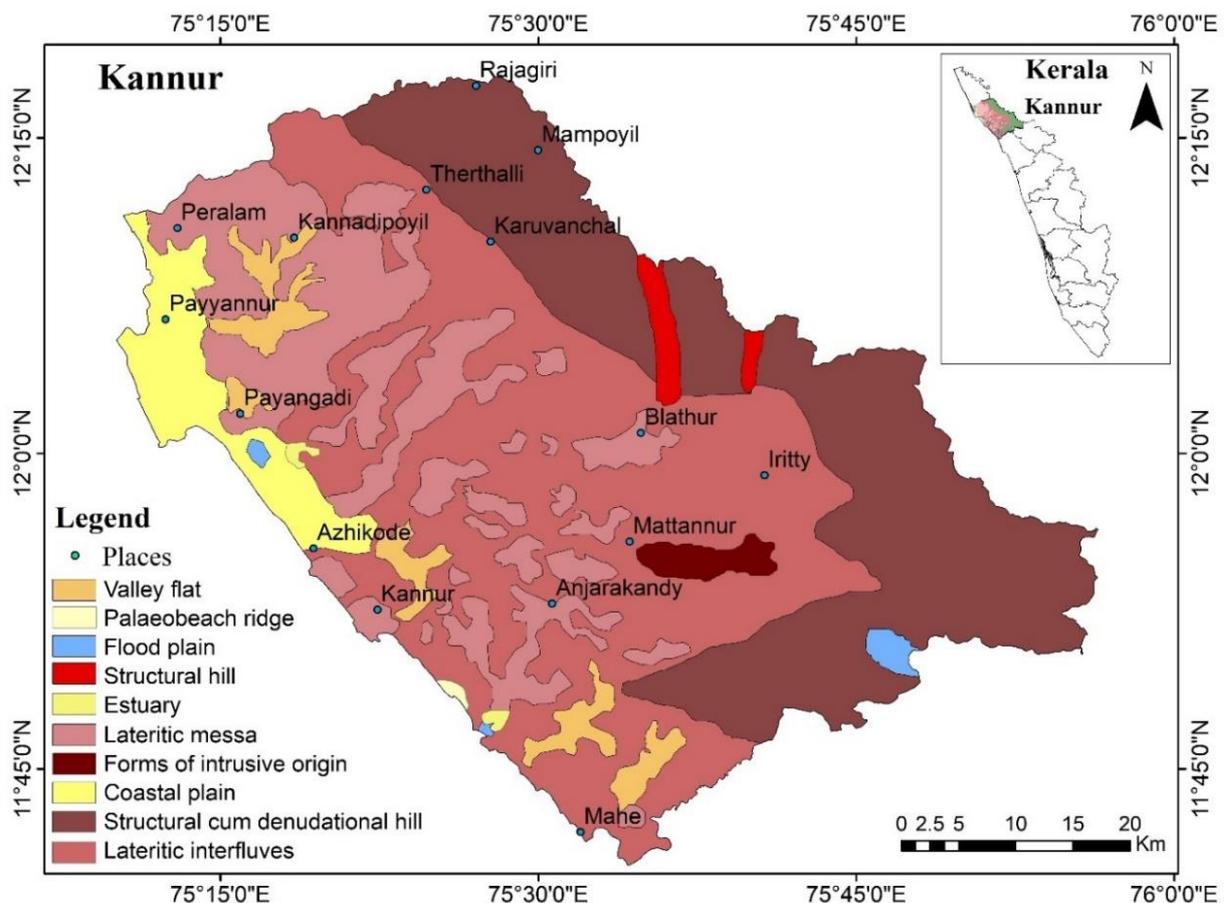


Figure 4.31: Geomorphology of Kannur District

(geomorphology map modified after District Resource map, Kannur district, Geological Survey of India)

Drainage and Irrigation

Valapattanam and Anjarakandy Rivers are the main two river system of Kannur district. The other rivers are Kuppam, Mahe, Thalasserry etc. Dendritic is the common drainage pattern. The

Valapattanam River, which is the longest in the district, originates from Brahmagiri Reserve forest in Coorg district of Karnataka.

Rainfall

Kannur district receives a total annual rainfall of around 3438 mm. District experiences heavy rainfall during the South West monsoon season followed by North East monsoon. South West monsoon during June to September contributes 70 % of the total rainfall of the year. The northeast monsoon contributes only about 30%. The year to year variability of annual rainfall is around 28.2%. In general, the rainfall increases from the coast to the eastern hilly regions. Kannur district falls under wet type of climate based on Thornthwaite's climatic classification.

Land use

The district is divisible into three different units on the basis of land usage. (1) Arable, (2) Forest land and (3) Waste land. Major part of the district is arable land which includes irrigated and unirrigated land. Forest is mostly in the east, within which some areas are developed as rubber and cashew plantations. Extensive waste land formed of hard laterite, unsuitable for cultivation lies in the midland region. Most of the area is covered by lateritic soil. Forest loam soil occurs in the east and the alluvial soil is along the coast.

Geology

The Kannur district is having much more variety of lithological units compared to the nearest districts. The lithology is varying from part to part of the district. The district is divisible mainly into seven different geological belts trending NW-SE.

1. Northern belt of Charnockite group extending further north and east to the adjacent districts
2. North central belt of Wayanad schist complex
3. Central belt of Peninsular Gneissic Complex extending to the southeast
4. South central belt of Vengad Group, equivalent to Dharwars
5. Southernmost belt of Migmatite Complex which extends further south to the adjacent district
6. Sedimentary (Warkalli Beds) in the western part near the coast
7. Quaternary sediments along the coast.

