

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI**

**EXECUTION APPLICATION NO. 7 of 2023 IN ORIGINAL
APPLICATION NO. 290 of 2013**

D. Suresh Kumar, Kollam

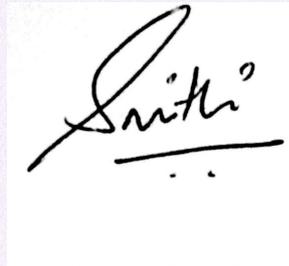
: Applicant

Vs.

The Kerala Minerals and Metals Limited
Rep. by its Managing Director
and Ors

: Respondents

**REPORT FILED BY THE CHIEF ENVIRONMENTAL ENGINEER,
KERALA STATE POLLUTION CONTROL BOARD, FOR AND ON
BEHALF OF THE RESPONDENT**



Adv. Rema Smrithi.V.K

ADDITIONAL STANDING COUNSEL FOR THE SECOND RESPONDENT

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI
IN**

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Dated this the 16th day of October 2023

Rema Smrithi. V.K, Advocate

ADDITIONAL STANDING COUNSEL FOR THE SECOND RESPONDENT:

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI**

**EXECUTION APPLICATION NO. 7 of 2023 IN ORIGINAL
APPLICATION NO. 290 of 2013**

Applicant : D. Suresh Kumar, Kollam
Respondents : The Kerala Minerals and Metals Limited
Rep. by its Managing Director and others

**REPORT FILED BY CHIEF ENVIRONMENTAL ENGINEER, REGIONAL
OFFICE, THIRUVANANTHAPURAM FOR AND ON BEHALF OF THE KERALA
STATE POLLUTION CONTROL BOARD**

1. I, Sreekala S., Aged 52 years, W/o Sri. A. Viswambharan, now working as Chief Environmental Engineer, Kerala State Pollution Control Board, Regional Office, Thiruvananthapuram. I am authorized to represent the Board (2nd respondent) in the above Execution Application. Copy of the authorization is produced as **Annexure -I**. I know the facts and circumstances of the case. The factual submissions are true and correct to the best of my knowledge, information and belief.
2. The Board in its report filed in O.A 290/2013 dated 20/04/2022 had submitted the status of compliance of M/s. KMML regarding the short term and long term measures suggested by NEERI. The Hon'ble NGT vide its Order dated 22/04/2022 had disposed the case directing the following – *“The State Pollution Control Board is also directed to monitor the implementation of the scheme and also directions issued by this Tribunal to be carried out by the 1st Respondent and if there is any violation found, they are directed to take appropriate action against the 1st Respondent including imposition of environmental compensation for the damage caused to the environment, if any, due to further non-compliance of directions issued by this Tribunal”*.



A handwritten signature in purple ink, appearing to be "Sreekala S.".

SREEKALA S.
Chief Environmental Engineer

3. The applicant Sri. D. Suresh Kumar had filed an Execution Application case E.A 7/2013 in O.A 290/2013 before the Hon'ble NGT and the Court vide its Order dated 04/08/2023 had directed the authorities to inspect the site and conduct due enquiry and file a detailed report based on the Original Application O.A 290/2013.
4. Accordingly, a preliminary inspection was conducted from District Office of the Board on 23/08/2023 and Board had requested the Hon'ble NGT to grant one month additional time for a detailed inspection for verifying the compliance by the industry.
5. The Hon'ble NGT vide its Order dated 06/09/2023 had directed the respondents to file their respective replies and this report is filed on behalf of the Kerala State Pollution Control Board in this regard.
6. It is humbly submitted that, in compliance with the Hon'ble NGT order dated 06/09/2023, a detailed inspection was conducted by the Board Officials on 19/09/2023 to verify the status of compliance of short term and long term measures proposed by the industry. The short term measures were construction of garland drain around the iron oxide and ETP ponds, remediation of affected land near KMML premises and in-situ/ex-situ management of the iron oxide sludge. The compliance status of short term measures are as follows :
 - i. Garland drain works around existing ETP pond was almost completed. Only 5% of the work is remaining and works were in progress. Garland drain works were not started around the existing iron oxide pond.
 - ii. About 70% of the Garland drain construction was completed around the old iron oxide/ETP pond and the works were progressing.
 - iii. Land preparation for the test patch for remediation of contaminated area inside the unit premises was completed. The company reported that patch works/land remediation studies are in progress and land remediation sample test patch




SREEKALA S.
Chief Environmental Engineer

area development activities started on a trial basis. The company is exploring the possibility of remediating the test patch area by bioremediation process.

