

BEFORE THE NATIONAL GREEN TRIBUNAL, SOUTHERN ZONE AT CHENNAI

O.A.No. 157 of 2020 (SZ)

In the matter of:

People for Cattle in India(PFCI)

Represented by its founder

Mr G.Arun Prasanna

Having office at

8/22, Ragaviah Road

T.Nagar, Chennai – 600 017

...Applicant

Vs

1. Additional Principal Chief Conservator of Forests

Coimbatore Circle

Kurinji, Mettupalayam Road

Coimbatore – 641 043

Ph: 0422-2453114

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2. Principal Chief Conservator of Forests

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3. Additional Chief Secretary

Environment and Forest Department

Government of Tamilnadu

Secretariat, Chennai – 600 009

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4. Secretary

Ministry of Environment, Forests and climate change

Government of India

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6. District Collector
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7. District Forest Officer
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8. Secretary
Ministry of Railways
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9. General Manager
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10. Divisional Railway Manager
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11. Divisional Railway Manager
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Respondents

AFFIDAVIT

I, Jatin Kumar, S/o Shri Chander Sain, Hindu aged about 30 years working as Divisional Engineer/East in the office of Divisional Railway Manager, Works Branch, Southern Railway, Palakkad Division, Palakkad – 678 002 do hereby solemnly affirm and sincerely states as follows:-

1. I am the Respondent herein and I am authorised to file this report on behalf of Respondents 8 to 11 since i am well acquainted with the facts of the case.

2. I humbly submit that as per the direction of this Hon'ble Tribunal dated 24.02.2022 the following action plan is taken by Railway to prevent elephant deaths due to hitting of trains in ghat section of Southern Railway, Palakkad division

Artificial intelligence and Sensing technologies.

Intrusion Deduction system: This system has been planned on trial basis in Alipurdwar division of Northeast Frontier Railway. The work is now under tender finalization stage for a cost of Rs 2.56 crore. The work consists of supply, installation and commissioning of Remote DAS unit along with communication interface to monitor elephant movement/train tracking/ Asset Monitoring on Railway Track for the distance of 30 km consisting of optical unit to cover both side of equipment. The scope of work also consists of supply installation and commissioning of Central DAS server along with Geo Location application server and interface unit at nearest Level Crossing gate. Palakkad division of Southern Railway is in close coordination with North Frontier railway and planning to introduce in this location based on the trial conducted after commissioning in North Frontier railway. The functioning of this system is based on the Distributed Acoustic Sensing system. The working principle of the work is as below:

- OFC Distributed Acoustics Sensing based on Rayleigh scattering phenomenon
- Real time monitoring via one single core of a fiber optic cable
- Laser pulses from Remote OFC DAS unit will be sent continuously and reflected pulses will be received from various points along the fiber cable and analyzed
- Vibration / external sound waves hitting the OFC cable cause changes in the reflected pulses
- Reference signature is captured for on ideal condition when there is no external vibration
- In case of elephant intrusion , signature is captured for classification and analysis
- Real-time trace are compared with reference signature, analysis is done and then alarm is generated
- One unit can monitor 40 km to 60km of track depending upon the health of OFC
- Remote OFC DAS unit shall be connected to central server over Ethernet Link (IP / 4G)
- OFC Route Survey shall be done with GPS for localization of event.

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The system shall detect and locate moving elephants up to 5m from the fibre optical cable. The objective of the system shall be to identify elephant movement close to track in advance and convey the information to the nearest manned control which can be either the nearest level crossing gate or the Station. With the receiving of movement of elephant with its geo location, the same can be conveyed to the loco pilot of the next train before its departure from the signal of the nearest Level crossing gate or Station home signal to observe special restricted speed cautions or to stop and proceed the train at the identified elephant crossing locations after careful observations. The same can also be used to plan train movement in advance in either B or A line as per the feasibility. The system will also be modeled to examine and analyze the train speed running in the particular location. The information received shall be further shared to the Forest control room also in advance to take appropriate action. Southern Railways Palghat Division has already laid optical fibres on the sides of the track for the purpose of signal communication. The work shall be implemented as soon as the work in NFR railway is commissioned after its successful trial.

Status: *Southern Railways Palghat Division has already laid optical fibres on the sides of the track for the purpose of signal communication. The work shall be implemented as soon as the work in NFR railway is commissioned after its successful trial. Currently, the work is in tender stage in Alipurduar Division of NFR railway.*

Audio alarm system: An audio alarm system has been developed by signal department of Southern Railway which was commissioned on 28.12.21 at KM 513/800-900 "B" line at unnamed locations and directly controlled by nearest station to give honey bee/tiger roaring sounds to ward away elephant entering the vulnerable area. This system is solar powered and function automatically after sunset till sunrise. Effective functioning of this alarm system is being monitored and shall be installed in other locations depending on its efficiency with any modification if required.