The lithology of Kannur district is grouped under Precambrian, late Tertiary and Quaternary periods and the Precambrian rocks dominate over the other two. Charnockite Group includes

pyroxene granulite, charnockite (hypersthene granulite) and hornblende-diopside granulite. While hornblende granite and charnockite occupy large areas, pyroxene granulite occurs as linear bodies in the southeast. Hornblende-biotite gneiss constitutes the lithological unit of Migmatite Complex. It has a large areal extent along the coast, south of Kannur. Towards east and southeast, discrete metasedimentary and ultramafic sequences which have been designed as Wayanad Schist Complex and are considered equivalent of Sargur Group of Karnataka. They occur as isolated bands within charnockite and gneiss. Their contacts are generally discordant due to later folding, metamorphism and migmatization. The group comprises quartzite, magnetite quartzite, garnet-kyanite-sillimanite gneiss, quartz-mica-kyanite schist, quartz-sericite schist, amphibolite, kyanite-sillimanite-sericite quartzite, and metaultramafites. Garnetkyanite-sillimanite gneiss/schist is widespread in the east, whereas the other members of Wayanad Complex occur as linear bands, lensoidal bodies and vestiges to the West Peninsular Gneissic Complex, represented by hornblende-biotite gneiss comprise of a complex suite of gneisses and granites, representing the anatectic phase of migmatization of schist complex. East of Kannur extending up to Tellichery in the south, a large body of quartz-mica schist is separated from the other schistose rocks by a conglomerate horizon extending over 8km. This lithounit is known as Vengad Formation, characterised by lack of migmatization, presence of primary structures and absence of high-grade minerals, and is correlatable with rocks of Dharwar Super Group. Large bodies of anorthosite, gabbro, granite and granophyre from the post Vengad basic and acid intrusives. Dolerite dykes trending NW-SE represent the younger basic intrusives. Late Tertiary sedimentary rocks (Warkalli beds) occur as isolated patches along the coast near Kannur, Pazhayangadi and east of Payyannur. They comprise variegated clays and friable sandstone. At Kannur and Pazhayangadi, carbonaceous clay with thin seams of lignite is reported towards bottom of the sedimentary sequence. The Tertiaries as well as the basement rocks are extensively lateritised. The pebble bed, reported near Valapatnam along the bank of Valapatanam River, is considered to be of Quaternary age. Quaternary alluvial deposits occur along the coast and in the valleys.

(Reference: District survey report of minor minerals by Department of Mining and Geology)

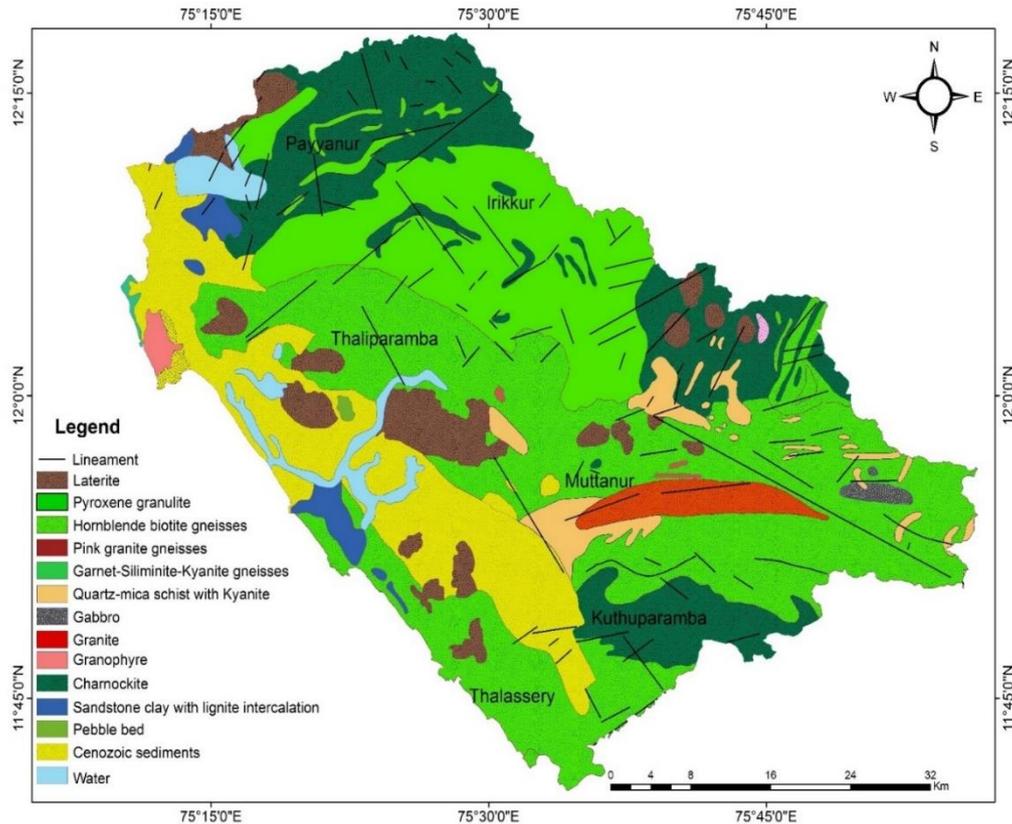


Figure 4.32: Geology of Kannur District

(geology map modified after District Resource map, Kannur district, Geological Survey of India)

Soil types

There are mainly four types of soil observed in the district.

1. Lateritic soil

The predominant soil in the district is lateritic soil, which is the weathered product derived under humid tropical conditions. It occurs mainly in the midland and hilly areas characterized by rugged topography. They range from sandy loam to red loam.

2. Brown hydromorphic soil

These are confined to the valleys between undulating topography in the midlands and in the low-lying areas of the coastal strip in the district. These soils are brown in colour and the surface texture varies from sandy loam to clay. They have been formed as a result of transportation and deposition of materials from adjoining hill slopes and also through deposition by rivers.

