

15 -ാം കേരള നിയമസഭ

3 -ാം സമ്മേളനം

നക്ഷത്ര ചിഹ്നം ഇല്ലാത്ത ചോദ്യം നം. 5372

03-11-2021 - ൽ മറുപടിയ്ക്ക്

പരിസ്ഥിതിലോലപ്രദേശമായ കൂട്ടിക്കലിന്റെ സംരക്ഷണം

ചോദ്യം		ഉത്തരം	
ശ്രീ തിരുവഞ്ചൂർ രാധാകൃഷ്ണൻ , ശ്രീ പി. ടി. തോമസ്		Shri. Pinarayi Vijayan (മുഖ്യമന്ത്രി)	
(എ)	കൂട്ടിക്കൽ പഞ്ചായത്തിലെ കൊടുങ്ങ, വലേയ്ക്കൽ പാറമടകൾ പ്രവർത്തിക്കുന്നത് പരിസ്ഥിതിലോലപ്രദേശത്താണെന്നും ഇവയുടെ പ്രവർത്തനം നിരോധിക്കണമെന്നും കാട്ടി ജൈവവൈവിധ്യബോർഡ് റിപ്പോർട്ട് നൽകിയിരുന്നോ; എങ്കിൽ ഈ റിപ്പോർട്ടിന്റെ പകർപ്പ് ലഭ്യമാക്കാമോ;	(എ)	പകർപ്പ് അനുബന്ധമായി ചേർത്തിട്ടുണ്ട്.
(ബി)	പ്രസ്തുത റിപ്പോർട്ടിന്റെ അടിസ്ഥാനത്തിൽ സ്വീകരിച്ച നടപടികൾ വിശദമാക്കാമോ;	(ബി)	റിപ്പോർട്ട് ബന്ധപ്പെട്ട വകുപ്പ് പരിശോധിച്ച് വരുന്നു
(സി)	പശ്ചിമഘട്ടത്തിലെ ഏറ്റവും പരിസ്ഥിതിലോലവും ജൈവവൈവിധ്യമുള്ളതും സംരക്ഷിക്കപ്പെടേണ്ടതുമായ പ്രദേശമാണ് കൂട്ടിക്കൽ എന്ന് പ്രസ്തുത റിപ്പോർട്ടിൽ പരാമർശിച്ചിട്ടുണ്ടോ?	(സി)	പരാമർശമുണ്ട്.

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REPORT OF THE VISIT TO QUARRY AND CRUSHER UNIT IN THE VALIANTHA WARD VI OF KOOTICKAL GRAMA PANCHAYATH, KOTTAYAM DISTRICT

We, Dr. Unnikrishnan N. And Dr. Punnen Kurian, submit the following report on the biodiversity and ecological status of the Valiantha water shed area with recommendations, as assigned by Kerala State Biodiversity Board (KSBB), wide letter No. 117/A3/KSBB/2013, dated 29.1.2013.

We personally visited the area on 20th July 2013 accompanied by Prof. Thomas Abraham, District co-ordinator, KSBB, Kottayam. We visited and visually assessed the ecological and biodiversity status of the Valiantha areas, including quarry areas of Vazhathara Granites, proposed sites of Pedra Granites and Palathara granite and adjoining hill ranges. We had discussion with Manager and staff of Vazhathara Granites, complainers Mr. M.P.Chandradas (Convenor, Sree Narayana SHG, Elamkadu), Mr. Rajendran (joint Convenor, Sree Narayana SHG, Elamkadu), and several local people. We met President, secretary, and three members of the Kootickal Grama Panchayath.

On the basis of the observation and discussions with above mentioned persons, we submit the following report:

1. The Valiantha watershed area is located in Kootickal Grama Panchayath of Kanjirappally Thaluk in Kottayam district. This area is a part of the Western Ghat mountain ranges and part of Vagamon hills. Aerially the location of the quarries is only 600m. away from the Kolahalamedu and by road only 8 kms.
2. A large quarry owned by Vazhathara Granites is located at Kodunga, which has an approximate area of 32 acres, according to the Manager of the quarry. He claimed that the area is totally private land and forest patches are also inside their land. A good stream is originating from the quarry itself, which is blocked and narrowed by concrete constructions all along their premises.
3. The quarry area is approximately 800-1000 m above MSL and it is continuous with Vagamon hills. In between the quarry owned by Vazhathara Granites and Kolahalamedu, two other granite mining and quarry sites have been started their activities. We visited these proposed quarry sites of M/s. Pedra Garnites and M/s. Palathara Granites too, being they are in the same Vagamon hill ranges and Valiantha watershed and coming under the typical geo-climatic zone.
4. The area is a sparsely populated region comprising mostly of pristine, unspoilt and natural landscape of diverse nature and rich in endemic flora and fauna, falls within the Western Ghats.
5. The area lies 800-1000 m above MSL and forms the major watershed of Manimala river. The rivulet originating from the present quarry (of Vazhathara Granites) leads to Pullakayar, which is a major tributary of Manimala River.
6. As per available reports, area gets rain for about 200 days an year. But the recent destructions to the hills resulted in water scarcity for a period of 3 months in summer, according to local people.