- iv. The company informed that a technical presentation of solid waste management using Geotubes method was conducted before CPCB officials and now awaiting for technical concurrence from CPCB. They also suggested an alternate method of in-house value addition of the iron oxide byproduct as a raw material for iron industries. They also informed that their R&D studies proved that iron oxide can be converted into iron sinters (Sponge Iron), which can be used as a feed material for Iron TMT industry.
7. The long term measures proposed by KMML were process modification of Acid Recovery Plant (ARP) and the value addition of byproducts (Iron oxide/ETP sludge). The compliance status of long term measures are as follows :
- i. The company informed that Acid Recovery Plant (ARP) process modification tender approval is in progress and the proposal for issuing work order to M/s INDROX GLOBAL PVT. Ltd. is awaiting for Government approval.
 - ii. The company reported that the offers received for value addition of by-products (Iron oxide/ETP sludge), is awaiting for Government approval for engaging the work with M/s. Tetrabic India, Hyderabad. Alternatively, techno economic feasibility study of in-house development of sponge iron is in progress.
8. The company had invited e-tender for the sales of Iron Oxide residue for further process/value addition. M/s. Miracle Sands and Chemicals, Tuticorin quoted for tender and submitted a detailed project proposal for manufacturing Iron oxide concrete bricks. The company had informed that they are waiting for CPCB concurrence to transfer trial quantity.




SREEKALA S.
Chief Environmental Engineer

9. The company informed that the shifting of 10,000 MT of ETP sludge was completed and started shifting of balance 40000 MT ETP sludge as per the new sales order. The company informed that out of 40000 MT shifting of approximately 2500 MT of ETP sludge is completed.
10. The company had reported that e-tendering was done for DPR preparation of ETP revamping/modernization. Three offers received and work order awarded to M/s. SBA Enviro System, Delhi. The DPR is being finalized.
11. The capping of settling pond 1 was completed with HDPE lining. The tendering activity for procuring of LDPE film for temporary capping is in progress.
12. The company vide letter dated 22/09/2023 has now submitted a status report including the time target of compliance of short term and long term measures. Copy of the compliance report of the industry is produced herewith as **Annexure -II**.

It is understood that the company is working to implement the short term and long term measures and action is being followed up by the Board.

All that is stated above are true to the best of my knowledge, information and belief.

Dated this the 16th day of October 2023




CHIEF ENVIRONMENTAL ENGINEER

SREEKALA S.
Chief Environmental Engineer

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI
IN**

**EXECUTION APPLICATION NO. 7 of 2023 IN ORIGINAL
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: Applicant

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: Respondents

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2	Annexure II - Copy of the compliance report of the industry dated 22/09/2023	2 - 11

Dated this the 16th day of October 2023

Rema Smrithi. V.K, Advocate

ADDITIONAL STANDING COUNSEL FOR THE SECOND RESPONDENT:

2927/20
14/08/23

☎: General: 0471- 2312910, 2318153, 2318154, 2318155 Chairman: 2318150 Member Secretary: 2318151
e-mail: chn.kspcb@gov.in; ms.kspcb@gov.in FAX: 2318152 web: kspcb.kerala.gov.in



KERALA STATE POLLUTION CONTROL BOARD
കേരള സംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്

Pattom P.O., Thiruvananthapuram – 695 004

പട്ടം പി.ഒ., തിരുവനന്തപുരം- 695 004



KSPCB/1040/2023-SEE-1

Date: 14/08/2023

AUTHORISATION

Sub: EA. No. 07/2023 in O.A. No. 290/2013 regarding KMML before the
Hon'ble NGT (SZ)

The Chief Environmental Engineer, Regional Office, Thiruvananthapuram
is hereby authorised to represent the Board in the above E.A.

