WASTE MANAGEMENT IN MOTORWAYS - THE "EGNATIA ODOS" CASE STUDY

Thalia Valkouma
Head of Environment Department
Operation Maintenance & Exploitation

1Egnatia Odos S.A, 6th km Harilaou Thermi Rd, 57001, Thessaloniki, Greece
E-mail: thvalkou@egnatia.gr, Tel. +30 2310 470 207

3rd INTERNATIONAL CONFERENCE on Sustainable Solid Waste Management
EGNATIA ODOS S.A. was established in 1994

- Responsible for the design, construction, maintenance, exploitation and management of one of the most complex and ambitious infrastructure projects

- Highly qualified professional staff

- Innovations in the management and administration of public works projects

- Complete and efficient environmental strategy with respect to national resources and the implementation of advanced technologies
EGNATIA MOTORWAY & THE TRANS EUROPEAN TRANSPORT NETWORK
THE EGNATIA MOTORWAY PROJECT

1000 km of motorway
Egnatia motorway & Vertical Axes

Greece

Turkey

Bulgaria

F.Y.R.O.M.

Albania

Ormenio

Nymfeia

Promachonas

Niki

Krystallopigi
THE IDENTITY OF EGNATIA MOTORWAY

- **AXIS LENGTH:** 670 km
  (From Igoumenitsa to Kipi)

- **TECHNICAL FEATURES:**
  Dual carriageway of international standards with two traffic lanes per direction, a central reserve and an emergency lane

- **INTERCHANGES:** 63

- **ENTRANCE/EXIT OVERBRIDGES & UNDERPASSES:** 350

- **MAGOR BRIDGES:** 177 with a total length of 40 km and many smaller ones

- **TUNNELS:** 73 twin-bore up to 4,8 km long, with a total length of 50 km

- **RIVER CROSSINGS:** 43

- **PROPOSING AND FINANCING:** Archaeological excavations, protection of monuments, environmental protection works
177 major bridges, approximately 40 km long
73 twin-bore tunnels of 50km length
(100km measured as single-carriageway ones)
ACCESS TO PORTS

IGOUMENITSA

KAVALA

13. 7. 2008

THESSALONIKI

ALEXANDROUPOLI
EGNATIA MOTORWAY
EGNATIA MOTORWAY
The environment surrounding Egnatia Odos motorway

Along the route of the motorway one can find:

• 17 Natural Habitat Areas protected under the European "Natura 2000" Network
• 4 Wetlands protected under the Ramsar Convention
• 70 wildlife conservation areas (formerly wildlife reserves)
• 270 sites and monuments of historical interest
• Most of the longest rivers in Greece (Evros, Nestos, Strymonas, Gallikos, Axios, Aliakmonas, Venetikos, Metsovitikos, Arachthos, etc).
Environmental Protection / Sustainability

- Preventing Water Pollution
- Protecting Ecosystems
- Monitoring Water Pollution
- Limiting Energy Consumption
- Monitoring Air Pollution
- Monitoring Road Traffic Noise
Environmental Protection / Sustainability

EVALUATING AND REPORTING SYSTEM

WASTE MANAGEMENT
Along the Egnatia Motorway, the collection of waste found on the pavement, the central reserves, the slopes and the roadside facilities is performed on an every-day basis. Most of this waste consists of: paper – plastic – glass – aluminium – dead animals – organic waste – electrical & electronic waste – mineral oils. Due to its size, the company considered it necessary to implement an integrated program for the management of the produced waste pursuant to the standing legislation and with the aim to reduce the motorway pollution.
Types of waste collected / produced from Egnatia Motorway

Non Hazardous Waste
- Plastic
- Glass
- Wood
- Elastic/Tyres
- Paper
- Aggregates
- Metal/Aluminum/Scrap
- Organic waste
- Dead animals

Hazardous Waste
- Oil Waste/Heavy Metals, etc.
- Electrical & Electronic Equipment
- Batteries & Accumulators
The total motorway is divided into four areas in order to achieve the most efficient way of management in all of the above mileage. Four district offices are responsible for the maintenance and operation of the road, situated in those areas: the Regional Office of Ioannina, the Regional Office of Grevena, the Regional Office of Thessalononiki and the Regional Office of Komotini.
Egnatia Odos S.A. runs contracts for the Operation & Maintenance of the motorway.