7. The climate of Vagamon hills has been shaped by this unique ecosystem, floristically and faunistically profound and prosperous. As per available literature, out of the 5000 floristic varieties in the region, 2000 are endemic. This prove that there are 2000 microclimates existing in this area (George *et al.*, 2003). The quarry of Vazhathara Granites (Kodunga) and proposed quarries (Valiantha) are coming under these typical microclimates.
8. The flora and fauna are typically similar to the Vagamon area, characterised by steep hills with patches of good natural vegetation.
9. We observed that the floral and faunal composition is very much similar to the Vagamon hills, which is already well documented.
10. More than 200 varieties of grasses have been reported from Vagamon grass lands, out of 30 are endemic. Though, the quarry led to severe damage to the grass covered rocky area, still the area holds more than 100 varieties of grasses including *Arthraxon lanceolatus*, an IUCN threatened species (Augustine, 2003).
11. It has been reported that 47 IUCN categorised plants are in the vegetation of Vagamon hills and the Valiyantha area too is a most probable habitat of such a rich a floral and faunal diversity (Brilliant *et al.*, 2012). There are 88 species of rare and threatened plants in this hill ranges (Augustine, 2008).
12. As per the available reports (George *et al.*, 2003), Vagamon hill ranges were an adobe of larger mammals like Leopards, Nilgiri Langur, Slender Loris, Mouse deer, and Barking deer; small mammals like Small Indian Civet, Porcupine, Ant eaters, Martens, Flying squirrel, toddy cats, hares, and Malabar giant squirrel; birds such as jungle fowli, Malabar grey Hornbill, Malabar Parakeet, Ceylon Frogmouth etc.

As per our interaction with local people of Valiyentha and Kodunga areas, they confirmed that the following animals are very common in the hill ranges, including present and proposed quarry areas:

Birds: Jungle fowl, Malabar Grey horn bill, Malabar Parakeet, Spotted dove, Red wattled lapwing, Asian Fairy Blue bird, Asian Paradise Flycatcher and Hill Mynah.

Small Mammals: Small Indian Civet, Porcupine, Ant eaters, Flying squirrel, Toddy cat, Hares, Malabar Giant squirrel, Slender loris and Swine.

Larger Mammals: Nilgiri Langur, Mouse deer, and Barking deer.

Reptiles: Python, King cobra, Cobra, Viper, and Krait.

13. We observed good number of butterfly population in the area during our visit which includes Southern Bird wing, Common rose, Crimson rose, Common blue bottle, Common Jay, Tailed Jay, Mottled emigrant, Chocolate Albatross, Common evening brown etc. It has been reported that area is rich in butterfly diversity with an average diversity of more than 75 species.
14. According to studies by Centre for Earth Sciences and Studies (CESS) and Department of Geology, University of Kerala, this area is recognised as highly fragile and land slide prone. Regular landslides have been reported in the human encroached areas, as told by local people.

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15. As per the Gadgil Committee and Kasthuri Rangan Committee reports Kootticakal Panchayath is coming under Ecological Sensitive Zone I (ESZ I). National Green Tribunal has prohibited all types of quarrying, mining and blasting activities in ESZ I.
16. Recognising the above ecological and geo-morphological significance of the area Koottickal Grama Panchayath has conducted Wild Fire Prevention Campaign during 2008 (Appendix 1) and Rain Water Harvesting programmes during 2007-08 (Appendix 2) in this area.
17. Koottickal Krishi Bahvan implemented a major project named Valiyantha watershed programme under western Ghat Development Programme from 2005 onwards with an outlay of Rs.44.18 lakh and spent 18.40 lakh till 10.2.12. This project is still continuing in the Valiyantha region (Appendix 3).

