

**Investigation of Kurissumoottil Granite Quarry in Survey  
Number 1/1 in Payyavoor Village, Thaliparamba Taluk, Kannur  
District**

Investigated on 25-04-2018



Investigation Series 2018  
30-4-2018

Kerala State Disaster Management Authority  
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## **1. Introduction**

Hon'ble High Court of Kerala directed Kerala State Disaster Management Authority (KSDMA) as a 6<sup>th</sup> respondent in WP (C) No. 8584 of 2018 (W) dated 03-04-2018. As per the order dated 03.04.2018, Hon'ble Court direct KSDMA to conduct an actual physical measurements to ascertain whether or not the property of the petitioner would fall under any of the four places mentioned as High hazard Zone in the Natural Hazard Zonation map of Kannur District.

Accordingly, a team composed of the following visited the quarry and prepared this report:

1. Mr. G S. Pradeep, Hazard Analyst, Kerala State Emergency Operations Centre (SEOC), Kerala State Disaster Management Authority (KSDMA), Thiruvananthapuram
2. Mr. Ajin R S, Hazard Analyst, Kerala State Emergency Operations Centre (SEOC), Kerala State Disaster Management Authority (KSDMA), Thiruvananthapuram

Prior notice was issued to District Collector, Thasildar and Village Officer regarding the impending visit and the team visited the site on 25-04-2018.

## 2. Terms of reference fixed for the investigation

The team decided to stick to the directives in the court order and investigate the site based on actual physical measurements done to ascertain whether or not the property of the petitioner would fall under any of the four places mentioned as high Hazard Zone in the Natural Hazard Zonation Map of Kannur District as per the Kerala State Disaster Management Plan (KSDMP).

The team investigated the site confining itself within the above limits.

