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1. Introduction

The reduction of hazardous waste by both industry, and society in general, is a key element of the 2nd National Hazardous Waste Management Plan\(^1\), which was published by the EPA in 2008. The plan outlines the priorities for the next five years in the management of hazardous waste in Ireland and sets as a priority the prevention of hazardous waste.

While the prevention of hazardous waste is the primary objective of the Plan, improved management, reporting and collection are also noted important aspects. In this regard a number of different sectors were identified as areas where improvement potentials exist, with the vehicle servicing and garage sector (from now on referred to as the garage sector) highlighted. While there are good collection services available for the various hazardous wastes generated (waste oils, contaminated rags, oil filters, solvents, lead acid batteries) it is estimated that approximately 2,500 tonnes of unreported hazardous waste was generated by this sector in 2006. 2,000 tonnes of this is waste oil, much of which is reputed to being burned in space heaters\(^1\).

The garage sector is a diverse one with numerous small operators. It is sometimes viewed in a poor light in Ireland, especially with regard to the management of wastes, protection of the local environment and compliance with the various laws. While in some cases this is true, much good work has also been done. It was an aim of this project to determine best practice within the Irish garage trade and use these examples to promote better management practices. It is important to remember that, unlike the vehicle refinishers where a single statutory instrument governs the sector, garages and their handling of wastes are covered by a variety of regulations (mainly covered by the Waste Management Act). Regulations relating to batteries, tyres and air conditioning units have changed in recent years, and getting this ever changing message across to everyone in the sector is a difficult task.

Enforcement of the various regulations, especially those pertaining to waste oils was therefore an important aspect of this project. Consequently, it has been proposed that an AIC style audit scheme, similar to that used for vehicle refinishers, be developed and piloted. However, since there is no specific legal equivalent to that for Vehicle Refinishers (S.I. No 199 of 2007), it was deemed important that the inspection scheme have some benefit for garage operators - such as the potential for savings. This scheme was to be developed with the dual purpose of law enforcement and also the promotion of best practice.

Within the sector there has been little coordinated guidance (in the form of fact sheets, guidance documents, best practice) available in Ireland. The Connaught Waste Management Office produced a very useful waste guide for the sector in 2004\(^2\), but this was distributed mainly in that area and has not since been updated to accommodate changes in legislation. Much of the other existing information available is from international sources and is not easily accessible to people in the sector. This project aimed to examine the relevant information available and condense it into a usable format for the Irish garage sector.

A key element of this project was to undertake consultation with the relevant stakeholders. This is a somewhat difficult sector to deal with due to the numerous small ‘backyard’ garages and a prevalent ‘tough man’ attitude. In addition, many of the mechanics are older and entrenched in an attitude that does not place a high emphasis on the environment. So, while an external view on how best to manage the sector may appear straightforward, in actuality, this was not found to be the case. Therefore local authorities, national

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agencies, waste contractors, and various garages were all consulted during the initial phases of the project. Their input was vital in garnering an understanding of how things work in this sector on the ground. Other information elucidated from these stakeholders related to:

- Attitudes to relevant topics (e.g. waste oil burners);
- How best to address the fundamental issues from the perspective of environmental protection (ultimately through the prevention of hazardous wastes);
- How to ensure a tighter control over hazardous waste generation and recording;
- How to best engage the sector, from an environmental improvement sense.
2. Methodology

A specific methodology was set out to deal with the main areas of concern, as outlined in the call for tender. The main tasks of the programme methodology are outlined in Table 1 along with the corresponding areas in this report that deal with each element.

Table 1: Overview of the main proposed tasks

<table>
<thead>
<tr>
<th>Task Description</th>
<th>Overview of proposed method</th>
<th>Main Deliverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. The development of a Best Practice Guidance Note for the Garages and Vehicle</td>
<td>• Consult with relevant stakeholders (Section 4)</td>
<td>Develop best practice guidance notes for the sector</td>
</tr>
<tr>
<td>Maintenance Sector</td>
<td>• Examine current practices in variety of garages (Sections 4 &amp; 5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Produce an environmental register for the sector (Section 6)</td>
<td></td>
</tr>
<tr>
<td>B. Pilot audit scheme for the Garages and Vehicle Maintenance Sector</td>
<td>• Consult with relevant stakeholders (Section 4)</td>
<td>AIC audit procedure with associated forms, templates</td>
</tr>
<tr>
<td></td>
<td>• From the best practice guidance notes draw up a test AIC procedure (Section 6)</td>
<td>and reports</td>
</tr>
<tr>
<td></td>
<td>• Pilot an AIC scheme in various garages and review (section 6)</td>
<td></td>
</tr>
<tr>
<td>C. National Information and awareness campaign</td>
<td>• Examine national and international promotional materials (section 3)</td>
<td>Smart Garages Guide</td>
</tr>
<tr>
<td></td>
<td>• Develop a user friendly guide book for the sector that promotes best practice and reduced</td>
<td></td>
</tr>
<tr>
<td></td>
<td>overheads (Section 7)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Produce promotional materials in accordance with project needs and other materials</td>
<td></td>
</tr>
<tr>
<td></td>
<td>including advertising on waste oil burning and waste mapping (Section 7)</td>
<td></td>
</tr>
</tbody>
</table>

While these three tasks were clearly set out as individual deliverables they had overlapping elements and were very much interconnected. Therefore, the structure of this report reflects the chronological progress made during the project, rather than reporting on each task separately. The main elements are listed below with a brief description and an explanation of its timing within the overall project.

1. Research - a review of national and internationally available materials was conducted. This provided the project team with a basis of knowledge of best practice as well as of the gaps existing in information sources for this sector.

2. Stakeholder consultation - intimate knowledge of how this sector works, including issues such as change drivers, attitudes and politics were very important in providing an understanding on how to address the main issue of unreported hazardous wastes. A variety of groups involved with the sector in Ireland were engaged. This consultation process was a key element to the programme.

3. On site audits - in order to determine what was actually happening in garages (of different size and origin) in Ireland, **actual** measurements of wastes generated were required. While there is plenty of anecdotal evidence about waste management in the sector, there is a dearth of actual data.

4. AIC development - unlike the vehicle refinisher’s (VRs) AIC programme, which is driven by a single statutory instrument, there are numerous different pieces of legislation that apply to the every day running of garages in Ireland. A comprehensive review of all relevant legislation was undertaken and this formed the basis for the Best Practice Guidance notes. These notes itemise the legislation and give clear explanations of the consequent requirements for garages. These notes are the main reference point for both public and enforcement based information. They were used to generate the main AIC criteria - which will form the basis of the auditing materials. In addition, these guidance notes lead into the main promotional booklet. As part of this section the AIC pilot audits are critically reviewed.
5. Promotional materials will be a key tool in the dissemination of the message with regard to proper hazardous waste management. This will be a difficult sector to regulate and effective communication of the message will be important. Promoting good practice through potential financial savings is the best option for effective communication. However, the lack of Irish specific case studies from garage sector means that it is difficult to give quantified savings. Promotional materials were therefore developed based on feedback from the various stakeholders, experiences during the audits (both waste audits and AIC pilots) and previous CTC experiences with this sector.

6. How best to connect with this sector has been determined throughout each of the project elements. Through discussion with the stakeholders, evaluating the garages and their various waste management practices, conducting the AIC pilot audits, and discussion of ideas with a number of key actors, a good overview of the sector and the possibilities for success has been achieved. These findings will assist in developing an appropriate plan for future work with the sector that addresses the regulatory requirements while giving due cognisance to the various concerns raised throughout consultation. This project must therefore be viewed as a developmental phase in the comprehensive transport sectoral programme as outlined in the National Hazardous Waste Management Plan.

7. This final report ties all these elements together and produces a sectoral plan for the future as well as a number of key recommendations. These recommendations provide a basis on how best to progress environmental best practice in a realistic and functional manner.

Figure 1 below shows an outline of the interconnected nature of the various documents to be developed and the main associated target groups.

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**Figure 1:** Outline of the interconnected nature of the various documents developed and the main associated target groups.

Best Practice Guidance Notes (BPGNs)
These reflect all the laws that apply to the garage sector and go through them in detail. These are the main reference for all legal concerns

AIC
A suite of documents, based on the regulations as set out in the BPGNs have been developed for the AIC scheme. These are aimed at the regulators and LA enforcement officers.

Promotional Materials
Materials for promoting best environmental practice in the sector, again based on the regulations as set out in the BPGNs have been developed. These are mainly aimed at use by garages.

AIC Report Template

AIC Support Materials

Smart Garage Guide

Promotional Ads and Posters
3. Research

A detailed literature review was undertaken by the project team, to determine the level of information available on the management of garage waste, both nationally and internationally. An outline of each booklet or information source is included in the tables below.

3.1. National

A limited number of publications on the management of hazardous waste in garages are available on a national level. The Connaught Regional Waste Office has published a compact booklet, which was mainly distributed in the west of the country. This booklet provided details on the correct management of garages and forecourts according to the laws at the time of publication in 2004. The project team has also reviewed an environmental guide, published by a car manufacturer for its franchise dealer garages. This booklet, which is considered confidential, outlines the sources and best management practices of hazardous waste, and relevant legislation.

Table 2: Overview of the main national publications relating to garage activity

<table>
<thead>
<tr>
<th>Title</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Guide to Waste Management for Garages and Motor Traders</td>
<td>• Booklet that outlines waste management best practice according to waste type</td>
</tr>
<tr>
<td>Connaught Regional Waste Office, 2004</td>
<td>• Outlines relevant legislation</td>
</tr>
<tr>
<td></td>
<td>• Provides sections for Frequently Asked Questions and Contact Information</td>
</tr>
</tbody>
</table>

3.2. International

There are numerous publications relating to this sector available through international environmental agencies. While these informational sources were found by CTC during its literature review, these would not be easily found by many involved in this sector. The information is generally in booklet or factsheet format and either covers all aspects of hazardous waste management, or more specifically focuses on particular areas e.g. water pollution. These are summarised in below in tabular format.

The burning of waste oil in burners is an issue of particular concern in the management of waste oil in Ireland. A number of studies have addressed the associated pollution arising from these waste oil burners and space heaters. These provide estimates of the increased concentrations of particularly harmful substances e.g. heavy metals and particulates, produced from this activity. A separate table outlining these information sources is included below.

Table 3: Overview of the main General Booklets

<table>
<thead>
<tr>
<th>Title</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Vehicle Servicing and Repair Sector, Hazardous Waste Reduction Plan</td>
<td>European project co-funded by the Irish EPA. Includes detailed information on:</td>
</tr>
<tr>
<td>HAZRED, June 2006</td>
<td>• main sector activities</td>
</tr>
<tr>
<td></td>
<td>• types and fate of hazardous waste from specific activities</td>
</tr>
<tr>
<td></td>
<td>• current best-practice techniques for recovering/reducing hazardous</td>
</tr>
<tr>
<td></td>
<td>wastes</td>
</tr>
<tr>
<td></td>
<td>• hazardous waste segregation and management techniques</td>
</tr>
<tr>
<td></td>
<td>• best practice case studies</td>
</tr>
<tr>
<td></td>
<td>• outline of possible waste management implementation plan</td>
</tr>
<tr>
<td>Title</td>
<td>Outline</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **Proper Automotive Waste Management Resource Manual**                | Environmental Issues (challenges and barriers) including  
• understanding the environment  
• global warming and ozone depletion  
• global environmental agreements  
• air and water pollution  
• chemical risks  
• worker safety and chemical risks including inhalation, skin contact and ingestion  
• hazardous waste  
• labelling  
• workers right to know  
• how to identify hazardous waste, MSDSs  
• waste minimisation methods  
• stock control  
• material substitution  
• proper operating practices  
• recycling waste and use of recycled products  
• spill prevention  
The different types of wastes are looked at individually, with the relevant legislation, environmental impact, management techniques and solutions and DOs and DONTs outlined |
| **Profit Through Prevention - Best Environmental Practices for Auto Repair and Fleet Maintenance** | Short factsheet that:  
• outlines applicable regulations  
• outlines waste reduction techniques and best practices  
• promotes reducing waste to reduce regulations that apply to the business and save money  
• outlines how to determine if a waste is hazardous  
• provides a worksheet where garages can record their current practices and waste streams.  
Recommends garages implement as many of the Best Environmental Practices as possible, and then re-record their practices to see the improvements made. |
| **Vehicle repair garages**                                            | Short factsheet that summarises the key areas where garages have an impact on the environment, broken down into chemicals / waste, energy and paint use. Contains practical advice on how to reduce the impact and save money.  
**Chemicals / waste**  
Provides outline on how to dispose of waste properly, according to each type of waste. Also pays attention to the risk of loss of materials to drains  
**Energy**  
Provides guidance on the reduction in energy use including shopping around with energy providers, using efficient lighting, proper use of compressed air and efficient heating.  
**Paint use**  
Measures to reduce paint use and other waste generation in vehicle refinishing |
| **Car and Truck Dealerships, Service Stations and Garages**           | • Leaflet for insurance for garage operations.  
• Outlines the day to day operations of garages and vehicle service areas and the different types of waste generated and stored.  
• Provides a list of waste management minimisation options |
| **Pollution Prevention Program**                                      | • Outlines the importance of staff involvement in waste reduction programs.  
• Provides an outline of good practice, according to different waste types.  
• Additionally outlines the relevant legislation according to waste type. |
Table 4: Overview of Water Pollution Prevention Booklets