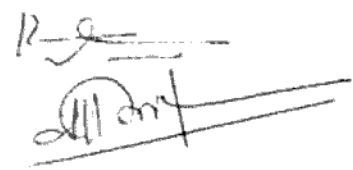
RECOMMENDATIONS

1. Considering the above facts we strongly recommend to stop all mining and quarrying activities in the entire Valiantha and Kodunga area which are part of Vagamon hills.
2. A detailed biodiversity assessment programme including experts (other than PBR) should be conducted urgently and proper conservation strategies should be evolved.
3. The entire Vagamon hill ranges including the Valliantha watershed area should be declared as Protected Area (PA) considering its ecological, biodiversity and natural heritage values.
4. Urgent measure should be taken to ensure that streams and water resources of the region should in no way be disturbed or blocked. The present encroachers of the water resources should be held liable for the damage caused and civil wrongs committed.

Report is submitted by:

Dr. Unnikrishnan N.

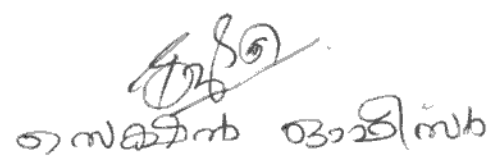
Dr. Punnen Kurian



Kottayam
4th August 2013

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**ENVIRONMENTAL APPRAISAL OF VAZHATHARA GRANITES AND
AGGREGATES AT KOOTTIKKAL VILLAGE, KANJIRAPPALLY
TALUK, KOTTAYAM DISTRICT, KERALA**

Project Area:

M/S VAZHATHARA GRANITES AND AGGREGATES is a private limited company and the QUARRY AND CRUSHER UNIT is in survey No. 21/1, 3, 4 & 5 (p), 25/2 & 3(p), 26/1, 3, 1-1, & 4-1 (p) of Koottikal village, Koottikal Grama Panchayat (ward no.6), Kanjirappally Taluk in Kottayam District. The Quarry permit for an area of (2.2049 ha) has been granted to Mr. VC Joseph Vazhathara for a period of 12 years with effect from 09.12.2008, which is valid up to 08.12.2020. Permit for the balance area of 3.6027 ha has to be obtained afresh. The said lease area lies towards north of Yendayar town at a distance of 3.55 km and is towards NW of Elankadu at a distance of 1.95 km. Kottayam, the district head quarter is at a distance of 65 km and Kanjirappally, the Taluk head quarter is at a distance of 25 km from the quarry and crusher unit. The said quarry area falls within the geographical co-ordinates between North Latitude $09^{\circ} 38' 58''$ to $09^{\circ} 39' 09''$ and East Longitude $76^{\circ} 53' 16''$ to $76^{\circ} 53' 26''$ (Figure 1-2).

Geology and Geomorphology:

This quarry site occupies a part of the Vagamon Hills of Western Ghats mountain ranges which trends NW-SE extending from north of Elankadu to south of Poonjar. The highest elevation is about 535 m above MSL towards northeast of the quarry area and the lowest elevation is 380 m above MSL towards southeast of the quarry. The slope of the project area is generally very steep from north to south. The NW part of the quarry area ends at the summit of the hill, while the NE part extend upward with a steep slope and the hillock in this region is part of the mountain ranges extending upto Kolahalamed (1100 m). The charnockitic Precambrian crystalline rock is the dominant rock type in this area. Vertical fractures trending N-S direction are also seen in this rock. Rock is almost completely exposed at the quarry site, and is overlain by a thin sheet of soil with vegetation seen particularly towards the NE part of the quarry site which is very steep prone to landslides.

Drainage Characteristics:

The quarry site falls in the NW part of the Valyantha watershed (Area= 750 ha), a prominent watershed located in the upstream part of the Manimala river basin, with its NE part is Kolahalamed and the NW part is the watershed divide separating the Meenachil river basin and the Manimala river basin. (Figure 1-2). Its altitude ranges from 300 to 1000 m. Surprisingly, this quarry containing hill range is the watershed divide of the two major river basins, viz., Meenachil and Manimala. The hilltop also acts as village and Taluk boundary. The quarry site is between 350-600 m elevations and therefore, situated at the middle portion of the hill along its southern slopes.

Two prominent streams of the Valyantha watershed are the Valyantha thodu (Valyantha micro-watershed) and the Kodunga thodu (Kodunga micro-watershed). Valyantha thodu is a 4th order stream originating from Kolahalamed in the NE part and flows in the NE-SW direction. The Kodunga thodu, a 3rd order stream flows in a N-S direction, is located towards the western part of this watershed and is formed by the joining of two second order streams. These two streams (i.e., Valyantha and Kodunga streams) are seem to be non-perenial and join at Kunnad, and flows further southward about 500 m to join with Pulkayar, a major tributary of Manimala river. The drainage pattern in this area is dendritic in nature.

