Environmental Management Systems and the Local Authority

Presented for the Degree of Master in Science

Carried out through

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By

Catherine Gleeson B.Sc. Environmental Science and Technology

Supervised by

Mr. Noel Connaughton

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Dedication

To Joan and Michael with Love.

Acknowledgments

I would like to thank Sligo Institute of Technology for all of their help throughout the year. Thanks also to the staff of Limerick County Council for all of their helpful comments.

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Chapter One

Local Authorities and Environmental Management Systems

1.1 General Introduction

Over the past number of years a new environmentally responsible approach to conducting business has been developing. This approach requires that companies take responsibility for the way they impact on the environment and adopt an approach of continual improvement in reducing the impact of the company on the environment.

This systematic approach is called an Environmental Management System (EMS).

The principal requirements are laid out in Chapter Two. Of concern here is why a local authority would consider becoming involved in Environmental Management Systems. An EMS takes a great effort to implement and therefore the effort must be justified.

In the United Kingdom, the Local Government Management Board carried out a survey in 1996. This survey found that the implementation time for County Councils was four to ten years. Below are some of the reasons why local authorities should consider adopting an EMS approach (Riglar, 1996):

1.2 Sustainability and Local Agenda 21

In 1992 at the United Nations Conference on Environment and Development in Rio de Janeiro, Ireland signed the Local Agenda 21 (LA21) agreement and committed to the concept of sustainability. The world commission on Environment and Development defined sustainable development as

'development which meets the needs of the present without compromising the ability of future generations to meet their own need's. In 1993 the European Union published it's fifth programme relating to the environment, called 'Towards Sustainability'.

One of the principal points of the Rio declaration was 'in order to achieve sustainable development, environment protection shall constitute an integral part of the development process and cannot be considered in isolation from it'.

The way this aspiration was to be implemented was further laid out in 'Local Authorities and Sustainable Development on Local Agenda21' (Department of Environment and Local Government, 1995)

It advises local authorities to lead by example. It outlines the following areas where this can be done:

- Adopting an environmental charter or mission statement
- Adopting a voluntary environmental management system
- Pursuing green housekeeping
- Staff training
- Budgeting
- Land use/ development policies
- Urban Development
- Provision of services
- Transport policy and traffic management
- Housing

Most of these points would be addressed through the implementation of an EMS. Therefore the adoption of an environmental management system would be a co-ordinated way of implementing many of the recommendations of Local Agenda 21.

LA21 recommended the adoption of a voluntary system like I.S. 310 or Eco-Management and Auditing System (EMAS). It stated that the local authority could use these approaches as a framework in the adoption of their own system and help them to identify their significant aspects and impacts.

A subsequent publication, 'Sustainable Development, A strategy for Ireland' promotes a system along the lines of EMAS for Government Departments. It also points to the responsibility of local authorities in achieving sustainable development by:

'Developing by the Department of the Environment with Local Authorities an EMAS for Local Government.... with the assistance of the Environmental Protection Agency (EPA)'. (Department of the Environment and local Government 1997)

In its consideration of local authorities, it talks about the important role of the local authority as an environmental protection authority and as an agent of sustainable development, stating that the implementation of 'Better Local Government'(Department of Environment and Local Government, 1996) will lead to:

- The intensification and improvement by local authorities of their environmental performance in particular under guidance being developed by the Environmental Protection Agency.
- Adoption of an Environment Management Policy

It again refers to Local Agenda 21 guidelines recommending local authorities to lead by example through greening their performance and adopting environmental management systems.

1.3 Landfill operation

Throughout Ireland operating landfills now have to obtain an integrated pollution control licence. The Environmental Protection Agency under the Waste Management Act 1996 issues this licence. All licensed landfills require an environmental management system to be in operation. As most local authorities have an operating landfill, this means that local authorities will be required to have an EMS in place in one section of the organisation. In this way environmental management systems are already on their way into local authorities.

1.4 The nature of the Local Authority

Local Authorities in Ireland have a wide range of activities. Examples of these are roads, housing, sanitary services, environment, fire, planning, library services etc. All of these activities can be said to have the potential to impact on the environment in a positive or negative way and in varying degrees. Local authorities are also spread widely over their county or functional area.

Due to the diffuse nature of the impacts the EMS would help to ensure that all areas and impacts are considered. This would be a mechanism to ensure that all legislative requirements are met and that no areas are left un-addressed. Most importantly it would improve the environmental performance of the local authority and ultimately the state of the environment.

1.5 Obligation to the public and other interested parties

Each local authority has an obligation to the public. It is important that local authorities are seen to be open in their dealings and also responsible in their approach to the environment. The adoption of an environmental management system is a way to demonstrate to the public and indeed to enforcing authorities that the local authority is meeting its environmental responsibilities. This also applies to non-governmental organisations, Government Departments, the Environmental Protection Agency and its own employees. This work would enhance the image of the local authority and demonstrate that it observes due diligence.

1.6 Development from existing quality standards.

The ISO 14000 standard is compatible with the ISO 9000 series. Where local authorities have already introduced ISO 9000 this work can be incorporated into ISO 14001.

Chapter Two

What are Environmental Management Systems?

2.1 The Environmental Management System Standards

The timetable for the development of environmental management systems is as follows:

- 1992 Draft BS 7750
- 1993 Eco-Management and Auditing Scheme Regulation introduced
- 1994 English standard – BS7750
- 1994 Irish standard IS 310:1994
- 1995 EMAS available to industry
- 1996 International Standards Organisation publishes ISO14000 series
- 1996 Spanish, UK and Irish standards revoked

All of these are relatively new schemes. While the overall objective for the scheme is the same there are some differences between EMAS and ISO 14000. The principal differences between the two schemes are:

- EMAS requires the publishing of its environmental policy and monitoring data. ISO 14001 requires the policy only to be available.
- EMAS requires continual environmental improvement at 'end of pipe'. ISO 14001 requires continual improvement in the system as a whole.

- EMAS is – to date – site specific while ISO 14001 can be a cross site based scheme.
- ISO 14001 is an international standard while EMAS is European only.
- EMAS requires full compliance with all legislation while ISO 14001 will allow a programme to work towards compliance.

The requirements of continual improvement in environmental performance for urban waste water discharges would make it difficult for local authorities to obtain and more importantly maintain EMAS. The requirement of EMAS at present that it be site specific would mean that each landfill and urban waste water treatment plant would have to implement EMAS individually. This would lead to duplications of resources in many areas. In addition, the benefit to the environment would only be experienced at discreet locations. In contrast ISO 14001 would be county wide with the possibility of an overall raising of environmental quality throughout. The choice of ISO would lead to savings through out the organisation. As the implementation of EMAS is site specific, this requires a considerable investment of resources in one site to obtain EMAS registration. It is likely that EMAS would therefore only be implemented in one or two sites within the organisation's functional area with subsequent complacency in other areas.

2.2 Requirements of an EMS

Under ISO 14001, the environmental management system must contain the following elements (European Committee for Standardisation, 1996):

- An Environmental Policy
- A list of Environmental Aspects
- A list of all relevant legislation
- Objectives and Targets
- Environmental Management Programmes
- A clear structure and lines of responsibilities
- Training, Awareness and Competence
- Communication systems – internal and external
- Documentation control
- Emergency Preparedness and Response
- Monitoring and measurement of significant environmental aspects
- Non-conformance, corrective and preventative action
- Record Keeping
- EMS Audit
- Management Review

Chapter Three

Current Situation in Local Authorities in Europe

3.1 Introduction

Local Authorities in European countries are not identical. eg. In Denmark, Local Authorities take care of the elderly. (Bente Refslund, Silkeborg Municipality, Pers. Com). In addition to the diversity in authorities, there are the two different standards. These are EMAS and ISO 14001. The European standard was developed for industry and initially was site specific. Throughout Europe there has been an uneven uptake of EMAS. The figures below show this uptake (Buckbinder, 1996):

Table 1; EMAS Registration throughout Europe

Country	Number of organisations with EMAS
Austria	148
Belgium	8
Germany	1454
Denmark	83
Spain	17
Finland	14
France	29
Italy	8
Ireland	6
Luxembourg	1
The Netherlands	24
Norway	44
Sweden	126 (4 Regarding Art 14 of the Regulations)
U.K.	69
Total number of sites	2031

The EMAS Help Desk states that they could not give a breakdown of local authority to industry. This was a difficulty in investigating EMS uptake throughout Europe. As these systems are not specifically developed for local authorities, information of local authorities was not segregrated from the total figures. While it was clear that some countries like Denmark had units with systems, there was no way to quantify this in this thesis.

A number of countries are considered in greater detail below. These are principally Denmark, United Kingdom and Ireland with additional reference to Finland and Norway.

3.2 Denmark

Further investigation in Denmark through the Green City, Denmark Group revealed that while some site-specific operations in their local authorities could be accredited, there was no list available. It was also stated that the wide range of responsibilities of Danish local authorities was such that obtaining accreditation for local authorities as a whole would be a huge task. To date no Danish local authority has been accredited as a whole. (Refslund, Silkaborg Pers. Com)

The focus is more on the development of 'Green City, Denmark', this is a national network incorporating companies, institutions, counties and municipalities. They target areas such as green energy, green shopping, green manufacturing, green farming, waste management, clean water, green construction, and green marketing (Green City, Denmark, 1999)

3.3 United Kingdom

The situation in the UK is clearer. Again there was a problem, as EMAS did not apply to local authorities. Section 14 of the Regulation allowed for pilot projects to be set up for specific sectors. The U.K. took on board the pilot project for local authorities. The pilot project was run in seven local authorities. A useful tool was developed in the Help- Desk. This was established in 1995 to provide backup to the local authorities.

The U.K.- EMAS help desk produces guidance notes for local authorities (Department of the Environment and Local Government Management Board, 1995).

These notes provide the background to EMAS. It explaines about the need to put 'one's own house in order'. It refers to internal and external pressures and the ability to demonstrate a commitment to Local Agenda 21.

It states that not all sections in the authority may be able to achieve the standard at the same time and that implementation may have to be extended over a period of time. It outlines the advantages and barriers to EMAS implementation. The advantages are similar to those that would be expected in the Irish situation. These are:

- A consistent approach
- Maintenance of credibility
- Demonstration of commitment
- Compliance with legislation

- Staff motivation
- Validation
- Improved environmental performance

The guide notes lay out the barriers as follows:

- Lack of corporate and departmental commitment
- Lack of environmental vision and planning
- Perception of another bureaucratic management initiave which will add little value to the service provided
- Increased costs
- Lack of wide spread staff and member involvement

It provides a means for local authorities to assess their current situation so that they can assess how far they have to go in implementing EMAS.

It then lays out the requirements of EMAS.

Some changes to the EMAS in place at the time were made for local authorities (Hussey, Pers. Com.).

EMAS referred to sites. This was seen as a difficult definition for local authorities and units based on operations, sections or departments were allowed

In the existing EMAS single site registration was acceptable with an environmental policy at corporate level. In local authorities this was expanded to include requirements for:

Management responsibilities

Structures

Procedures for environmental management at corporate level

While it was possible to apply for certification for specific sites, local authorities had to commit to organisation wide certification within a specified time-scale. (Riglar, 1997)

Riglar states that unitary authorities and county councils were taking a customised approach to implementation while district authorities were taking a formal approach. Riglar feels that this may be due to the size of the authorities involved. He states that it is easier to verify a 500-person organisation rather than a 20,000 person organisation.

The following table makes this point:

Table 2; Results of LA21 survey in the U.K. 1996

	Formal (Full system in place)	Implementing (In the process of implementing the system)	Early (at the early stages of implementation)
County Councils	8%	62%	30%
District Councils	16%	52%	32%
Unitary Councils	3%	70%	27%

The EMAS Help Desk produced the following figures from surveys of local authorities:

Table 3 ; Results of LA- EMAS survey

	Formal (Full system in place)	Implementing (In the process of implementing the system)	Early (at the early stages of implementation)
LA-EMAS 1995	17 (7%)	127 (51%)	105 (42%)
LA – EMAS 1996	14 (11%)	72 (57%)	39 (32%)

Riglar states that by the end of the century, at least 100 councils will have units registered.

3.4 Norway and Finland

In Norway, 'Municipal Environmental Auditing' is being investigated.(Riglar, 1997)

In Finland, the Finnish Local Authority Association is running a pilot project on implementing LA-EMAS. (Riglar, 1997)

3.5 Ireland

In Ireland, currently no Authority holds either ISO 14001 or EMAS.

In Ireland, currently no Authority holds either ISO 14001 or EMAS.

The Environmental Protection Agency is sponsoring a pilot project on one aspect of EMS (O'Leary, Pers. Com.). This is the requirement to comply with all relevant legislation. Three counties are involved in the project. These are Cavan, Galway and Cork. This is operated as a database on Access 97 in CD ROM format. It can be seen as a management system to allow local authorities to identify all legal responsibilities. This not only identifies the legislation, it goes to the individual sections and identifies responsibilities. This database includes a local authority internal auditing function and EPA external auditing function to enable local authorities to monitor their progress with compliance.