## 3. Location

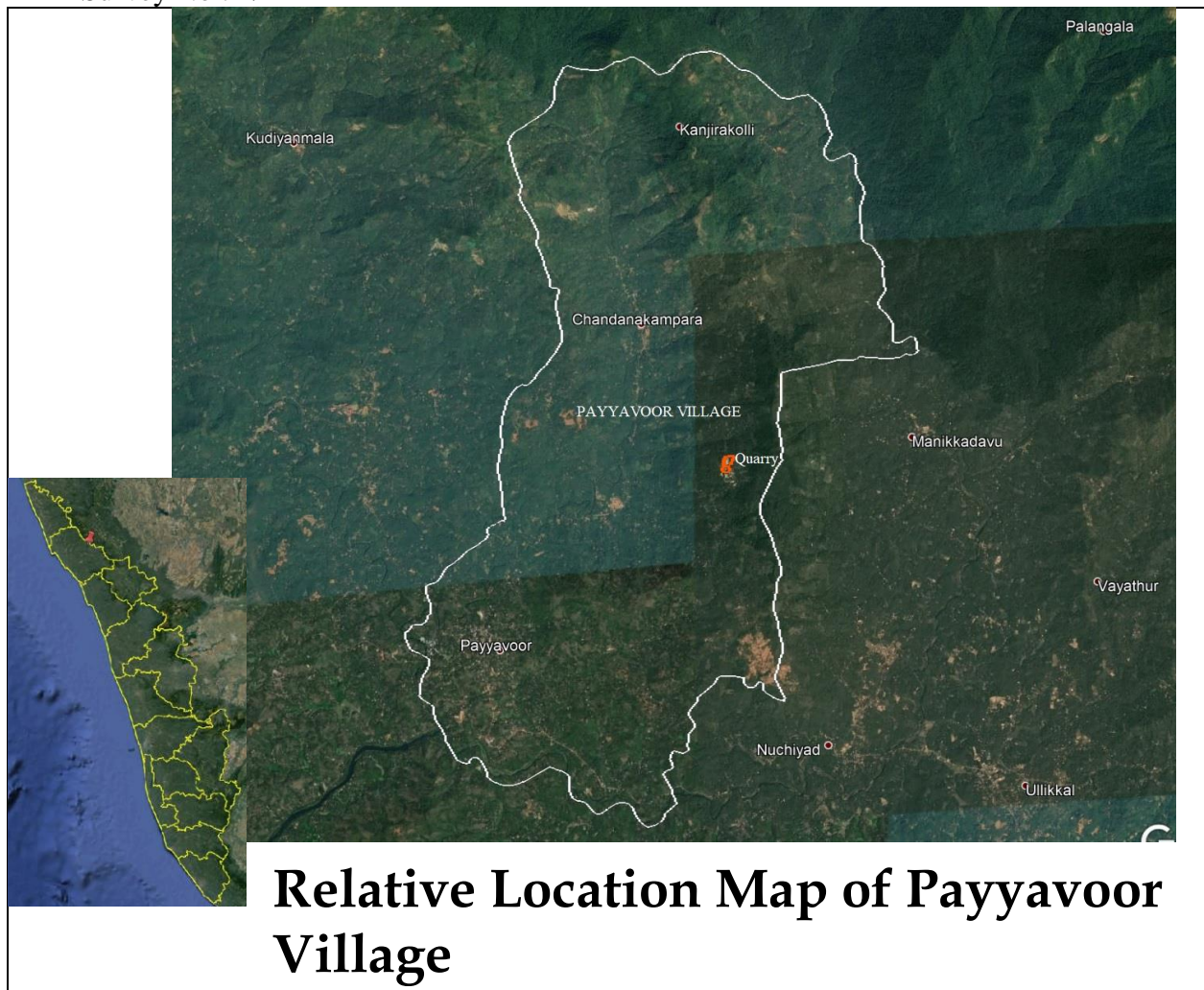
District: Kannur

Taluk: Thaliparamba

Village :Payyavoor; Village Area : 68.29 km<sup>2</sup>(Figure1).

Quarry Name :Kurissummoottil Granite Quarry

Survey No : 1/1



*Figure 1: Relative Location Map of Payyavoor Village*

The village is coming under Western Ghats and has a hilly terrain.

### 3.1 GPS Surveying in the Quarry

The field inspection at the quarry was held on 25-04-2018 and the petitioner (owner of the quarry) was also present during the site visit. The quarry is located at latitude 12°5'17.4" N and longitude 75°37'18.5" E and presently it is working. The quarry boundary is defined by 10 iron rod (L1, L2, L6, L9 ,L11, L12, L15, L16 ,L21 and L23), which petitioner showed during the quarry survey. For better accuracy, we took 16 more GPS survey points along the 10 iron rods (as shown in photo 1 and 2) and details of same are given below:

Sl.No	Boundary points of quarry	Latitude	Longitude
1	L1	12°5'16.4"	75°37'17"
2	L2	12°5'16.4"	75°37'17.9"
3	L3	12°5'16.2"	75°37'18.1"
4	L4	12°5'15.7"	75°37'18.8"
5	L5	12°5'15.6"	75°37'19.3"
6	L6	12°5'16"	75°37'19.9"
7	L7	12°5'16.4"	75°37'20.3"
8	L8	12°5'16.7"	75°37'20.7"
9	L9	12°5'17"	75°37'21.7"
10	L10	12°5'17.5"	75°37'21.7"
11	L11	12°5'18.1"	75°37'21.6"
12	L12	12°5'18.3"	75°37'21.3"
13	L13	12°5'19"	75°37'21.1"
14	L14	12°5'19.6"	75°37'21.1"
15	L15	12°5'20.1"	75°37'21.1"
16	L16	12°5'20.1"	75°37'22"
17	L17	12°5'20.7"	75°37'22.2"
18	L18	12°5'21.4"	75°37'22.6"
19	L19	12°5'22.2"	75°37'22.9"
20	L20	12°5'23.6"	75°37'23.5"
21	L21	12°5'25.5"	75°37'24.3"
22	L22	12°5'25.1"	75°37'19.3"
23	L23	12°5'25.3"	75°37'18.9"
24	L24	12°5'25.3"	75°37'17.4"
25	L25	12°5'22.3"	75°37'18.3"
26	L26	12°5'19.4"	75°37'17.7"



*Photo 1: GPS Survey along the iron rod*



*Photo 2: GPS Survey along the iron rod*

The general trend of the slope varies from  $30^{\circ}$  to  $33^{\circ}$  towards the south which is rather steep.. The thickness of overburden varies from 4 to 7 meters. The area in general is characterised by rugged topography. There is also a crushing unit at a height 480m from MSL on top right side of quarry.



*Photo 3: Exposed overburden*



*Photo 4: Exposed overburden*

Laterite is the major soil type in the area. Majority of the cultivable area is occupied by rubber plantation and mixed crops. Few 1<sup>st</sup> order streams were found in the surrounding s of quarry.



*Photo 5: Stone crushing unit*



*Photo 6: Stone crushing unit*

## 4 Observations

The 26 GPS locations surveyed along iron rod were geotagged using Geographic Information Systems (GIS) and overlaid on the landslide hazard susceptibility map. The quarry covers an area of 36,753.71 m<sup>2</sup>.

