The carriers of hazardous materials, when involved in a road accident may lead to disastrous consequences like fire, explosion, spillage and leakage, resulting in a number of fatalities and injuries besides property loss and environmental pollution. Drivers of vehicles carrying dangerous goods must attend a basic training course dictating how these goods must be transported and how to use an Emergency Response Plan to manage accidents or safety issues. They must hold an appropriate certificate issued by the competent authority or by an organisation recognised by that authority. Government of Kerala accorded sanction to NATPAC for conducting three days ‘Training Courses for Drivers of Vehicles Carrying Dangerous and Hazardous Goods’ and one day refresher course vide G.O.(Rt) No.138/2015/ Tran., dated 17th March 2015. The State level inauguration of the programme was done by Shri. Thiruvanchoor Radhakrishnan, Hon’ble Minister for Transport and Forest, Environment, Sports and Cinema, Govt. of Kerala on 16th April 2015 at Sasthra Bhavan, Pattom, Thiruvananthapuram. This training will make drivers aware of hazards arising during the carriage of dangerous goods and to give them basic information indispensable for minimising the likelihood of an incident taking place. This will enable them to take measures which may prove necessary for their own safety, for that of the public and the environment, and for limiting the effects of an incident.

Due to unprecedented growth of chemical Industries, the proportion of hazardous chemicals in total freight traffic is increasing at a rapid rate. Of the carriers that carry hazardous goods, approximately two-third of them carry flammable petroleum products including Kerosene, Petrol, LPG, Naphtha etc.
The movement of such substances is more prone to accident than the movement of other goods. When involved in a road accident, this may cause disastrous consequences like fire, explosion, injuries etc. in addition to property loss and environmental pollution. Government of Kerala accorded sanction to NATPAC for conducting three day ‘Training Course for Drivers of Vehicles Carrying Dangerous and Hazardous Goods’ vide G.O. ( Rt) No.138/2015/Tran., dated 17th March 2015.

The State level inauguration of the programme ‘Training on Safe Transportation of Hazardous Goods to Drivers’ was done by Shri. Thiruvanchoor Radhakrishnan, Hon’ble Minister for Transport, Forest, Environment, Sports and Cinema, Govt. of Kerala on 16th April 2015 at Sasthra Bhavan, Pattom, Thiruvananthapuram. The inaugural session was attended by Smt. R. Sreelekha IPS, Transport Commissioner, Govt. of Kerala; Dr. Suresh Das, Executive Vice President, KSCSTE; Dr.B.G.Sreedevi, Director, NATPAC and Dr.G. Ravikumar, Scientist-F, NATPAC.

In the technical sessions that followed, presentations in the areas of Accident Scenario, Defensive Driving Techniques, Advanced Driving Skills, Fire Fighting, Class Label, Hazchem Code, Product Information, Emergency Procedure, Driver Fitness and Vehicle Fitness and Driving Emergencies were made. Fire demonstration and Tanker Truck demonstration were also arranged for the participants. 60 drivers participated in the training programme.
Fire Fighting Demonstration

Tanker Truck demonstration

Two Programmes were completed after the inauguration during this period.

  48 drivers participated.

- K Karunakaran Transpark, Aakkulam – 16th - 18th June 2015. (3rd Batch)
  32 drivers participated.

Participants of I\textsuperscript{st} batch with faculties

Participants of II\textsuperscript{nd} batch with faculties

Participants of III\textsuperscript{rd} batch with faculties
NATPAC in association with Kerala State Youth Welfare Board organised a one day Road Safety Youth Leadership Programme for the Public and Youth Associations at Azhoor Grama Panchayath Hall, Kollam on 29th April 2015. The programme was inaugurated by Smt. Vijayakumari, Vice President, Azhoor Panchayath. 75 youth co-ordinators including ladies attended the training.

### Road Safety Training for Various User Groups

i) ‘Road Safety Education Programme for students’ as part of Summer Vacation Camp organised by Sree Narayana Gurukulam, Varkala on 6th April 2015.


vi) Training on Road Safety in connection with the Passing Out Ceremony of 108 Road Safety Wardens of Marthoma Higher Secondary School, Chungathara on 19th June 2015. The programme was inaugurated by Shri.P.V.Abdul Vahab, Hon’ble MP.

vii) ‘Road Safety Education Programme for students’ at Govt. UPS, Poovachal, Kattakkada on 23rd June 2015.

viii) Training on Road Safety for general public in association with Mala Police Station, at Thrissur on 26th June 2015.