The quarry site is sand-witched between two first order non-perennial streams of Kodunga micro-watershed (Fig. 1-2) which trends in the N-S direction: One first order stream is originating from the NE highland part of the project site and mainly contains the storm water during monsoon and joins with the other stream in the down slope part of the quarry site. There had been alterations done to the stream on site, by modification of the water course, constructing side walls and in-stream concrete (cascade like) structures to stabilize swift stream flow. The quality of water seemed to be good as there was no quarrying or crusher activity during the time of inspection. Further, entire storm water flows through the garland drains provided all around the quarry site and a quarry pit is designed as settling pond.

The land use and land cover of the study area is mainly rubber plantation, followed by mixed crops. Mining has taken place in own rubber plantation, but the upper portions have been exposed rocky cliffs which are undisturbed. Whatever natural vegetation exists is on the upper reaches of the hill with soil cover and grass with shallow soil and rock outcrops. The hill is inaccessible due to the steep gradient.

Observations:

The entire mining area was cleared and mining had taken place in a haphazard manner as there was no proper mining plan or mine management plan. The badly maintained approach road is hardly sufficient for heavy duty trucks. The quarry face is dangerously poised.

There were 30 workers in the unit when it was closed. The profile showed that about 3-5 workers were employed locally, mostly in the administrative cadre. Therefore, the unit was not providing much employment locally. The revenue generated by M/S Vazhathara granites was negligible and the Panchayat was hardly getting Rs. 2000 as fee. The main supply from the production unit was towards Kottayam side. M/s Pedra granites and M/s Palathara granites are two other ventures at the initiation stage in the Valiantha water shed.

The population of Koottikkal GP is around 10,000 and there are about 2602 households. The area is a typical remote village and the level of urbanization is nil. Hence, density of population is very sparse and agriculture is the main stay of the people. Plantations of rubber and mixed crops constitute the major land use.

M/S Vazhathara granites have been working in the area, without many problems to the locals. But there was the proposal for more quarry and crusher units to this fragile lands created unrest among the population and agitation that followed culminated in court interference and the stop memo issued by the Hon. High court vide WP© No. 13769/2016 (U). The Valyantha water shed project of the Western Ghat cell, Govt. of Kerala is progressing here.

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The Panchayath is favouring the Quarry and Crusher unit without knowing the environmental laws of the land and its noncompliance. But the election of an independent candidate against all leading political parties to the LSG from Ward 6 shows the concern of the local people.

It has come to our notice that there are proposals for similar quarries and crusher units in Valyantha watershed within 1 km radius. There are at least two court cases pending in the Hon. High Court of Kerala with regard to the functioning of the Vazhathara quarry and crusher unit at Kodunga and those coming up in the near vicinity in the same hill range of Valiantha watershed. On discussion with the proponent, it has come to our notice that they are in the process of applying for EC with study including mining plan, mine closure plan and other environmental details through M/s Metamorphosis, a Bangalore based consultant firm.

As per the EIA notification 2006, mining of minerals with a lease area of 5 ha and above require prior environmental clearance, which is not obtained in this case. Even after the landmark 2012 Judgement of the Hon. Supreme Court of India, in the case of Deepak kumar vs State of Haryana and others, mining has been going on in Vazhathara Granites. Therefore, the functioning of the quarry and crusher unit was illegal.

According to the above judgement, fragmentation of mining lease to less than 5 ha and operation of another quarry within a radius of 1 km etc shall be considered as a cluster and combined EIA recommended for consideration of EC purpose. The situation here warrants cumulative impact assessment study taking the entire cluster of mines, both functioning and proposed in the area. But there is no scope for such a study as the area is very sensitive as Ecologically Sensitive Zone (ESZ).

The entire Western Ghats is considered as ecologically sensitive. And this sensitivity can be traced by assessing biological attributes, geo-climatic attributes and hazard vulnerability assessments. Biological attributes refers to the richness of natural vegetation, flora and fauna, endemism, habitat diversity, productivity and ecological and evolutionary significance of the biota. The Valyantha/Kodunga area is very sensitive in all these attributes.

The geo-climatic attributes refers to the unique topography, slope, altitude, aspect, drainage etc. The geology and geographical details also point to ecological sensitivity of the region. The climate of the region is also unique that it supports tropical humid to slight cool climate due to altitudinal variation favouring tropical forests, plantation crops and tourism (Temperature 29^o-10^o C and 200 rainy days). The area is prone to multiple hazards. And hazard vulnerability is another criterion to be followed in ecological sensitivity assessment.

