



Executive Summary, Conclusions and Recommendations

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Background

Since 2002, the Maltese Government launched four vehicle emissions tests as part of the following schemes: the Vehicle Roadworthiness Test, the Emissions Alert Campaign, the Roadside Technical Inspection, and the Roadside Emissions Test. These schemes aim to reduce air pollution emanating from vehicle emissions and thereby improve Malta's ambient air quality.

In view of the environmental health concerns and legislative obligations associated with air pollution from vehicles, the audit focused on Malta's vehicle emissions control schemes, as implemented between 1 October 2006 and 30 June 2007.

The audit particularly sought to evaluate whether:

1. the vehicle emissions control schemes were conducted properly and effectively;
2. the quality control carried out by the regulatory bodies concerned was adequate to ensure that the schemes were properly implemented;
3. the enforcement action contemplated by these schemes was adequately and consistently undertaken so as to ensure that vehicles found to have excessive emissions rectify their situation.

Wherever possible, any developments in the schemes up to the time of publishing are also included in the appropriate sections and reflected in the conclusions of this report.

Emissions testing in the Vehicle Roadworthiness Test

Most vehicles aged four years and over are legally obliged to undergo a periodic Vehicle Roadworthiness Test (VRT). Since 2002, the VRT has included emissions testing, namely the testing of the exhaust gas opacity of diesel-

engine vehicles and the carbon monoxide (CO) level of petrol-engine vehicles' exhaust. The VRT also checks vehicles' exhaust system. The majority (94 per cent) of vehicles are obliged to undergo a VRT biennially, whilst the remainder undergo the test annually.

During the audit period almost 98,000 vehicles underwent a VRT. Of these vehicles, 1,088 were found to have excessive emissions and another 1,003 had faulty exhaust systems. Most of these subsequently rectified the faults in question and passed a retest. Sixteen vehicles did not pass a retest and so were unable to renew their road licence.

This audit also sought to evaluate the duration of the VRT compliance effect. The results of on-the-road emissions tests suggest that the VRT compliance effect is very temporary, diminishing substantially in the first months of the VRT cycle. During the period under review, 1,241 vehicles failed a roadside emissions test (34 per cent of those tested). About one fourth of those failed were still in the first quarter of their VRT cycle, while almost half failed during the first half.

The data clearly indicates that for continuous and long term emissions compliance, the VRT must be complemented by a substantive roadside emissions testing regime. The VRT results indicate that such a regime should particularly target vehicles found to be most at risk of having excessive emissions - older vehicles across all categories, diesel, and commercial vehicles.

The audit also focused on the inspection regime conducted by the Malta Transport Authority (ADT). The VRT Regulations empower the ADT to undertake various quality control measures to ensure that VRT operators comply with the law and conduct VRT tests correctly. During the audit period, however, the ADT's inspections were not fully adequate or risk-based to ensure that VRT was conducted properly by all stations.

Subsequent to the conduct of this audit, the ADT reported that, in 2008, it adopted various initiatives in a bid to

improve the inspection and monitoring of VRT stations. The ADT introduced a penalty point system for VRT station operators and undertook a more rigorous inspection regime, including risk-based targeting of VRT stations. As a result of these initiatives, six VRT stations were fined for VRT related infringements – of these only one has paid up while the rest are currently appealing their case. Eight cases were referred for police investigations and subsequently one of the stations was closed down after being found guilty by the Courts. Seven testers were also instructed to comply with emissions testing standards.

The Emission Alert Campaign

The ADT launched the Emission Alert Campaign (EAC) in August 2005. The Campaign aimed to increase awareness about harmful emissions and to increase enforcement through public participation. This Campaign urged the public to report vehicles emitting excessive fumes through a mobile phone text message. It is to be noted that to date the public may still report vehicles with excessive fumes. However, the ADT has not summoned reported vehicles for testing since the latter part of 2008.