3. Coastal and river alluvium

The coastal alluvium is seen in the western coastal tract of the district. The coastal plain is characterized by secondary soils, which are sandy and sterile with poor water holding capacity. The width of the zone is more in the central part i.e., in the Kannur area and it is almost narrow in both north and southern areas of the district. The marshy soil in the coastal plain supports mangrove vegetation and is found at the estuaries and backwater extending inland along their courses. The soil is composed of recent deposits predominantly marine with some fluvial sediment along the coastline. These soils are immature with high sand content. River alluvium is found along river valleys cutting across the extensive lateritic soils. The soil is very deep with surface texture ranging from sandy loam to clay. It is fertile, having water holding capacity and plant nutrients which are regularly replenished during floods.

3. Forest Loamy soil

These soils are found in the eastern hilly areas of the district and are characterised by a surface layer rich in organic matter. They are generally acidic and are dark reddish brown to black in colour with loam to silty loam texture.

Ground water scenario

Groundwater in the district occurs under phreatic conditions in weathered mantle of the crystalline rocks, laterites and unconsolidated coastal sediments. It occurs under semi confined to confined conditions in the deep-seated fractured aquifers of the crystalline rocks and Tertiary sediments.

The Kannur district is underlain by charnockites, pyroxene granulites, garnetiferous gneisses, hornblende biotite gneisses and schistose rocks overlain by Tertiaries and coastal alluvium along the coast ranging in age from Archaean to Recent. These rocks have undergone weathering and lateritisation. The hydrogeological units encountered in the district are following.

1. Consolidated formations (weathered and fractured crystallines).
2. Semi consolidated sediments equivalent to Warkalies of Southern Kerala and laterite formations.
3. Unconsolidated formations (Recent alluvium occurring along the coast).

Kolari village, Irrtty taluk,

A subsidence has occurred in Kolari village (Latitude: N 11° 57' 13.8" Longitude: E 75° 34' 38.7") in the Irritty taluk in 2016. Dr Padma Rao B., Scientist B, Dr. Mayank Joshi, Project Scientist, Mr. Prasobh P Rajan, JRF and Mr. Eldhose K. technical Assistant NCESS visited the affected area on 9 September 2016 along with the village and Panchayat representative.

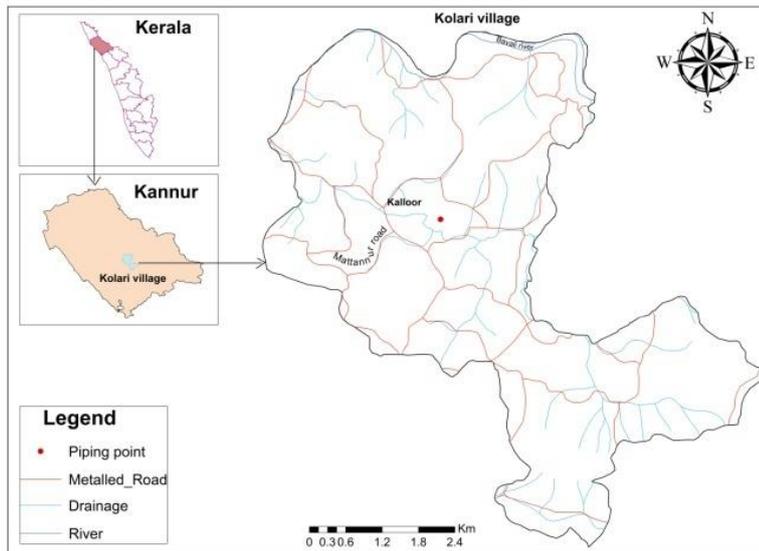


Figure 4.33: Location map of Kolari

The study shows that the land subsidence was due to the soil piping. Subsurface tunneling is wide spread in the affected localities and their size varies from few centimeters to couple of meters. The present pipe is a circular, with 1-foot radius. Electrical resistivity tomography has applied to know its extension and direction.

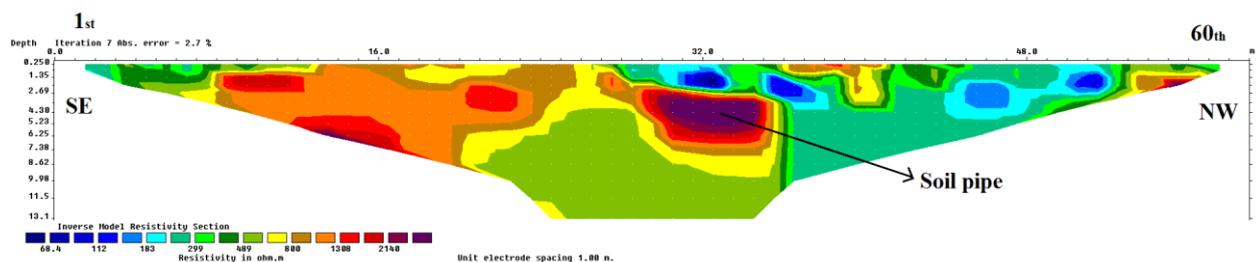


Figure 4.34: Inversion model of the ERT profile

The figure shows electrical resistivity tomographic sections of Schlumberger, array along the suspected area. This profile is laid near to the exposed part of the soil pipe. The survey line is oriented in the SE-NW direction and the depth resolution is ~16.9 m. The inverse model resistivity section, prima facie indicates a highly anisotropy in the entire section. A 3.5 m wide high resistivity zone present between 1.35 and 5.23m depth, near to the 32th electrode position.

The high resistivity in this region is may be due to the pipe. The moderate resistivity with lateral and vertical variation in between 1st and 30th electrode indicates hard resistive rock boulder with different layers of weathering condition.