In the Western Ghats Ecology Expert Committee Report, four villages including Kootikkal in the eastern parts of Kottayam district bordering the Peermade and Kudiyathur hills have been included under the ESZ category. The Kasturi Rangan committee also endorsed similar view. National Green Tribunal has banned quarrying and mining in ESZ-1. In a recent development, the MoEF has de-notified the above four villages due to political compulsions and local agitations followed by recommendations from the Government of Kerala. However, the ecological sensitivity of the area remains due to manifold reasons.

The Peermade plateau in the SE portion of Cardamom hills has been under maximum forest cover in the near past a century ago. The western slopes of the Manimala upper catchment was the first forest patch destroyed for the introduction of coffee and subsequently tea by the European planters. Kokkayar near Koottikkal happened to be the first place for the introduction of bud rubber plants in the entire Kottayam-Kanjirappally belt in the State. Now Kanjirappally is one of the best rubber growing areas in the state.

Progressive degradation of natural forest had taken place with the introduction of plantation and settlements. Now natural forest patches are seen only in the hill tops, rocky outcrop steep hill slopes and cliffs and inaccessible ravines. Due to altitude (700-1100 m) and climate, the hills are clothed with shola patches wherever soil thickness is sufficient and grasslands and meadows in shallow soils. The biota in the upper reaches is accordingly, more grassy in the rocky terrain. Along the cliff and valleys and hill slopes, various native plants and animals including rare and endangered species of the region are still found as evidence by the various recent publications cited in earlier reports, and our own field study.

Any interference to the natural setting of hills and valleys may destroy the native vegetation and destabilize the dangerously poised hill slopes. Thangalpara, Kolahalamede, Suicide point Paragliding points, etc in the east and the various hillocks that support feeble natural vegetation in the area are vulnerable to natural hazards including landslides. The destabilization of slopes and higher elevations can be predicted as the area has previous records of landslides in the near past. A severe landslide occurred in the area during 1951 is noteworthy. Study findings from the Teekoy region also (Kuriakose, Ph.D. Thesis, University of Utrecht 2010) corroborate this view.

The seismicity in the region shows a perceptible increase. Kerala is in zone 3 (moderate earthquake) in the seismic hazard zonation map (covering 1 to 5 zones) of India. South central Kerala has been a centre for repeated tremors which are spatially associated with the drainage basins of the major rivers systems, like Manimala, some of which are fault controlled (Rajendran and Rajendran, JGSI, 2009). A majority of the tremors (during 1984-1994) occurred either concurrently with periods of increased rainfall or later as a delayed response. It is further postulated that due to the shallow depth to which such pressure transients can propagate, the earthquakes tend to be of shallow focus (within 10 km, more often <5 km), which is often the case with tremors/ micro-seismic activity in Kerala. They further say that, pressure transients generated due to sudden increase in the hydrostatic head and the resulting increase in pore pressure are the basic factors that trigger earthquakes on pre-existing faults that are occurring in the area.

The earthquake sequence of Pala, Erattupetta has been the most recent significant event in the region. Erattupetta is very near to the quarry site. Historically also the area was seismically active (Rajendran and Rajendran, 2003) - a trend that continues to the present time. The Nedunkandam earthquakes were occurred in the close vicinity of the WNW-ESE trending Periyar fault. The 67 aftershocks of this earthquake suggested strike-slip movement on a NW-SE plane, and the association with a NW-SE trending pre-existing structure in the region. The December 12, 2000 and January 7, 2001 earthquakes occurred further southwest around Pala and Erattupetta, were on the same parallel fault. Earlier, earthquake that

occurred on 31 October 1952 (11 hr 20 min) was also felt by people all over the Kottayam region covering 350 km², including the main shock followed by three aftershocks. The epicentre was recorded area near Koottikkal in Kanjirappally Taluk (Fig. 3). Vulnerability of the area to seismic events, landslides, cloud bursts and climate change are also expected to increase in the region. Peermade, hardly 15 km from Koottikkal, has been under climate change influence and the reported 40% drop in precipitation over a period of 100 years, is significant. The landuse change from 100% natural vegetation cover to total devastation for settlement and plantations are also alarming trends noticed. Thus, from a hazard point of view anthropogenic activity due to modification of water courses, quarry/mining or any other land modification is detrimental to the stability of the region.