This is a vital part of an EMS and will save local authorities valuable time as this part of their system can be imported and save set up time.

As environmental legislation is so varied and is being updated regularly, this system will be regularly updated.

It is anticipated that this project will be completed in 2001. (Rice, Pers. Com)

Chapter Four

Methodology

The first step was to take is to define the current situation. This was a litrature review. a survey of the current The litrature review concentrated on the following areas:

1. Why local authorities should become involved in this kind of system. This focused on international committments and direction form the Department.
2. What standards are available.
3. The situation in Europe

It was found through the litrature that there is limited information on environmental management systems in relation to local authorities. A survey was needed to fill this gap in information.

A survey was conducted by issuing a questionaire to all local authorities requesting information on their individual positions in relation to the implementation of an environmental management system.

This would provide a clear picture of where local authorities stand and where they should be going.

Following this the preliminary steps to be taken are looked at.

Three principal requirements exist to effectively implement an EMS. These are:

1 To know how the authority impacts on the environment

2 To know what legal requirements are placed on the local authority in relation to legislation

3 To know the requirements of the EMS and how to implement them.

The first element is addressed in this disertation. This is the formation of an aspect register in chapter six.

This is a generic checklist and will allow local authorities to select the areas they feel apply to them. This will save time by having all possible environmental impacts available as a menu. This list is generated from first principals through looking at all of the functions of local authorities and considering their potential impacts.

The second requirement is catered for through the EPA pilot project. This is a huge undertaking and so it is an advantage to all local authorities that this work is being carried out for them. This should be available after 2001

The third requirement is to know what should be covered by the Environmental Management System. This can be taken further to state that staff have to know what is required of them and how they are supposed to implement these requirements. In the absence of this, the implementation will not be as effective. This introduces the requirement for training. Properly trained staff helps to ensure that the EMS is implemented fully and will

reduce the problems encountered in audits. Well trained staff will also reduce the time spent learning on the job and will speed up implementation rates.

In this disertation a timetable and brief course content has therefore been included to implement a training programme. It is the intention that this can be used by local authorities to organise training that will be comprehensive and will lead to minimal disruption and costs.

As is the case with the aspects register, the training schedule will be derived form first principals through looking at functions of all staff and attempting to group them into groups who may have similar impacts on the environment.

In summary, techniques used will be ;

1. Litrature Review
2. Assessment of the current status of environmental management systems in local authorities in Ireland through a questionaire.
3. Generation of aspects register from first principals
4. Generation of a training schedule and suggested course content from first principals

Chapter Five

Current Status of Environmental Management Systems in LocalAuthorities in Ireland.

5.1 Survey Layout

As part of this disertation it was felt that an accurate picture of the current situation in Ireland was needed. To obtain this picture, a survey questionaire was sent to all Local Authorities. In all 32 forms were sent out and 15 replies were returned. This represents a reply rate of 46.88% of all Authorities and could be said to represent the situation in the country.

The structure of the survey was designed to encourage prompt replies. It also followed the format of surveys carried out by the U.K. EMAS Help Desk. The questionaire was divided into two parts. Section one questions required answers in the format one to four. The breakdown for answer types was as follows:

Table 4 ; Answer options for section one of the questionaire

Answer Option	Explanation
1	No system in place
2	Informal system in place
3	Formal system in place. The system is not set to any National/International standard, no formal auditing of the system.
4	Full formal system in place, set to a recognised standard, audited and updated as needed.

Section two required Yes/No answers.

The questions asked are indicated by Q).

The answer breakdown is indicated by A).

5.2 Results of the survey.

5.2.1 Section One

- Question 1

Q) Does your Local Authority have an Environmental Management System in place?

A) None of the authorities that replied have an EMS in place.

- Question 2

Q) If yes, who is the designated person responsible for implementing and maintaining the system?

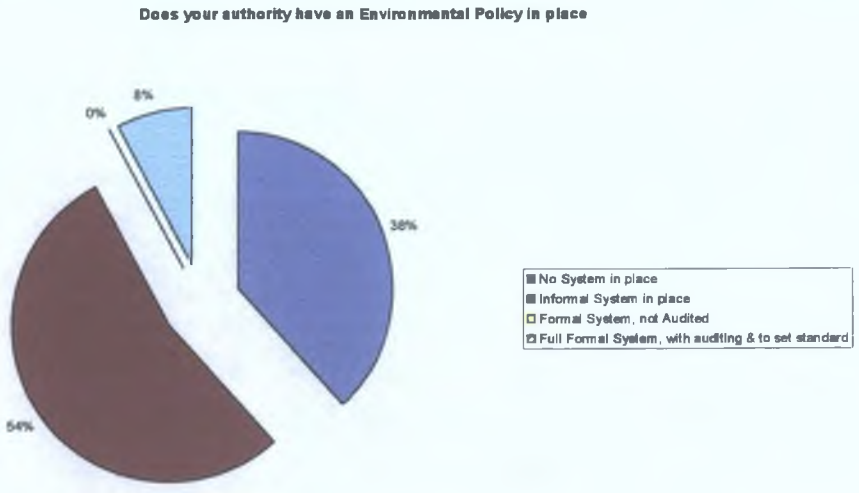
A) As no Authority had an EMS there was no designated person in all but one authority. This authority does not have an EMS currently but is involved in the EPA pilot project on the legal requirement under an EMS.

- Question 3

Q) Has your Local authority got an Environmental Policy including a commitment to continual improvement and a commitment to comply with all relevant legislation?

A) There was a more mixed response here with five authorities having no system. Seven authorities had an informal system in place and one had a full formal system.

This can be expressed as follows:



As can be seen no authority had a full formal policy in place with full auditing but 8% had a formal policy. 54% had an informal environmental policy and 38% had none at all.

- Question 4

Q) If there is a policy could you please attach a copy?

A) No copy of a policy was attached.

- Question 5

Q) Has your Local Authority got a list of all environmental aspects of its activities it can control?

A) In this area there was little formal work done. Nine out of fifteen had no formal system in place. Three Local Authorities had an informal system and one had a formal system. Two Authorities did not answer this question.

No authority had a full formal system for identifying its aspects but 8% did have some formal system without auditing and not part of a national system. 23% did informally identify their aspects but a high 69% stated that they had no system for identifying how they impact on the environment.

- Question 6

Q) What monitoring is routinely carried out?

A) Five Authorities had no system in place while four had an informal system and three had a formal system. One Authority had a full formal system. As with question five, two Authorities did not reply to the question.

- Question 7

Q) If there is a list of aspects please attach a copy.

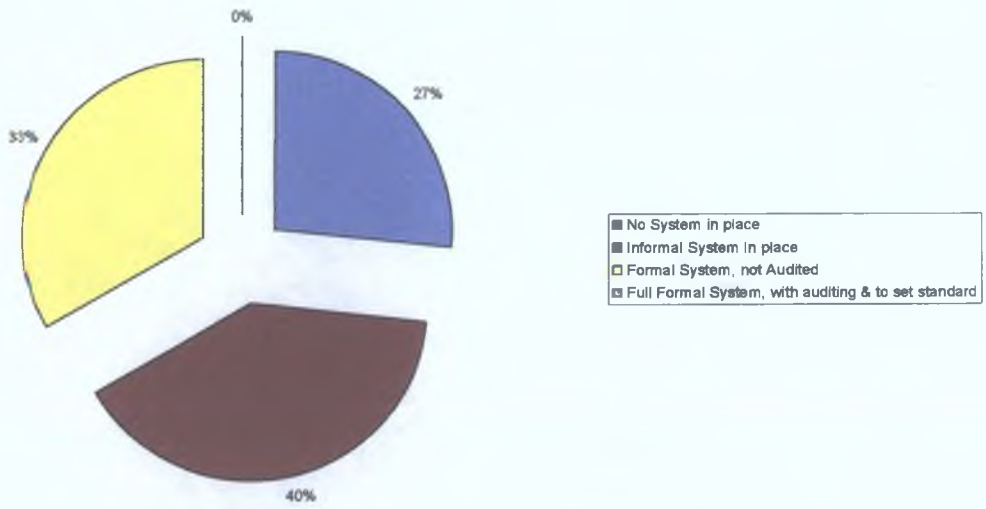
A) No list was returned.

- Question 8

Q) Does your Local Authority have a procedure to identify and have access to all relevant environmental legislation?

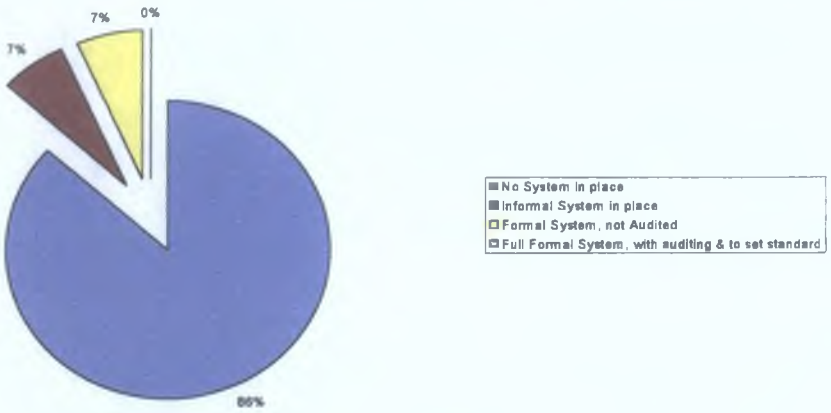
A) In this case all returning Authorities replied. Four Authorities have no system. A greater number – six – had an informal system and five had a formal system. This means that eleven out of fifteen had some way of identifying environmental

Fig 2 Procedures to identify and have access to all relivant environmental legislation.



legislation.

Fig 3 Does you local authority have documented objectives and targets



- Question 9

Q) Does your Local Authority have documented objectives and targets to reduce the impact of its most significant aspects on the environment?

A) This is a necessary part of an EMS. Thirteen out of fifteen local authorities did not have documented objectives and targets. This shows that this way of working is still new to local authorities.

One authority had an informal system and one had a formal system.

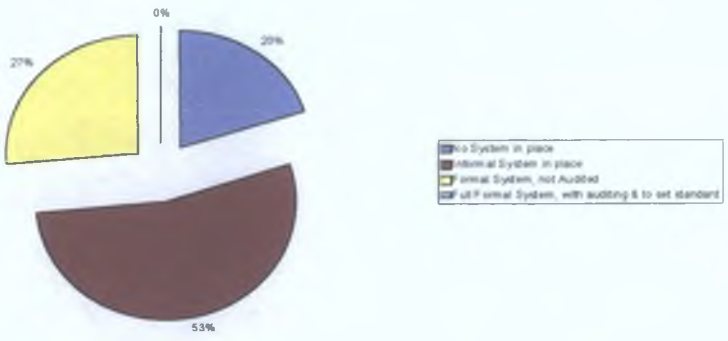
- Question 10

Q) Are the roles, responsibilities and authorities of staff clearly defined in relation to environmental protection and management?

A) Six Authorities state that they have no system to define roles and responsibilities. Six have an informal system and three have a formal system.

60% of authorities have either a formal system or an informal system while 40% state that they have no system for outlining roles, responsibilities and authorities in relation to environmental management.

Fig 4; Are the roles, responsibilities and authorities of staff clearly defined in relation to environmental protection



- Question 11

Q) Has your Authority got a training programme in place?

A) Three had no system, eight had an informal system and four had a formal system.

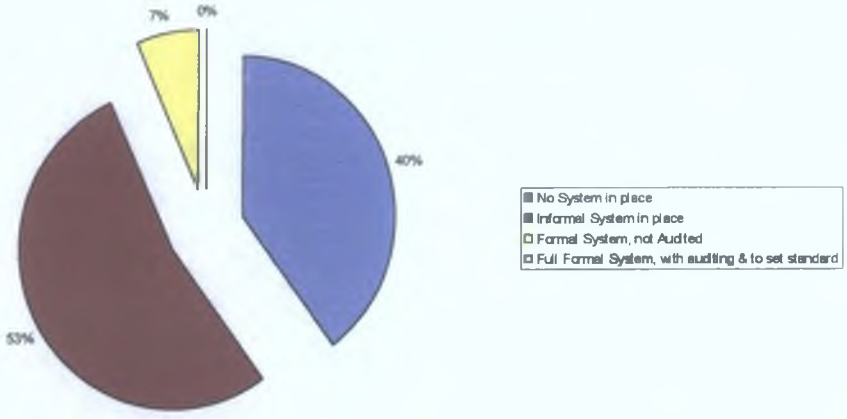
The figure reflects the focus on training in authorities with 80% of authorities having either a formal or informal training programme in place with only 20% having no programme.