The EAC generated significant public response. During the nine month period under review, the public reported 14,322 vehicles – over five percent of the Maltese vehicle population. The public mostly reported diesel engine vehicles, vehicles aged over eight years and public transport vehicles. Since the public's reporting is based on what is visible, the public is generally unable to identify and report noncompliant petrol engine vehicles. Consequently, the Campaign cannot be regarded as a means of identifying noncompliant petrol engine vehicles.

According to the ADT's prescribed procedures, vehicles which get reported by three different mobile phone numbers within a three month period would be summoned for an emissions test. In the period under review 1,200 vehicles were summoned for at least one test but only 721 turned up for the test. Nearly 14 percent of the tested vehicles failed the emissions test.

The Campaign did prod a number of vehicles to rectify their emissions. During the nine month audit period 42 vehicles which failed a Campaign emissions test rectified their situation and subsequently passed a second emissions test or a VRT.

Vehicles which failed or did not undertake two tests had a restriction set on the renewal of their road licence. During the audit period the EAC administrators instructed the Licensing and Testing Directorate (LTD) to set such a restriction for 338 defaulting vehicles. This audit found that these restrictions were effective for 84 percent of these vehicles.

However, the following concerns relating to the ADT's filtering and testing of the reported vehicles were observed:

- The ADT applied a higher filtering threshold than that prescribed due to a lack of testing capacity.
- The ADT did not maintain a record of the beginning and end of the three month filtering period used to determine which reported vehicles should be summoned for an emissions test.
- During the period August 2005 to August 2007, about 4,393 vehicles which were reported at least four times were not summoned for testing.
- At least 273 out of the 4,393 unsummoned vehicles should have been tested. However, it transpired that most of these vehicles pertained to the public transport category and were referred for testing under the Roadside Technical Inspection scheme. The vast majority of these vehicles passed the emissions test when inspected.

The ADT stated that it was not in a position to cope with the significant public response due to its limited testing resources. The Authority contends that from the outset there was no intention to increase resources, especially taking into consideration all other obligations of its Enforcement Section. Additionally, according to the ADT, the Campaign was primarily intended to increase awareness, while enforcement was a secondary objective.

Roadside Vehicle Emissions Tests

During the period under review, two roadside vehicle emissions test schemes were in operation as detailed below.

The Roadside Technical Inspection (RTI) scheme was initiated by the Malta Transport Authority in October 2005. Roadside Technical Inspections entail twelve testing criteria, including checking emissions levels and the exhaust system. Almost 20 percent of the 1,164 vehicles subjected to a Roadside Technical Inspection (RTI) were found to have excessive emissions. Another four percent were found to be at high risk of developing excessive emissions because they had a fault in their exhaust system. The 295 vehicles concerned were issued with the relative citation and summoned to undergo a VRT shortly after.

Commercial vehicles had the highest emissions failure rate for vehicles less than 16 years old. The failure rate of private vehicles rose steadily with age, reaching that of commercial vehicles in the 13 to 16 year old age group, and becoming the highest for the vehicles aged over 17 years. None of the inspected public transport vehicles

under 16 years of age failed the emissions component. However, the significance of this result is limited since only 17 such vehicles were inspected. A more significant number of public transport vehicles, 109, aged at least 17 years were inspected. For this age group, public transport vehicles had roughly the same failure rate as commercial vehicles but lower than private vehicles.

The RTI scheme, as managed by the ADT, was effective in identifying noncompliant diesel engine vehicles. Moreover, this scheme particularly targeted those vehicles considered to be high risk by the EU and national legislation. This scheme was also supported by a thorough audit trail. The scheme, however, hardly targeted Gozo based vehicles.

The second roadside test scheme which was implemented during the audit period was the Roadside Emissions Test (RET). This scheme was conducted by the Joint Committees of Local Councils, as part of the Local Enforcement System. During the audit period eight Joint Committees implemented the RET while the Joint Committee of Fgura opted not to implement it. Emissions testing was carried out by local wardens provided on a contract basis by two private warden service agencies. The Scheme was overseen by a ministerial, interdepartmental Local Enforcement System Committee (LESC).