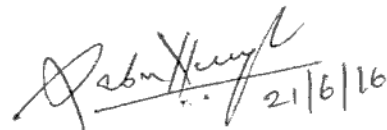
The Climate change is perceived as the greatest environmental threat. As such the climate of Kerala is changing, steepness of the terrain, and the monsoon currents and orography gives abundant rainfall on the western slope of Western Ghats, particularly Neriamangalam and Kanjirappally regions. It is evident that proximity to the coast, slope and orientation of the terrain, windward and leewardness of the place and the geological and biological settings makes the overall changes in the rainfall pattern of the region. The long term rainfall trends show a decreasing trend at the rate of 2.4 mm/year (Nair, V. G., 2006, Ph.D. Thesis, CUSAT). Average rainfall in the Peermade plateau has been 4371 mm during the last 100 years. And there is an overall reduction of 26% of rainfall during the same period. Temperature, particularly night time temperature is increasing along with shift in rainfall variability. Reduction in rainfall may be attributed to human interference, particularly landuse changes to a great extent and the resultant shortage of water resources in the major rivers originating from the Peermade plateau is evident. Rivers like Manimala and Meenachal are drying up early during summer seasons making the life miserable for the dependent population in the catchment.

Recommendations:

Considering the environmental, geological and biological setting of the project site and its environs, which covers aspects like its location on the western slope of Western Ghats close to the water divide between Meenachil and Manimala river basins, steep sloppy nature, occurrence in the narrow interfluvial region between two 1st order streams, vulnerable multiple hazards, unique biological richness etc, the functioning of quarries and crusher units in the ecologically sensitive steep hill slopes of Kodunga and Valyantha micro-watersheds need to be stopped and proper ameliorative measures taken for the eco-restoration of these systems.



21/6/16

Dr. C.N. Mohanan
Scientist & Head (Rtd.)
Env. Science Div., NCESS
Thiruvananthapuram


21/6/16

Dr. Sabu Joseph
Associate Professor, Dept. of Env. Sciences
University of Kerala, Thiruvananthapuram

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**LOCATION OF QUARRY IN KOOTTIKKAL VILLEGE
ALONG WITH OTHER ADJOINING VILLAGES**