Among other tasks the contractors are responsible for surveying the motorway and collecting the waste found in it.
Egnatia Odos SA cooperates with licensed Waste Management Companies & Systems responsible for the management of different kinds of waste. The waste are delivered to waste recycling centres or to authorised treatment facilities where they are weighed and categorized in accordance with the relevant European directives and national laws.
The company uses an information system (Routine Maintenance Management System - RMMS) for the effective management of the routine maintenance of the motorway, including the collection of waste. By this information system the control of works is achieved as well as the quality and effectiveness of the maintenance services.
The Environment Department of the Operation, Exploitation and Maintenance Division of the “EGNATIA ODOS SA” gathers and enters all relevant data into a specially designed database: **ENVironmental COMpliance (ENV.COM) Database**, and then dispatches the resulting summary reports to the Ministry for the Environment, Energy and Climatic Change.
Regional office of Thessaloniki
Regional office of Ioannina
Regional office of Grevena
Regional office of Komotini - Alexandroupoli
Hazardous Waste – Electric & Electronic waste

**AMOUNTS OF ELECTRIC & ELECTRONIC WASTE 2012-2014**

![Bar chart showing the amounts of electric and electronic waste from 2012 to 2014.](chart-image)

**Types of waste**

- 20 10 33*
- 20 10 35*
- 20 10 36*
- 20 01 21*
- 16 06 01*
Hazardous Waste – Oil & Sludge

500 tonnes of liquid waste:
130 508* (mixtures of wastes from wards residues and oil/water separators) & code 160 708* (waste containing oil)

3 tonnes of sludge:
130502* (separator sludges from oil/water)
<table>
<thead>
<tr>
<th>Type of hazardous waste</th>
<th>Quantity (Kg)</th>
<th>Code no (European Waste list)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLUDGE</td>
<td>2.120</td>
<td>130502</td>
</tr>
<tr>
<td>WASTE CONTAINING OIL</td>
<td>515.600</td>
<td>160708</td>
</tr>
<tr>
<td>WASTE MIXTURES OF CHAMBERS DEBRIS &amp; OIL/WATER SEPERATORS</td>
<td>13.000</td>
<td>130508</td>
</tr>
</tbody>
</table>
970,000 kgr of metal and aluminum scrap were recycled the last six (6) years.
Dead and alive animals collected from Egnatia motorway (2004 - 2014)
Through the Observatory, EGNATIA ODOS S.A. takes care of the assessment of spatial impacts of the Egnatia Motorway and vertical axes system in relation to the project implementation progress, i.e. in relation to “before” and “after”. In this way the impacts on the social and economic cohesion shall be determined, as well as on the territorial planning, the transport system, and the environment in Northern Greece. The results, reports, and generally the material produced by the Observatory is supplied to the public and interested agencies over the Internet and through leaflets, events etc.

www.egnatia.eu/

http://observatory.egnatia.gr/
Environmental Indicators

- ENV 1 Population exposed to traffic noise
- ENV 2 Air pollution
- ENV 3 Tunnel air quality
- ENV 4 Cohesion Fragmentation of settlements
- ENV 5 Landscape restoration
- ENV 6 Fragmentation of natural areas
- ENV 7 Land use changes
- ENV 8 Proximity to protected areas
- ENV 9 Crossings with surface waters
- ENV 10 Water quality
- ENV 11 Waste Management
Egnatia Odos S.A. introduces a different approach and a new strategy in the construction of major road axes in Greece, by implementing the preservation and protection of the natural and man-made environment.

According to the company, the environmental protection during the construction, maintenance and operation of a project, now, more than ever, constitutes a significant factor equally important to the technical and financial factors. Furthermore, all three factors should be involved in the process, in such a way so as to result in a technically complete and environmentally acceptable project.
Egnatia Odos S.A. adopts the national and European policy regarding waste management and takes measures to prevent the generation of waste and to promote reuse, recycling and other forms of recovery in order to reduce the quantity of such waste, whilst also improving its environmental performance.
WASTE MANAGEMENT IN MOTORWAYS - THE “EGNATIA ODOS” CASE STUDY

THANK YOU FOR YOUR ATTENTION!

Thalia Valkouma
Biologist, MSc Environmentalist, MBA
Head of Environment Department
Operation Maintenance & Exploitation
EGNATIA ODOS SA