Kottathalachimala, Cherupuzha panchayat Kannur District

The study concentrated in Kottathalachimala (Part of Western Ghats) is approximately 830m elevation. Aim of the study was to test the utility of resistivity survey to detect cavities developed due to soil piping. The work was confined to the five piping localities identified in this area.

The affected locality (Kottathalachimala) is situated in Thaliparamba taluk Kannur district comes under latitude $12^{\circ}15'00''$ and longitude $75^{\circ}25'00''$ to $12^{\circ}17'00''$ and $75^{\circ}27'00''$. The area is approachable road from Cherupuzha via Pulingom.

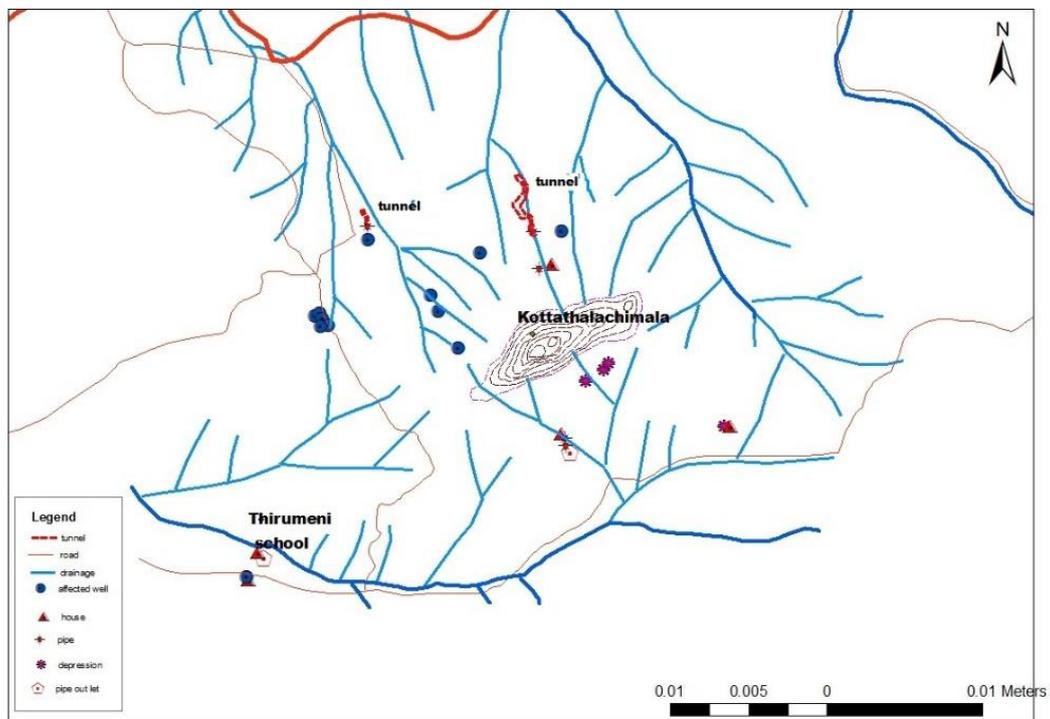


Fig.4.35: Field location

The affected area located in the highland region with elevation reaching up to 830 m. The characteristic of Kottathalachimala is its anomalous slope compared to other hills, nearby area. Upper slope is about high slope ($+31^{\circ}$). where is the lower slops are about $+24^{\circ}$. Kottathalachimala is characterised by radial drainage indicating it shape? Many lower order streams originated from this hill. The hill is surrounded by Pulingom River, Thirumenichal and Ponpuzha Ar.



Fig.4.36: A distinct view of Kottathalachimala

Geophysical surveys: The 2D Electrical Resistivity Imaging

Geophysical surveys were conducted in affected localities of Kottathalachimala, (fig 4.2.7) Taliparamba Taluk, Kannur to determine suitable method for delineation of pipes. Two resistivity profiles were laid across the alignment of soil pipes using the instrument WDJ4. The layout of these Electrical Resistivity Sounding (ERS) locations is given in figure1. A detailed description of the studies and their preliminary results are given here.