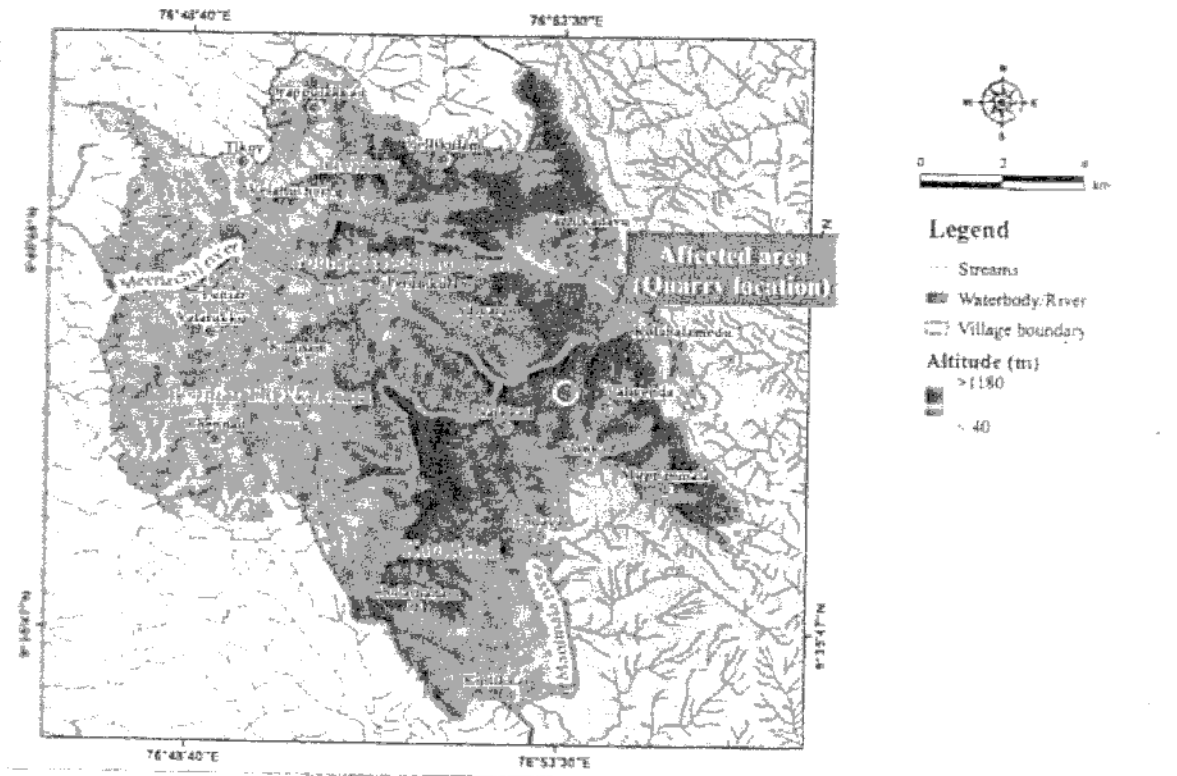
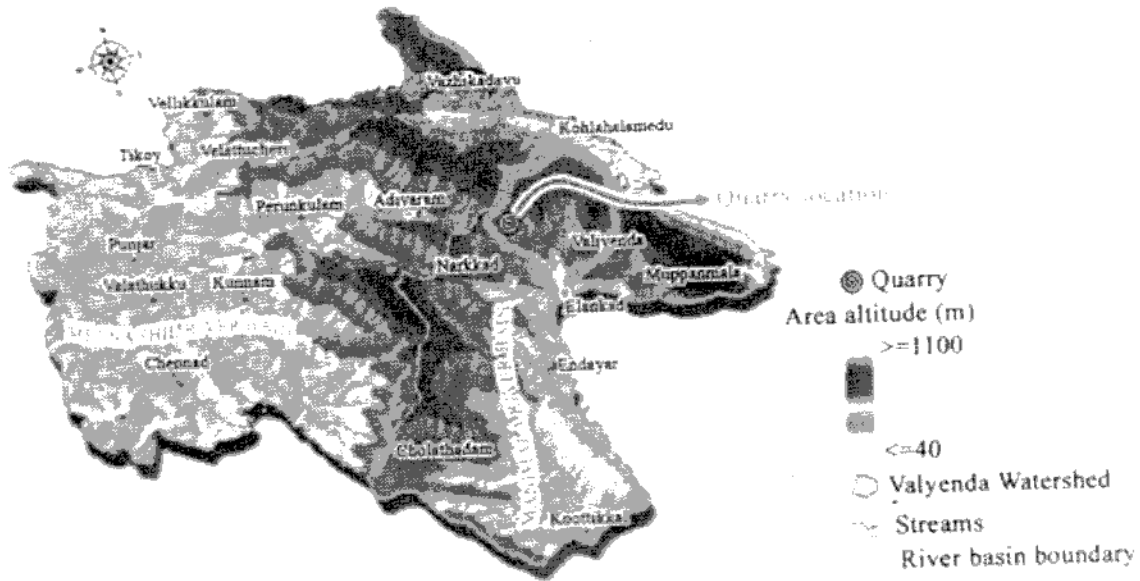


Figure 1. Location map of Kodunga quarry in Kootikkal village

DIGITAL TERRAIN MODEL



VALYANDA WATERSHED (Manimala river basin)