<table>
<thead>
<tr>
<th>Title</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pollution Prevention Tips for Maintenance Garages - Improving Maintenance Activities to Prevent Storm Water Pollution</strong></td>
<td>• Highlights the importance of knowing where the drains in a facility go. Recommends putting warning signs or markers near drains, to stop dumping in the drain.</td>
</tr>
<tr>
<td>Michigan Department of Transportation Storm Water Management Team</td>
<td>• Pays particular attention to the best practice for the management of water from vehicle washing and cleaning.</td>
</tr>
<tr>
<td>February 2007</td>
<td>• Highlights the advantages in applying a maintenance schedule for fleet vehicles</td>
</tr>
<tr>
<td></td>
<td>• Outlines measures to prevent pollution from oils and other wastes in the following areas: servicing, storage tanks, fueling areas</td>
</tr>
<tr>
<td></td>
<td>• Focuses on the importance of staff training and awareness.</td>
</tr>
<tr>
<td><strong>Environmental Best Practices for Automotive Repair, Garages and Service Stations</strong></td>
<td>• Aimed at preventing storm drain contamination.</td>
</tr>
<tr>
<td>Corporation of the City of Vancouver Engineering, Parks &amp; Environment Department</td>
<td>• Summarises the legislative requirements for garages</td>
</tr>
<tr>
<td></td>
<td>• Provides best management practice guidelines on the management and disposal of waste liquids such as oil and radiator fluid.</td>
</tr>
<tr>
<td><strong>Dry Floor Clean Up</strong></td>
<td>• Provides a step-by-step outline of how to properly clean-up oil and other spills</td>
</tr>
<tr>
<td>California Integrated Waste Management Board</td>
<td></td>
</tr>
</tbody>
</table>

Table 5: Overview of information relating to burning of used oil in burners and space heaters

<table>
<thead>
<tr>
<th>Title</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process Guidance Note NIPG 1/1 (Version 2) Waste Oil and Recovered Oil Burners Less Than 0.4MW</strong></td>
<td>• Guidance note on the Best Available Techniques for the control of emissions from processes that use oil burners less than 0.4MW, including vaporising burners</td>
</tr>
<tr>
<td>Department of the Environment, Northern Ireland, November 2004</td>
<td>• Also provides an outline of the relevant legislation and environmental issues, relevant to the burning of waste oil</td>
</tr>
<tr>
<td><strong>Process Guidance Note 1/1 (04) Secretary of State's Guidance for Waste Oil and Recovered Oil Burners Less Than 0.4MW</strong></td>
<td>• As above for the jurisdiction of Britain and Wales</td>
</tr>
<tr>
<td>Department for Environment Food and Rural Affairs, 2004</td>
<td></td>
</tr>
<tr>
<td><strong>Prohibiting the Burning of Used Motor Oil for Space Heating in Toronto</strong></td>
<td>• Provides an estimation of the increased emissions from burning used oil compared to burning home heating oil.</td>
</tr>
<tr>
<td>Medical Officer of Health of Toronto</td>
<td>• Outlines the improvements to the environment from the implication of a ban on the use of used oil in space heaters, including improved air quality</td>
</tr>
<tr>
<td>March 2007</td>
<td></td>
</tr>
<tr>
<td><strong>Hazards &amp; Difficulties of Burning Used Oils</strong></td>
<td>• Discussion outlining the pollutants in waste oils that can cause damage to the environment and human health.</td>
</tr>
<tr>
<td><a href="http://www.wasteoilheat.com/">http://www.wasteoilheat.com/</a></td>
<td></td>
</tr>
<tr>
<td><strong>Used Oil Recovery, Reuse and Disposal in New Zealand Issues and Options</strong></td>
<td>• Outlines the different options available for the burning of used oil, and the associated health implications. One option outlined is low temperature vaporising burners.</td>
</tr>
<tr>
<td>Ministry for the Environment Manatu Mo Te Taiao, 2000</td>
<td>• Outlined the relevant national legislation</td>
</tr>
<tr>
<td></td>
<td>• Provided modelling results for the burning of vaporising burners with an emission stack</td>
</tr>
</tbody>
</table>
Table 6: Review of Extended Producer Responsibility

<table>
<thead>
<tr>
<th>Title</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>**Extended Producer Responsibility (EPR) and Product Design-</td>
<td>• Considers the possible effects EPR can have on reduction of wastes and</td>
</tr>
<tr>
<td>Economic Theory and Selected Case Studies**</td>
<td>design for environment</td>
</tr>
<tr>
<td>Resources for the Future, March 2006</td>
<td>• Reviews the Western Canada Used Oil Programme which uses EPR</td>
</tr>
<tr>
<td></td>
<td>• Notes that 35% of all oil sold is burned</td>
</tr>
<tr>
<td></td>
<td>• Different systems have been used throughout Canada, including retailer</td>
</tr>
<tr>
<td></td>
<td>take back and fee/refund. Fee/refund has a much higher compliance rate</td>
</tr>
<tr>
<td></td>
<td>and the cost of the programme is self sustaining, with much higher</td>
</tr>
<tr>
<td></td>
<td>levels of compliance</td>
</tr>
<tr>
<td></td>
<td>• EPRs have a very positive impact on the recovery of waste oils, filters</td>
</tr>
<tr>
<td></td>
<td>and oil containers - much more effective than retailer take back</td>
</tr>
<tr>
<td></td>
<td>systems</td>
</tr>
</tbody>
</table>

### 3.3. Summary

From this literature review it was found that there is information available for the garage sector - but much of this is inaccessible to the regular Irish Garage, unless they carried out a comprehensive web search. While some of the materials are very informative, they do not summarise all the relevant information in a very user friendly fashion. These materials were used for the development of the Smart Garages Guide for this project.

Information on waste oil burners, which is reputed to be a major issue in Ireland, was also examined. There was some information available on the deleterious effects that they have, both from the environmental and personnel health perspective. These were, in the main, international publications and usually referred to the dangerous effects of these burners. For specific scientific evidence of their impact on the local environment, the USEPA publication from 1984 provided detailed scientific analysis, but there has been little work as comprehensive done since.

During the investigation into waste oil burners it was found that they are legal in Britain if the owner has a licence. This causes confusion in Ireland, as they are advertised in UK trade journals though the law here is
different. A number of outlets for these waste oil burners were found nationally, and one Irish website advertised these as being legal according to the EPA. They have since been contacted in this regard. With regard to any future PRIs for waste oil and filters, the systems used and their application in different areas in Canada should be closely examined\(^3\).

For example, the results in British Columbia are particularly revealing about the success of the fee/refund approach. Prior to July 2003, British Columbia had a different type of programme, a more traditional take-back system in which retailers were required to act as return facilities and accept used oil from any consumer at no cost. They were also required to arrange for and pay to have a waste management company collect the used oil and transport to a refinery or processor. Although this take-back approach as well as the new fee/refund approach can both be considered EPR, results in British Columbia from the new program far surpass results from the take-back program. The main problem experienced with retailer take-back was enforcement: many retailers simply did not accept used oil. Since they were forced to incur the high costs of both take-back and waste management, many retailers simply opted for non-compliance. In 2002, the recovery rates for used oil, filters, and containers in British Columbia were, respectively, 61, 17, and 12 percent. In 2004, those rates had risen to 72, 82, and 42 percent.

\(^3\) Extended Producer Responsibility and Product Design, Walls M., Resources for the Future, 2006
4. Stakeholder Consultation

4.1. Introduction

CTC had some experience in working with the garage sector prior to this project but this was by no way complete. A wide selection of stakeholders were consulted in order to elucidate as complete and comprehensive an overview of the workings of the sector and any specific issues existing. This was an essential part of the programme for, while there was a pre-conceived vision for this project (which was reflected in the methodology drawn up), consulting with those who work in, and with, the sector would ultimately contribute to much of the materials developed.

The various stakeholders that were consulted are listed in Table 7.

**Table 7: Summary of Stakeholders Consulted**

<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Individuals contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory Agencies</td>
<td>Local Authorities x 3 (Kerry, Cork and Galway)</td>
</tr>
<tr>
<td></td>
<td>Connaught Waste Management Office</td>
</tr>
<tr>
<td></td>
<td>LCK Regional Waste Management Office</td>
</tr>
<tr>
<td>Waste Contractors</td>
<td>ENVA</td>
</tr>
<tr>
<td></td>
<td>RIALTA</td>
</tr>
<tr>
<td>Garages</td>
<td>Franchise (SIMI) x 2 (Cork City and Cork County)</td>
</tr>
<tr>
<td></td>
<td>Independent (SIMI)</td>
</tr>
<tr>
<td></td>
<td>Independent x 2</td>
</tr>
<tr>
<td></td>
<td>Backyard</td>
</tr>
<tr>
<td></td>
<td>National (ESB Networks) x 2 (Dublin and Cork)</td>
</tr>
<tr>
<td></td>
<td>County Council</td>
</tr>
<tr>
<td>Relevant Sectoral Agencies</td>
<td>SIMI</td>
</tr>
<tr>
<td></td>
<td>TRACS (Greenstreets)*</td>
</tr>
<tr>
<td></td>
<td>CTC - AIC Inspectors for Vehicle Refinishers</td>
</tr>
</tbody>
</table>

* - Greenstreets manage TRACS (Tyre Recovery Activity Compliance Scheme) under the approval of Government and in accordance with Waste Management (Tyre and Waste Tyres) Regulations 2007.

In total, 18 different individuals or groups were consulted on the sector. Some of the main issues discussed with them were:

- The workings of the sector in general;
- Any major issues arising for them in their workings in/with the sector;
- Areas where improvements could be made, especially with regard to improved hazardous and non-hazardous waste management;
- A proposed AIC scheme.