**For and on behalf of the
KERALA STATE POLLUTION CONTROL BOARD**

Sheela A J

MEMBER SECRETARY

To

The Chief Environmental Engineer
Regional Office
Thiruvananthapuram

Copy to:

1. Adv. Rema Smrithi V.K.
No.2, Temple Glade Apartments
Kalakshetra Colony
Beach Road
Besant Nagar
Chennai – 600090
2. The Senior Environmental Engineer
Legal Cell, Regional Office
Ernakulam



The Kerala Minerals and Metals Ltd.

(A Govt. Of Kerala Undertaking)

(An ISO 9001, ISO 14001, OHSAS 18001 & SA 8000 Certified Company)

SANKARAMANGALAM, CHAVARA-691 583

KOLLAM, KERALA, INDIA.

Phone : +91- 476-2651215 to 2651217

Fax : +91- 0476-2680101, 2686721

E-mail : contact@kmml.com, URL : www.kmml.com

Annexure -II

ISO 9001/ISO 14001
OHSAS 18001
BUREAU VERITAS
Certification



SA 8000
BUREAU VERITAS
Certification



3303/KO

27/09/23

CIN-U14109KL1972SGC002399

TP/TS/ENV

22.09.2023

To

The Principal Secretary to Government
Industries (H) Department
Thiruvananthapuram,
Kerala

Respected Sir,

Sub: Compliance Report with respect to the Order of the Hon'ble NGT for the facts detailed in the EA 07/2023 filed by Sri Suresh Kumar: - reg:

Ref: 1) Letter from The Principal Secretary to Government, Industries (H) Department No. H3/183/2023/ID dt. 02.09.2023.

2) Order dated 31/8/2017 & 22.04.2022 in OA 142/13, 290/13, 453/13 filed by Sri. Joy Kaitharath, Sri. Suresh Kumar & Smt. Kamalakshy Amma before the Hon'ble National Green Tribunal.

3) Minutes of the Meeting held by the Chief Secretary on 22.07.2022.

Vide ref (1) above, we are hereby submitting the current action taken report and remedial measures.

STATUS, ACTION AND TIMELINES

Short Term Measures

Item	Work status	Target	Remarks
Construction of garland drain around the iron oxide (IOP)/ ETP ponds	After open e-tendering work order for the construction of Garland drain around new ETP/IOP and old ETP/IOP was issued to M/s Ravi Kumar & M/s Biohomes on 08.10.2019 and 08.04.2021 respectively. The period of contract was extended due to events viz. adverse climatic condition, restriction imposed as part of pandemic COVID19 lock down, local labour issues,	October 2023 (NEW ETP) January 2024 (OLD ETP/ IOP)	About 95 % of garland drain construction around New ETP and 70 % around Old ETP/IOP

pl forward to
CER, RO
TUPM

26.09.2023

	ETP sludge shifting process etc. The works are now progressing at site. Work is getting delayed due to incessant rain and elevated water table. Pump also got installed in the collection pit		has been completed. Installation of garland pump in the new ETP pit is in progress.
Remediation of affected land near KMML premises.	<p>-Tender was invited for the Test patch for remediation of contaminated area inside KMML premises and its consultancy works on 09.07.2019. No parties quoted. Action for limited tender for consultancy work taken on 07.08.2019. Two parties quoted the tender. Work order was issued to M/s FEDO on 05.12.2019 for consultancy and supervision of the test patch area for contaminated land in KMML premises.</p> <p>M/s FEDO have submitted a detailed project report with schematic drawing and lay out of the contaminated land remediation work. Tendering for test patch done in three occasions i.e, 25.02.20 (only single offer received), 24.06.2020 & 19.08.2020 (no party quoted).</p> <p>Due to non receipt of offers, action for doing the activity on trial basis has been initiated. Accordingly Land preparations for land remediation sample Test patch area development activities started on trial basis inside KMML. Since land remediation (In-Suite flushing) inside KMML premises involved huge investment and due to non availability of competent agency to execute the same, KMML is also exploring the possibility of remediating the test patch area by Bioremediation process. In this regard we are exploring the service of M/s State Horticulture Society and sampling analysis done and they forwarded a proposal to KMML which is under evaluation. KMML has invited the</p>	Time frame set is one year (June 2024)	Land preparation for the Test Patch unit completed. Initial discussions on bio-remediation happened. M/s State Horticulture Society based on sampling analysis forwarded a proposal to KMML which is under evaluation. Detail EOI on bio-remediation can be invited immediately after finalizing a suitable technology in in-situ bio remediation.