- Question 12

Q) Is there a programme to insure that staff, who may, through their work impact on the environment are properly trained?

A) Six had no system in place while a greater number – seven – had an informal system and two had a formal system

Fig 5; Systems in place to optimise internal communications



60% had either a formal or informal system with 40% stating that they had no system in place to ensure that staffs who may negatively impact on the environment are trained.

- Question 13

Q) Does your Authority have a system in place to optimise internal communication?

A) Six authorities had no system while eight had an informal system and one had a formal system of communication.

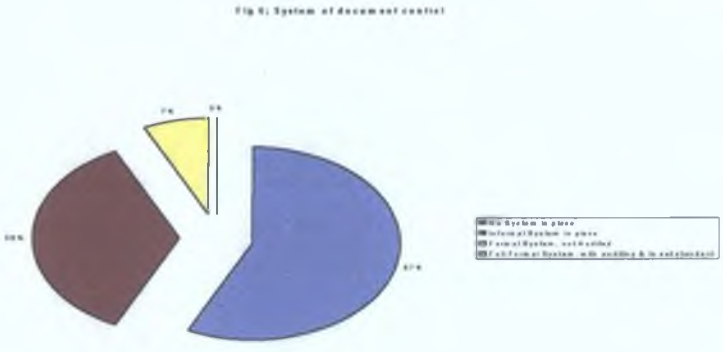
60% of authorities had procedures in place to optimise internal communication and 40% had no system in place to optimise internal communication.

- Question 14

Q) Is there a system of documentation control in place?

A) Eight Authorities had no system while five had an informal system and one had a formal system.

In relation to document control the balance moves to the side of no system. 57% of authorities stated that there was no system on document control in place with only 36% having an informal system and 7% having a formal



system. This gives a combined 43% having some kind of document control in place.

Question 15

Q) Are there documented procedures in place for document control?

A) The distribution of answers moved slightly in this case with only three Authorities stating that they had no system in place. Nine had an informal system and three had a formal system.

In the area of documented operational control there is an 80% rate of implementation. 60% of this is informal and 20% is formal. 20% had no system in place for documenting operational control.

- Question 16

Q) Is there an emergency plan in place?

A) Where previous questions have tended to reveal answers on the 'no system' to 'informal system' categories this question reveal a strong response

in the 'formal ' category. Nine Authorities having a formal system in place and a further six having a formal system that is audited and updated as needed.

As can be seen, every authority had an emergency plan in place.

- Question 17

Q) Are environmental matters considered in the plan?

A) Three Authorities did not answer this question. Of the twelve who did, one had no system for inclusion of environmental matters in their emergency plan. Three had informal inclusion of environmental matters, six had formal inclusion of environmental matters and two had a formal inclusion that is subject to audit and update. This is a 92% inclusion rate.

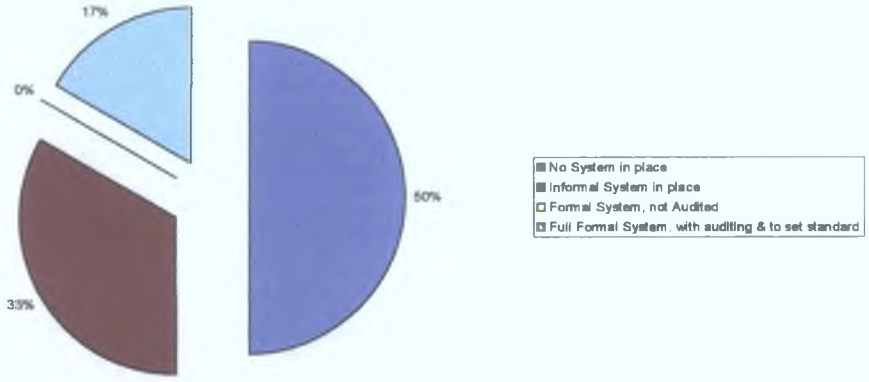
- Question 18

Q) Does your Authority monitor the key impacts of the Authority on the environment?

A) Two of the Authorities who returned results did not answer this question. Of the thirteen who answered, six had no system of monitoring. Four had an informal system and three had a formal system. One authority had a full formal system with an audit and update.

- Question 19

Q) Is there a procedure in place to deal with departures from normal standards or procedures?



A) Three Authorities who returned replies did not answer this question. Of the twelve who did, six had no formal system in place. Four had an informal system and two had a full formal system in place.

Question 20

Q) Do you keep a complaints register?

A) Answers were evenly distributed here. Five authorities had no system, five had an informal system and another five had a formal system.

- Question 21

Q) Are management reviews carried out on a regular basis?

A) One returning Authority did not answer this question. Seven stated that no formal system of management review was in place. Four said that there was an informal system in place and two had a formal system in place. One Authority had a full formal system of management review in place.

- Question 22

Q) If reviews are carried out, how often do they occur and who undertakes them?

A) This question is linked to the previous question. Of the Authorities who replied that there was no system in place for management review in question 21, three gave a no system reply to question 22 and the other four did not answer question 22.

Three had an informal system of carrying out reviews. One had a formal system and two had a full formal system. In each case the answer to Q 22 was at a level at or below the answer for Q21. The exception is one authority that said it had an informal system of management review and then stated that the frequency and conduct of reviews was operated under a full formal system. This is an unreliable result.

- Question 23

Q) Is there an environmental auditing programme in place?

A) All returning Authorities replied. Replies state that fourteen out of fifteen authorities have no environmental auditing programme in place. One has an informal system.

- Question 24

Q) Does your Authority issue a public statement on its environmental performance?

A) Ten Authorities had no system for issuing a public statement on its environmental performance while four had an informal system. One Authority had a full formal system.

5.2.2 Section 2

- Question 1

Q) Is your Authority interested in adopting a systematic approach to environmental management through the introduction of a formal EMS?

A) Two Authorities did not reply and one is undecided. Two Authorities said they were not interested and ten stated that they would be interested.

- Question 2

Q) If yes what steps have you taken to date?

A) Of the fifteen Authorities that replied three did not answer the question. Four stated that they had done nothing and one stated that they intend to monitor developments. Other actions taken include work on Local Agenda 21 and looking at ISO14001 and EMAS. One Authority is implementing the Green Government Guide and point to the appointment of a LA21 officer. It should be noted that while only one Authority mentioned the LA21 officer, a

network of LA 21 officers have been appointed in all Local Authorities as this survey was directly addressed to them.

One Authority has gone as far as appointing a LA21 team and another stated that they were part of the EPA pilot project.

- Question 3

Q) Could you provide a brief outline of the problems being encountered?

A) Of the fifteen returning Authorities, six did not answer this question. One authority had carried out a workshop and had encountered no problems. One Authority stated they had encountered no problems. This however should be taken into context as they state in question 2 that they had taken no steps to date.

Of the other authorities the following were the problems encountered in the individual authorities:

- Time, staff, commitment
- Difficulty getting started
- Resources
- Staff, time resources, time, commitment of management
- Time, resources, lack of awareness
- Time, training
- Time, structure, fear of failure

- Question 4

Q) If another approach is being considered, please outline.

A) This question was not answered by ten of the returning Authorities. It is unclear if the absence of so many answers here is due to the fact that no other approach is being considered or not. Of those who replied the three stated that they were not considering another approach. The other approaches being considered are as follows:

- Auditing
- Green housekeeping
- Developing Local Agenda 21

Question 5

Q) Does your Authority's purchasing policy take the environment and the issue of sustainable development into account?

A) Three authorities did not reply. Three stated that their purchasing policy did take environmental issues into consideration. Eight stated that it did not have a policy and one stated 'not really'

- Question 6

Q) Does the purchasing requirement for equipment include environmental considerations such as 'take – back', recyclability, and suppliers environmental record?

A) Three Authorities did not answer the question. One authority stated that it did take account of such environmental considerations. Ten authorities stated that they did not.

- Question 7

Q) Are arrangements made to insure that water wastage is kept to a minimum?

A) Four Authorities did not answer the question. Two Authorities stated that no measures were in place. Nine Authorities have measures in place to keep water wastage to a minimum. This may reflect the experience of engineers within the organisation who would be familiar with this type of operation.

- Question 8

Q) Have targets been set for the reduction in the consumption of energy in your Local Authority buildings?

A) Three Authorities did not reply. Four authorities have an energy reduction programme in place while seven stated that they did not.

- Question 9

Q) Has your Authority adopted any of the recommendations put forward in the Department of the Environment publication – Green Government Guide (GGG)?

A) Out of fifteen returns, nine authorities answered the question. Of these six had not implemented any part of the Green Government Guide and three had. The answer given by one Authority is contradictory as it states that the GGG is an approach being taken by the authority and then goes on to state that it has not implemented any of the recommendations of the GGG

- Question 10

Q) Is recycled paper used in your Authority?

A) Eleven Authorities answered the question. Six use recycled paper and five do not.

- Question 11

Q) Is there a policy to promote the use of email in your Authority?

A) Only two authorities did not answer this question. Of the replies, a very positive response was found. Eleven promote email and only two do not.

- Question 12

Q) Are there procedures for the identification and disposal of hazardous waste in your Authority?

A) Four Authorities did not answer. Six Authorities do have procedures for identifying and disposing of hazardous waste while five do not.

- Question 13

Q) Do any sections of your authority have a formal quality system in place?

A) Three authorities state that they have formal quality systems in place

Question 14

Q) List the Sections and Qualifications.

Table 5; Local Authority sections with quality standards.

Section	Standard
Roads Design	ISO9000
Fire Section	Pre Audit underway to ISO 9000
Motor Tax	ISO9002
Motor Tax	Unspecified
Roads Design	Unspecified

Chapter Six

Aspects Register

6.1 Introduction

All Environmental Management Systems require organisations to have an aspects register. This is a listing of all impacts on the environment caused by the organisation. There are two types of impact. These are direct and indirect. This poses two difficulties for Local Authorities. The first is caused by the fact that the Local Authority is not located on a single site. Local Authorities activities are spread throughout their jurisdiction. They typically have a headquarters, a number of urban wastewater treatment plants, drinking water treatment plants, area offices, landfills, a roads network, local authority housing estates and one off dwellings, reservoirs, libraries and fire stations. All must be considered.

The second difficulty is that Local Authorities impact on the environment in many indirect ways. For example, a Local Authority is charged under the Local Government (Water Pollution) Act 1977 & 1990 to licence industrial discharges to waters. If an authority is lax in requiring compliance, the industry may have a deleterious effect on the environment. Is a local authority liable for the impact on the environment from every farm because it does not posses the resources to inspect and enforce the Water Pollution Act on every farm?

All Local Authorities are required to have a waste management plan under the Waste Management Act, 1996. If this strategy is not developed with the best interests of the environment in mind, then the environment may suffer. In many ways indirect impacts on the environment may be worse than the direct impacts.

This has now become a daunting task. What is to be done?

Local Authorities in Ireland are right at the beginning of this task and so should start at the beginning. Direct tasks should be looked at first. The aspects register should concentrate on this first. This would answer the critics who suggest that local authorities should 'get their own house in order' before looking beyond.

Further, Local Authorities have an important role in implementing and enforcing a wide range of legislation relating to the environment. The list grows longer and longer each year. With staff shortages and the rapid rate of growth in environmental legislation, it is possible to overlook part or all of a Directive, Act or Regulation. As many indirect effects on the environment occur through enforcing legislation, to include this in an aspects register would make it unmanageable and overlap with the register and the legislation list.

The EPA project being undertaken is looking at this problem of proliferating legislation. A database is being developed which will contain all environmental legislation relevant to Local Authorities. Each section of a piece of legislatio

requiring any action by the Local Authority will be highlighted and a person responsible for the implementation of this section will be nominated. In this way people will be clear as to exactly what is required of them and the organisation will be assured that all areas of legislative responsibility are covered. This database will assist in the auditing function to allow the organisation to demonstrate to interested bodies and the public that they are carrying out their statutory functions. This database is likely to be the best way to control indirect effects from implementing legislation on the environment.

A generic Aspects Register has been developed as part of this dissertation. Local Authorities may pick the functions they are involved in and disregard those that are not relevant to them. It may be regarded as a preliminary checklist. The matrix is based on the model used in Stratford-on-Avon. In this matrix added value has been given by indicating in addition to identifying the impact the following:

- Where an impact can occur
- If it can be monitored routinely
- If it is possible to reduce the impact.

A brief description of the functions and areas of interest of sections has been provided before each aspect list. The principal points on the aspects list are discussed. Where an indirect impact may be considered important this has been highlighted. No attempt has been made to prioritise the impacts, as this will vary in each Local Authority. This step would be taken after each Local Authority has generated its own specific register. At this point a ranking system should b

developed. Some Local Authorities may divide work into different sections. In this dissertation the divisions used are those of Limerick County Council.