4.2. Findings

A summary of the main findings associated with the various stakeholder groups is given in Table 8 with the main Stakeholder Consultation Report given in Appendix 1.
### Table 8: Summary of Stakeholders Consulted

<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Summary of main findings</th>
</tr>
</thead>
</table>
| **Regulatory Agencies** | • The ‘cowboy’ nature of the sector was stressed as well as the numerous instances of illegality associated with the sector.  
• The lack of up to date best practice information is an issue - especially the conflicting information about waste oil heaters. While some work has been done in the West of Ireland it was not followed up on.  
• All national bodies should have to comply with certain environmental standards if they wish to operate (e.g. VTN members, local authorities, government agencies)  
• Include environmental module and efficient business module in apprentice training  
• Some of the existing Producer Responsibility Initiatives (e.g. TRACS) got a poor review  
• AIC system based on the existing Vehicle Refinishers was poorly received - better to link wants with needs - encourage participation indirectly |
| **Waste Contractors** | • Mainly supportive of the principles behind this project  
• Estimated that between 2,000 and 4,000 tonnes of oil each year unaccounted for. Waste oil burning a serious issue. Health effects not widely known in garages and seen as a good option - disposes of waste oil and heats garage - lower costs on two fronts  
• AIC scheme may work if it was easy for garages to use. Larger garages would be fine but smaller garages would resist.  
• For waste contractors collecting in rural areas the largest costs is for transport. Improved waste management costs, especially for smaller operators could be facilitated by using milk runs to specific area and providing services to collectives of rural garages.  
• Possibility of designing ‘hold all’ for wastes generated by small garages was deemed a worthy idea  
• Encourage the use of environmental charges by garages - but ensure that these are standardised as currently there is some abuse  
• Examine the charges associated with C1 forms - especially for small volumes. Changing this could be a way of promoting a common sense approach to the garage sector managing hazardous wastes correctly  
• Enforcement of existing regulations is a key issue - any new scheme will lack credibility unless there is equity across the sector  
• PRI for batteries is being abused due to onerous nature of reporting requirements |
| **Garages** | • None of the garages visited had space heaters. However, on discussion with mechanics they appeared to be either unaware or unconcerned about the issue of using them. The reason given for not using them was either too expensive to buy, fear of fire or illegal (though many were completely unaware of this illegality). The potential health implications were not mentioned.  
• The management of hazardous wastes varied. Waste oil was, in general, managed well though the storage areas in the smaller garages were poor. The smaller garages were not doing everything in accordance with the law whereas the large ones, by and large, were.  
• Costs are obviously a huge issue within this sector with most operators, especially the smaller ones, noting that between rates, insurance and waste management costs they are only just ticking over.  
• The idea of an AIC scheme was not well received. Thought that this would be an additional cost for those that are registered with backyard garages escaping another cost.  
• The level of knowledge about the relevant laws pertaining to the sector were varied. Larger garages were aware, smaller ones weren’t or if they were they didn’t take heed of them. When asked why, the usual response related to costs.  
• Idea of training modules for mechanics was well received - especially if there was a cost saving potential  
• Environmental charges varied between the different garages. The cheapest for a basic service found at the garages visited was €7.50 with two others charging €10. One garage had discussed the idea of itemising the environmental charge but decided against it for fear of it being seen as an add on - they incorporate it into their service price. The waste contractors reported they had knowledge of environmental charges ranging between €5 and €25. |
4.3. Other Relevant Findings

As a consequence of conversations with stakeholders, a number of other issues arose with regard to the identification of garages nationally, and the application of an AIC style system.

All motor traders have a unique Trader Account Number (TAN). This trader identifier number operates at a national level for those involved in the selling of motor vehicles. This could be a useful method of generating a database of contacts though many of these may coincide with contact lists already available from SIMI, Greenstreets, or other national databases. This number is for those selling automobiles only and would not cover service only garages. TANs, which are kept by each local Vehicle Registration Office (VRO), are confidential and cannot be given out.

An alternative option is to engage with local authorities to get Garage Identity Numbers (GINs, also referred to as garage codes or garage registration numbers). These are issued by the DOEHLG (Department of the Environment Heritage & Local Government, Shannon, Co. Clare), and require the applicant to have a valid motor trade insurance policy. These are used by garages annually when they apply for/ renew their Trade Plates. Trade Plates (Customer plates or Dealer plates) are issued in order to transport vehicles that they are not insured to drive, or which may not yet have been registered or taxed. As some garages do not trade cars this would cover a large portion of the sector (though not the back yard mechanics).

In order to qualify for Trade Plates garages must:

- be a registered Garage (Garage Identity Number)
- be paying Commercial rates on a premises or have a current planning application in relation to the intended premises

The form required for taxing is RF 700 and when applying for this must be accompanied by:

- Motor Dealer identity Number (Garage Identity Number)
- VAT Number (if registered for vat, otherwise P.P.S.N. no. must be used)
All registered garages should therefore have the final four items. It is assumed that 'backyard' garages do not have some or all of these. Each of these items is a potential revenue source and this is a factor that should be used when engaging relevant groups to participate in any future work. There is potential revenue for:

- Local authorities through registration and rates
- Insurance companies through increased customers
- Revenue commissioners

The issue of local authority yards and national fleets needs further consideration. They are not registered garages, per se, as they do not distribute to the public and, as such will have neither TANs nor GINs. Therefore they must be brought into any formal system that is established through a slightly different mechanism.
5. Waste Assessments

Waste management practices in the garage sector is a relatively unknown entity. From previous CTC experiences working with this sector, it is known that there are a wide range of waste management practices in place, from the good to the poor. This range of different practices is in itself an opportunity to get some of the poorer performers involved. Recent work by CTC with a franchise garage helped reduce their waste management costs by almost €6,000 annually. This was mainly through improved source segregation and proper subsequent management (see Appendix 1 for this Case Study).

Many smaller operators are unaware of such potential savings and a series of waste assessments were carried out to provide a more thorough examination of the mixed wastes commonly generated by Irish Garages. These assessments had multiple objectives:

★ Identify typical wastes being generated within the sector
★ Potential opportunities for waste prevention
★ Identify hazardous waste streams that regularly enter the municipal waste stream

The mixed solid wastes were characterised according to the methodology developed by CTC and the EPA during the national commercial waste characterisation studies conducted in 2002, 2004 and 2008. Wastes are segregated into the main waste streams (e.g. paper, cardboard, metals) and within each stream there are different fraction characterisations (e.g. paper forms office paper, newspapers, tissue paper). Composites, one of the waste streams, refers to materials made from more than one particular material and these, generally, are managed in the municipal waste, i.e. they cannot be recycled (though TetraPak, which is a composite is accepted by some LAs). Other materials that may be classed as composite in the garage sector would include car parts of mixed materials (e.g. plastic and metal, rubber and plastic). Oily fines (due mainly to saw dust used in cleaning up oil spills) were identified as a significant waste stream from this sector and are included as one of the main streams. The "other" waste stream generally refers to materials that should not be in the municipal stream due to their potentially hazardous nature. The full list is:

- Waste electrical and electronic equipment
- Fluorescent lighting
- Batteries
- Aerosols
- Waste chemicals
- Waste oil
- Oil filters and contaminated air filters

Where an individual garage waste profile has significant quantities of ‘other’ they will be explained on a site by site basis in the following sections.

5.1. Participants

A diverse range of garage sizes and types were engaged to ensure a complete overview of waste generated across the sector. A summary of the findings from the various garages is shown in Table 9.
### Table 9: Summary of garage waste audits

<table>
<thead>
<tr>
<th>Garage Description</th>
<th>Waste Profile</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>National Fleet Garage</strong></td>
<td></td>
<td>There are facilities for the separate collection of most waste streams. The audit of mixed wastes revealed significant quantities of metal in the mixed stream. This was due to brake pads and housings. Oily fines, from cleaning up oil spills, were the next significant contributing stream.</td>
</tr>
<tr>
<td>(6 mechanics)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>County Council Garage</strong></td>
<td></td>
<td>There are facilities for oils, filters and auto batteries. The waste profile showed small quantities of packing wastes. The largest waste streams were textiles (oily rags) the ‘other’ fraction and oily fines. This other fraction included mainly oil filters and contaminated air filters. It also contained small quantities of electrical wires, small batteries and bulbs. Oily fines was due to spill kit materials which was used for cleaning oil and water spills.</td>
</tr>
<tr>
<td>(5 mechanics)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Small urban garage</strong></td>
<td></td>
<td>This garage has limited segregation and the mixed waste profile shows metal accounts for over half of the total. The composite fraction is mainly a mixture of metal and rubber - various random car parts. The ‘other’ fraction contained used air filters, bulbs, aerosols and WEEE. Oily rags (textiles) and oily saw dust residue from dealing with oil spills were also present in small quantities.</td>
</tr>
<tr>
<td>(2 mechanics)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Small rural garage</strong></td>
<td></td>
<td>Waste is currently managed by owner - taken either to the local Civic Amenity Site (CAS) or puts it in with household waste. Some is burned in shed or in fireplace. There is no recycling on site. In this case the ‘other stream’ relates to bulbs, aerosols and contaminated containers. A lot of metal was in the mixed waste as well as recyclable plastic and cardboard. Oily rags were and oily fines were also thrown in the general bin.</td>
</tr>
<tr>
<td>(2 mechanics)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Large Franchise garage

(30 employees, 8 mechanics)

This garage has excellent segregation practices for their hazardous wastes. Also segregate cardboard and other recyclables. Majority of the mixed wastes relates to their on-site canteen. Recently halved their mixed waste disposal costs through improved segregation throughout the site. The main savings were made from metal which they now get a refund for.

### 5.2. Waste Assessment Findings

As shown in Table 8 there is a wide variety of practices with regard to waste management. This is clearly reflected in the lack of consistency or correlation between the waste profiles of the various garages. These waste profiles are shown in Figure 2. Of particular note was the national franchise garage where wastes were almost exclusively related to the canteen. However, they only recently improved their on-site systems and now manage all garage wastes separately, with great financial savings (more detail on this specific garage and the recent improvements they have made in a case study given in Appendix 1).

![Waste Assessments from all Garages](image)

**Figure 2: Profiles of the 5 waste assessments conducted**

A profile of the average waste composition as determined from the various waste assessments carried out is shown in Figure 3. While this profile highlights the main wastes generated across the sector a degree of caution should be exercised if applying this profile to the sector as a definitive result. This is due to the varying sizes and work practices of the participating garages.
Figure 3: Average profile of the 5 garage mixed solid wastes assessments conducted

This profile highlights some issues of significant importance.

★ Metal wastes were found to be the largest fraction (by weight) in the mixed waste bins. This mainly consisted of brake pads, their housings and other smaller metal items. This is a large area for potential savings for Irish garages.

★ The next 3 largest fractions are all wastes that are hazardous and should not be in with mixed wastes. This is an area of concern and accounts for 37% of the total wastes by weight. These are

★ the ‘Other’ waste stream - used oil filters, contaminated air filters, aerosols, bulbs and WEEE (15%).

★ Used and oily textiles (which accounts for an average of 10%)

★ Oily fines - saw dust and other absorbents used for cleaning up oil, and in some cases water, spills

★ There is potential to improve recyclable packaging segregation in the sector with over 25% attributed to recyclable packaging materials

These results are also shown in Figure 4.

Figure 4: Main mixed solid wastes found from the 5 waste assessments conducted
### 5.3. Waste Assessment Findings

Following discussions with garage operators during waste assessments and stakeholder consultations, a number of other waste related topics were addressed. These are summarised in Table 10.

**Table 10: Other waste related findings during garage waste assessments**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous waste records</td>
<td>Where the wastes were managed properly records were kept for the appropriate time. However, while all garages had the relevant paper work none had monitored the weights and/or volumes of wastes removed from site from these records. When asked for this information they all said they could extract it but it would take a while and were therefore resistant.</td>
</tr>
<tr>
<td>Management of hazardous wastes</td>
<td>The main hazardous wastes, waste oil and filters, were managed well. There is an issue with mixed fuels, anti freeze, brake fluid and coolant as these are often mixed with the waste oil. For waste contractors this poses a problem as the purity of the oil is compromised and consequently its value. Only one of the garages visited had a service for non-liquid oily rags.</td>
</tr>
<tr>
<td>Waste Contractor Licences/Permits</td>
<td>The larger garages generally had the appropriate permits/licences on file. The smaller garages didn’t have them available but could get them - again for the wastes that were managed properly. The small rural garage was the poorest performer in this regard.</td>
</tr>
<tr>
<td>Knowledge of applicable legislation</td>
<td>The law, especially relating to waste oil burners, was a foggy area. Again, this was mainly for the smaller garages. The advertising of these in English trade journals contributed to this uncertainty. One stakeholder was on the verge of buying one prior to consultation.</td>
</tr>
<tr>
<td>Waste Batteries</td>
<td>For a number of the garages waste batteries were removed by ‘travellers’ who call periodically. The garages were unaware that there is the potential to re-coup some money. One garage was recently reimbursed €145 for waste batteries and this covered his other hazardous waste collection costs</td>
</tr>
<tr>
<td>Space</td>
<td>In the smaller garages space was regularly identified as a the main reason for not segregating wastes at source or for inappropriate subsequent management. While there is an element of truth in this regard, most of the garages that raised this issue would have plenty of space if the garage was organised appropriately.</td>
</tr>
<tr>
<td>Cost</td>
<td>Cost is the single main reason for any inappropriate management of hazardous wastes. For example, one garage disposes of its (drained) oil filters in the trunk of ELVs as a way to reduce costs. That said there is the potential to reduce waste costs through proper metal waste segregation.</td>
</tr>
<tr>
<td>Waste Contractor paperwork</td>
<td>The issuing of correct C1 forms appears to be a problem and this needs to be addressed with both the garages (explain what they need to have) and also the waste contractors (explain what they must give to garages). In a number of instances receipts for hazardous waste removal were given but no corresponding C1 forms were found.</td>
</tr>
<tr>
<td>Storage facilities</td>
<td>It was found that the larger garages usually had their storage containers in a good condition and away from water ways. This was not the case in the smaller garages and the rural garage visited had what was deemed ‘typical’ storage practices with oil and oil filters stored in bins on open ground. As can be seen in the following figures, there appears to be a lot of contamination on the ground near these bins.</td>
</tr>
</tbody>
</table>
Determining the actual potential savings that garages could make is not possible at this time. While work done during the Macroom EcoBusiness programme produced substantiated savings over 2 years this short project can only identify areas where potential savings could be made typically in Irish banks.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential Savings</td>
<td>Determining the actual potential savings that garages could make is not possible at this time. While work done during the Macroom EcoBusiness programme produced substantiated savings over 2 years this short project can only identify areas where potential savings could be made typically in Irish banks.</td>
</tr>
</tbody>
</table>

*Figure 5: Storage conditions for waste oil and used oil filters in a rural garage*
6. The Law and an AIC Style Scheme

6.1. Best Practice Guidance Notes - the Laws applicable to the Garage Sector

As previously mentioned, unlike the Vehicle Refinishers AIC system which is (largely) implementing by a single statutory instrument (S.I. No 199 of 2007) there are a wide variety of different pieces of legislation pertaining to this and the associated proposed AIC system for the garage sector. Table 11 summarises the main relevant legislation for the garage sector.