Status: *Waiting for confirmation of DFO PGT if the system is found effective. If the system is found effective, railways shall provide the same arrangements in other locations as well as per the request of State forest Department Kerala and Tamil Nadu.*

LIDAR Technology Railway is in consultation with Pramura software Pvt., Ltd., to develop modern Technological solutions to give prior warning to Loco drivers regarding elephant movement near to the Railway track. The preliminary discussion was held through online video conferencing on 13.01.2022 to discuss the problem at hand and the requirements of Railway to get feasible solutions which can be based on either LIDAR technology equipped with thermal or infra-red sensors to sense and further communicate to the nearest Station Masters.

Status: *The firm has now developed a small prototype which is now under discussion from the railway perspective to introduce in the current signalling system of Railways. Once the methodology is approved, the work can be executed within 4 months.*

3. I humbly submit that the following are the **Suggestions and Objections to the report of Principal chief conservator of the Forest,**

1. Engaging Additional Track Watchers for monitoring the track by forest:

In spite of the mentioned engagement of trackers on the railway track, it has been pointed out by higher official of Railways conducting Footplate inspection that no elephant watchers are seen on the railway track. The same was pointed out by General Manager Southern Railway on 20-21.12.2021 in his Footplate inspection between PGT PTJ. During the undersigned inspection of 09.03.2022 also, it has been highlighted to DFO PGT and DFO CBE that no forest watchers were observed on or near the railway track. (Encl 1 GM inspection note & 2 letter addressed to DFO CBE)

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2. Watch Towers:

DFO/Coimbatore had earlier informed that additional 4 nos of watch towers have been proposed by State Forest Dept at Km 506 A/13 'B' line, 506/25 B line, 508/06 'A' line and 506/14 in 'A' line. It was discussed that the location of watch tower should be such that maximum area of forest and railway track is covered. Currently, the watch towers are proposed at the entry and exit of the reserve forest in both 'B' and 'A' line. The same was requested to be revised by DFO/Coimbatore. Accordingly, the location of the same was requested by Railway. It was also stressed by the Railway (DEN/East) that the height of the watch tower currently existing in B line should be increased. Solar lights can also be provided at this location on track side. Railways requests State Forest Department to expedite the same through the Hon'ble Court.

3. Special Team for monitoring:

As mentioned in the report submitted by PCCF. It is requested through Hon'ble court to direct the Forest department to share the details of the team formed to coordinate with railways.

4. I humbly submit that the following are the Steps taken by Railways consequent to the joint coordination meeting with Forest Official on 30.11.2021:

• Construction of Underpasses:

The CPEMC suggested creating two underpasses at 505 A/600 and 506 B/900 in Line B in Tamil Nadu side for which Funding from Railways needed to be explored. It is informed that during Inter Ministerial meeting held on 05.03.2010, it was decided that the State Forest Department of Tamil Nadu shall provide the budget for the construction of the two underpasses and Railways shall execute the construction work. The railways has prepared and submitted the revised estimate with complete cost (Rs 7.08 crore) to PCCF TN on 03.12.2021 to deposit the fund to take up the work.

In addition to it, on a proactive approach, Railways has sanctioned a work for construction of two underpasses at the above location in current financial year **Out of Turn from Railway Board at a cost of 7.49 crores**. The Detailed General Arrangement Drawing for execution of the work has been approved on priority by Southern Railway Headquarter office and the work has been called for tender. Since, the girder bridge has to be constructed in running main line, necessary safety precautions have to be taken by Railways and work will be taken up in only non-Monsoon period.

• Elephant Signage Boards:

Railways has installed Whistle boards at strategic points to alert loco pilots to blow horns in such locations to pre warn the elephants on the movement of trains. Similarly speed restriction indicators have also been installed by Railways for loco pilots to maintain the speed restriction on the railway tracks. It was requested in recent meeting with CCF PGT and CWW TN to erect additional signage boards by railways. The location of the same has been jointly finalized in field inspection and the work is planned to complete by March 2022. The work has been awarded at cost of Rs 5 lakh and fabrication work is now in progress.

• Solar Lights:

Solar lights have been provided by Railways at both ends of the cuttings between Kanjikode and Walayar Railway line passing through two cuttings- at Km 510/900-511/200 and 512/200-400 to ward away elephants from both ends of the cuttings and pre warn them of the presence of railway tracks. The solar lights also help in improving the visibility of loco pilots at

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night. It is now mentioned that railways has provided total 25 nos solar lights of higher lux with 7W is also erected in Tamil Nadu area at a cost of Rs 5 lakh at jointly selected strategic locations

- **Audio Alarm system:**

An audio alarm system has been developed by Signal Department of Palakkad Division which is installed in block sections at unmanned locations and directly controlled by nearest station to give sounds of honey bee and/or tiger roaring sounds to ward away elephant entering into critical railway locations. The asset is solar powered and will be powered on after sunset till sunrise.