Table 6; Key used in the register.

*	There is a possibility of an impact
Q	The impact on the environment is quantifiable
R	It is possible to reduce the impact on the environment
E	The impact on the environment may only be estimated

6.2 Roads Section

In Ireland ,roads have been undergoing a sustained period of upgrading. This is to be seen on the strategic routes between major cities. The reasoning behind this is that 35% of all traffic flows on these routes even though they comprise only 6% of the traffic network (National Roads Authority, 1992)

The breakdown of Ireland's roads network is as follows:

Table 7: Irish Roads Network

Road Type	Km	% of total Road	% of Traffic
National Primary	2630	2.849	24
National Secondary	2625	2.844	11
Regional	10,566	11.448	24
Local	76,474	82.858	41
Total	**92,295**	**100**	**100**

Road Sections are charged with designing these roads in association with the National Roads Authority. They are also charged with their maintenance through the Roads Act 1993. In association with roads, Section 2 of the Roads Act 1993 includes maintenance of public lighting in its definition of maintenance. This work is carried out on behalf of the Local Authority by the ESB in most areas with the expenditure charged to the Local Authority. Local authorities are therefore also responsible for the maintenance and management of public lighting. Roads are

Local Authority function that are particularly spread through out each county, therefore possible impacts can be felt anywhere or even through out the whole county.

6.2.1 Aspects Register

The checklist is broken into two sections. One section deals with main roads and is concerned with the building and design of roads. The other is concerned with the more routine road maintenance.

Principal areas of impact are water and air. The impact on air is through emissions from traffic to the atmosphere and noise. While the Local Authority is not responsible for the volume of traffic on our roads, it has a case to answer if it - through road design - contributes to traffic congestion. Good design and maintaining a flow of traffic will contribute to the reduction of vehicle emissions to air.

Impacts on water occur through a number of activities. The location of the road will determine where the road run-of will occur. This may be a sensitive watercourse and may not be able to assimilate the volume of polluting matter. The actual construction of the road can lead to run-off to waters. This will be an impact at specific points within a discreet time units but should be addressed in road construction. Routine road maintenance can contribute to water pollutio

specifically through street cleaning, pothole repair, and gritting and salting roads in winter.

Another impact which should be considered is that of street lighting. This can impact on the environment in two principal ways. These are use of non-renewable resources and light pollution. Light pollution is seen in the orange domes found around urban areas at night. The use of non-renewable resources may be addressed through the use of low energy light bulbs.

It can be seen on the checklist that there is a considerable number of activities in this section that can impact on flora and fauna. Poor road design can lead to congestion, contributing to general air pollution within city areas. This can contribute to lichen deserts in urban areas. The impact of road run-off can impact greatly on life in watercourses. It is a feature of road run-off that large volumes of water can suddenly discharge to watercourses. These volumes can have high salt contents after an icy period and high solids levels after prolonged dry periods. A further complication is that in summer, slurry tankers using roads to get to distant fields for slurry spreading can leave slurry deposits on the roads. This gives any roads discharge a significant organic content. The high saline content, solids content and organic content will change the balance in a watercourse and if there is insufficient dilution by the receiving body, alter the flora and fauna profile of the receiving water body.

There is a particular difficulty in quantifying the impact a road network may have on the environment. It may however be possible to quantify impacts at specific points. This means that Local Authorities may select points they perceive to be 'hot spots' and attempt to quantify the impact at these points.

The inability to quantify an impact leaves the Local Authority open to claims that they are impacting on the environment to an extent greatly in excess of the actual situation. It therefore means that local authorities currently have a limited capacity to respond to this. This is one of the principal advantages of an EMS. It provides a framework to work to. It may not be possible to address all problems initially but priorities can be made and a database can be initiated on road networks to allow future decisions on reducing the impact existing roads have on the environment to be made.

One way of responding and also ensuring that the local authority is doing its best to reduce the impact on the environment is through the introduction of Standard Operating Procedures. These written procedures would state clearly what is required of staff in the operation of their jobs, ensure minimal impact on the environment, demonstrate the local authority's efforts to reduce impacts to the public and fulfil the requirement for written procedures in an EMS.

Table 8; Roads Section

Activity	Surface Water	Ground Water	Air	Litter	Land	Use of non renewable Resources	Health & Safety	Noise	Flora & Fauna
Location	*/R	*/R			*/R	*/R		*/R	*/R
Runn-off	*	*							*
Engineering	*/R	*/R	*/R	*/R	*	*/R	*/R	*/R	*/R
Construction									
Process									
Generation			*/R			*/R	*/R	*/R	*/R
Of									
Congestion									
Traffic Volumes	*	*	*			*	*	*	*
Road Design Features			*/R			*	*	*	*
eg. Traffic lights, roundabouts									

Table 8 Continued; **Roads Section**

Activity	Surface Water	Ground Water	Air	Litter	Land	Use of non renewable Resources	Health & Safety	Noise	Flora & Fauna
Village Renewal				*E/R	*/E/R	*/R	*		
Bridge Building	*/R					*/R	*/R		*/E/R

Table 8 continued; **Roads Section**

Activity	Surface Water	Ground Water	Air	Litter	Land	Use of non renewable resourses	Health + Safety	Light pollution	Flora & Fauna
Street						*/Q/R		*/R	*/R
Lighting									
Street Cleaning	*/R	*/R	*/R	*/R			*/R		
Roads	*/R	*/R	*/R			*/Q	*/R		*/R
Resurfacing									
Pot hole	*/R	*/R	*/R			*/Q	*/R		*/R
Repair									
Road run-off	*	*		*			*		*
Salting Roads	*								*
Gritting Roads	*								*

6.3 Sanitary Services

This section is primarily concerned with the provision of water and sewage services to the public. The Public Health Ireland Act 1879 prompted the first development in this area. Over the years the level of services has risen as seen in the table below (Central Statistics Office, 1946, 1961, 1971, 1981).

Table 9; Percentage of dwellings with a piped water supply

Year	Cities & Towns	Rural Areas	Total
1946	92%	8.6%	38.6%
1961	97%	25%	57%
1971	99%	58%	78%
1981	100%	89%	95%

National spending on water services capital works in 1999 is £275 million(Casserly, Pers. Com). The bulk of this money is being spent on the Dublin Bay and Limerick main drainage projects. It is anticipated that spending on water and sewage schemes will remain at this level or even increase. Money is currently being invested in this area for two reasons.

1. To ensure compliance with the EPA Act 1992 Urban Waste Water (Treatment) Regulations 1994
2. To aid development

The principal impacts on the environment derive from the activities of treating sewage and treating drinking water.

Consider that while Local Authorities may have one or two landfills and in some cases have none, each can have a large number of sewage treatment plants.

The EPA in their report 'Urban Water Waters in Ireland for the years 1996 and 1997' (O'Leary, Carty, 1998) state that for population equivalents of 1000 and over there are:

- 39 agglomerations with no treatment
- 6 with preliminary treatment
- 48 with primary treatment
- 145 plants in the country to the standard of secondary treatment.

This is a total of 238 discharges

The EPA also state that for plants with a population equivalent of 1000 and over, a total of 34,484 tonnes dry solids was produced in both 1996 and 1997.

Table 10; National waste disposal routes.

Disposal Route	% Disposed in this manner
Agriculture	9.8
Landfill	43.3
Sea Disposal	42
Forestry	0
Unspecified	4.9
Total	100

Disposal of sludge at sea is no longer an option and landfilling of sludge is the next most significant method of disposal. The EPA sees the future of sludge in treatment and spreading on land(O'Leary, Pers Com). In 1996 and 1997, only 3,363 tonnes of sludge was landspread. Compare this figure with the 14,944 tonnes landfilled each year and bear in mind that a slightly lower figure was disposed at sea. These large volumes will have to be disposed of in another manner in the future and have a massive polluting capacity. The National Waste Policy is requiring a minimum of 65% reduction in biodegradable waste consigned to landfill. The service provided by the local authority in drinking water concentrates on two areas. The first is to provide water to meet the demand and the second is to provide water that meets the quality standards set down in the 1988 Drinking Water Regulations. The principal areas to be looked at are in treating the water distributing it and the quality provided to consumers.

Another aspect of the work of Sanitary Services Section is the siting and development of grave yards. Each community requires a graveyard and the siting of these must be done so as not to put ground water at risk.

6.3.1 Aspects Register

Principal impacts on the environment within this section occur at the collection, treatment and discharge of sewage, in the abstraction, treatment and distribution of treated water and in the siting of graveyards. The point sources of numerous urban wastewater treatment plants may pose the greatest environmental risk an authority has.

The principal discharges to the environment in the form of treated sewage to rivers has been monitored by local authorities for some time and constitute the principal area of environmental monitoring carried out on its own organisation. Other areas have been overlooked due to low staffing, limited resources and lack of awareness. Two of these areas are leak detection and sludge analysis.

Looking at sewage treatment, areas of potential impact can be divided into:

- Collecting sewage
- Treating sewage
- Final discharging of effluent and sludge disposal

Many of the sewers in use are old and run under old streets and roads. The effects of time and the pressure on the roads together with damage caused by building, repairs and renovations near these pipes have lead to leaking sewers. The impact on ground water is not investigated as a matter of course.

These pipes spread like a web under all towns and villages.

If these urban areas are located on an important aquifer that has either a high or extreme vulnerability rating then leak detection and repair should be considered as a matter of urgency. Leaks from collection systems can lead to localised odour problems and can place public health at risk through contamination of ground water sources of drinking water. This is an example of where an aquifer protection plan could help prioritise work in reducing impact on the environment. Surface waters are also at risk through direct discharges from broken pipes or through the misdirection of sewage to surface water pipes. A significant source of pollution can be through storm water overflows. These were installed to prevent th

flooding of the treatment plant in high rain-fall. The outcome is the discharge of raw sewage together with large quantities of contaminated rain-water to receiving waters. In cases where sewage is pumped to the treatment plant the overflows will come into operation if pumps trip out or if pipes become blocked.

The poor handling and disposal of sludges, both primary and secondary can lead to water pollution problems. This can happen through the direct application of sludges in an inappropriate manner to lands allowing run-off to waters or through their disposal to landfill with an inadequate leachate collection system. As with any organic pollutant, where it is allowed to enter waters there will be an impact on flora and fauna. This impact will be dependant on the sensitivity of the receiving water and the volume and concentration of sludge. Sludges, especially primary sludge can give rise to localised odour problems. These problems can at least be minimised through proper handling.

Where full standard operating procedures are in place and where staff are adequately trained, the potential to impact on the environment can be reduced. Where staff receive adequate training there is less risk of discharging a poor quality effluent and of allowing sludge to go septic. The Local Authority is also in danger of polluting receiving water through the discharge of unusual effluents that have been discharged to the collection system. While the local authority is not responsible for these contaminants being in the system they must treat them. An example is when waste oil is dumped into a manhole. This can badly affect a treatment plant and can lead to oil contamination of the discharge. Shock loads of

toxic industrial discharges have the ability to impair the operation of a treatment plant and should be considered.

The point source discharge is the most visible source of pollution from Local Authorities and possibly the most significant. The assessment of this would be specific to each Local Authority and would be dependant on the quality of effluent and impact on receiving water and on a formal risk assessment.

The rising concern in Ireland over the levels of Phosphate in rivers is reflected in the Phosphate Regulations 1998. It requires a specified reduction in the phosphate level in Irish rivers over a 10-year period. In light of this concern it behoves Local Authorities to look at all treatment plants and the phosphate concentration being discharged. High phosphate in waters leads to eutrophication and a negative impact on flora and fauna. One other area of impact from all aspects of wastewater treatment is that of health and safety. This applies to both the general public and operators. Consider a situation where a popular bathing water is downstream of an outfall. Consider also the risk staff are placed at in the routine maintenance of the treatment plant.

Water treatment is not such an obvious negative impact on the environment.

The leaking of water from the distribution system can affect the ion balance of a ground water. The principal impact however is through the abstraction of water. In the case of surface water it is essential that an adequate proportion of dry weather flow be left in the river to maintain the life in the river. To abstrac

beyond this point would have a serious effect on the river. This can be linked to leaking pipes as where water is being lost to the system more must be abstracted and more energy must be expended in its treatment. Excessive abstraction from ground water can lead to a lowering of the water table. This can lead to the drying up of shallow private wells.

The chemical addition required to raw water is principally of concern to the health of the operator and if done incorrectly, to the population at large. Of concern here is the dosing of aluminium, fluoride and residual chlorine.

The sludge from a water treatment plant may have high levels of aluminium and will have concentrated any contaminants found in the raw water. Of concern here would be the risk to public health from the concentration of Cryptosporidium. This sludge must be disposed of and it then impacts on land through being landfilled. If sludge is backwashed to a river there will be a localised concentration of Cryptosporidium in the water.