Table 11: Main legislation relating to the Garage Sector (the Best Practice Guidance Notes contain more specific detail and are given in Appendix 2)

<table>
<thead>
<tr>
<th>Legislation</th>
<th>Implication for garages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Management Act 1996 – 2001 (No. 10 of 1996 and No. 36 of 2001)</td>
<td>Garage must identify all wastes that are hazardous and recover or dispose of them appropriately. The following common wastes in garages are classified as hazardous waste:</td>
</tr>
<tr>
<td></td>
<td>* Solid waste containing oils e.g. oil filters, oil contaminated rags, protective clothing</td>
</tr>
<tr>
<td></td>
<td>* Lead-acid batteries</td>
</tr>
<tr>
<td></td>
<td>* Brake fluids</td>
</tr>
<tr>
<td></td>
<td>* Antifreeze</td>
</tr>
<tr>
<td></td>
<td>* Mixed fuels e.g. petrol and diesel from mis-fuelling by vehicle owners</td>
</tr>
<tr>
<td></td>
<td>* Other occasional wastes such as:</td>
</tr>
<tr>
<td></td>
<td>** parts degreasing/washing fluid</td>
</tr>
<tr>
<td></td>
<td>** out-of-date products e.g. lubricants, glues, sealants, touch-up paints, and aerosols</td>
</tr>
<tr>
<td></td>
<td>** airbags (explosive component)</td>
</tr>
<tr>
<td></td>
<td>** fluorescent tubes</td>
</tr>
<tr>
<td></td>
<td>** portable batteries</td>
</tr>
<tr>
<td></td>
<td>** waste electrical &amp; electronic equipment (WEEE)</td>
</tr>
<tr>
<td></td>
<td>Wastes may only be transferred to an appropriate person, who is permitted to collect such waste, and licensed or permitted to recover/dispose of such waste. There will be a separate licence/permit for both the waste collector and the recovery/disposal facility.</td>
</tr>
<tr>
<td></td>
<td>The garage should ensure that they ask their waste contractor for their permit number and keep this on record. Where possible the garage should keep a copy of the waste licence or permit.</td>
</tr>
<tr>
<td>Waste Management (Movement of Hazardous Waste) Regulations 1998 (S.I. No. 147 of 1998)</td>
<td>Where hazardous waste (excluding waste oils) is moved within the state, i.e. removed from the garage by a waste contractor, the garage must receive a copy of the consignment note (C1 form) from the waste contractor.</td>
</tr>
<tr>
<td></td>
<td>Where waste oil is removed there is no need for a C1 form, but the waste contractor must provided a record to the garage, so the garage can meet the record keeping requirements.</td>
</tr>
</tbody>
</table>
### Legislation


**Waste Management (Tyres and Waste Tyres) Regulations 2007** (S.I. No. 664 of 2007)

<table>
<thead>
<tr>
<th>Legislation</th>
<th>Implication for garages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Record Keeping:</strong></td>
<td>Garages are required to keep records for waste oils and other hazardous waste. These records must include the following details:</td>
</tr>
<tr>
<td></td>
<td>• The quantity of waste produced.</td>
</tr>
<tr>
<td></td>
<td>• The quantities of waste transferred to other persons, including dates, and names of collector and disposer/recover, and destination.</td>
</tr>
<tr>
<td></td>
<td>• Where relevant, any treatment carried out (by the garage or the waste contractor).</td>
</tr>
<tr>
<td></td>
<td>These records must be kept for the following periods:</td>
</tr>
<tr>
<td></td>
<td>• waste oils: 2 years</td>
</tr>
<tr>
<td></td>
<td>• other hazardous waste: 3 years</td>
</tr>
<tr>
<td></td>
<td>These records, must be made available to the EPA or relevant Local Authority upon request. A summary of the data in the records is usually required.</td>
</tr>
<tr>
<td><strong>Storage and Labelling:</strong></td>
<td>During temporary storage of hazardous waste at its place of production, a garage must ensure that:</td>
</tr>
<tr>
<td></td>
<td>(a) All containers or other packaging used for such storage must be labelled in accordance with Community and other standards which are in force in relation to such labelling</td>
</tr>
<tr>
<td></td>
<td>(b) Hazardous waste of one category is not mixed together with any other category of hazardous waste or with any non-hazardous waste.</td>
</tr>
</tbody>
</table>

Where a garage supplies or sells tyres or waste tyres, as a wholesaler, supplier, trader or retailer, they are classified as a “supplier”

A supplier of tyres must:

- Register with Tyre Recovery Activity Compliance Scheme (TRACS) or
- Register with their Local Authority and provide regular reports as required.

Registration with TRACS involves the following requirements:

- Provide TRACS with annual details on tyres for replacement fittings including quantities and sources.
- Put up the notice specified in the Regulations near the entrance to your premises.
- Store waste tyres separate to other wastes in a manner which does not cause a fire risk, an adverse visual impact, or harm environment/health.
- Store less than 180 cubic metres of tyre waste (approximately three 40ft shipping containers) at any one time or the garage will require a waste facility permit.

The garage must insure that the collector of waste tyres is either a member of TRACS or is self complying with the Regulations.
<table>
<thead>
<tr>
<th>Legislation</th>
<th>Implication for garages</th>
</tr>
</thead>
</table>
| Waste Management (Packaging) Regulations 2007 (S.I. No. 798 of 2007)     | **Recycling of certain packaging waste:**  
Garages are required to separate and recycle the following uncontaminated packaging waste, that arise on their premises including:  
- aluminium  
- cardboard  
- glass  
- paper  
- plastic sheeting  
- steel  
- wood                                                                                                                                                                                                                                                                                                                                                       |
| Waste Management (End-of-Life Vehicles) Regulations 2006 (S.I. No. 282 of 2006) | A garage must ensure that any End of Live Vehicles that arise on its premises are only forwarded to Authorised Treatment Facilities (ATFs) – i.e. these facilities should be licensed or permitted.  
The ELV Directive introduces a heavy metals ban for vehicle materials and components put on the market since 1 July 2003. This ban also covers spare parts, replacement parts, service parts, and repair parts, but not those parts used on vehicles that predate July 2003.  
There are some exemptions allowed for heavy metals in certain materials and components. Components exempted that could arise in a garage situation include the following:  
- Batteries (must be labelled as containing lead)  
- Discharge lamps for headlight application and fluorescent tubes used in instrument panel displays where they contain mercury (must be labelled as containing mercury)  
- Vibration dampers where they contain lead (must be labelled as containing lead)  
Where any such waste components, that are labelled as containing lead, arise in the garage, they should be handled with waste batteries. Likewise waste lamps labelled as containing mercury should be handled with general waste fluorescent tubes.                                                                                                                                                                                                 |
| Waste Management (Licensing) Regulations 2004 (S.I. No. 395 of 2004) and European Waste Incineration Directive (Directive 2000/76/EC) | A garage cannot burn waste oil in heaters or burners on the premises, unless they have obtained a Waste Licence from the EPA.  
Garages are also prohibited from disposing of waste oils to water or drainage systems                                                                                                                                                                                                                                                                                                                                 |
| Waste Management (Prohibition of Waste Disposal by Burning) Regulations 2009 | **Ban on burning of waste:**  
Since July 2009, waste cannot be disposed of by burning, either indoors or outdoors. Fine of up to €3,000 or 1 year in jail apply. Only burning in licensed/permited facilities is allowed.                                                                                                                                                                                                                                                                                                                                 |
<table>
<thead>
<tr>
<th>Legislation</th>
<th>Implication for garages</th>
</tr>
</thead>
</table>
| Waste Management (Batteries and Accumulators) Regulations 2008 (S.I. No. 268 of 2008 and S.I. No. 556 of 2008) | **Supplying batteries - Retailer / Distributor:** A garage selling or supplying batteries (including replacement batteries) to an end user is classed as a distributor/retailer. The following requirements must be met by garages who sell/supply batteries:  
  • Register with their local authority or centrally with either WEEE Ireland or the European Recycling Platform (ERP).  
  • Display the required signage for take-back. Download this from: www.epa.ie/downloads/advice/waste/weee/Statutory_Notice_Batteries_only.pdf  
  • Are obliged to inform customers of free waste battery take-back – e.g. through a leaflet provided at point of sale.  
  • Are obliged to operate a free one-for-zero take-back of waste batteries (only similar to type sold); leaking batteries do not have to be accepted.  
  • Are obliged to distribute batteries from validly registered producers – otherwise the garage itself is classed as a producer.  

Once a garage has registered as a distributor with its local authority or through a compliance scheme, the garage can store up to 2.5 tonnes of batteries (approximately 150 - 200 car batteries) at its premises at once, without the need for a waste facility permit.  

**Supplying batteries - Producer:** Where the garage does not purchase its batteries from a registered producer, then the garage itself is classed as a producer and must take on the responsibilities.  

A “producer” means any person that places batteries, including those in appliances/vehicles, on the market for the first time within Ireland on a professional basis. Producers must:  
  • Register with the WEEE Register Society  
  • Join a compliance scheme or self comply  
  • Report monthly weight & type of batteries placed on Irish market to the WEEE black box  

**Waste Batteries**  
A garage must ensure that they store and dispose of waste batteries appropriately.  

**A garage that is a retailer of batteries cannot dispose of waste batteries at civic amenity sites, but should:**  
  • Use the collection service provided by the compliance schemes (WEEE Ireland or ERP), or the individual battery producer if they are self-complying, to collect automotive batteries within 30 days.  
  • Use an independent third party authorised for automotive waste battery collection. If the garage uses this option they need to:  
    • Keep records and report to the EPA each calendar year by end February using a standardised report, which includes quantities by weight/number of units,  
    • Ensure the waste batteries are treated according to Best Available Techniques (BAT) and that the technical requirements of the Batteries Directive are met.  
    • Ensure waste recycling targets are achieved  

Local Government (Water Pollution) Act 1977-1990 (No. 1 of 1977 and No. 21 of 1990). Where a garage has “trade effluent” it is subject to a water pollution licence from its local authorities. Trade effluents do not include domestic sewage or storm water and are generally only relevant where vehicle washing occurs.  