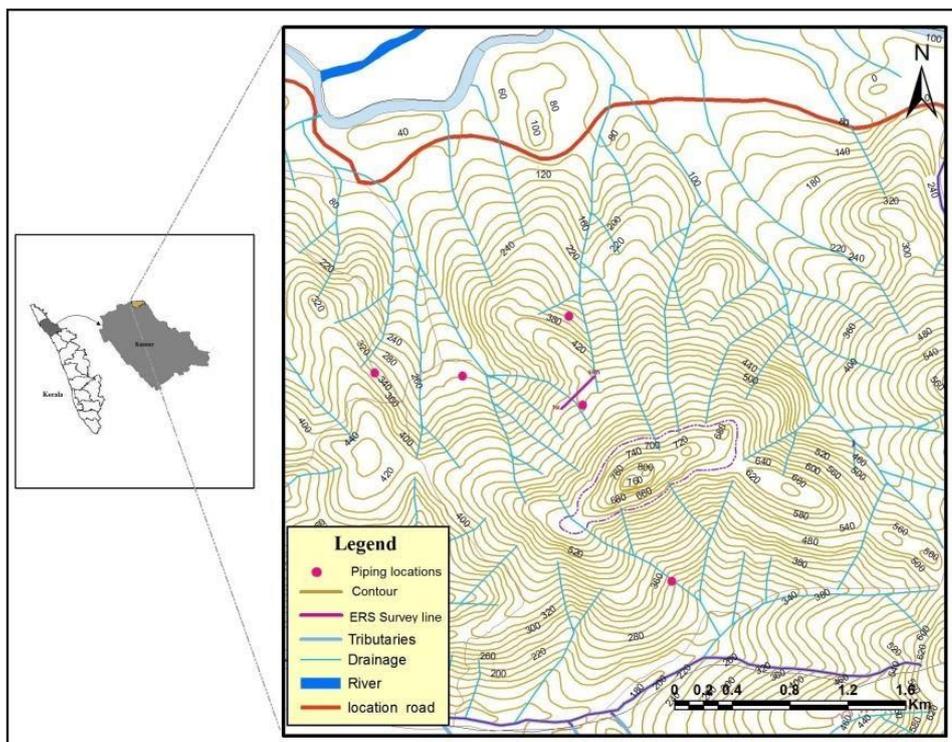


Fig 4.37: The Electrical Resistivity Survey layout in Kottathalachimala

The resistivity data obtained from the ERS were retrieved to a computer and converted for interpretation by RES2DINV software (4.2.7 and 4.2.8). The interpretation of the data of each ERP carried out in specific array system provided apparent resistivity section, calculated apparent resistivity pseudo-section and inverse model resistivity section.

A profile with different electrode separation is laid across the soil pipe at 12m north of its inlet on the down slope side oriented in the EW direction. The figure 4.38 and 4.39 shows 2D electrical resistivity model of Schlumberger array with topographic correction. The corresponding resistivity with an electrode spacing of 1.5m (total profile length of 90m) and 1m (total profile length of 60m) respectively. The inverse model resistivity sections, prima-facie indicates highly anisotropic near-surface layers. There is a low resistivity zone within which a conspicuous low resistivity round-shaped feature is seen at a depth of 5m almost in the middle of the profile. Considering the apparent layout of soil pipe, resistivity values attributed to the zone and the shape of the feature, it could probably be indicative of the soil pipe.

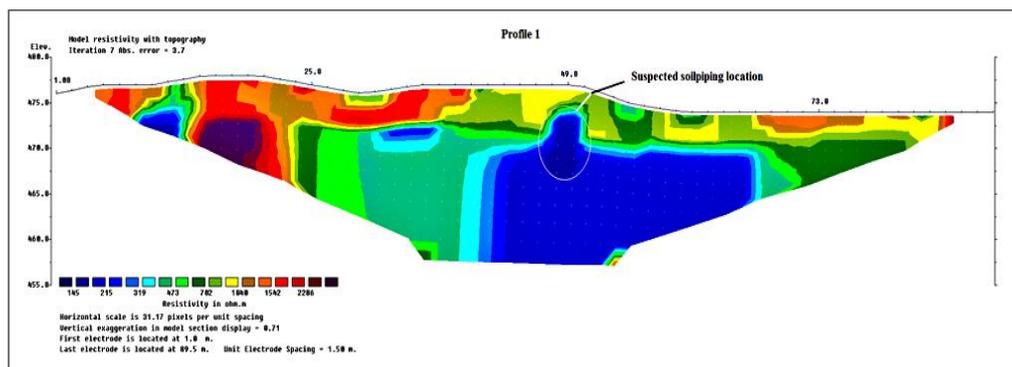


Figure 4.38: Electrical resistivity tomographic section of Schlumberger array at 1.5m electrode spacing

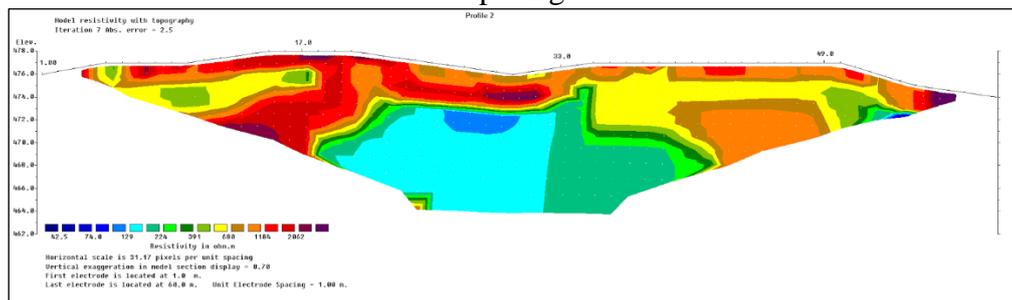


Figure 4.39: Electrical resistivity tomographic section of schlumberger array at 1m electrode spacing

The interpretation of the resistivity section indicates that the technique could delineate the low resistivity zones where the soil pipes are formed, subject to dimension. However, more detailed investigations with varying electrode configuration, different arrays etc. need to be attempted to get more clarity.

Table 4.3: Piping locations in Kannur District

| Sl. No | Name | Location | | position | Status | Remarks |
|--------|-------------------|---------------|---------------|----------------|---|---|
| | | Latitude | Longitude | | | |
| 1 | Kottathalachimala | N 12°15'36.1" | E 75°26'08.7" | Populated area | Mature pipe, associated with small and Juvenile pipes | Typical area for soil piping |
| 2 | Kottathalachimala | N 12°16'16" | E 75°25'48.8" | Populated area | Mature pipe | Typical area for soil piping |
| 3 | Kottathalachimala | N 12°16'22.5" | E 75°25'21.8" | Populated area | Mature pipe | Typical area for soil piping |
| 4 | Kottathalachimala | N 12°16'23.2" | E 75°25'02.2" | Populated area | Mature pipe | Typical area for soil piping |
| 5 | Chattivayal | N12°15'34.1" | E75°26'08.7" | Populated area | Mature pipe | piping |
| 6 | Tabore | N12°15'37.9" | E75°27'00.2" | Populated area | Mature pipe | Medium sized tunnel affecting the foundation of house |
| 7 | Thirumeni | N 12°15'36.0" | E 75°26'45.7" | Populated area | Over size | First major occurrence reported |
| 8 | Padiyottuchal | N12°14'59.21" | E75°20'33.7" | Populated area | Mature pipe with lot of branching | Oversized tunnel |
| 9 | Vayakkara | N12°04'42.1" | E75°47'15.9" | Populated area | Over size | A complex oversized tunnelling in a habitats area |
| 10 | Ummrampoyil | N12°14'23.7" | E75°19'33.6" | Populated area | Mature pipe with lot of branching | Oversized pipe |
| 11 | Niranganpara | N12 2' 9.39" | E75 45' 7.19" | Populated area | Over size | A complex mature tunnelling beneath a well |
| 12 | Thermala* | N12.02237 | E75.62704 | SEOC-SDMA | SEOC-SDMA | SEOC-SDMA |
| 13 | Ayyanmada | N12.12856 | E75.514977 | Populated area | Mature pipe | Piping |
| 14 | Manippara | N12.05879 | E75.651073 | Populated area | Mature pipe | Piping |
| 15 | Ettupara | N12.09484 | E75.591884 | Populated area | Mature pipe | Piping |
| 16 | Muttannur | N11.94443 | E75.570688 | Populated area | Mature pipe | Piping |
| 17 | Vayakkara | N12.07836 | E75.78775 | Populated area | Mature pipe | Piping |