	party for a technical discussion on 29 th September 2023.		
Solid waste management in KMML (In-situ/Ex-situ storage) - Geo tube As a trial implementation.	<p>Considering the constraint for shifting the entire quantity of sludge to newly proposed containment system and limitation of vacant land availability, another technological option was identified by KMML through US based Titanium technology consultant.</p> <p>The new technology involves dewatering and storage of solid waste using GEOTUBES which was presented to KSPCB in the meeting held on 10.12.2018. In principle approval was received and directed to submit details of the proposal. Tendering action for the Geotube iron oxide containment from New elevated iron oxide pond was done, received two offers & the same got placed before Board of Directors meeting for approval.</p> <p>Subsequently, Geotube suppliers had intimated KMML to get environmental clearance to submit offer for the tender. KMML submitted a request letter to KSPCB on 23.02.2022 for Environmental clearance approval to go ahead with the collection and containment of Iron oxide slurry in Geotubes from the elevated new iron oxide pond as trial phase activity. Dewatered Iron oxide solids can safely be transferred to offsite after the containment. A presentation of solid waste management using Geotubes was conducted at the chamber of Chairman, KSPCB on 16.05.2022 and 14.10.2022. KMML officials visited CPCB, New Delhi on 28.11.2022 and handed over the request letter for obtaining authorization for conducting trial Geotube filling and containment of iron oxide from new elevated iron oxide pond. VC meeting/ technical presentation was conducted on 03.01.2023 with CPCB officials and queries were addressed, awaiting</p>	Time set is One year after getting approval from CPCB/ KSPCB and subsequent ordering.	Trial actions to start upon receipts of required approvals.

<p>Utilization of Iron oxide by making Iron Sinter - Value addition of iron Oxide</p>	<p>clearance. Work can be started only with the technical concurrence of CPCB/KSPCB. Also awaiting Government final sanction to place order.</p> <p><u>In-house Value addition of Iron oxide</u></p> <p>With an intension to give value addition to the iron oxide and more specifically using this iron oxide as raw material for iron industry, KMML has developed an in-house technique. R&D studies proved that it can be converted to iron sinters (Sponge Iron), which is expected to be used as feed material for Iron TMT industry. Initially we have conducted a plant trial and produced 3.0 MT of sponge iron and analysis results are positive. Hence, we have conducted trial at two TMT manufacturing facilities at Palakkad and validated that it can be used as raw material for their induction furnaces.</p> <p>To proceed with the validation and stabilization of the utilization and to confirm the quality till the final TMT product, these companies require more quantity of sponge iron material. In view of this, we have conducted a second trial and produced around 10 to 15 MT of material with better quality and the separation process of the same is underway. We are expecting further trails/commercial proceedings with this material at the TMT facilities in near future and looking for positive outcome. Accordingly a TMT manufacture visited KMML on 25th August 2023 for technical discussion and for further plan.</p>	<p>Time Frame for setting up of a plant in KMML is minimum 2-3 years.</p>	
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Long Term Measures