© CTC 2009
<table>
<thead>
<tr>
<th>Legislation</th>
<th>Implication for garages</th>
</tr>
</thead>
</table>
| Directive 2006/40/EC relating to emissions from air-conditioning systems in motor vehicles and amending Council | A garage that undertakes installation of Motor Air Conditioning units must ensure the following:  
  With regard to refilling MAC equipment:  
  • service/repair providers must not refill such equipment, if an abnormal amount of the refrigerant has leaked from the system, until the necessary repair is carried out. Use of refrigerant with a GWP > 150 is only to be used in servicing systems that contained these gases.  
  With regard to new MAC equipment:  
  • From 1 January 2011, no MAC containing a refrigerant with a GWP > 150 can be fitted to all new types of vehicles that have been type approved since this date,  
  • From 1 January 2017, no MAC containing a refrigerant with a GWP > 150 can be fitted to any vehicle.                                                                                                                                                                                                                                                                                                                                                     |
| European Communities (Inspection and Assessment of Certain Air-Conditioning Systems) Regulations 2006 (S.I. No. 346 of 2006) to be replaced by draft European Communities (Inspection of Air-Conditioning Systems) Regulations 2009 and Regulation (EC) No. 842/2006 on certain fluorinated greenhouse gases and Guidance on EC Regulation No 1005/2009 on substances that deplete the ozone layer | Where a garage runs a large showroom or has office air conditioning equipment it may be affected by this legislation. The following requirements apply:  
  • where the air conditioning system has an effective rated output that is greater than 12kW will, regular inspection and assessment is required.  
    • Systems with a rated output of less than 250kW (but more than 12kW) must be inspected at intervals of not more than 24 months, with the first inspection to be completed no later than 31 December 2010.  
    • Owners must be satisfied that the inspector is suitably qualified before getting the inspection carried out.  
    • Evidence of qualification of the inspector and reports of inspections (logbook) must be retained for 6 years.  
  • minimise/prevent refrigerant gas leakage  
  • carry out leak detection in systems with ≥ 3kg gas content:  
    • ODS (ozone depleting substances) e.g. R22: every 12 months  
    • F-gas (fluorinated greenhouse gases) e.g. R410a, R404a, R407c: every 3 to 12 months, depending on kg content (other than certain hermetically sealed systems)  
  For systems that use F-gases (for refrigerants primarily HFCs (hydrofluorocarbons)), the garage must:  
  • collect gases during servicing/maintenance/ decommissioning for recycling or destruction  
  • install leakage detection systems for systems with ≥ 300 kg gas content  
  • keep records with specified information  
  • use certified personnel/companies  
  These are further elaborated in the Best Practice Guidance notes (Appendix 2) which sets out in detail how the legislation applies to garages.  

**6.2. The AIC Style Scheme**  
The AIC scheme currently in use for the Vehicle Refinishers is, as mentioned above, governed by S.I. No 199 of 2007. As a follow on from the Best Practice Guidance notes developed here, a scheme appropriate for the garage sector was developed and tested. The premise for developing this was based on the Innovation Diffusion Chain Linked Model. This puts a major emphasis on feedback loops to ensure the most effective solutions to specific issues are raised. This evolution of the relevant materials is depicted graphically in Figure 6.
As part of this process the following were produced for the AIC audits:

**AIC Report Template** - this is to be used for auditing the relevant garages. On consultation with an AIC auditor for the Vehicle Refinishing (VR) sector, it was noted that this template was the most useful tool for the actual on-site audit. It outlines all the main relevant legislation in easy yes/no answer questions and provides space for the auditor to record observations and make notes during the audit. The questions are set out under the following headings:

- Record Keeping
- Hazardous wastes storage and disposal
- Waste Oil
- Tyres
- Batteries
- Non - Hazardous wastes storage and disposal
- Waste water
- Air conditioning units - both mobile and stationary
- Observations section - for best practice observations and/or opportunities for improvement

**AIC Procedure for Garages** - this procedure documents the process from initial query, through quotation, contract, terms & conditions, audit, report preparation, complaints and appeals

**Garages AIC Audit Contract Form** - the operator (garage) must agree and sign this contract before the AIC audit can proceed.

A copy of the final drafts of these is included in Appendix 3.

### 6.3. The AIC Pilot

The AIC pilot audit scheme was developed, in conjunction with the EPA. The pilot audits were designed based initially on the VR guidelines. Due to the differences in the regulatory drivers the current AIC developed in its own manner. The objective of the pilot audits was to test the sector guidance document and inspection report template, in an audit situation, on commercial volunteer operations. In turn, this was to
highlight areas for development/improvement within the sector in order for them to meet best practice guidelines.

The audits were conducted in December 2009. The audits were performed by a CTC INAB accredited auditor who has extensive experience in such audits in the VR and dry cleaning sectors. A total of five inspections were conducted by and these were carried out at locations as scheduled in the original tender document and endeavoured to provide a complete coverage of the typical garages involved in the sector. The garage types audited were:

- County Council yard
- SIMI independent garage
- SIMI Franchise garage
- National fleet garage
- Small independent garage

The audits took just over an hour to perform and followed the audit procedure as detailed in Appendix 3. The audit involved an initial office based meeting where the audit requirements were gone through and records reviewed. A site walk through was then conducted where waste management practices were reviewed. The visit was finished by a close out meeting where the auditor explained his findings and allowed the auditee give his feedback. The audit reports (given in Appendix 4) were completed the following week and sent to the garages.

EPA and INAB personnel observed one of the audits, at a service garages for ESB Networks in Tallaght. The Environmental Protection Agency (Michael McDonagh) and the Irish National Accreditation Board (Pat O'Brien) representatives acted in an observer capacity during the pilot audit at ESB Networks garage. Dr. Colum Gibson, Project Manager, EPA Garages Sector Project, witnessed all the audits.

In light of the pilot audits the following are the summary findings from the INAB Inspector.

6.3.1. Overall Findings
It is acknowledged that the operations examined have not been subject to formal environmental regulation or audit previously. Therefore, points raised in this report in relation to audit findings should not be seen as a criticism of the operations audited, but rather should be used as learning process for all operators in the sector. In addition there was a learning aspect for the Clean Technology Centre staff involved in the project. While developing these materials was done with ease of use and clarity in mind, it is only though the application in real circumstances that potential weaknesses in the protocol could be identified – with subsequent opportunity for remedying same.

6.3.2. Industry Awareness and Understanding
While awareness of the existence of certain Regulations (e.g. batteries, tyres and waste management in relation to waste oil) was good among the operations audited, the pilot audits highlighted the need for a greater level of understanding of all the legal requirements for the sector - as laid out in the Best Practice Guidance (draft). Sector operators need to gain detailed knowledge of the guidelines developed, and of the records required to demonstrate compliance to AIC auditors.

6.3.3. Record Keeping and Documentation
Record keeping with regard to hazardous waste removal from site is a significant issue. While a number of the installations involved in the pilot had good record keeping in place, it was found that an increase in formal record keeping would, in the main, need to be put in place to demonstrate compliance with the requirements of the Best Practice Guidance. Where records are in place, the information may not be complete (e.g. C1
forms and Certificate of Destruction for End-of-Life Vehicle forms were found to be missing key information) - if indeed such records were available.

The provision of a template may be of use for waste oil recording as waste oil is not subject to C1 requirements.

Apart from waste records, other records such as training of operators, waste materials, machine and maintenance are needed to demonstrate competence – though not legal compliance. For example, training records of operators should include training description, be signed, dated and retained on file.

It is our opinion that the sector needs to have a certain level of documentation in place for the purposes of the AIC audit. The simple checklist in the Smart Garage Guide, and the more detailed version in the Best Practice Guidance notes would be of use to garages when they are preparing for a formal audit (obviously the garages involved in the pilot did not have this preparation opportunity).

Typically, for AIC audits, one year’s worth of data is required to be available for inspection - though proof for up to three years may be requested.

6.3.4. Hazardous Waste Management

There were some difficulties with completion of C1 forms. Many of the garage operators were unaware of the importance of a completed C1 form, and a certain degree of responsibility must reside with the waste contractors (though legally the onus is with the garage). This is an area that needs to be communicated to both garages and waste contractors.

There were also numerous issues of hazardous wastes being disposed of in general waste skip/bin (e.g. aerosol cans, oily solid wastes, WEEE). This is potentially a significant issue and can only be combated through education and enforcement. The use of the waste contractors as educators may be worth considering.

In no instance was waste oil managed inappropriately and waste oil burners were not observed.

Illegal practices relating to battery disposal (disposing with ELVs or to unlicensed outlets) and oil filters (in ELVs) were brought to the attention of the relevant operator(s).

The ESB has prepared an excellent wall chart that identifies all hazardous wastes relevant to its operation. While this waste material flow chart is very useful for high level management, it is too complex for the typical garage scenario, and the ESB is currently in the process of redesigning a more colour coordinated signage set. A poster has been designed by the project team for this specific purpose (shown in Appendix 8).

6.3.5. Compliance with Legislation

The requirement for a Water Pollution licence to discharge to sewer for those garages using car washes, or otherwise washing vehicles prior to repair, arose during a number of the audits. This issue has been discussed with a number of local authorities since. The general view is that most garages with small hand held car washes do not have discharge licences. Large stationary car washes are, in general, required to have them – most of these are on sites that distribute petrol/diesel.

6.3.6. Changes to the Best Practice Guidelines and AIC Report Template

While the initial draft of the audit report template was comprehensive, using it in ‘real’ circumstances highlighted a number of areas for improvement, clarification, and in some circumstances, elaboration. In addition, a small number of clerical corrections were made to the documents - arising from the piloting audits. The documents given in Appendix 3 have been revised to reflect these changes.
### 6.4. Summary of the AIC Audit Findings

The following Table provides a summary of the actual AIC pilot audit findings under the key legislative topics as determined by the Best Practice Guidance document.

<table>
<thead>
<tr>
<th>Area</th>
<th>Observations</th>
</tr>
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| **Record Keeping**                   | • While collection dockets and receipts are usually available, C1 forms are often not available  
                                         • C1 forms improperly filled out or incomplete  
                                         • Waste contractor permits/licences not usually available  
                                         • Batteries often sent to un-licensed collectors – garages can get paid whereas this is not the case with the compliance schemes (they get collected for free only) |
| **Hazardous Waste Storage and Disposal** | • Oily wastes were found in the MSW – typically absorbents (pads, rags, saw dust), oil filters, contaminated air filters and some WEEE  
                                         • Labels on hazardous waste storage containers often missing  
                                         • Some hazardous wastes being collected by non-permitted collectors  
                                         • Storage facilities for hazardous wastes not always in good condition – this an issue for both the garage and waste contractor to be aware of |
| **Waste Oil**                        | • Garages visited managed oil correctly and had appropriate paper work                                                                                                                                 |
| **Tyres**                            | • The issue of garages that are part of large national organisations was noted (e.g. LA fleets, An Post). Often they have direct contracts with tyre suppliers rather than supplying their own  
                                         • A number of garages were not registered with TRACS, though their suppliers were |
| **Batteries**                        | • Again, the issue of garages that are part of national fleets and their contracts for battery supply was noted (e.g. LA)  
                                         • Smaller garages were mainly not registered (as a distributor) though they noted their suppliers were.  
                                         • Larger garages were usually registered as distributors  
                                         • A number of the garages (2 of the 5 audited) give their batteries to travellers. They remove regularly so no build up. Storage space is an issue.  
                                         • Where removed by waste contractor, the correct records were not available or insufficient information was available  
                                         • With regard to waste batteries, garages were not aware of take back responsibilities |
| **End of Life vehicles**             | • ATF paper work was often not completely available (ELV licence not available)                                                                                                                                 |
| **Mobile Air Conditioning**          | • Most don’t deal with MACs  
                                         • Those that do are trained and have machines for servicing and maintenance                                                                                                                                 |
| **Non Hazardous Waste Storage and Disposal** | • Records for recyclables often not available  
                                         • MSW records available but information on weights and/or volumes was poor  
                                         • In smaller garages solid wastes are often managed directly by the owner with their household wastes |
| **Waste Water**                      | • Only one of the garages visited had a large car wash and they had a trade discharge licence                                                                                                                                 |
7. Promotional Materials

As outlined in chapter 2 there is a limited amount of guidance materials available for the garage sector in Ireland. While there is significantly more international literature, it is not commonly available nor disseminated to the sector here in Ireland. Much of the information that garages get is through trade journals and those that are members of SIMI can get it through their Newsletter and ezine. Therefore, a number of promotional materials were produced to assist in the promulgation of good environmental practice.

Communicating the various pieces of legislation to the sector and promoting the environmental message will be a challenge. Within the sector different individuals will have different needs as well as capabilities. Therefore, the materials produced are all interconnected and this interconnectedness is depicted in Figure 7.

Figure 7: Outline of the interconnected nature of the various documents developed and the main associated target groups

The AIC materials developed have been described and discussed in the previous Section and here the main promotional materials for use within the garages are outlined.