* data from SEOC-SDMA)

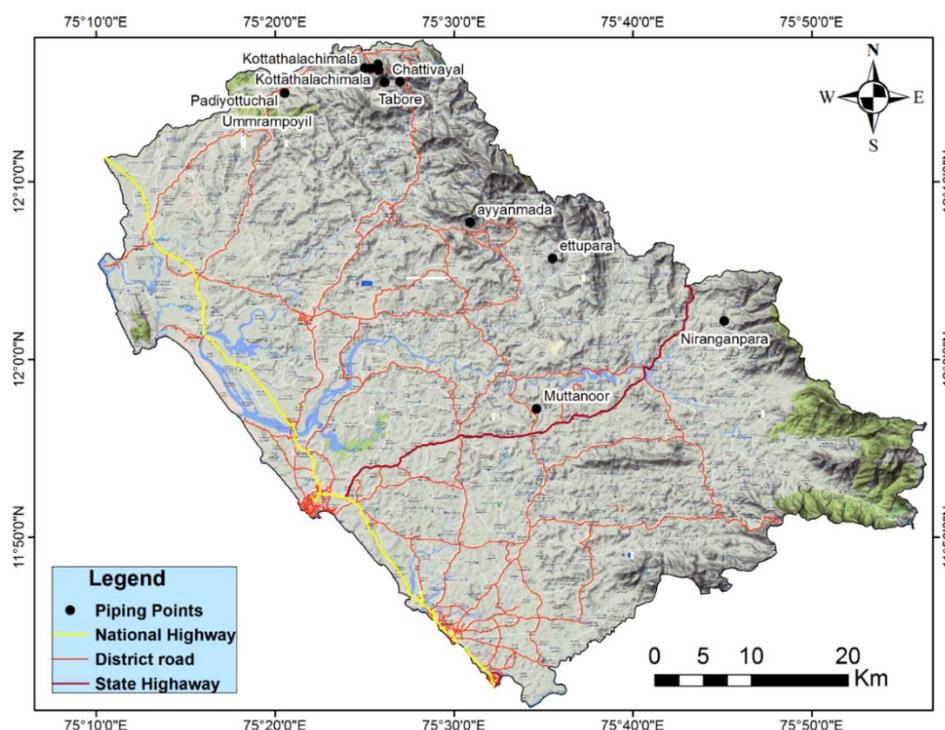


Figure 4.40: Piping location in Terrain map, Kannur

Prone areas

The Kannur district is prone for soil piping incidents. As the district is suspected with a total 17 number of soil pipes including minor and, major sized through stacking, scouting and geophysical investigations over the district. The geophysical, geochemical and sedimentological analyses of field data and samples collected during field investigations have given a clear idea that these pipes are occurring under certain conditions.

The Kannur district is one of the severely prone among the fourteen other districts of Kerala regarding soil piping incidents. The field investigation has revealed more than 17 major soil pipes in the district. There are chances of more such pipes developed in the interior and forested areas. The district is dominated by lateritic terrain which is developed as mesa type terrain. The mesa and adjoining valley terrain set up is ideally suited for pipe development.

As the district is recognized with more than 17 number of soil pipes including minor and, major sized through stacking, scouting and geophysical investigations over the district. The geophysical, geochemical and sedimentological analyses of field data and samples collected during field investigations have given a clear idea that these pipes are occurring mostly in the lateritic terrains affecting the lithomargic clays.

The geomorphological and geological features have the major hand on the piping process. The slope, drainage, soil types, vertical profile and rainfall are also accounting on this process.

Table 4.4: Areal extent of Soil piping affected regions in the district

| District | Total area in sq.km | Affected area in sq.km | Probable area in sq.km | Non-affected area in sq.km | No. of soil pipes reported |
|----------|---------------------|------------------------|------------------------|----------------------------|----------------------------|
| Kannur | 2,966 | 1224.931 | 993.192 | 777.877 | 17 |

Conclusion

The total area of the district is 2996 square kilometres in which 1224.931 km² is falling inside the Affected zone and 993.192 km² is falling inside the Probable zone which means a good portion of the district is vulnerable. The remaining 777.877 km² area is falling inside Non-affected zone which including coastal alluvium and hard rock exposures. Rajagiri, Mattannur, Manippara, and Iritty are the places where a greater number of pipes area seen and affected severely. Kottathalachimala is one such area severely affected by soil piping. The entire / Thirumeni Village, Cherupuzha Village and panchayat are severely affected by soil piping.

The field investigations reveal that this belt which is affected by soil piping is seen extending all directions especially in the Vellarikundu taluka of Kasaragod district and Coorge district of Karnataka where soil piping has already been reported.