Item	Work status	Target	Remarks
<p>Acid Regeneration Plant (ARP) technology modification to generate saleable iron oxide.</p>	<p>Tender was invited and opened in September 2019 & only one party quoted. Tender was closed on December 2019 and after evaluation of the proposal, the file was put up to the Board for approval. 243rd Board Meeting of the company held on 21.05.2020 had accorded approval for seeking final Government sanction.</p> <p>The file was put up to the Government on 01.06.2020, for getting final sanction. However as per the direction given by Government of Kerala, retendering done on June 2021.</p> <p>Global Tender was invited from technology providers for the process modification of existing Acid Regeneration Plant on 10.06.2019. The offer submitted by M/s INDROX GLOBAL PVT LTD is evaluated, approved in the 250th Board of meeting held on 15.01.2022 and submitted for Government approval. A meeting was convened under the chairmanship of Hon'ble Minister for Industries, Law & Coir on 09.06.2022 and in the meeting, it was decided to work out the price reasonableness & submit report to Government of Kerala. Accordingly, FEDO had done the cost analysis study & the report got submitted to Government for approval to place order. File is under government sanction process.</p>	<p>18 months from order.</p>	<p>Proposal for issuing work order to M/s INDROX is with Government. Awaiting Government approval.</p>
<p>Value addition of by products (Iron oxide /ETP sludge)</p>	<p>KMML identified M/s Renuka Equipments Pvt Ltd, Nagpur, with the help of M/s NEERI, as the competent technology provider for the management of iron oxide stored in the old pond, by converting the same in to usable product. 234th Board meeting held on 04.04.2018 had given permission in principle for receiving a detailed techno-commercial offer for setting up a pilot plant from M/s</p>	<p>18-24 months from the date of Order/ statutory clearance.</p>	<p>Board approval obtained. Awaiting approval from Government for engaging contract with M/s Tetrabic</p>

	<p>REPL We have received offer from M/s REPL and evaluated. It is noticed that the proposed technology is not a field proven one and also involves investment around Rs. 400 Crores on commercial scale set up.</p> <p>In order to select potential agencies to carry out value addition of iron oxide & ETP sludge on a total responsibility basis with suitable technology, we have published a global Expression of Interest and the last date to offer was 15.03.2022. Offers are received from parties and CSIR-NIIST, Thiruvananthapuram was appointed as consultant to carry the technical evaluation of the proposal and they have submitted their study report. Tender was invited, Board approval obtained for awarding order to the selected parties, awaiting Govt approval for final order placement.</p>	<p>India, Hyderabad for value addition of ETP sludge. For IOP solids the proposal from M/s Tetrabic is on hold. Alternatively techno economic feasibility of in-house development of sponge iron is considered to conclude to select which option to proceed with.</p>
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Other Actions Initiated by KMML

Item	Work status	Target	Remarks
Iron Oxide residue Sales	<p>KMML invited e-tender for the sales of iron oxide residue for further process/value addition at end user on 19.12.2019. M/s Miracle sands and Chemicals, Tuticorin quoted for the tender and sales order was issued to the party on 09.06.2020, for shifting 10,000 MT to the end user end.</p> <p>Sales order of iron oxide sludge was extended for obtaining statutory approvals from TNPCB and KSPCB. M/s Miracle sands and Chemicals, Tuticorin has already submitted a detailed project proposal for manufacturing Iron oxide concrete bricks along with the consent order from TNPCB valid up to March 2025.</p> <p>In the meeting held on 19.09.2022 in</p>	18-24 months from the date of statutory clearance	<p>CPCB concurrence to transfer trial quantity is in progress. An official visit planned to CPCB within 2 months comprising KMML officials and M/s Miracle sands and</p>

	<p>KSPCB head office Thiruvananthapuram, KMML requested KSPCB sanction to shift 10,000 MT of iron oxide to carry out trial runs as per Hazardous Waste Management and Transboundary movement Rules 2016 Chapter II, Section No:9, Sub division:2. KSPCB informed KMML that a letter has forwarded to CPCB on 24.09.2022 for seeking their advice on conducting a trial.</p> <p>KMML officials visited CPCB on 28.11.2022 and made follow up for obtaining authorization for trial production of Iron Oxide bricks by M/s Miracle Sands and Chemicals, Tuticorin. CPCB officials informed that authorization request from KMML will be included in the next committee meeting held in 2023.</p>		Chemicals, Tuticorin.
ETP sludge sales	<p>E-tender was invited by KMML for shifting 10,000 MT of ETP sludge from ETP pond on 04.02.2020 and subsequently the quantity enhanced from 10000 MT to 50000 MT on 17.02.2020 . Sales order was issued to M/s Miracle sands and Chemicals on 09.06.2020 for 10,000 MT. A new sales order was issued to M/s Miracle sands and Chemicals for 40,000 MT on 08.04.2022. Completed the shifting of 10000 MT of ETP sludge from KMML and started shifting of ETP sludge for 40000 MT as per the new sales order. Permission granted to M/s Miracle Sands & Chemicals from KSPCB for collection and transportation of ETP sludge from KMML valid up to 31.03.2024.</p>	Ongoing	10000 MT shifting completed and shifting started for 40000 MT (approx 2500 MT completed) valid up to 31.03.2024.
ETP Revamping/ Modernisation	<p>E-tendering of ETP revamping/modernization DPR done on 10.02.2022. No offer received. Contacted parties for budgetary quote. The parties conveyed that they can proceed further only after signing an MOU. Being a public sector unit, KMML decided to go for retendering. E tendering done for DPR preparation of ETP revamping/ modernization. Three</p>	Time frame set for final DPR submission November 2023.	After finalization of DPR, e - tendering will be done for ETP revamping/modernization with