During the period under review, at least 1,500 vehicles were subjected to an RET. The total vehicles tested is, however, likely to be higher since some Joint Committees did not record the total number of vehicles tested. The failure rate relating to the 1,500 tested vehicles was around 50 percent. The RET findings also indicated a lack of maintenance by vehicle owners – even for new vehicles.

The RET had a significant potential to identify non-compliant vehicles since it exclusively focused on emissions. However, the scheme's full potential was not realised due to a number of factors.

Operating standards and reporting obligations were not documented. Additionally, communication and accountability lines were complex and unclear. There was no record of any monitoring undertaken. Such omissions are deemed to have detracted from the scheme's operational transparency, especially as the scheme was part of a self-financing programme.

Despite its potential, the scheme was discontinued in early 2008 as the ADT decided to limit the conduct of emissions testing to trained certified officers. It is envisaged that the RET, as part of the Local Enforcement System, will be reviewed within the undergoing local council reform exercise.

Overall Conclusions

This audit was concerned with the extent to which the implementation, monitoring and enforcement of Malta's Emissions control schemes had the desired impact. These schemes aimed to bring about greater compliance from owners to properly maintain their vehicles to ensure that emissions are within the levels prescribed by law.

The four schemes reviewed are complementary to each other since they range from a mandatory periodic VRT, a campaign which encourages the public to report defaulting vehicles, to two other schemes involving surprise roadside emissions testing. In practice, there was minimal effort to coordinate the planning, operational, enforcement and monitoring elements of the schemes. Moreover, in 2008, the roadside emissions tests performed by local wardens and the enforcement component of the EAC were suspended.

The results obtained through this audit indicate that, since the implementation of the schemes, there has been an improvement in vehicle emissions compliance. This is as expected, as prior to these schemes there was only a rudimentary framework to ensure vehicle emissions compliance. However, further analysis shows that the schemes did not fully realise their potential.

To varying extents, the four schemes lacked the appropriate planning. Additionally, the lack of an integrated management information system hindered effective management, rendered data analysis problematic, and resulted in incomplete audit trails.

The schemes' outcomes and credibility – especially in the self-financing schemes - were also potentially jeopardised since monitoring carried out by the regulators concerned was limited, in terms of frequency, quality and documentation.

Enforcement with regards to defaulting vehicles was largely effective. In 2008, the ADT also took various enforcement initiatives with regards to defaulting VRT stations. However, enforcement was not always timely and consequently, fully effective.

The health and environmental concerns associated with excessive vehicle emissions necessitate that a robust emissions control framework is in place to ascertain that pollution from vehicles is maintained within the limits prescribed by law.

In recent years a number of initiatives have been implemented in this regard. However, more needs to be done so as to reap the full potential of these initiatives. The fine tuning of the schemes discussed in this report, coupled with the recently introduced fiscal measures which base vehicle road licensing on the polluter pays principle, will

contribute towards providing a more robust and sustainable vehicle emissions control framework.

Recommendations

In view of the foregoing, the NAO is proposing that the effectiveness of Malta's emissions control framework be strengthened through various improvements at the strategic and operational levels. The NAO is also making a number of recommendations aimed at specific schemes.

Strategic issues

1. A review of all the emissions control schemes be undertaken so as to formulate more effective and efficient schemes. The review should aim to ensure that schemes are not piecemeal and incremental but rather designed as part of a holistic and comprehensive strategy aimed at tackling excessive vehicle emissions. Schemes should be designed in such a way as to complement each other in terms of targeting and enforcement action, as well as feeding into each other.