1. Recommendations for the “Affected areas”

In the critically affected areas infrastructure such as roads, buildings etc will be affected. Restrictions on high rise buildings or detailed surveys before the construction id needed. A proper water management plan should be developed for restricting the spread of soil piping. Geophysical surveys are suggested for locating large and typical pipes. **Laterite mining may be restricted in the critically affected localities or the depth must restrict well above (at least 1m) the lithomarge clay layer is recommended. In no case clay layer should be exposed for water to infiltrate.**

2. Recommendations for “Probable areas”

These are areas prone to soil piping or mildly affected regions. In these areas juvenile and younger pipes are developed as an indicator of soil piping processes happening there. In such places well sections and laterite cutting are to be examined in detail for pipes and caves. Geophysical surveys may not help in identifying juvenile and younger pipes as they are smaller

in size. Water management practices and usage of lime powder in the soil will retard the soil piping activities. **Laterite mining the depth must restricted well above (at least 1m) the lithomarge clay layer is recommended. In no case clay layer should be exposed for water to infiltrate.**

In both areas' usage of hydrated lime along with the fertilizers should be encouraged to neutralise dispersive sodium in the clay

Dewatering is the best method to deescalate the formation of soil pipes. Overland flow may be diverted to a nearby nala without allowing to infiltrate in the affected zone will reduce pipe development.

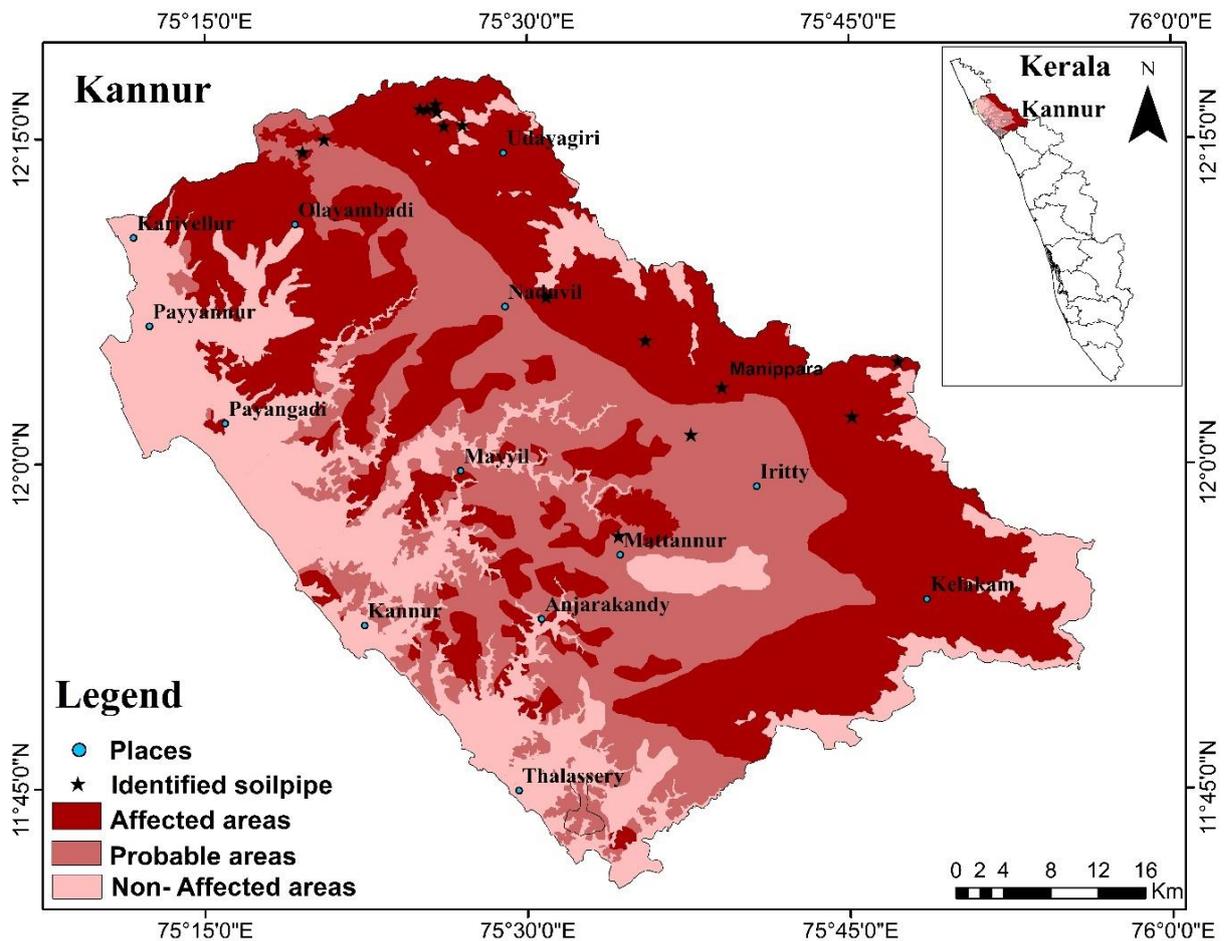


Figure 4.41: Zonation map of Kannur



Kottathalachimala



Kottathalachimala



Padiyotuchal



Vayakkara



Kottathalachimala



Niranganpara



Chattivayal

Fig 4.42: Field photos from Kannur district

F. No. IA3-22/11/2023-IA.III (E-208230)
Government of India
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)

3rd Floor, Vayu Wing
Indira Paryavaran Bhavan,
Jor Bagh Road,
New Delhi-110003

Dated: 28th April, 2023

OFFICE MEMORANDUM

Subject: Compliance of order dated 07.12.2022 passed by Hon'ble NGT in O.A.142 of 2022 in the matter of Jayant Kumar vs. Ministry of Environment, Forests and Climate Change - reg.