As with wastewater treatment plants, staff training can reduce the impact the plant has on the environment. Operators with adequate training can ensure that the concentrations of chlorine and fluoride are acceptable and that there is a minimum carry over of aluminium. They will also note any increased requirement to pump raw water and can indicate large leaks.

Both urban wastewater plants and drinking water plants use power in treatment. This is a use of a non-renewable resource. Efficient treatment can reduce the energy requirement. An example of this is in monitoring the input of oxygen into an activated sludge plant. Would the plant be able to run efficiently on less? Unoccupied process control buildings or buildings with doors open need not be heated and lit constantly. The co-ordination of plant operations could lead to a reduction in the number of trips to landfill with sludge.

The principal impacts that the public may perceive from treatment plants can be from odours and noise. While these can be localised problems they can have a high nuisance level.

Grave yards

Graveyards are the responsibility of the Local Authority. In this case the only quantifiable impact is on the generation of litter. Graveyards impact on surface and ground water through their location and this should be taken into consideration when new sites are being considered. Crematoriums can lead to air pollution, as can decaying flowers. The proper siting, layout and maintenance of graveyards can minimise their impact.

Table 11;		Sanitary Services				Sanitary Services		
Activity	Surface Water	Ground Water	Air	Litter	Land	Use of non renewable resources	Health & Safety	Flora & Fauna
Sewage Treatment Plants								
Collection System	*/R	*/E/R	*/R				*/R	
Primary Sludge	*	*	*/R	*/R	*/Q/R	*	*/R	*/R
Waste sludge	*/R	*/R	*/R		*/Q/R		*/R	*
Effluent Quality	*/Q/R	*					*/R	*/R
Effluent Quantity	*/Q	*						*
Staff Training	*/Q	*/R	*/R		*/R	*/R	*/R	*
Nutrient reduction(lack of)	*/Q/R							*/R
Water Treatment Plants								
Distribution System		*/E/R				*/R		
Abstraction	*/Q/R	*/Q/R				*/R		*/R

Table 11 Continued;		Sanitary Services						
Activity	**Surface Water**	**Ground Water**	**Air**	**Litter**	**Land**	**Use of non renewable**	**Health &**	**Flora &**
Dosing							*/R	
Sludge	*	*			* /Q/R	*/R	*/R	*
Backwash to river	*/R						*	*
Plant power						*Q/R		
						resources	**Safety**	**Fauna**
Staff Training	*/R	*/R				*/R	*/R	
Grave Yards/Crematoriums	*/R	*/R	*/R	*/Q/R	*/R	*/R	*/R	
Servicing of land for development	***/R**	*/R			*/R	*/R	*	

6.4 Planning

The planning section is a section where we see the indirect impact of a Local Authority on the environment. The impact the planning section can have on the environment is most clearly seen in the Development Plan. Under the Local Government (Planning and Development) Act 1963, each Local Authority must make a development plan. This must be reviewed every five years. Once the plan is in place it must be consulted for each planning application. In almost all cases development may not contravene the County Development Plan

It is clear that an absence of environmental considerations at this point could have serious consequences for the environment.

'The main sustainable issues are the same issues which have been central to the planning process and to the development plan. These are achieving the correct balance between development and conservation, the protection of the environment – both natural and manmade – and taking the long -term view.'(Sheeran, 1997)

The development plan is a powerful tool if used correctly and the incorporation of the idea of sustainability into the plan will go a long way to ensuring protection of the environment. The power of the Local Authority regarding the protection of the environment through the planning process was limited somewhat by Section 68 c

the EPA Act 1992. Under this section, any proposal requiring planning permission and an integrated pollution control licence will be dealt with by both the Local Authority and the EPA. The Local Authority and An Bord Pleanala may look at all issues *'other than matters relating to the risk of environmental pollution from the activity'*- Environmental Protection Act 1992

It could be argued that the activities of the planning section impact on the environment in an indirect way and as such should not be included in the Aspects Register. The authors view, is that the ability of these indirect aspects to impact on the environment is so great that it should be included, if for no other reason than to draw attention to the environmental significance of this area of local authority.

6.4.1 Aspects Register.

The principal areas of interest in the planning section are:

- Development Plan and its zoning function
- Planning Policy
- Cognisance of :
    1. Aquifer protection plans
    2. Water quality management plans
    3. Smoke free zones
    4. Areas of Scientific Interest
    5. Natural Heritage Areas
    6. Special Protection Areas

7. Special Areas of Conservation

As the planning impacts are indirect in nature it is not possible within the normal resources of a Local Authority to quantify their impact on the environment. It can be seen from the checklist that there is potential to impact across the board. Examples of issues are:

- Intensification of agriculture - is there sufficient land available to spread slurries
- Housing development – allowing development in areas where sanitary services cannot cope with the increased capacity.
- One-off rural housing developments – where groundwater may not be able to cope with the density of septic tanks. This can pollute the groundwater and contaminate the drinking water source for the public.
- Further development in pressure zones around cities contributing to congestion and air pollution.
- Local Authorities can promote the regeneration of run-down urban areas in favour of developing green field sites.
- Many potentially damaging developments are given permission with a number of conditions attached. These conditions are designed to minimise the impact of the development on the environment. If planning sections do not follow up to ensure that all conditions are met and take legal action in the

event of their not being carried out, then giving permission subject to conditions loses its worth and its ability to safeguard the environment.

Specific plans and protection zones are in force in many areas and these can act as a guide to planners in protecting the environment in their area. They have the advantage over policy decisions in that they are generally based on some form of monitoring and reflect the actual situation in the working area of the planner. In this way a planner can have confidence in the designation of an area under an aquifer protection plan as extremely vulnerable. If these plans are disregarded then valuable information, which would assist in minimising the impact a development can have on the environment, has been disregarded. This can only have a negative effect on the environment.

When designated areas are taken into account, this also works as a protection for the environment

It can be seen that responsible planning decisions with protection of the environment as a baseline can reduce the impact of development on waters by allowing development in a manner that will not pollute. This in turn will protect aquatic flora and fauna.

Table 12; Planning

Activity	Surface Water	Ground Water	Air	Litter	Land	Use of non renewable Resources	Health + Safety	Noise	Flora & Fauna	
Development	*/R	*/R	*/R	*/R	*/R		*/R	*/R	*/R	
Plan										
Planning	*/R	*/R	*/R	*/R	*/R					
Policy										
Cognisance of	*/R	*/R	*/R				*/R		*/R	
protection plans										
and designated areas										
Inclusion of idea	*/R	*/R	*/R	*/R	*/R	*/R		*/R	*/R	
of sustainability										

6.5 Environment

With the planning section, environment can have an indirect effect on the environment. Among the functions of the environment section are the following:

- Licensing discharges to waters.
- Licensing discharges to sewers.
- Regulating the transport of toxic waste through their functional area.
- Maintaining waste oil registers.
- Developing waste management plans.
- Developing water quality management plans.
- Operating smoke free zones.
- Monitoring nutrient management plans.
- Implementing Bye-Laws for the protection of water quality.
- Prosecuting those who discharge to waters and air in an illegal manner.
- Monitoring bathing waters.
- Carrying out investigations into the causes of pollution.
- Operating and monitoring landfills.
- Implementation of the litter laws.
- Building Safety.
- Animal Pounds

As can be seen, the functions of an environment section can be varied.

The principal impact the environment section can have on the environment is through the operation of landfills. Historically all towns and villages had a landfill/dump on its outskirts. These old closed landfills and ones currently operating are a significant potential point sources of pollution.

While all newer landfills are engineered to reduce the potential impact on the environment, older ones were not lined. Some were sited on banks of rivers, while others were located by the sea.

In Ireland, 1.8 million tonnes of domestic waste is produced each year with 4.2 million tonnes of commercial waste being produced (Environmental Protection Agency, 1998). All Local Authorities are currently developing waste management strategies with proposals for future waste disposal options.

These options must incorporate the National Waste Policy targets of a diversion of 50% of household waste from landfill and a recycling figure of 35% of municipal waste (department of the Environment and Local government, 1998)

This policy also has a stated target of 80% reduction in methane emissions from landfill, which will impact on the operation of landfills.

6.5.1 Aspects Register

As previously stated the principal source of impacts on the environment from the environment section relates to landfills, both closed and operating.

Many of these impacts can be quantified. Looking first at the collection of waste and its transfer to landfill. Litter problems can arise through the improper collection of waste and improper transportation. There is also the pollution contribution caused by emissions from vehicles transferring waste to the landfill. There is also a localised noise problem associated with the collection of the waste at peoples' homes. The increased waste being generated may lead to pressure on waste collectors to work in an unsafe manner. The emptying of bins into the waste vehicles would present a risk.

The location of the landfill can also contribute to the air pollution from trucks as the greater the distance to the landfill, the more pollutants are emitted.

Landfill location will also affect the potential to pollute the ground and surface water. While almost any site can be engineered now to operate as a landfill, in the past inappropriate sites were chosen.

The activity of landfilling the waste has possibly the greatest potential to pollute. It also has the greatest potential for control. Evidence of this is that many impacts from the landfill can be monitored by the Local Authority. Local Authorities routinely monitor ground water, surface water, leachate and gas generation at operating landfills. This has been driven in some measure by EPA guidelines and the licensing of landfills by the EPA.

It is possible through proper management to reduce the pollution of surface and ground water and to mitigate the effect of methane generation. It is also possible to reduce the volume of litter blown from a landfill through increased covering rate.

The main source of polluting matter form a landfill is its leachate. In modern landfills this can be quantified. It has a huge potential to pollute waters. The practice of using small filling cells and exposing small areas to rain will reduce the volume of leachate, while treating it can reduce its impact on the environment. This is an easy process in newer landfills, however attention should also be given to closed landfills to confirm that they have been adequately capped and that leachate is not being discharged.

The generation of methane can be viewed as a resource to be used, unlike leachate, which must be treated. If the landfill is large to generate sufficient quantities of methane then this can be harnessed and transformed into energy.

As with treatment of water and waste, the level of staff training will have an effect on the efficient running of a landfill. Where a facility is run badly, this will lead to a greater than necessary impact on the environment.

It is a function of the environment section to carry out pollution investigations. These pollution incidents can have an impact on waters, air and land. If a Local Authority fails to follow through investigations with prosecutions where warranted, they are allowing the environment to be polluted. This can occur

where staff levels are low and it is felt that a written warning may be sufficient and avoid the time and expense necessary in bringing a case to court.

To counter any accusation made in this regard, the register of investigations undertaken, the number of notices issued and the number of prosecutions taken are kept. This allows the Local Authority to determine the level of legal activity undertaken. If this were then put into a geographical information system it could be compared with the pollution 'hot spots' to see if the work was being targeted at the most appropriate areas. In this way pollution investigation work can become more focused and the impact it is having can be plotted.

The Local Authority issues licences to discharge to air, waters and sewers. These licences are issued where the discharger does not fall under any category for IPC licensing. Poor licensing on the part of the local authority will allow companies to have a negative impact on the environment. As the licensing of discharges to waters started in 1977, it is conceivable that there are many old licences in place. The condition of Ireland's rivers has deteriorated over the past years and licences issued by local authorities in the past could now be in a position to allow dischargers to cause pollution. Local Authorities have been afforded an opportunity under the Phosphate Regulations 1998 to review all discharge licences to waters and sewers in light of new phosphate regulations. The degree to which this is necessary will vary from one local authority to another.

In the checklist, monitoring of air, river and groundwater is included. While this may not immediately be an obvious cause of pollution, it should be born in min

that the absence of monitoring programmes would prevent the Local Authority from adequately prioritising pollution investigation work. An inadequate programme could have a worse effect by giving a sense of complacency while missing potential problems and allowing them to go un-addressed.

The adoption of a policy of requiring nutrient management plans will assist in reducing the impact of agriculture on waters. Their enforcement would cause farmers to be more careful and would assure local authorities that they were not allowing the problem of diffuse pollution to be exacerbated by the action of the Local Authority in giving planning permission.

Local Authorities run animal pounds which can be a source of pollution. Points to consider would be the risk to health of employees, and noise generated by the animals housed in the pound. Localised odour problems can occur with bad management. The main potential source of pollution would be waste from the animals and the disposal of dead animals themselves.

The Local Authority makes extensive use of herbicides. This occurs in the keeping down of weeds in pathways, removing grass from kerb edges and most importantly along roadsides.

This can be seen along roads where trees have been planted. Large areas are covered with herbicides to keep weed growth down. This has an immediate effect on the area being spread. It can also be washed down through drains to urban wastewater treatment plants and through surface water drains into watercourses.