7.1. Smart Garage Guide

Based on recent experiences in Ireland with specific sectors, tailored booklets appear to work well. These have been used to good effect in pubs, farms and more recently the food and catering sector. This may be attributed to the homogeneous nature of the issues experienced across a sector and their corresponding solutions. Where suitable examples, case studies and simple improvement tips exist they are a most effective manner for communicating good practice, especially where there are financial savings realised.

From the consultation process it was apparent that engaging this sector exclusively on an environmental basis would probably not work with the majority. While some of the garages engaged espoused strong
environmental interests and beliefs, the underlying interest that was consistent to all was an interest in financial savings.

CTC’s experience in dealing with the SME sector provided an insight into many of the common problems encountered and potential areas for improvement. In addition, with the garage case study produced during the Macroom EcoBusiness Programme, information gathered during the waste assessments and the feedback from the garage consultations, a comprehensive basis for developing a guide book was formed. The promotion of cost savings was seen as the best option to connect with the people currently working in this sector.

The Smart Garage Guide was thus developed and has, as an underlying basis, legal compliance. This is clearly set out from the first page and the Guide covers the main topics Waste, Energy and Water. In each section the main legal requirements are laid out and explained. These are followed by a series of potential areas for financial savings - with associated environmental benefits. A brief explanation is also given - but these are kept relatively short with additional information sources given for those that want more detail.

At the end of the Guide is a series of tables to assist garages in simplifying their record keeping. These summarise all the relevant waste contractor information as well as all invoices, consignment notes, weights and/or volumes. This will facilitate easy assessment of legal compliance with regard to record keeping.

The Smart Garage Guide is available at: [www.epa.ie](http://www.epa.ie)

### 7.2. Other Promotional Materials

Some other promotional materials have been produced as part of this project. These are:

- **Waste Oil Burner advert** - waste oil burning appears to be a serious issue across this sector. From well-established prominent garages to backyard sheds, these are used. The EPA plans to put adverts in a number of national newspapers and journals to communicate the illegality of this. As part of this project the graphics for a number of adverts were designed with the final advert shown in Appendix 5.

- **Waste Mapping Poster** - many garages are unaware of the proper waste management route for their wastes, both hazardous and non-hazardous. Therefore a poster was developed, based on the findings from the garage visits and waste assessments, that shows the proper waste management routes for the main waste streams. This poster is shown in Appendix 7.

Some other materials that may be of use in the sector in the future, depending on what future plan is applied, are:

- **Typical Environmental Costs of Service** - this is an area that is possibly being abused with garages either charging in excess (and consequently giving environmental compliance a poor name) or charging and not using the money for correct waste disposal. Therefore, educating of the public about the costs associated with typical garage work would provide transparency in this regard.
8. Project Findings

8.1. Introduction

From the outset of this project it was hoped that an inclusive, fair and workable solution for the sector could be found with the ultimate outcome of improved legal compliance and lower environmental impacts. Therefore, throughout the various tasks any of salient points in this regard were noted. These came from various sources and are summarised here.

8.1.1. Stakeholder Consultations

In order to determine the current workings within the garage sector and consequently the best course of action for improvement of the management of hazardous wastes a number of relevant stakeholders were engaged. A number of different topics were discussed, or arose, during these meetings and the main findings are detailed below.

1. **AIC Scheme** - establishing an AIC style scheme similar to that currently in use for vehicle refinishers was not favourably received due to the perceived lack of equity across the sector - unregistered garages would escape another additional cost. However, an AIC scheme as part of a more inclusive programme was thought to be a worthy option. It is important that the materials developed for the AIC considered the target audience, and that user friendly materials for garage operators be developed;

2. **Producer Responsibility Initiatives** - battery and tyres systems are working adequately though there is abuse of the systems. Tyres and batteries are often bought in cash and therefore do not register in the system. Additionally, as there is no payment for batteries from the two compliance schemes it was noted that these are often sold to other, un-registered individuals;

3. **Waste Management** - due to the ‘cowboy’ nature of the business waste management is not, by and large, a major priority for smaller garages. Large franchise garages are more visible and generally manage their sites better than the smaller garages. Waste oil is being burned in space heaters by both small and large garages. The cost of C1 forms was also noted - these are not consistent across LAs and this has given the impression that these are used purely as a means of generating money;

4. **Legal compliance** - while there is undoubtedly conscious abuse of various laws by some, there is a lack of information and education about the various legal requirements for garages. Any programme for the sector should address the dissemination of correct and easy to understand materials;

5. **Costs** - the main reason for abuse of laws by members of this sector appear to be related to costs - the cost of waste disposal. Proper enforcement and adequate fines must be in place that act as a deterrent to improper waste management. Waste contractors were open to the option of local collectives and it was noted that one waste contractor was piloting such a system with 20 farmers in Co. Kildare;

6. **Environmental charges** - these are used by numerous garages and vary in cost between €5 and €25 for the same basic service. While identifying environmental charges is a good thing (education of the public) the lack of consistency, and an associated perception of profiteering, is actually damaging the message and should be addressed;

7. **Training** - inclusion of environmental and eco-efficiency training modules for trainee mechanics should be introduced.
8.1.2. Garage visits & Waste Assessments

1. Garage Sector - the garages of the sector can be split into two general groups:

1.1. Large and registered garages that are in the main managed garages - this group includes fleets, franchises and many SIMI members. While these garages by and large comply with the law there are instances where wastes are inappropriately managed. These garages are more prominent and usually more interested in complying with the law. This is helped by economies of scale when it comes to waste management costs.

1.2. Smaller garages of the backyard nature. It is difficult to know how many of these are nationwide but they are characterised by lower compliance levels and a general lower regard for the environment. They have been classed as having a ‘cowboy’ nature and are more difficult to communicate with. Many of these are unregistered and therefore work with lower overhead costs than registered garages who have additional costs like insurance, rates, etc.

2. AIC Scheme - an AIC style scheme that mimicked the current VR version was poorly received and a number of garages (both large and small) claimed that this was an additional cost that would not tackle the true environmental issues.

3. Legal Compliance - There was a significant issue of a lack of knowledge and/or the quintessential hard man attitude of ‘who cares’ when it came to legal compliance. Overcoming such attitudes and engaging with this sector appears more likely through using the stick approach rather than the carrot. With those garages that are registered and managing their sites in a proper manner, the issue of equity was very important. On numerous occasions it was noted that while they were paying for proper waste management ‘the fella down the road wasn’t and was undercutting the prices’. For buy-in into any scheme for the sector, having these well run garages on board is essential.

4. Waste Management - Waste contractors were willing to work towards an improved service for garages - especially the smaller ones where disposal costs are a larger part of their overheads.

5. Costs - Space for waste storage and the costs associated with the removal of these wastes were the main reasons found for non-compliance in the smaller garages. Especially in light of recent economic developments margins are getting much tighter so corners will be cut.

6. Best Practice - There was interest across the spectrum of garages visited about potential savings through better waste, water and energy management. There was some knowledge about these but the extent of financial savings were not truly realised.

8.1.3. AIC inspections

The AIC Pilot inspections had multiple purposes - to test drive and refine the AIC materials developed, to get feedback from the auditees, and to identify the level of compliance among a variety of garages. It is important to note that the garages inspected had not been subject to formal environmental regulation or audit previously, and had not received any promotional or educational materials prior to the visits. The main findings are summarised here.

1. Industry Awareness and Understanding - While awareness of the existence of certain Regulations (e.g. batteries, tyres and waste management in relation to waste oil) was good among the operations audited, the pilot audits highlighted the need for a greater level of understanding of all the legal requirements for the sector;
2. **Record Keeping and Documentation** - Record keeping with regard to hazardous waste removal from site is a significant issue. While a number of the installations involved in the pilot had good record keeping in place, it was found that an increase in formal record keeping would, in the main, need to be put in place to demonstrate compliance;

3. **Hazardous Waste Management** - There were some issues with the correct completion of C1 forms. Many of the garage operators were unaware of the importance of a completed C1 form, and a certain degree of responsibility must reside with the waste contractors. There were also numerous issues of hazardous wastes being disposed of in general waste skip/bin (e.g. aerosol cans, oily solid wastes, WEEE). This is potentially a significant issue and can only be combated through education and enforcement.

4. **Legal Compliance** - The requirement for a Water Pollution licence to discharge to sewer for those garages using car washes arose during a number of the audits. This issue has been discussed with a number of local authorities since. The general view is that most garages with small hand held car washes do not have discharge licences. Large stationary car washes are, in general, required to have them.

### 8.1.4. Other Relevant Observations

In addition to the main points noted in the previous sections, a number of other pertinent points arose during the project. These are summarised in brief here.

1. **Producer Responsibility Initiatives** - the PRIs in place for tyres and batteries have been effective, though there are still materials escaping the system through either purchasing from unregistered sources, and/or disposing of to un-registered collectors. It has been suggested that a PRI for specific materials may be effective, for example waste oils and spent oil filters. Such a system in Canada has been hugely successful and is based on a combined recycling subsidy program: oil sales are subject to a fee that funds collection and recycling programs;

2. **AIC Scheme** - while there is specific legislation for the vehicle refinishers (many of which are also garages), that existing AIC scheme could be extended to cover the whole garage rather than just the vehicle refinishing aspect. While this may cover only a small number of garages it would provide a certain coverage of the garage sector;

3. **AIC Fees** - by setting standard fees for an AIC audit, the issue of quality standards will be ensured. This fee could include an administrative fee that will help the programme be self financed.

4. **Best Practice Observations** - throughout this project any innovative practices or other best practice observations were noted. These were used in the generation of the Smart Garages Guide and form the basis for many of the tips highlighted in it. These are summarised in Appendix 10.

5. **Local Collections** - in a parallel study it was found that, like rural garages, farmers tend to hoard large quantities of hazardous wastes - typically waste oil, waste oil filters and waste batteries. During a pilot study in Co Monaghan large volumes were brought to various collection points around the county. This, allied with the interest waste collectors have shown in local milk runs, might be a good avenue to explore.
9. Recommendations

This project made a thorough investigation of the garages and vehicle servicing sector in this country. From a legal perspective, it is a difficult sector to regulate due to the various pieces of legislation that apply and the issue of their individual enforcement. However, through the various work tasks carried out a number of key conclusions and recommendations can be made.

1. For any future work it is very important to clearly define the scope of this sector. It is recommended that the following definition be adopted: any garage, workshop or shed where automotive repair work is conducted for commercial gain or as part of the daily business activities in the provision of services.

2. A Producer Responsibility Initiative as an option for the management of waste oil and used filters should be considered. A fee/refund system, similar to that used successfully in Canada, would be self-financing.

3. An AIC style scheme should be established in order to ensure proper hazardous waste management practices, proper record keeping and to deal with the issue of unregistered garages. Potential mechanisms for such a scheme are contained within Section 10. Regulations for the incorporation of an AIC scheme should be drawn up, and brought into law.

4. Garage environmental charges should be regularised and their intention made clear to the public. Such charges should cover compliance with any proposed scheme, such as the AIC scheme.

5. Local authorities should inform all garages within their functional area about the legal aspects of waste oil burning in space heaters. Additionally, a national programme promoting this message should be run and it should avail of the communication channels of SIMI, waste contractors and other useful stakeholders.

6. The issue of un-registered garages should be addressed by Local Authorities and their enforcement officers.

7. Insurance companies should be engaged with to tackle the issue of waste oil burners. The potential of including a clause in an insurance contract that nullifies insurance if waste oil is being burned should be discussed with the Insurance Federation of Ireland.

8. All materials contaminated with oil are essentially hazardous. Local authorities and the other sectoral agencies should communicate this to the sector.

9. Major waste contractors need to be engaged with to ensure that the services they provide are of the required standard. Waste contractors should inform garages of the legal requirements regarding C1 forms and should, in every case, supply such forms completed correctly.

10. The charges associated with C1 forms should be standardised.

11. The Smart Garage Guide, and the mandatory requirements contained within (i.e. the law) should be a prerequisite for all government agencies and their sub-contractors to adhere to, e.g. County councils, An Post, ESB, an Garda, ambulances, fire trucks.

12. SIMI need to be engaged in this process. It is recommended that, as part of their promotion of standards, environmental best practice should be included.