The Hon'ble National Green Tribunal (Principal Bench), New Delhi vide order dated 13.09.2018 in O.A. No. 186 of 2016 (Satendra Pandey vs Ministry of Environment Forest & Climate Change & Anr) had observed that the Ministry's Notification S.O. 141(E) dated 15.01.2016 was not in consonance with the directions given by Hon'ble Supreme Court in the matter of Deepak Kumar Vs. State of Haryana and Others and passed certain directions.

2. In the above case, Hon'ble NGT had *inter-alia* directed that mining projects with lease areas of 0 to 5 ha are to be evaluated by State Level Expert Appraisal Committee (SEAC) for recommendation and grant of Environmental Clearance (EC) by State Level Environment Impact Assessment Authority (SEIAA) instead of District Level Environment Impact Assessment Authority (DEIAA). In compliance of the said directions, Ministry issued an OM dated 12.12.2018 addressed to Chief Secretaries of all the States/UTs directing to comply with the directions of Hon'ble NGT.

3. Subsequently, Hon'ble NGT vide its order dated 07.12.2022 in O.A.142 of 2022 in the matter of Jayant Kumar vs. Ministry of Environment, Forests and Climate Change *inter-alia* observed that "mining leases in which environmental clearance was granted by DEIAA in view of amendment notification dated 15.01.2016 are still continuing even after passing of order dated 13.09.2018 by this Tribunal in Satendra Pandey (supra) and issuance of OM dated 12.12.2018 by MoEF&CC without any re-appraisal by SEIAA and appropriate remedial action on the basis of such re-appraisal. All such mining leases in which environmental

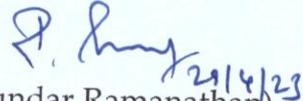
clearance was granted by DEIAA need to be brought in consonance with the directions given by Hon'ble Supreme Court in Deepak Kumar (supra) and order dated 13.09.2018 by this Tribunal in Satendra Pandey (supra) by re-appraisal by SEIAA and only such mining leases may be continued which have been on re-appraisal granted environmental clearance by SEIAA. MoEF&CC is, therefore, directed to take appropriate steps for compliance in this regard by issuance of requisite directions in exercise of the statutory powers under the Environment (Protection) Act, 1986."

4. The matter has been examined in the Ministry and accordingly it has been decided that all valid ECs issued by DEIAA shall be reappraised through SEAC/SEIAA in compliance to the order of the Hon'ble NGT in O.A.142 of 2022. In view of above, it is hereby directed that all concerned SEACs shall re-appraise the ECs issued by DEIAAs between 15.01.2016 and 13.09.2018 (including both dates) and all fresh ECs in this regard shall be granted only by SEIAAs based on such appraisal. The exercise shall be completed within a time period of one year from the date of issue of this OM. DEIAAs shall transfer all such files where ECs have been granted to concerned SEIAA within a time period of one month from issue of this OM. The State Government may assess the existing workload of SEAC(s) and accordingly, send proposals for constitution of additional SEAC for a specified period to deal with such additional workload.
5. Further, in order to have a uniform approach across the country for such appraisal, SEIAA shall scrutiny and appraise the proposals based on the checklist provided below:
 - i. Completely filled up Form-2 as per Ministry's OM dated 15.12.2021.
 - ii. Pre-Feasibility Report (PFR) as per MoEF Guidelines dated 30.12.2010
 - iii. Valid Mine Lease Document
 - iv. Approved Mining Plan from the concerned Authorities
 - v. District Survey Report approved by SEIAA as per Ministry's Notification S.O 3611(E) dated 25.07.2018
 - vi. Implementation of "Sustainable Sand Mining Management Guidelines, 2016" and "Enforcement & Monitoring Guidelines for Sand Mining, 2020" in case of sand mining proposals.
 - vii. Details of forest land involved in the mine lease area and availability of Stage-I/II Forest Clearance (FC) for diversion of forest land for non-forestry purpose.
 - viii. Details of Eco Sensitive Zones (ESZ) and Eco Sensitive Areas (ESAs), National Parks, Wildlife Sanctuary, Coastal Zone, Water bodies and other ecological sensitive areas within/in the vicinity of the mine lease area and if so details of NOC/Clearances obtained.
 - ix. If any Schedule-I species is present in the study area, proof of submission of Wildlife Conservation Plan to the Forest Department.
 - x. Cluster Certificate from State Mines and Geology Department.

- xi. Compliance of Hon'ble Supreme Court judgment dated 02.08.2017 passed in Common Cause vs Union of India Writ Petition (C) 114 of 2014.
- xii. Proposal of re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. in compliance to the direction dated 8th January, 2020 of Hon'ble Supreme Court in Writ Petition(s) Civil No. 114/2014, Common Cause vs Union of India & Ors.

6. The provisions of this OM shall be operational subject to the outcome of Civil Appeal No. 3799-3800 of 2019 titled Union of India vs Rajiv Suri filed by Ministry before the Hon'ble Supreme Court of India against the order dated 13th September, 2018 passed in O.A. No. 200 of 2016 (Rajiv Suri Vs UOI) & order dated 21st December, 2018 passed in R.A. No. 47 of 2018 (UOI Vs Rajiv Suri).

7. This is issued with the approval of the Competent Authority.


(Sundar Ramanathan)
Scientist E

To

1. The Chairperson/Member Secretaries of all the SEIAAs/SEACs.
2. The Chairman of all the Expert Appraisal Committees
3. The Chairpersons/Member Secretaries of all SPCBs/UTPCCs.
4. All the officers of IA Division

Copy for information to:

1. PS to Hon'ble MEF&CC
2. PS to Hon'ble MoS, EF&CC
3. PPS to Secretary, EF&CC
4. PPS to AS (TK)/ JS(SKB)
5. Website, MoEF&CC /Guard file