The NAO recommends that the strategy is to encompass:

- Educating and incentivising owners to undertake regular vehicle maintenance;
- Devising emissions control schemes which increasingly target all high risk vehicles, including old petrol engine vehicles. In this context, consideration may be given to making VRT required annually for vehicles over a certain age. A robust emissions control framework also requires the strengthening and expanding of roadside emissions testing.

Operational recommendations common to all schemes

2. The entities involved in the implementing of the various emissions control schemes need to be equipped with the appropriate data management applications so that data is recorded in computer systems that enable good data analysis, monitoring and minimum transcription errors. Ideally, the data should also be inputted in real time so as to ensure effective enforcement.
3. The various IT systems used should be integrated and available to all of the schemes' implementers in order to facilitate the co-ordination of the various emissions control initiatives. Moreover, such an approach would also streamline operations and

yield economies of scale with regard to IT data management.

4. Enforcement procedures should ensure that defaulting vehicles are promptly repaired. This may entail that the current practices adopted to impose road license renewal restrictions be revised to prevent noncompliant vehicles from circulating on the road for more than is practically reasonable.
5. Management control relating to existing schemes needs to be strengthened, particularly with regard to the following aspects:
 - All schemes require better planning in order to be able to assess and obtain the level of resources necessary.
 - The existing schemes necessitate the undertaking of the relevant risk and data analysis. This would optimise the targeting of on-the-road schemes and facilitate the evaluation of the schemes' effectiveness.
 - The regulators concerned need to improve the monitoring they provide with respect to all the existing schemes.

Scheme specific recommendations

Vehicle Roadworthiness Test (VRT)

6. The ADT is to routinely analyse the VRT results. This will enable the Authority to identify, investigate and act on abnormal trends in VRT results with respect to individual stations and / or specific vehicle categories.
7. The improved inspection regime of VRT stations, as adopted in 2008, needs to be sustained and the necessary timely follow-up undertaken in cases of infringements.
8. The ADT is to ensure that comprehensive documentation relating to quality control inspections of VRT stations is maintained. The quality of such documentation will serve to strengthen the audit trail regarding these inspections.

The Emissions Alert Campaign

9. The Campaign's operational strategy is to be reviewed in the light of the public's response to the initiative and of the resources - including testing capacity - available or to be provided to the ADT. An updated operational strategy should facilitate

the planning, implementation, enforcement, monitoring and improve the overall effectiveness of the Scheme.

10. The filtering time period should start from the date a vehicle is reported for the first time. Such vehicle-centred filtering has various advantages over the current method of setting the same filtering period for all vehicles. It would link eligibility for testing more directly to a vehicle's actual performance.
11. The publicity component of the Campaign should be revived and particularly aim to educate vehicle owners about the vehicle maintenance they should undertake to ensure emissions compliance.
14. Roadside tests should also strive to address on-the-road abuses, such as engine tampering and the illegal use of certain fuels. Moreover, fines should be introduced for vehicle owners found to have tampered with fuel pump seals.
15. Adequate testing equipment used for on-the-road schemes should be made available and regularly checked to ensure that it is functioning properly.
16. Considerations be given for the Roadside Emissions Test (RET) conducted as part of the Local Enforcement System to be restarted. This scheme had the potential at being highly effective at identifying vehicles with excessive emissions since it exclusively focused on vehicle emissions.

Roadside testing

12. The roles and responsibilities of all stakeholders involved in the roadside emissions schemes need to be clearly defined. This is particularly important if there are more than one such schemes operating simultaneously, and if any scheme entails self-financing elements.
13. Roadside emissions tests are to be conducted on a more frequent basis, particularly targeting vehicles older than eight years, and the vehicle categories with a high failure rate in road-side tests or in VRT.
17. The RET Scheme should however be restarted within an improved regulatory and implementation framework. Firstly there is an urgent need for Government to study and determine which entity is to be assigned lead responsibility for regulating, monitoring and providing quality control of all initiatives undertaken as part of the Local Enforcement System. The opportunity exists to take these issues in consideration as part of the LES review to be undertaken in 2009.