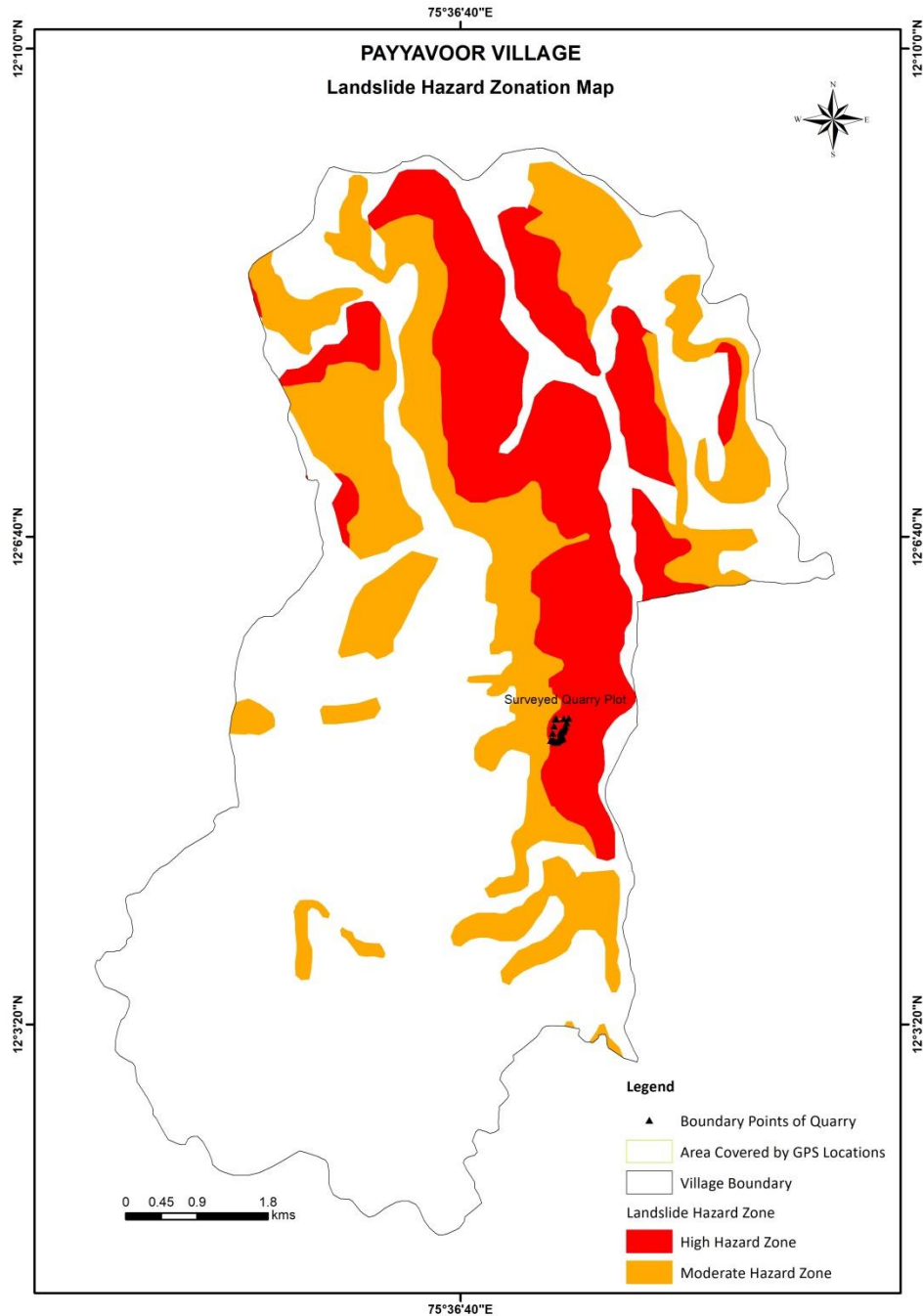
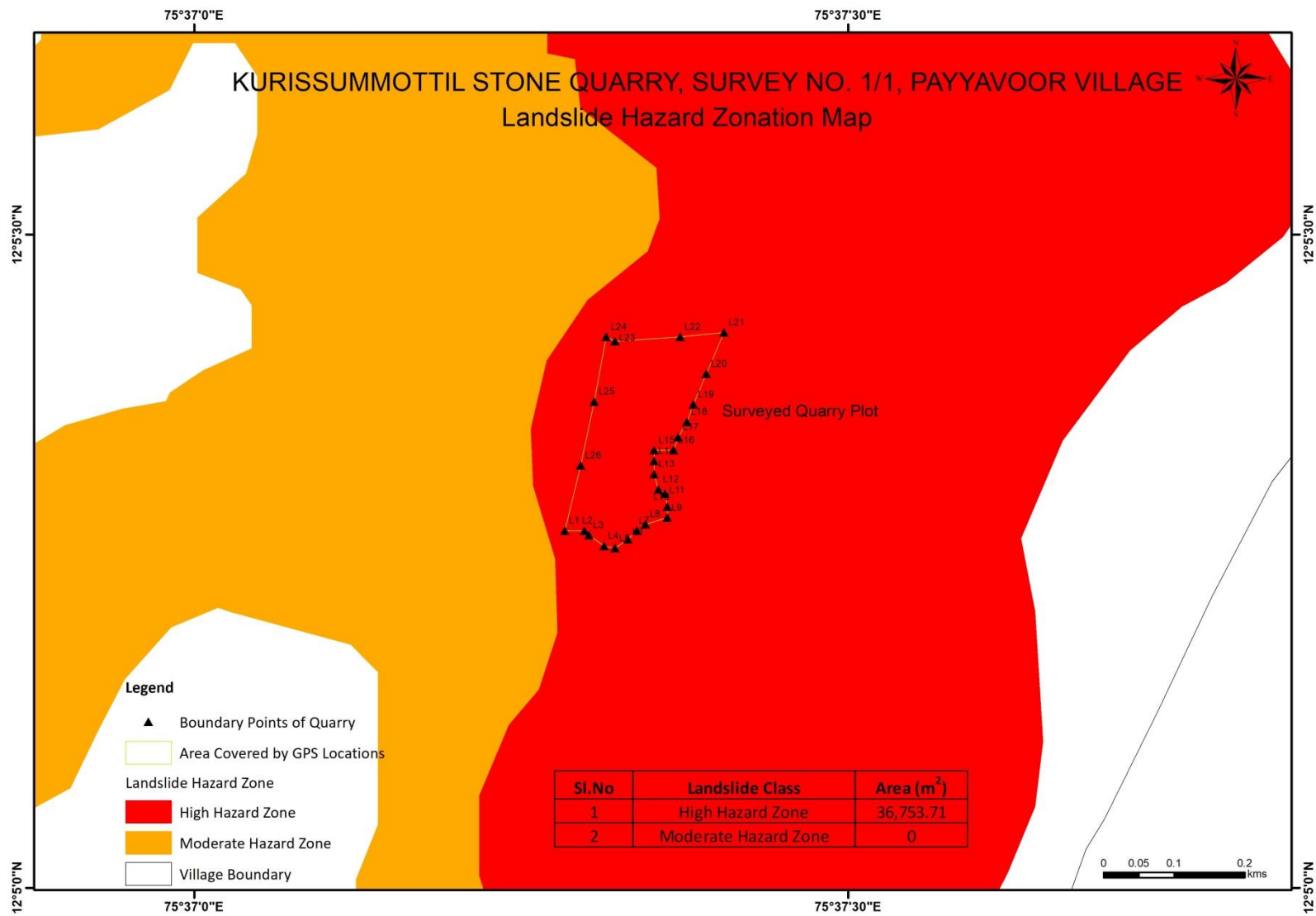


Fig 2: Landslide Susceptibility Map of Payyavoor Village, Kannur District.





*Fig 3: Landslide Susceptibility Map of Quarry Area*

KURISSUMMOTTIL STONE QUARRY, SURVEY NO. 1/1, PAYYAVOOR VILLAGE  
Landslide Hazard Prone Areas Overlaid on Google Earth



*Fig 4: Landslide Hazard Prone Areas overlaid on Google Earth.*

## 6 Inference

- 26 GPS survey locations covering the quarry area of Kurissumootil quarry with survey 1/1 falls within High Hazard Zone (Red zone) as shown in Figure 2 & 3.
- Further these GPS survey points were plotted over google earth KML files (as shown in fig 4 ) available in the website of Kerala State Disaster Management Authority and it was obvious that the Kurissumootil quarry with survey 1/1 falls in High Hazard Zone (Red zone) same as fig 2 and 3.
- It was further verified with the Kerala State Disaster Management Plan (2015) and it concur with the above two statements.

### *Glimpses of Field Visit.....*









Sd/-

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