- **Sensitization Programmes:**

Regular internal Sensitization programmes are conducted by Operating and Safety officers of Palghat division to counsel the Loco Pilots and Guards of the trains.

- **Throwing of Food articles and plastic materials along the track:**

Food and garbage on railway tracks is a major source of attracting elephants. Necessary announcements are made at stations by Railways to warn passengers not to throw waste and garbage on railway tracks. The pantry car operators are also instructed to refrain from throwing food and waste on tracks.

- **Solar Fencing:**

The state forest department of Kerala had initially provided conventional solar fencing along the railway track which was successful to great extent preventing elephants to not cross the railway track at critical locations. Now, State forest department, Kerala has approved railway to provide 1.5 km of hanging solar fencing alongside the railway track which has been completed and fully functional and is very effective in mitigating train hit cases. On similar lines, few locations were identified jointly with DFO CBE also, but no approval has been received to proceed with the work and as directed by the Hon'ble High Court of Madras, the matter needs further deliberation between Forest Department and if permission is given, Railways is ready to provide hanging solar fencing near railway track. The same suggestion was given by the CPEMC committee also based on the efficiency of the hanging solar fencing in other parts of the country. Railways is awaiting confirmation from State Forest Department Tamil Nadu.

- **Clearing Vegetation along the Railway Track**

Suggested vista clearance of 10-15m on both sides of the railway tracks. Regular clearance of vegetation along the Railway tracks is being done by railways to facilitate clear sighting of elephants crossing across the railway tracks. Since 2019-20, widening of vegetation clearance zone up to 15m has been done to further improve visibility. Railways have provided **Special Imprest/Work order** to field engineers for regular clearing of vegetation. It is pertinent to note that with regular clearing vista alongside track, the loco pilots in as much as 69 cases in current financial year could take timely action to stop/slow the trains on elephant sighting on Track/alongside Track.

The railways has identified and intimated to State Forest Officials for clearing vegetation in the forest area where land boundary with southern railway is limited and needs further vista clearance to improve visibility. In this aspect, **joint inspection with DFO/PGT and DFO/CBE was conducted on 28.12.2021 and 24.12.2021 respectively**. The locations have been jointly identified (*Minutes of meeting is attached as Encl 1 and 2 respectively*). The earth cutting at Km 506/900 -500 has been provided with solar lights to improve the visibility at both ends of the cutting. Trees identified at KM 507/600 A line has been pruned to improve the visibility. Cutting

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widening identified at Km 510-512 in B line work is in progress by Railways where suitable ramps shall also be constructed. Work for widening cutting at Km 516/27-35 B line and Km 514/13-19 B line as identified is being proposed for widening. The new IBH location at Km 515/15-27 has been provided with solar lights on either end and protected with solar fencing.

The State forest department Kerala was requested to widen the cutting for further 15m to improve the visibility. As identified during joint site inspection, the lighting source is to be provided at the available watch tower in forest area by State Forest dept with adequate lighting.

• **Widening of Railway Earth Cutting and Construction of Ramps:**

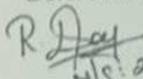
Ramps have been constructed at suitable locations at KM 506A/100, 506/400, 506A/300 in Ettimadau-Walayar section in Tamil Nadu at high bank location for passage of elephants without getting entrapped near railway track area. Work for widening of railway cuttings for 2.5 kms track line between Km 510-512/500 for is in progress wherein suitable ramps shall also be provide for easy passage of elephants. Earth work for widening of cutting has been done between Km 513/500-519/400, Km 500/00 -505/00 on 'B' Line to provide sufficient space to move away from railway tracks on sighting of trains approaching on the railway track. Cess widening including provision of ramps at three more locations between Kanjikode and Madukarai is in progress. At some locations due to limited railway line, the widening of forest area is also required for which the stretches has been jointly identified during field inspection, which was already agreed in the committee inspection. As suggested and agreed jointly with state forest department, wider ramps is planned for construction for elephant herds to pass.

It is therefore prayed that this Hon'ble Tribunal may be pleased to pass suitable orders and thus render Justice.

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Solemnly affirm at Chennai on this
11th day of March 2022 and signed
His name in my presence.

Before me,

MS: 2161/2017
Advocate/Chennai

BEFORE THE NATIONAL GREEN TRIBUNAL,

SOUTHERN ZONE AT CHENNAI

O.A.No. 157 of 2020 (SZ)

In the matter of:

People for Cattle in India(PFCI)

Represented by its founder

Mr.G.Arun Prasanna

Having office at

8/22, Ragaviah Road

T.Nagar, Chennai – 600 017

...Applicant

Vs

1. Additional Principal Chief

Conservator of Forests

Coimbatore Circle

Kurinji, Mettupalayam Road

Coimbatore – 641 043 and 10 others

...Respondents

AFFIDAVIT

K.MUTHAMIL RAJA

Counsel for Respondents 8 to 11