13. The incorporation of training modules into mechanic training courses should be considered. These should include modules in standard apprentice courses and stand alone modules for mechanic ‘refresher’ courses.
14. It was found that there was a dearth of knowledge about all the legal requirements amongst the garages visited. The promotional materials developed during this project were designed to overcome this. These materials need to be distributed to garages throughout the country and where appropriate feedback obtained. In addition, development of a website to provide easy online information should also be considered.

15. Piloting local collection points and/or waste collectives, in conjunction with waste collectors, should be considered. The success of the farm hazardous waste collections in Co. Monaghan, the current pilot with 20 farmers in Co. Kildare and the assurance from waste contractors that they would collect wastes oils for free, should be built upon.

16. Local authorities and some of the other stockholders engaged with during this project should be consulted during the future development of any of these recommendations.

The assignment of responsibility for these various recommendations, along with suggested time frames is given in Appendix 11.
10. Potential AIC Scheme

As part of the requirements set out in the call for tender for this project, the development and piloting of an AIC style scheme was required. One of the key objectives was to determine if an AIC scheme that mimics the one in use within the Vehicle Refinishing sector was applicable, and if not, to propose other potential mechanisms. In light of the experiences of the pilot AIC audits, the waste assessments and the numerous stakeholder conversations a mechanism based on AIC audits is suggested. It is important to note that, while this is one potential mechanism for this sector, its design is based on a number of key requirements noted during the stakeholder consultation process. These are:

1. Irrespective of the scheme used, it is essential to ensure that that the scheme has credibility equity across the sector. Thus the issue of un-registered garages is a primary concern;
2. Local authority enforcement will, especially during the initial stages, be a key element;
3. The level of knowledge about all legal requirements for garages is quite low and this will need to be addressed before full application of an AIC scheme.

Taking due notice of these key determinants, the following provides an overview of the proposed AIC style scheme.

| 1. Education of the sector | There is a lack of knowledge and easily accessible information for Irish garages about all their legal requirements. During this project promotional materials have been developed for this specific purpose. Irrespective of the long term plans for this sector these need to be distributed to garages. While there are a number of mailing lists available, it is not recommended that these be used. Instead, existing channels should be used, for example:

- Each year when garages apply for their Garage Identity Number they must visit their local authority offices. As part of this process the promotional materials can be given to them;
- Waste contractors also need to be educated as to the responsibilities they have, especially when it comes to correct record keeping. They could be engaged to distribute the promotional materials when they visit garages;
- SIMI, as the sector representative, should be driving environmental best practice among its members. Periodically they distribute a newsletter and the promotional materials could be included.

In the short term these need to be distributed to garages and their feedback used to refine them before roll out of any scheme. A website should also be established to provide additional information on the various relevant aspects.

Backyard garages may be outside these avenues and would require either local authority enforcement or advertising through trade journals. If trade journals have such mailing lists the possibility of using these should be explored. |
2. Initial Application of Scheme

It was concluded from the AIC pilot audits that registered garages are, in general, compliant. The main areas where compliance issues arose were incomplete records (often attributed to the waste contractors), cross contamination of the mixed wastes with hazardous wastes, and a lack of appropriate signage.

As equity was noted as a key issue the following should be considered:

**Registered garages** should be given a two year derogation period before formal entry into the scheme. This period should be used to educate them on their legal responsibilities as set out in the Smart Garage Guide.

**Un-registered garages** have been identified as a major area of contention within the sector. During this 2 year derogation period for registered garages, un-registered garages should be identified and ensure they become legally compliant. This would include a mandatory AIC audit. This process has a number of benefits:

- Increased revenue for local authorities as they will be required to pay rates and commercial water charges;
- Inclusion into the Irish revenue system;
- Tackling a serious issue within the garage sector, thereby garnering support from the main sectoral stakeholders.

3. Long Term Application of Scheme

In the long term, there are a number of possible formats for application.

1. The issuing of either the TAN, GIN or trade plates could be linked to environmental compliance. This could be through a 'self declaration' of compliance whereby garages would agree to comply with the law as set out in the Smart Garage Guide. If they are found to be non-compliant then they would be subject to an AIC audit. This would require LA enforcement as a key element;

2. On a regular basis (e.g. every 2 years) garages would have to get/renew their AIC compliance certificate. This certificate would then allow garages to advertise themselves as registered garage and allow them to include environmental charges on their bills (this is discussed in Part 4).

   **Enforcement by LAs of un-registered garages will be essential for either of these options**

4. The AIC Audit

The AIC audit procedure and materials have been developed and refined during this project. There is a complete suite of tools available that is consistent with the other supporting materials developed.

It was found that the AIC audit takes no more than 2 hours on site with a further 2 hours required to complete the follow up report. Based on current costs for the Vehicle Refinishing AIC audits it is estimated that audit costs will be around €400.
5. Environmental Charges

Many garages already operate an environmental charge. Some do not. For those that do, it is not always clear what these charges relate to. It is recommended that this situation be regularised so that any potential abuse of this is eliminated. One suggestion might be that no garage would apply such a charge unless AIC compliant. AIC audits would cross check application of such charges at individual garage level to ensure (a) sound management of wastes generated and (b) visible charges applied are no more than the costs of proper environmental management of wastes plus cost of AIC scheme for the garage.

Typical (or recommended) environmental charges for common tasks should be determined. It is recommended that the environmental charges incorporate the additional expenses associated with compliance with any AIC or other scheme and cover the proper management costs. This will mean a cost neutral scenario for compliant garages. Non-compliant garages should be prohibited from levying an environmental charge. It is also suggested, that Local Authorities help defray the costs of the proposed recommendations from this report, by levying some kind of charge for the paperwork and spot auditing, which may ensue from the recommendations herein.

6. AIC Scheme Promotion

While any compliance scheme enacted will primarily be designed to improve legal compliance and prevent the generation and mis-management of wastes (both hazardous and non-hazardous), promotion of best practice and the benefits of compliance through an award scheme should be considered. The success of the Green Hospitality Award is certainly linked to the nature of that sector. However, the option of rewarding excellent garages may be a good way to promote the benefits of the scheme to both garages and the wider public.

7. Public Education about their responsibilities for wastes generated

Linked to environmental charges and promotion of the AIC scheme is the issue of the public awareness of, and responsibility for, hazardous wastes generated during the servicing of vehicles. Creating a system whereby garages must produce evidence of correct waste management for customers (through a valid AIC certificate) and linking this to:
(a) transparent environmental charges and
(b) a cost benefit rationalisation for garages appears to be an important avenue to explore.

The current radio adverts educating the public about their rights when it comes to Taxi receipts is a good template for such public dissemination.
11. Garage Sector Draft Plan

The recommendations of Section 9 and the proposed AIC scheme outlined in the previous section reflect the lessons learned throughout this project. In an effort to summarise these a draft sectoral plan is outlined graphically in Figure 7.

**Figure 7**: Garage Sector draft plan

The various elements outlined in Figure 7 are expanded upon in Table 13 and while they may repeat much of the previous two sections each of these elements should be considered for future work with this sector.

**Table 13: Explanation and discussion of various elements from Figure 7**

<table>
<thead>
<tr>
<th>Plan Element</th>
<th>Topic</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pilot Programme - <strong>this element has been completed</strong></td>
<td>Booklet - Smart Garage Guide</td>
<td>This has been developed during this project. It has as an underlying basis legal compliance but promotes best practice under the auspices of financial savings. Checklist based with easy to use record keeping. This should be further refined during 2010</td>
</tr>
<tr>
<td></td>
<td>AIC Audit</td>
<td>Developed during this current project. This includes the Best Practice Guidance document, AIC procedure, AIC Contract and AIC report template</td>
</tr>
<tr>
<td></td>
<td>Garages</td>
<td>Garages have been assessed through site visits and the AIC pilot. Their feedback was included in drafting the final documents.</td>
</tr>
<tr>
<td>2. Publicity</td>
<td>SIMI</td>
<td>SIMI should be actively engaged in the promotion of good practice throughout the sector. SIMI have a regular newsletter, an on line Ezine and are in regular contact with their 5,500 members - these should be used to promote the finalised programme. They also suggested setting up a Confidential Hotline for unregistered/illegal garages to be reported. A similar hotline has been used for unregistered cars to good effect.</td>
</tr>
<tr>
<td></td>
<td>Trade Journals</td>
<td>Many unregistered garages get these for sectoral information - they should be used to target the backyard garages</td>
</tr>
<tr>
<td>Plan Element</td>
<td>Topic</td>
<td>Outline</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>3. Insurance</td>
<td>Waste Oil Burners</td>
<td>Engage with insurance companies to include a clause in their policies that states that insurance cover is void if waste oil is burned on the premises. Adverts have been designed as part of this project that communicate the various issues associated with using these - there are health and environmental implications. This should also be linked in with existing health and safety standards.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Local</td>
<td>Garage Registration</td>
<td>Local authorities are key stakeholders for this sector. Using the existing interface between garages and their local authorities provides an opportunity to disseminate and promote the materials produced during this project. In addition, as garages are typically a tight knit group it is envisaged that when a number of garage spot checks occur in an area, word will spread quickly. This is a key element to the plan, actual on the ground compliance checks.</td>
</tr>
<tr>
<td>Authorities</td>
<td>Unregistered Garages</td>
<td>The issues of unregistered garages was raised and the need for equity across the sector were noted as key elements for success by numerous stakeholders. Allowing a 2 year derogation period for registered garages while a concerted effort is made to bring un-registered garages into the system will be a key element. In addition to the evasion of sector specific costs that registered garages commonly incur, the issue of on-site H&amp;S, poor quality work, potentially unsafe cars (and an associated road safety element) were all raised. An alternative is to have on the spot fines for non-compliance. This would benefit LAs as it would be a potential source of income. It would also ensure that administrative costs are kept low and potentially expensive court actions (prosecuting under the Waste Management Act) are avoided. Inspections need to be linked with the EU Recommended Minimum Criteria for Enforcement Inspections (RMCEI)</td>
</tr>
</tbody>
</table>
|                   | Waste Contractors           | Working with waste contractors is essential, especially with regard to correct paper work. There are 2 main hazardous waste collectors nationally and both were very open to suggestions about this sectoral plan. Some potential options suggested including:  
• setting deals for garages that cover all wastes - this would encourage small garages (and farmers) to manage waste and potentially increased revenue for the waste collectors;  
• use specifically designed containers - essentially hold alls for the main hazardous wastes currently poorly managed. |
|                   | Local Collection Points /   | A potential option to encourage smaller waste generators to manage hazardous wastes correctly is through using local facilities like Civic Amenity Sites (CAS) and/or specific collection points in council yards. This would provide a centralised collection point for waste collectors to service and could also be a good use of available space (where available) |
| Services          | Facilities                  |                                                                                                                                                                                                                                                                                                                                                                                                   |
|                   | Local Collectives           | Reasonable prices for the collection of wastes from small groups of garages in an area. This would mean reduced transport costs for the waste contractors which was noted as a significant cost for rural garage collections. While there is some coordination existing, (SIMI also noted this about some of their members) this should be extended and coordinated, possibly through LAs. This system is currently being piloted in Co. Kildare with 20 farmers. |

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Link hazardous waste collection with the existing PRIs (TRACS, WEEE). This would require a consolidation of services and agreeable pricing. It also assumes that these systems are working well - unfortunately the consensus from a number of stakeholders was that they weren’t working how they should.

The option of a PRI for waste oils and filters, similar to the system used in Canada should be considered. This would be effectively self financing and has the potential to reduce pollution and increase recovery of valuable resources.

Introduce a garage management elective which would include working place efficiencies (waste, water and energy) and legal compliance for the garage sector. While communicating with existing garages and mechanics might prove difficult educating the mechanics of tomorrow is essential.

ESB Networks have shown interest in training their trainee mechanics and mentioned that they would be willing to develop some training electives in conjunction with CTC. They already do some basic training in this regard with their mechanics but wish to expand it.

This option was mooted by a number of sources. It has the potential to promote best practice in the sector and reward those that do well. It may give a marketing edge to those with the award. Most of the garages weren’t too bothered about this option but that may be different if there were reports nationally on good case studies - this would be a form of free advertising.