### Safe Road to School

NATPAC in association with Kerala Road Safety Authority organised one day programme on ‘Safe Road to School’ (SRS) at selected schools. They are:

i) Govt. U. P. School, Poovachal - 23.06.2015

Exhibitions

i) Road Safety Exhibition and audio-visual programmes at Sree Gurukulam Nursing College, Neyyattinkara, 10\textsuperscript{th} – 12\textsuperscript{th} April 2015.

ii) Road Safety Exhibition and audio-visual programmes at Govt. Polytechnic College, Neyyattinkara, 12\textsuperscript{th} June 2015.
Analysis of Road Accident Causative Factors

Truck - Car Accident at Kuthiran, Thrissur

Kuthiran curves, located on Vazhukkumpara - Irumbupalam road stretch of National Highway 544 in Thrissur District witnessed a road crash on May 12\(^{th}\), 2015 resulting in the loss of four human lives including two children. Three vehicles were involved in the accident. The car (Maruthi 800) tried to overtake the two commercial vehicles, a 3-axle loaded truck and a loaded Swaraj Mazda LCV. The mishap occurred when the LCV, which was moving in front, applied sudden brakes seeing a vehicle from the opposite direction executing an overtaking maneuver. The car which had already overtaken the 3-axle truck had to come in between these two goods vehicle on seeing the opposite lane traffic at the same instant. The car driver would have applied the brakes on seeing the sudden stoppage of LCV, was apparently rammed by the 3-axle truck from rear and was sandwiched between the two loaded goods vehicle.

Officials from NATPAC visited the accident spot on 15\(^{th}\) May 2015. As per Police FIR, the rash and negligent driving of the 3 axle truck driver was the reason for this fatal incident. The spot analysis shows that the major reason for this particular accident was the overtaking of the Maruti car while maneuvering a sharp curve of radius around 60m which had a continuous centre line indicating a no-overtaking zone. The car driver was intending to overtake the two goods vehicles ahead but could not complete the process due to the opposite traffic and had to squeeze itself between the two. At the same instance the leading vehicle (mini truck) stopped abruptly on seeing a vehicle in the opposite direction on his lane, which caused the car driver to brake instantly and was immediately rammed by the 3 axle truck from behind. The accident would have been less severe if the truck was going at a safe speed and had reduced his speed on seeing the car overtaking it.

Deficiencies in road alignment or design were observed at the Kuthiran curves including the accident spot on the Vazhukkumpara - Irumbupalam road stretch of NH- 544. Inadequate width of the carriageway, absence of side shoulders and extra widening for curves, inadequate sight distance, shoulder drop, poor road markings and signs etc were the major contributing factors of accidents on this road stretch.

Considering the increasing number of accidents and deaths that has occurred in this stretch several remedial measures were suggested by NATPAC. Extra-widening on curves

Condition of vehicles after crash

Maruthi 800  3-axle Container Truck  Swaraj Mazda LCV
and adequate shoulder width (1.5m on both sides) should be provided. Provision of
warning sign boards, appropriate road markings, road side edge barriers, conveying
ban on overtaking to motorists before entering and along the curves, conveying the
availability of safe overtaking zones ahead to motorists through roadside/overhead
signboards, variable message signs, etc., implementation of speed restriction measures,
strict enforcement to check whether ban on overtaking and restriction on speed are
done by motorists were recommended by the Centre. Pavement surface, road side
elements, road signs and markings should be periodically monitored and well
maintained. Awareness programs aimed at discouraging such rash driving has to be
carried out by the concerned agencies.

‘Dangerous goods’ are materials or items with hazardous properties which, if not
properly controlled, present a potential hazard to human health and safety,
infrastructure and/or their means of transport.

Nine Classes of Hazardous Materials

- 1: Explosives
- 2: Compressed Gas
- 3: Flammable Liquids
- 4: Flammable Solids
- 5: Oxidizing Substances
- 6: Toxic or Infectious Substances
- 7: Radioactive Materials
- 8: Corrosive Materials
- 9: Miscellaneous Hazards
Road Accident details of Kerala (April - June 2015)

Source: SCRB

Number of Road accidents April-June2015
Number of fatalities April-June 2015
Number of injured people in April-June 2015

Source: SCRB