Table 13; Environment

Activity		Surface Water	Ground Water	Air	Litter	Land	Use of non renewable resources	Health & Safety	Noise	Flora& Fauna
Landfill										
Collection of Waste					*/E/R		*	*/R	*/Q/R	
Transportation of waste				*	*/E/R		*/Q/R	*/E/R	*/Q/R	*/E/R
Landfill Location		*/Q/R	*/Q/R	*Q/R		*/Q/R		*	*/Q	*/Q
landfilling of waste		*/Q/R	*/Q/R	*/Q/R	*/E/R	*/Q	*/E	*	*/Q	
treatment of leachate		**AS PER STP**								*
staff training		*	*	*	*	*	*	*	*	
old closed		*/Q/R	*/Q/R	*/E	*/Q/	*/Q		*		*/E

					R					
landfills										
Pollution		*/Q/R	*/E/R		*/E/R					*/E/R
Investigations										
Licencing		*/Q/R	*/Q/R	*/Q/R		*/E/R	*/E/R			*/E/R
Discharges										

Ground water		*	*					*		*
Monitoring										
River		*						*		*
Monitoring										
Ambient air				*/Q/R			*/E	*/R		*/R
Urban areas										
Monitoring smoke				*			*	*		
free zones										
Toxic		*	*	*		*		*		*
waste movement										

Table 13 Continued; Environment

Activity		Surface Water	Ground Water	Air	Litter	Land	Use of non renewable resources	Health & Safety	Noise	Flora& Fauna
Disposal of Local		*/R	*/R	*/R		*Q/R		*/R		
Authority waste										
Farm inspections		*/Q/R	*/E/R	*/Q/R		*/R		*		*/R
Nutrient Management		*/R	*/R			*/R		*/R		*/R
Plans										
Animal Pounds		*E/R	*/E/R	*/R	*/Q/R	*/Q/R		*/R	*/Q/R	
Herbaside use		*/Q/R	*/R	*/R		*/R		*/R		*/R

6.6 Housing

It is the principal aim of Local Authority Housing Sections to provide suitable housing to families who can not provide for themselves. This housing is provided at an affordable rent and can be available to purchase at a subsidised rate.

The Housing Act 1966 covers the following issues:

- Housing construction/acquisition programme
- Funding of Local Authority house building programmes
- Rent Scheme
- Acquisition of Land.

Under this Act, the Local Authority has power to purchase land. This can be done by agreement or as a compulsory purchase order.

Each Local Authority is allocated funding by the Department of the Environment for housing purposes. Local Authorities operate rent schemes where rent is determined on the ability of the tenant to pay. The building programme operated by Local Authorities is not as extensive as private developments but overall numbers are high as can be seen from the following figures (Department of the Environment and Local Government, 1996)

Table 14; Overall housing development rates

Year	Local Authority Housing	Private Housing
1991	1180	18472
1992	1482	20982
1993	1200	19301
1994	2347	23588
1995	2808	26756

Local Authorities also provide grants for essential repairs. Another function is the provision of halting sites for travellers. These sites must have all services like water and sewage.

Local Authorities, through rent schemes, mortgage subsidies and essential repair can encourage the reuse of old houses and the re-population of inner city areas and reduce the impact of green field site developments.

6.6.1 Aspects Register

The housing section is another section where the Local Authority may have a limited ability to quantify the impact it has on the environment. The principal area where an impact can be seen and also where this impact can be reduced is in the use of non-renewable resources. This occurs in the building and repair of housing stock.

Poor design can lead to health and safety and noise impacts. As with other sections, lack of staff training in the environmental impacts of housing issues can lead to problems with inappropriate siting of developments, use of non-renewable resources and the health aspects of the building types. An example would be a lack of awareness about radon could lead to building houses without adequate protection in high-risk areas. Simple considerations like the orientation of houses to make maximum use of solar energy and use of woods from renewable forests can reduce the impact the development has on the environment. The installation of energy efficient heating systems and adequate insulation can also reduce th

impact the development has on the environment. The inappropriate siting of halting sites can lead to surface and ground water pollution from waste disposal services. Poor servicing of sites can lead to localised litter problems. This also applies to housing estates. Tenant training on simple repairs and maintenance and on the efficient use of light and heat can have a positive impact on the environment.

On looking at the checklist for the housing section, it is clear that a large number of impacts on the environment can be reduced. One step to achieving this would be the provision of recycling facilities in local authority housing estates.

Table 15; Housing

Activity	Surface Water	Ground Water	Air	Litter	Land	Use of non renewable Resources	Health + Safety	Noise	Radiation	light island	Flora & Fauna
Location of Projects	*/R	*/R	*/R	*			*	*			
Wall insulation			*			*/R	*	*/R			
Windows			*			*/R	*	*/R			
Roof insulation			*			*/R	*	*			
Foundations							*/R		*/R		
Lighting						*/E/R				*	
Heating System			*/R			*/R					
Maintainance	*	*	*			*	*				

Table 15; Housing

Activity	Surface Water	Ground Water	Air	Litter	Land	Use of non renewable Resources	Health + Safety	Noise	Radiation	light island	Flora & Fauna
Staff training	*/R	*/R	*/R		*/R	*/R	*/R	*/R	*/R	*	*/R
Tenent Training	*/R	*/R	*/R	*/R		*/R	*/R	*/R			
Halting Sites	*/R	*/R	*/R	*/R	*/R						
Caravan Parks	*/R	*/R		*/R	*/R						

6.7 Local Authority Buildings

In addition to housing stock all local authorities will own a number of buildings. These will include main county buildings, area offices, store houses, water treatment plant buildings, urban waste water treatment plant buildings, fire stations, reservoirs, libraries, laboratories and courthouses. All of these buildings may have used non-renewable resources in their building. They all use energy to a greater or lesser extent. The administration of each Local Authority generates a considerable volume of waste and uses power in the operation of its day to day functions. The checklist shows that air is polluted through the use of non-renewable power in the heating and lighting of its facilities. As with any administration, large amounts of paper are generated daily. If this paper is virgin paper then another resource is being used. Landfill space is taken up in disposing of all of this paper. Large volumes of water and waste water are discharged. Photocopiers are purchased and generate multiple copies of reports which find their way - with obsolete photocopiers - to landfill. Parking space must be provided and run-off pollutes surface water with oil and organic matter washed off the cars. Polluting emissions from cars are generated in driving to work and in driving to carry out work. The location of buildings may lead to prolonged time in traffic thereby increasing car emissions. The location of the building away from bus routes can also encourage the use of individual cars. Requiring staff to start

work at peak traffic times is also another way to increase emissions to the atmosphere.

Uncontrolled heating systems that allow heating to be on while windows are opened and to remain so for extended periods use up energy. Offices left with lights on – sometimes overnight - also use energy. Computers left on over night is also another source of energy wastage.

The use of disposable cups is a completely unnecessary waste of a resource and adds to the volume of waste produced. Another consideration is the use of cleaning products in the building. These can impact through being discharged to sewers or impact locally on the health of staff. Included in this category would be high phosphate washing up cleaners and disinfectants.

It may be argued that mobile libraries reduce car emissions by reducing the requirement of the public to travel to libraries. This library will itself cause emissions to enter the atmosphere.

Many of these impacts can be reduced as seen in the checklist. The 'Green Government Guide' (Department of the Environment and Local Government) provides clear steps to be taken to reduce the impact from buildings. It is also of note that a number of impacts can be estimated. This would mean that progress could be charted. This would be a positive and encouraging effect on staff and would promote further uptake of the EMS

Table 16; Local Authority Buildings

Activity	Surface Water	Ground Water	Air	Litter	Land	Use of non renewable resourses	Waste Generation
Lighting			*/R			*/R	
Heating			*/R			*/R	
Paper				*	*/E/R	*/E/R	*/E/R
Water	*/Q.R	*					
Disposable				*/R	*/E/R	*/R	*/E/R
Canteen							
Utencils							
Disposable				*	*/E/R	*/E/R	*/E/R
Water cups							
Location	*	*	*		*	*	
Photocopiers					*	*	*/R
Email						*/R	

Table 16 continued; Local Authority Buildings

Activity	Surface Water	Ground Water	Air	Litter	Land	Use of non renewable resourses	Waste Generation
Parking	*	*	*		*		
Accesability			*			*	
Sewage	*	*					*
Fire extinguishers			*/R				
Building cleaning	*/R		*/R			*/R	*/R
Disposal of old equipment					*/Q/R	*/R	*/R
(photocopiers, computers etc.)							

6.8 Machinery Yard and Vehicles

In this category are included the impacts generated from the machinery yard, vehicles owned by the Local Authority and vehicles owned and operated by staff in the operation of their work duties.

In general, each Local Authority will have a machinery yard to carry out repairs to their vehicles. Principal impacts in this area are through the use of non-renewable resources and localised contamination of land. It is to be expected that there will also be some contamination of waters through the escape of waste oils.

Consideration should also given to the disposal of old batteries, old parts and end of life vehicles.

Table 17; **Machinary Yard**

Activity	Surface Water	Ground Water	Air	Litter	Land	Use of non renewable Resources	Health + Safety	Noise	Flora & Fauna
Waste Oil	*/R	*/R			*/E/ R	*/Q	*		*/R
Old parts					*	*	*		
Yard Run-off	*/R	*/R			*/R	*	*		*/R
Vehicles Running			*/R			*/R	*/R	*/R	*/R
Old batteries					*/Q/ R	*/Q	*/R		
Disposal of old vehicles					*	*			
Trucks & Vans	*/R		*/R		*/R	*/R	*/R	*/R	*
Privately owned cars operated through work	*/R		*/R			*/R	*/R	*/R	*

Table 17; **Machinary Yard**

Activity	Surface Water	Ground Water	Air	Litter	Land	Use of non renewable Resources	Health + Safety	Noise	Flora & Fauna
Vehicles owned by public	*/R		*/R			*/R	*/R	*/R	*
used to interact with the LA									
Mobile Libraries	*/R		*/R		*/R	*/R	*/R	*/R	*

6.9 Fire Service

The Fire Service is an important area of Local Authority activity. This section is involved where emergencies occur. Their principal activities would relate to fires and road traffic accidents. Fires at fixed point sources can lead to pollution through:

- Combusted and partially combusted materials being released to air.
- Contaminated fire water run-off.

The pollutants released to air can not be attributed to the Fire Service as the Fire Service is not responsible for the fire. They are however responsible for their actions when on site and are therefore responsible for pollutants released in the water used and released to either waters or sewers.

Road traffic accidents can occur at any point on the roads network. Pollution can occur from the run-off of petrol in car crashes. In the case of non-toxic accidents the following are examples of what is frequently to be found on Irish roads:

- Slurry Spreaders.
- Milk Tankers.
- Acid Tankers for silage in summer.

As seen in the Aspects checklist, the ability to quantify the degree of pollution is limited and the ability to reduce impact on the environment is limited by the nature of the incident. The nature of the incident is such that the risk to life mus

be considered first. The greatest capacity to reduce the effects is in the area of health and safety. Improved response times, equipment and training will all contribute to reduced loss of life at accidents and will better protect the firemen themselves. The other area where a reduction on the environment is at road traffic accidents. The use of absorbents rather than just hosing down spillages goes a long way to reducing the impact of road traffic accidents on the surface water environment. Creation of temporary bunds to catch the contents of tankers can prevent them getting into surface water systems and give time to firemen to enable them to deal with it later when the risk to life has been removed.

Table 18; Fire Service

Activity		Surface Water	Ground Water	Air	Litter	Land	Use of non renewable Resources	Health + Safety	Noise	Flora & Fauna
House fires		*	*	*	*		*	*/R	*	
Road Traffic Accidents		*/R	*	*	*		*	*/R	*	*
Hay Barns		*	*	*				*/R	*	*
Chimney fires		*	*	*				*/R		*
Toxic accidents		*/Q/*	*	*				*/R	*	*
Fire Tenders				*			*	*/R	*	*
Fires on Ships in Port		*		*	*		*	*/R	*	*
Forest Fires		*/Q	*	*		*		*/R	*	*
Bog Fires		*/Q	*	*		*		*/R	*	*

Chapter Seven

Training

7.1 Introduction

The Department of the Environment state through their web site that there were 29,491 people employed in Local Authorities on 31/12/96. This was broken down into 9,988 officer staff and 16,503 non-officer staff. For Local Authorities to undertake training on this scale is a daunting task. Currently, all local authorities have a training officer and it is proper that any training under an Environmental Management System (EMS) would have to be co-ordinated through this officer (O'Connor, Pers Com.) . In the past few years, attention to the issue of training has grown. The setting up of Regional Authorities has prompted a co-ordinated approach to training in areas of interest to these authorities. This work has been undertaken in conjunction with FAS – National Training Organisation with the co-operation of the Environmental Protection Agency (EPA) and the Department of the Environment and input from a number of local authorities(Pers. Com. Sheridan, FAS 1999). Areas of interest are:

Urban waste water training for caretakers

Water treatment plant training for caretakers

Leak detection for outside staff

Laboratory quality for all laboratory staff

Local authorities are currently taking up all of these programmes.