	<p>offers received and work order was awarded to M/s SBA Enviro System, Delhi and draft report got submitted by the party and the same was presented to KMML team on 26.07.2023. Further DPR corrections/ comments already shared with the party on 01/09/2023 for finalizing the DPR. Awaiting revised report.</p> <p>Action initiated for installing a Tertiary tank for the existing treatment plant for increasing the reaction/delay time.</p>	<p>After getting budget approval Time frame set is one year for Tertiary tank installation.</p>	<p>necessary approvals. Time frame for ETP revamping/modernization is 2-3 years.</p> <p>Budget allocation in approval stage for Civil/Mechanical work.</p>
Capping of existing storage ponds	Capping of eastern side area (4400 M2) of settling pond 1 done. Purchase order issued for procuring 15,000 M2 of LDPE film for temporary capping and material received on September 2023.	Time frame for tendering and capping – May 2024.	Tendering activities in progress.

As part of Corporate Social Responsibility, the company is also extending the following supports to the general public.

- Conducting regular medical camps.
- Providing medical aid to ailing patients/ palliative care.
- Support to nearby Panchayaths for providing street lights, drains, stray dog catching etc.
- Covid Second Line Treatment Centre (CSLTC) – We have setup a CSLTC at GHSS, Sankaramangalam School. This facility was a 850 Nos bedded one with oxygen support from KMML and the same was maintained for more than a year time. Rs. 4.5 Crores expended.
- Supplied liquid medical oxygen at reduced rate for pandemic treatment.

- Providing support for the infrastructure upliftment of nearby schools.
- Tailing sand supply to nearby surroundings for low lying land filling.
- Supporting welfare activities of mining area.
- Dividend payment to Government of Kerala.
- We are continuously supplying about 7 to 8 lakhs liters per day of drinking water of potable quality to the surrounding local residences.
- Potable water is supplied through pipe line around 65 kms for local residence and also in tankers.
- KMML is paying 50% of water tax of the Jalanidhi scheme for local residences.

Awards and Accolades

KMML bagged First Prize for “Kerala State Level Agricultural Award 2022 - Best Public Sector Unit engaging vegetable cultivation”

The Major highlights of the award are as follows;

- 1) Utilized around 10 acres of barren land for agricultural activities and made it productive.
- 2) Harvest utilized to serve food for more 1500 peoples daily and also to the people under palliative care/ charity purpose.
- 3) The agricultural products are branded under the name ‘Thalika’

Submitted for kind information.

Thanking You,
Yours faithfully

[Signature]
22/09/23

MANAGING DIRECTOR

P. K. MANIKUTTAN
HEAD OF UNIT (TP/TSP)

For The Kerala Minerals and Metals Limited

Copy to: (1) The Chairman
Kerala State Pollution Control Board
Pattom,
Thiruvananthapuram- 695004

(2) The Chief Environmental Engineer,
Kerala State Pollution Control Board,
Pattom P O,
Thiruvananthapuram – 695004.

(3) The Environmental Engineer,
Kerala State Pollution Control Board,
District office, Ushas Building, Big Bazar
Kollam- 691001.