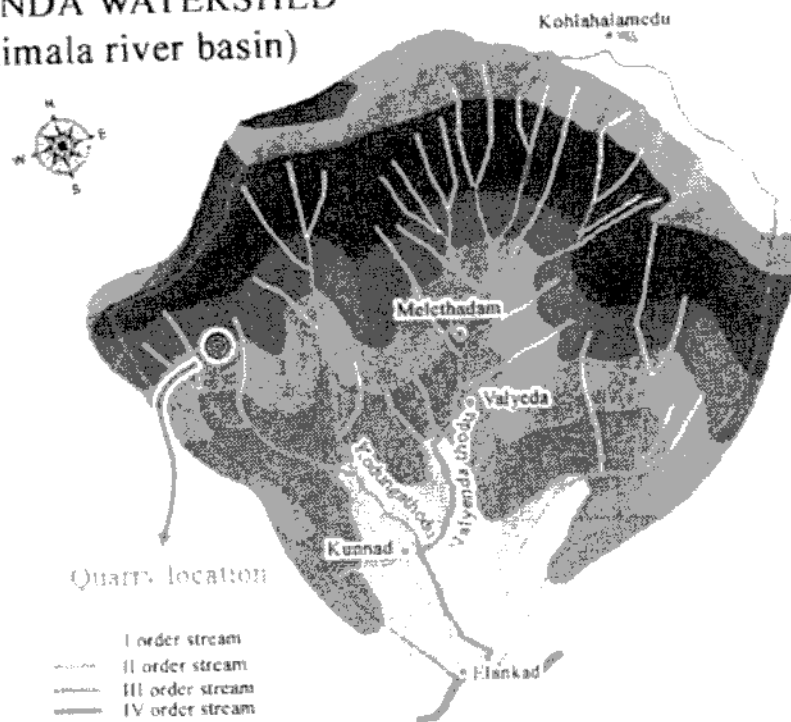


Fig. 2. Digital terrain model of Manimala river basin and Valyanda watershed

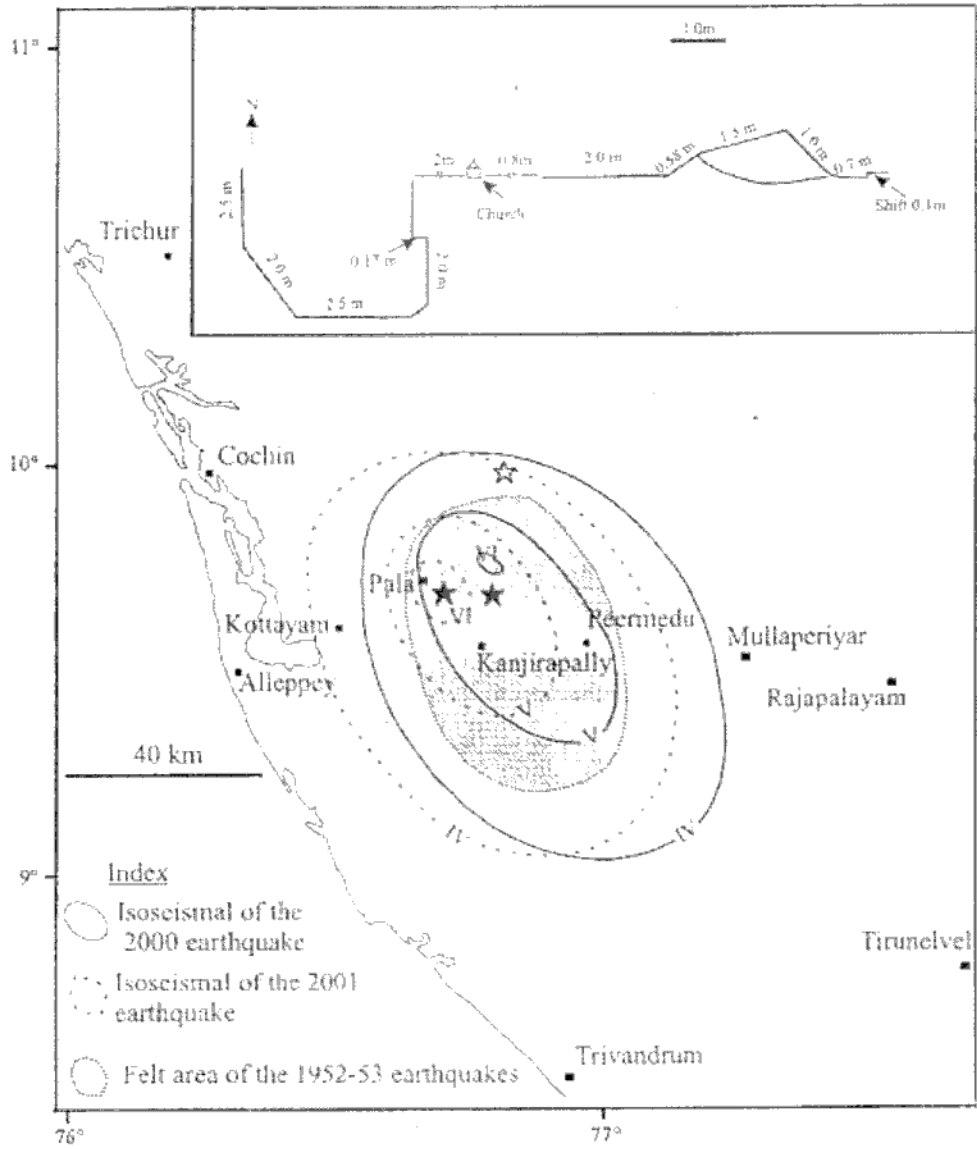


Figure 3: Isoseismals of the 2000-2001 earthquakes (Harendranath et al. 2005) and the felt areas of the 1952-1953 earthquakes (Gopal, 1953); Solid stars denote 2001 and 2000 earthquakes, respectively; Open star shows the location of 1952 earthquake. Inset: E-W trending secondary rupture consequent to 2001 earthquake in front of the Kizhappuray Church near Pala.

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