Safety training is currently being provided to staff. The area of greatest interest at present is in manual handling and is being undertaken by a number of authorities.

All local authorities support further relevant education of their staff. To this end engineers and scientists through out local authorities are availing of the opportunity to undertake postgraduate courses in environmental science.

The Institute of Public Administration runs courses specifically designed for Local Authority staff. The principal courses are be as follows:

Certificate in Public Administration

Diploma in Finance

Degree in Public Administration

Computing courses in Word, Access, Excel, CAD, Map-Info

Issue specific courses

A certain level of training and qualification is required in many posts before joining the local authority. Posts in this group would include engineers, environmental scientists, chemists, vets, planners, technicians, information technology, personnel and librarians.

Others are recruited as apprentices and trained within the authority for example, electricians, carpenters and plumbers.

Continuous professional development is promoted through attendance at seminars on particular topics that may be of concern at the time. The EPA have started to hold seminars on individual pieces of legislation e.g. the EPA Act 1992 (Urban Waste Water Treatment) Regulations 1994 and the Phosphate Regulations 1998.

This provides a reflection of the variety of expertise required by local authorities. From this it can be seen that staff will have to be grouped in some fashion for the purposes of training.

The Department of the Environment issued a circular letter LAP 4/96 requiring all Local Authorities to restrict staffing levels to the level in 1995. Over the past four years the level of work required of staff has increased. An example of this is that in Limerick County Council in 1994, 1433 planning applications were processed. In 1998 this figure had risen to 2187. The development of building control and the provision of European monies for large capital projects have placed increased work demands on staff. The development of the concept of openness and transparency has led to a greater interest by the public in decisions made by local authorities. This has also lead to additional demands being placed on staff. All of this means that it would be very difficult to free up large blocks of people for extended periods of time.

One approach to this problem is to take different aspects of an environmental management system in discreet training modules.

Initially staff must be broken down into groups for the purposes of training. Training can then be tailored to meet the specific needs of each group. Due to the huge task in training this number of people in such varied jobs, it is felt that one assumption has to be made.

This assumption is that the staff are already proficient in their jobs. Training will be confined to environmental training.

Local democracy is reflected by the election of councillors to the County Council. Each council will have a mayor and a varying number of councillors.

The structure of local authorities is such that a County Manager heads each local authority. Reporting to him/her are the Assistant County Manager, County Engineer, County Secretary and Finance Officer. This would constitute the senior management team.

Below this, work is divided into sections, with each section having specific responsibilities.

Typical section titles include:

Roads Maintenance

National Roads

Building Control

Sanitary Services

Environment

Fire

Planning

Housing

Arts and Library

Civil Defence

Community Development

General Administration

Motor Tax

Payroll

Computers

Audit

Personnel

The last four sections are internal and are responsible for the functioning of the authority.

This is an overall structure of a local authority. These sections co-ordinate all activities of the Authority. The implementation on the ground is generally carried out by an area office. There is a small administrative structure and engineering staff to co-ordinate work with outdoor staff.

Each section will have both technical and administrative staff in parallel. Those sections with a technical requirement like roads and sanitary services are headed by a Senior Executive Engineer. An administrator heads administrative sections. Outside staff is divided as follows (Pers. Com. O'Connor, Limerick County Council 1999):

Supervisors

Caretakers

Curators

Fitters

Electricians

Plumbers

Carpenters

Labourers

Horticulture

Drivers

Firemen

Landfill Managers

It is proposed through 'Better Local Government' to reorganise local authorities into the following groups(Department of Environment 1996):

County Strategy Groups

Strategic Policy Committees (SPC)

It is understood that each SPC will have responsibility for a specialist area e.g. Environment, Planning, Housing. Each SPC will include elected members and a-policital broad based community representatives.

The type of work undertaken by people through out the local authority is not clearly reflected in many of these job names. It would be more practical to divide people by their function as follows:

Councillors

All elected representatives

Management Team

County Manager

Assistant County Manager

County Engineer

County Secretary

Finance Officer

Lower / Middle Management

Senior Executive Engineers, Executive Engineers, Scientists, Administration - grade 5 through to grade 7, Senior Librarians, Senior Planners, Architects, Safety Officer.

Front line staff-indoor

Senior Supervisors, Supervisors, Craftsmen (Plumbers, Carpenters, Electricians)

General Operatives - Road Workers

Caretakers - Water and Sewage, Firemen, Landfill operators

7.2 First Step - Survey

Initially a survey of the existing situation within the authority must be carried out. As no authority currently has an EMS in place, training on EMS will be required. It should be ensured that each member of each section is aware of the potential impact their section can have on the environment.

A training timetable should be drawn up. Initial training will have to be imported into the organisation. Due to the high numbers of staff involved, it should be an aim to provide further training in-house.

7.3 Second Step – Initial training programme

The initial training programme will have to be provided by external sources as the information is not already within the organisation. Costs will have to be considered here. There will be a limited number of courses and presentations that will have to be given by external trainers and these will necessarily incur certain fees. Presentations to senior management and councillors and training in EMS and auditing will have to be imported. This is due to the fact that this system is new to the organisation. A limited number of staff should be trained in the techniques of training to enable further training to be undertaken in-house. Th

auditing course can serve as the EMS course for the trainers to combine the courses and reduce numbers. This will not be a prohibitive cost. This training is of short duration and should be conducted quickly. The principal aim is to train up key people in each section as this will allow the concepts to be quickly introduced into each section. This is important as it will not be possible to implement any other part of the EMS until staff are properly trained in environmental management systems. This training should be completed within three months. This allows time for identifying an appropriate training group and co-ordinating courses. This will also maintain momentum and keep the focus on developing the EMS. A breakdown of the timetable for the initial training programme is as follows:

Table 19; Initial Training Programme for implementation of an EMS within a local authority

Personnel Group	Training Type	Training Duration	Source of training
Senior Management	General Introduction to EMS	2-3 hours	External presentation
Councillors	General Introduction to EMS	1 hour	Presentation by member of Senior management
Designated Trainers (Mixed administration and Technical staff) Technical and Administrative person from each section.	Training technique. Detailed training on EMS	Two one week blocks One week on EMS training. One Week on Training Technique	External – Fas or commercial training group

Table 19 Continued; Initial Training Programme for implementation of an EMS within a local authority

Personnel Group	Training Type	Training Duration	Source of training
Environmental Auditors (technical Staff form Environmental/Sanitary Services Sections) 4-6 people depending on the size of the organisation	General introduction to EMS, requirements of an Environmental Audit, How to carry out an Audit	One week on EMS and external auditing. Two days on Internal Auditing. Followed by experience gained through observation of audits.	External with formal qualification
Preliminary Training. All local authority staff.	General Introduction to EMS	1 Hour	Member of trainers group.

The principal costs here will be in the area of trainers and auditors. Each candidate will have to receive a one-week block of training on EMS. One company in the South West region is charging £950 per person for the week. If up to ten people are to undergo this training, there will be a considerable expense. This supports the idea of internal training by staff within the organisation.

7.3.1 What information needs to be imparted

Training needs have been derived from first principles by looking at the requirements of an EMS and looking at the staff and work carried out in the normal functioning of the local authority.

The following issues should be covered in the various training categories:

Senior Management

Preliminary training for senior management will include the following:

This training should be the first item of training implemented. The purpose of the environmental management system will be outlined. The principal points involved will be gone through. Special emphasis will be placed on the responsibilities of senior management. The point will be made that this is not a public relations exercise and requires a genuine commitment to the system. It will be explained that this commitment will have to be demonstrated. This can be done by freeing up personnel time to comply with the requirements, providing funding for the system in budgeting and through commitment to the management review. This will include the need for measurable management commitment to

the system. It will also include a session on auditing, the purpose of auditing and on the requirement for a management review.

As a successful EMS can only be implemented through a positive commitment from management it is essential for management to be trained first. This will remove any possibility of their being alienated from the process by knowing less than everybody else in the organisation.

Councillors

This training should follow the training provided to senior management with less detail. While management will need to implement the EMS it is sufficient for councillors to appreciate the procedure that is being implemented.

Auditing

This is a specialised function within the EMS. It is suggested that this training be delivered by an outside body accredited for the function and recognised by an appropriate body. This training takes five days and it should be the aim that at least one person in each section should be trained as an auditor. It is necessary for an auditor to undergo the course and also to have training. This experience can be obtained by becoming first an observer and then a member of an audit team before becoming a lead auditor. Experience as an observer can be obtained by observing audits in accredited sections within the local authority. These sections may be to the ISO 9000 series standard or to the Guide 25 series for laboratories. The following areas should be covered in training for an auditor:

1. The requirements of an EMS should be covered in detail. As the auditor will be comparing the organisation with the standard, it is important that they know exactly what the requirements are.
2. What an audit is and the skills needed should be highlighted.
3. How to plan an audit. This will include deciding on what part of the organisation and/or part of the standard is being audited. Developing a timetable, checklists, working within a team if required.
4. Conducting an opening and closing meeting.
5. Conducting the audit.
6. Writing the audit report.

Train the Trainers

A large proportion of training will be in-house. This will be necessary as the training will need to be specific to the needs of the local authority and also the large numbers of people requiring training would make outside training uneconomical. It is important that the quality of training given does not suffer and that the principal trainers are trained in this activity. Poor training is worse than no training at all. It gives a false impression that staff have been trained and a false sense of confidence. It also confuses those being trained and reduces commitment to the EMS. Issues to be considered in training are:

1. How and why people learn.
2. Looking at the techniques used in giving a presentation and to practice giving a presentation.
3. Preparing for a presentation.

4. Imparting information in a positive manner.
5. The use of visual aids should be discussed and appropriate delivery techniques developed.

Preliminary Training

This should be undertaken before any steps have been taken towards on EMS. Preliminary training will cover the main points of an EMS and of issues like the 'Green Government Guide'. It should be an interactive process to encourage people to think and to give ownership to them. This can be achieved through workshops, generating lists of areas where reductions of the environmental impacts can be made and through the use of the Strengths, Weaknesses, Opportunities, and Threats (SWOT) charts. It would be important to take on board good suggestions and to give feedback to staff. When it has been determined that all staff have been trained in relation to environmental management system and general environmental awareness and in the specifics of their job, the training programmes can be geared down. From this point on, the emphasis will be on new staff training through the induction programmes and through unit training. Advantages from this training are that staff will fully understand the EMS and will have a greater commitment to the EMS. Feed back from SWOTs and lists will contribute to the development of a better EMS and may highlight aspects that had not been considered. Staff will understand what is required of them and management can be confident that staff know their responsibilities.

7.4 Thrid Step - In-house training

In -house training can be provided by personnel who have completed the trainer's course and the EMS course. This timetable will be extended. As new staffs are constantly joining large organisations, these staff must be properly trained. This means that there will be no completion date for training. A suggested timetable for in-house training is as follows:

Table 20; In-house training programme for implementation of an EMS in local authorities

Personnel Group	Training Type	Training Duration	Source of training
Section by Section	EMS requirements for each section	3 days. Can be conducted within the section or off site. Days can be split up to minimise disruption to the section.12 months for all sections to complete training.	In- house
Detailed training	EMS training for people with specialist jobs	On the assumption that staffs already know their job, this training will take one week. This time will allow staff to consider how to implement procedures within their own areas. Problems with implementation can be considered here	In –house or external trainers. Trainers must be familiar with the field they are training i.e. they should be expert in EMS and the functions of the section being addressed.

Table 20 Continued; In-house training programme for implementation of an EMS in local authorities

Personnel Group	Training Type	Training Duration	Source of training
New staff training	General introduction to the Local Authority and how environmental matters are addressed	One day.	In-house, possibly personnel officer
New staff – unit training	Specific training on the job. The new recruit will be doing including the recruits responsibilities with regard to the environment	On the job training. All environmental issues should be addressed within the first week	Line supervisor
EMS training of volunteers	Full EMS training should be available on request to those interested. It may be possible to allocate a number of places each year for those interested.	One week	External
Staff wide	Standardised procedures for document control, storage and retrieval	Two hours	In-house to staff officers with a filter down to all staff.

7.4.1 What information needs to be imparted?

The following is a more detailed breakdown of the requirements of the training the courses:

1. Environmental training and EMS training can be undertaken by trained internal staff. This can be carried out in sections. This training will concentrate on the EMS and also on the specifics of the individual jobs. A person familiar with the fine detail of everyone's job need not carry out this training. As staff numbers are large and demands on their time are great twelve months should be allocated to train all staff. A course can be run each month allowing some flexibility for staff. There is an advantage at this stage on training being carried out on a section by section basis. This allows training to be focused on particular difficulties being experienced by the sections and can also be used as the starting point for introducing the EMS to the section. For example, it may be possible to start writing up procedures within the training group for the section. This reassures the staff that they are writing the procedures correctly while assuring the organisation that they are correct.
2. Detailed training.