Environmental charges are used by some garages but not by all. The charges vary between €5 and €25 and there is no doubt that in certain circumstances this charge is being abused. One of the waste contractors estimated that the cost of proper hazardous waste management from a full service should be ~ €10. It may be worth having an associated chart with typical costs associated with hazardous waste management. This would provide transparency for the public and also heighten their awareness which is, according to garages, quite low. It appears that out of sight is out of mind and a degree of public education could be very beneficial.

Linked to environmental charges is the issue of the public awareness of, and responsibility for, hazardous wastes generated during the servicing of vehicles. Creating a system whereby a garage must produce evidence of correct waste management for customers and linking this to (a) transparent environmental charges and (b) a cost benefit rationalisation for garages appears to be an important avenue to explore.

The main physical tools required in this sectoral plan have been developed (AIC materials and promotion materials). However, this plan needs further refinement and will require the inclusion and agreement of various stakeholders. Providing a clear benefit for as many of the stakeholders as possible is a key issue that could ensure quick progress and ultimately, a successful programme.

This plan has been discussed with a number of the relevant stakeholders (SIMI, Connaught Waste Management Office, Garages) and has, in principal, been well received.
Appendices

Appendix 1: Macroom Case Study
Appendix 2: Stakeholder Notes
Appendix 3: Garage Environmental Compliance Document
Appendix 4: AIC Report Template
Appendix 4: AIC Procedure
Appendix 4: AIC Contract
Appendix 5: AIC Pilot Audit Reports
Appendix 6: Waste Oil Burner Advert
Appendix 7: Smart Garage Guide
Appendix 8: Waste Mapping Poster
Appendix 9: Key Performance Indicators (short and long term)
Appendix 10: Best Practice Observations
Appendix 11: Allocation of tasks, and associated timeframes for implementation, for future work within this sector
Appendix 9 - Key Performance Indicators

As part of the inception process a number of indicators were identified for measuring the success of the project against the requirements of the tender. Listed in the Table below are a number of short term indicators that were suggested for this project.

**Short term key performance indicators**

<table>
<thead>
<tr>
<th>Suggested KPI</th>
<th>Comment</th>
<th>Actual KPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of garages audited</td>
<td>A total of 5 garages were proposed to be audited</td>
<td>6</td>
</tr>
<tr>
<td>Volume of hazardous waste identified through these audits</td>
<td>Based on the waste audits conducted the hazardous wastes present in the mixed stream were estimated</td>
<td>~ 37%</td>
</tr>
<tr>
<td>Number of stakeholders consulted</td>
<td>A wide variety of consultations took place with various relevant stakeholders from the sector</td>
<td>18</td>
</tr>
<tr>
<td>AIC type audits performed</td>
<td>5 of these to be done – feedback from those involved will be interesting</td>
<td>5</td>
</tr>
<tr>
<td>Number of brochures distributed</td>
<td>Brochures are currently being finalised for this sector. An advert about the impacts of waste oil burners was produced and placed in a number of journals.</td>
<td>Completion in 2010</td>
</tr>
</tbody>
</table>

Due to the short term nature of the project and the long term nature of its objectives, the main outcome, namely the reduction of unreported hazardous waste from this sector, will be difficult to assess - even in the long term. Some long-term indicators that will require further analysis of data, which will need to be gathered from local authorities information (or other agencies) on waste arisings and management are listed below.

**Potential long term key performance indicators**

<table>
<thead>
<tr>
<th>2010 – 2012 Long term indicators</th>
<th>These longer term indicators will be more difficult to assess</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suggested KPI</td>
<td>Comment</td>
</tr>
<tr>
<td>Short Term KPIs</td>
<td>Where possible, and appropriate, the short term KPIs should be tracked on a long term basis. This may take the form of re-audits of the participating garages to examine practice changes and the cost benefits involved. This will be important for future dissemination in the form of case study examples.</td>
</tr>
<tr>
<td>Amount of media coverage</td>
<td>Media coverage will be essential in getting the message across. It is envisaged that the main push for this programme will be early in 2010.</td>
</tr>
<tr>
<td>Quantity of hazardous waste prevented or diverted from illegal treatment</td>
<td>This is the long term goal (as well as improving on the other illegal methods of current disposal) – monitoring of hazardous waste volumes collected will need to be done. Collaboration with the major waste collectors and CAS sites might be a good option</td>
</tr>
<tr>
<td>Improvement of the information</td>
<td>Feedback from all stakeholders should be done regularly – waste collectors, EHOs, SIMI, garages and garage managers should be consulted</td>
</tr>
</tbody>
</table>

Appendix 10 - Best Practice Observations
During the garage assessments, visits to other garages and the AIC pilot audits a number of examples of best practice were observed. These are outlined in the following Table.

### Some best practice observations during the on-site work conducted during the project

<table>
<thead>
<tr>
<th>Category</th>
<th>Observation</th>
</tr>
</thead>
</table>
| **Oil Storage and Bunding** | Oils, both supply and waste, are stored in a double skinned, bunded containers. There is a high level alarm on the waste oil tank and a low level alarm on the supply tank. These are filled/emptied through pumped fittings where ensure no spills.  
In other garages the drums of oil and antifreeze were moved using a dolly and these doubled as a bunded unit.  
Bunding is not a legal requirement but a number of garages stored all their hazardous materials on bunded crates. These were used for oils, antifreeze, coolant, waste materials like oil filter bins and waste oils. |
| **Oil distribution**       | Oil is distributed around the site through a series of piped distribution nozzles. These are stored close to where they are used and have drip trays underneath.  
As can be seen from this picture, they have distribution systems from different oil grades.                                                                                                           |
| **Oil drainage**           | Oil is removed from cars using an air powered waste oil drainer. These remove oil quicker, get as much of the oil out as possible, reduce spills almost completely and as they are on wheels they are easy to manoeuvre around the garage.                                         |
| **Lighting**               | All garages use lights when working on engines but these are often broken after being left on the ground and rolled over. One garage has put their lights on a retractable wheel. This has reduced the breakages and has an associated safety benefit as the electricity cables retract once finished with and this prevents people from tripping over them.  
Many garages have corrugated roofs with skylights in them. One garage was going to upgrade their lighting system as the quality of light in the garage was insufficient. However, they cleaned the clear corrugated skylights, inside and out, and improved light quality significantly. They now have a policy to clean them once every 4 years. |
| **Absorbents**             | There are always spills in garages. Some of these are of hazardous liquids but often there are also water spills. One garage has different absorbent pads for oil and water spills. The oily pads are disposed of with hazardous wastes with the water ones (blue) disposed of in the mixed wastes. |
## Waste Segregation

A lack of space is often the main reason people don’t segregate wastes. One Dublin garage has got around this problem and have been able to remove their mixed waste bin completely. They now have 3 bins on a small wheeled unit. Each bin is a different colour - one for metal, one for hazardous materials and one for recyclables. This can be brought exactly where it is needed around the garage and saves on time and hassle for the mechanics.

## Compressed air

Compressed air is a significant cost for garages and is often used at too high a pressure and for the wrong purposes. A small cork garage recently upgraded their compressor to a variable speed drive. This has reduced the noise in the garage, reduced the load on the compressor and reduced their electricity bills. They also have a weekly system check for leaks.

In addition, they have all their compressed air on retractable hoses which ensures that hoses are not damaged when left on the floor of the garage.

Another garage has its compressor on a timer which is set for the working hours. Additionally, they have improved the ventilation in the compressor room to ensure that a cool air source is used.

## Signage

How to best manage wastes generated in a garage can be confusing. One garage has overcome this by designing signs that show the proper management routes, including the paper work required, for all potential materials. However, while these signs are very comprehensive they have been found to be a bit too complicated and are currently being redesigned.

## Resource Tracking

As part of an environmental programme, a county Cork garage has begun tracking its resources use. This started with waste monitoring and has now been extended to energy (electricity and fuel use). This provides the garage with a means to set improvement targets and also to track any improvements made.
Appendix 11 - Allocation of tasks, and associated time frames for implementation, for future work within this sector

Proposed assignment of responsibilities for carrying out the recommendations in this report (note Recommendation No. allows cross-referencing with main recommendations given in Section 9)

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Timeframe for implementation</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. A Producer Responsibility Initiative as an aid for the management of waste oil should be considered.</td>
<td>Medium Term - 2011</td>
<td>DOEHLG</td>
</tr>
<tr>
<td>3. Regulations for the incorporation of an AIC scheme, as outlined in the recommendations should be drawn up, and brought into law. This could be by way of an extension to the current regulations (under the Solvents regulations, and Decorative paints Directive)</td>
<td>Short term - 2010</td>
<td>DOEHLG</td>
</tr>
<tr>
<td>4. Garage environmental charges should be regularised and their intention clear to the customers. Such charges should cover compliance with any proposed scheme, such as the AIC scheme.</td>
<td>Short term - 2010</td>
<td>DOEHLG</td>
</tr>
<tr>
<td>10. The charges associated with C1 forms should be standardised.</td>
<td>Short term - 2010</td>
<td>DOEHLG</td>
</tr>
<tr>
<td>1. For any future work it is very important to clearly define the scope of this sector. It is recommended that the following definition be adopted: <em>any garage, workshop or shed where automotive repair work is conducted for commercial gain or as part of the daily business activities in the provision of services.</em></td>
<td>Short term - 2010</td>
<td>Local Authorities</td>
</tr>
<tr>
<td>5. Local authorities should inform all garages within their functional area about the legal aspects of waste oil burning in space heaters</td>
<td>Short term - 2010</td>
<td>Local Authorities</td>
</tr>
<tr>
<td>7. All contaminated materials with oil are essentially hazardous. Local authorities should communicate this to the sector.</td>
<td>Short term - 2010</td>
<td>Local Authorities</td>
</tr>
<tr>
<td>6. The issue of un-registered garages should be addressed by Local Authorities and their enforcement officers.</td>
<td>Short - Medium term - 2011</td>
<td>Local Authorities</td>
</tr>
<tr>
<td>14. The promotional materials developed during this project need to be distributed to garages throughout the country and where appropriate feedback obtained.</td>
<td>Short term - 2010</td>
<td>Local Authorities</td>
</tr>
<tr>
<td>16. Local authorities and some of the other stockholders engaged with during this project should be consulted during the future development of any of these recommendations.</td>
<td>Short term - 2010</td>
<td>Local Authorities</td>
</tr>
<tr>
<td>8. EPA may have to recommend to DoEHLG that new regulations are required to establish an AIC scheme for the vehicle servicing and garages sector, or amend existing legislation (under the Solvents Regulations and Decorative Paints Directive), or that overarching legislation for such schemes be enacted.</td>
<td>Short term - 2010</td>
<td>EPA</td>
</tr>
</tbody>
</table>
14. The promotional materials developed during this project need to be distributed to garages throughout the country and where appropriate feedback obtained. In addition, development of a website to provide easy online information should also be considered.

<table>
<thead>
<tr>
<th></th>
<th>Short term - 2010</th>
</tr>
</thead>
</table>

11. The garage guide, and the mandatory requirements contained within (i.e. The law) should be a prerequisite for all government agencies and their sub-contractors to adhere to e.g. County councils, an post, ESB, an Garda, ambulances, fire trucks.

<table>
<thead>
<tr>
<th></th>
<th>Short - Medium term - 2011</th>
</tr>
</thead>
</table>

9. Major waste contractors need to be engaged with and ensure that the services they provide are of the required standard.

<table>
<thead>
<tr>
<th></th>
<th>Short term - 2010</th>
</tr>
</thead>
</table>

12. SIMI need to be engaged in this process. It is recommended that, as part of their promotion of standards, environmental best practice should be included.

<table>
<thead>
<tr>
<th></th>
<th>Short term - 2010</th>
</tr>
</thead>
</table>

13. The incorporation of training modules into mechanic training courses should be considered. These would include modules in standard apprentice courses and stand alone modules for mechanic ‘refresher’ courses.

<table>
<thead>
<tr>
<th></th>
<th>Medium Term - 2011</th>
</tr>
</thead>
</table>

14. The promotional materials developed during this project need to be distributed to garages throughout the country and where appropriate feedback obtained.

<table>
<thead>
<tr>
<th></th>
<th>Short term - 2010</th>
</tr>
</thead>
</table>

16. Local authorities and some of the other stockholders engaged with during this project should be consulted during the future development of any of these recommendations.

<table>
<thead>
<tr>
<th></th>
<th>Short term - 2010</th>
</tr>
</thead>
</table>