   This looks at specialised jobs and addresses the way the operation of the job can impact on the environment. It would be advisable for the person training to be expert in the specific area being covered. Each of the categories listed below should be addressed. Details of training are also given below. These courses should be presented in a timetable. It should be the aim of th

organisation to ensure that every person has been informed of the requirements of the EMS and how it will apply to their particular job within six months of the preliminary training. As it is likely that at least some of the staff trained in the preliminary training programme have other responsibilities, it is important to ensure that a timetable allows them to carry out their own responsibilities while maintaining the training momentum

3. New staff training.

   This is a dedicated block within induction training. It outlines the environmental management system and what the aims are. A brief outline of the policy should be given. The aspects register is be outlined and the purpose and importance of objectives and targets will be given. This should be brief and focus will be on the Corporate policy. This training should not be taken from the standard only but will be specific to the particular local authority. i.e. the corporate policy of the authority will be discussed, not the idea of a policy. It would constitute approximately 2 hours. As the inductee is getting a large amount of diverse information and as everything is new at this stage, anything more would probably be lost.

4. New Staff – Unit Training

   Each new member of staff has to undergo specific training for the section or responsibility they are being given. When an environmental management system is in place, this will include the standard operating procedures for the work. Special attention should be drawn to the environmental impacts from the office and from the activity of the new member of staff. A special poir

should be made at this time to indicate that protecting the environment is everyone's responsibility. They should be encouraged to bring forward any suggestions they may have. The objectives and targets should be outlined and any specific responsibility the new staff member may have will be highlighted.

7.5 Specific Training

Controlled Documents

A session should be held on the importance of controlled documents and how the system works. A uniform layout should be developed and the record storage and retrieval systems should be discussed. The method for upgrading procedures and withdrawing old procedures is discussed and storage of withdrawn procedures. This group should include all administrators who may have control of these documents and also those people from every section of the local authority who will be writing the standard operating procedures for their own section. It will be necessary for one person from each section, area office etc. to attend as they can then disseminate the information on returning to work.

Urban WasteWater Treatment Plant Caretakers will have been trained in the operating of their plant. The emphasis in this training would have been to ensure that the caretaker could operate the plant to the best of its ability. While environmental impacts would have been included, the focus would have been elsewhere and therefore not a priority. All caretakers should attend a course designed to concentrate on this area. The following should be mentioned:

1. As a preliminary to the course, the health and safety of the caretaker should be discussed. Issues like the risk of bacterial infection from the sewage should be highlighted and the types of infection possible should be discussed. This shall include wiels disease, tetanus, hepatitis and polio.
2. The legislation governing urban waste water treatment plants should be discussed. This includes the EPA Act 1992 Urban Waste Water (Treatment) Regulations 1994; the Fisheries Acts and the Local Government (Water Pollution) Act 1977 & 1990. The way in which these acts concern the caretakers in the day to day running of their plants should be discussed in particular.
3. Abbreviated aspects list should be formulated specific to treatment plants. This part of the course should be interactive, with caretakers commenting on how their plants contribute compared with the list. They should be encouraged to contribute suggestions on how they think their plants impact on the environment.
4. A generic outline of a treatment plant should be shown and caretakers invited to indicate where it can impact on the environment. The distribution system should be included in this. Any suggested impacts on the environment provided at the lectures should be fed back into the aspects if not already included.
5. The importance of the standard operating procedures should be discussed.
6. There should be a talk on how the effluent from the plants impact on the receiving water. The way Biochemical Oxygen Demand and Phosphate impact on waters should be outlined.

7. Aquifer maps should be shown indicating what type of rock is underlying the distribution system. The possibility of contamination of aquifers should be discussed.
8. The process should be gone through following the flow of the treatment process and impacts on the environment at each stage highlighted. This will start with the rough screenings and their destination. In activated sludge plants at the mixed liquor stage, the problems with foul odours from septic sludge should be talked about and also the power used for aeration going. Questions should be asked about how much oxygen is being used to aerate the mixed liquor. Could less be used? The importance of keeping the oxygen probes calibrated and serviced should be discussed, as an accurate knowledge of the oxygen levels is necessary before any consideration of oxygen reduction could be considered.
9. Sludge should be discussed. How is it treated? Could further dewatering be achieved? Is it stored for prolonged periods on site leading to odour problems? Could it be transported more quickly?
10. The office and laboratory attached to the treatment plant should be looked at. Impacts on the environment from the building should be discussed and ways to reduce them should be suggested. Comments from the caretakers themselves should be encouraged.
11. Standard operating procedures should be discussed with a view to determining how "green" they are. Each caretaker should have their own

standard operating procedures and should be invited to critically review them and make suggestions. Suggestions should also be discussed.

Drinking Water Treatment Plant Caretakers training should run along similar lines to the training for UWWTP caretakers. This training should have the following points in common:

1. As a preliminary to the course the health and safety of the caretaker should be discussed. Issues like the risk of bacterial infection contaminating the water supply should be highlighted and the types of injuries possible through use of chemicals etc should be discussed. This should include the use of lime, acids, chlorine, polyelectrolite, fluoride. The risks from the concentration of cryptosporidium in the backwash water should be discussed.
2. The legislation governing water treatment plants should be discussed. This should include the 1988 Drinking Water Regulations. The way in which these acts concern the caretakers in the day to day running of their plants should be discussed in particular.
3. Abbreviated aspects list should be formulated specific to treatment plants. This part of the course should be interactive with caretakers commenting on how their plants contribute compared with the list. They should be encouraged to contribute suggestions on how they think their plants impact on the environment.
4. A generic outline of a treatment plant should be shown and caretakers will be invited to indicate where it can impact on the environment. The distributio

system should be included in this. Any suggested impacts on the environment provided at the lectures should be fed back into the aspects if not already included. The potential impact of leaking pipes should be discussed. The issue of water loss and the knock-on effect of having to abstract more water, thereby using up more of a resource and energy in treating it should be discussed. The issue of leak detection is covered in training carried out through FAS and the regional training authority.

5. The importance of the standard operating procedure should be discussed.
6. The process should be gone through following the flow of the treatment process and impacts on the environment at each stage highlighted. This should start with the abstraction of raw water.
7. The office and laboratory attached to the treatment plant should be looked at. Impacts on the environment from the building should be discussed and ways to reduce them suggested. This should include light, heat, paper etc. Input form the caretakers themselves should be encouraged.
8. Standard operating procedures should be discussed with a view to determining how "green" they are. Each caretaker should have their own standard operating procedures and will be invited to critically review them and make suggestions. Suggestions should be discussed.

Fire-fighters

Fire fighters will need specific training on the potential for environmental impact in their work. As their work is in the saving of life in many cases, a small impact on the environment may have to be borne. Fire-fighters are already trained in the handling of accidents involving toxic chemicals. Other areas of potential impact on the environment should be highlighted. It may be possible to expand this area to include Civil Defence personnel in emergency preparedness.

1. The emphasis here should be on general environmental awareness and the potential for pollution through non-toxic contamination e.g. Road traffic accidents involving milk tankers, slurry spreaders, fertiliser lorries, dead animals, live animals. The question of fire water retention and run-off from fire fighting should be addressed. The implications of dealing with hazardous materials should be addressed.
2. Maps of the county aquifers should be shown. As fire-fighters operate on a radius that may not coincide with the county boundary, this should be considered and maps for the areas of interest produced. The significance of regionally and locally important aquifers should be explained.
3. Maps of all drinking water abstraction points should be provided in all fire stations. The risk to a water supply from any polluting matter getting into a watercourse or filtering into an aquifer should be explained and contact numbers for all treatment plants given.

4. They should be advised that if there is a risk of pollution, the environmental officer within the council should be contacted.

Refuse collectors are the group of people who collect bins from homes and transport the waste to landfill. The drivers of the refuse trucks should be included in training for this group. Points to be made in training are as follows:

1. The environmental management system – what is it?
2. What has the EMS got to do with refuse collectors.
3. Interactive – How does their job impact on the environment.
4. Break down their job with them and discuss each element and how it impacts on the environment.
5. Identify ways they can reduce the impact of their job on the environment. This would include well maintained trucks. All litter should be put in the trucks properly. Provide feed back to the office if they note badly kept bins. As local authority trucks follow the route all private trucks take to the landfill, attention should be paid to the road. Any litter noted or waste that may have fallen off the truck on the way to the landfill should be notified to the office for follow up action. In this way they insure that the impact of transporting waste to the landfill can be minimised from the point of view of litter.
6. Any suggestions put forward should be discussed and if possible taken on board. This should ensure a better commitment from the collectors to the good of the environment.

Clerical Staff (Reception, Environment, Roads, Emergency Number holders, Customer Services)

This group of people are at the front line and are contacted in the event of a pollution incidents. Receptionists are the first people to receive calls and need to understand the significance of information and where to divert the call. As incidents are often spotted on roads, staff from this section should attend. In the event of pollution from an urban waste water treatment plant or a risk to a water treatment plant – sanitary services section should be included. Environment staff should be included as most pollution calls end up at their desk. The following areas should be covered:

1. Maps of the principal river catchments should be provided with aquifer protection maps. These should be explained.
2. The location of all sewage treatment plants should be shown on a map with the location of all drinking water treatment plants. The risk to these plants should be explained.
3. There should follow a short talk on the possible sources of pollution in the local authority's area. This should be very specific and detail all industry and the principal type of pollution that could be expected. A breakdown of the types of agriculture in the area should be given. This also should be specific to the local authority's area. The situation in the county with regard to septic tanks should be explained.

4. Basic technical concepts such as B.O.D. should be explained.
5. Standard operating procedures in relation to taking reports on pollution incidents should be gone over and the significance of each question should be given.
6. A site visit to the local laboratory should be included as well as a video on pollution and any pictures of local pollution incidents should be shown.
7. Contact names should be provided and back-up numbers in the event of annual leave etc.
8. There should be a section addressing incidents that ocured within the county and a discussion on how the incidents were handled.

Craftsmen (including carpenters, plumbers, electricians)

This group of people carry out repairs to most local authority property. The following should be included in a lecture for this group:

1. What is an Environmental Management System?
2. How can you impact on the environment through your work?
3. What can you do to reduce your impact on the environment?
4. Installation of energy efficient fixtures.
5. Substituting the use of hardwoods with wood from renewable forests.
6. Removal and disposal of obsolete equipment

Landfill Operators

This group of people would include all people who work on the landfill. This would include drivers and operators. Areas to be covered are as follows:

1. What is an Environmental Management System?
2. Outline of any integrated pollution licence that may apply.
3. In the absence of an Integrated Pollution Control (IPC) licence the Environmental Protection Agency guidelines can be used.
4. The nature of the landfill should be outlined.
5. The function of all liners and collection facilities should be outlined and the way they work explained.
6. The nature of the impacts at the landfill should be detailed. An aspects list for the landfill derived from the local authority aspects register should be shown.
7. A map of the area showing where the impacts may be felt should be shown.
8. Results of monitoring should be given and the significance of the results should be explained. This should include:
    - leachate – what it is and the damage it can do to the environment. Methane – levels found and areas of concern.
    - Vectors – any problems, encountered and how they are being dealt with.
    - Litter – areas most likely to be affected by litter.
    - Noise – what activities are most likely to cause noise problems, and areas of the site where high noise levels are likely to give rise to noise complaints from the public.
9. Landfills can be large sites and problems can occur which might not be seen by the landfill manager. Operators should be encouraged to be concerned for the environment around the landfill and to watch over it. They should know that

if a problem is spotted and notified to the manager they have contributed to protecting the environment.

10. Drivers should attend a special session on good environmental driving habits or it should be incorporated into this training module.

Drivers

Many staff within local authorities drive to carry out their work. These drivers fall into two categories:

1. Those who drive local authority vehicles – usually trucks, vans, street cleaners, mowers.
2. Engineers, supervisors, rate collectors, rent collectors, technicians among others.

While the local authority has no control over the type of car purchased by staff, good driving practices can be encouraged. This information could be forwarded in an information notice to all members of staff claiming travel expenses. The lecture could be subsumed with other training sessions. The principal point to get across is to drive efficiently using as little fuel as possible and to keep the car in good condition thereby reducing the emissions to the atmosphere. The following areas should be covered:

1. Unleaded petrol.
2. Importance of regular services.
3. Importance of proper wheel alignment.

4. Tire pressure.
5. Driving with equipment on roof rack and with windows open.
6. Leaving cars idling.

Driver operators – the staff who mow all public green areas around cities and horticultural staff training should include the following:

- Pesticides and insecticides – Use and risks to health and the environment.
- Fertiliser – Its use and risks to the environment
- Whether waste is composted for reuse or landfilled. What are the best environmental options.
- Destination of unused chemicals
- Health & Safety

Full EMS training

This should be available to all staff. There should be a programme that all staff receive training on the in-depth requirements of the system.

A programme should be put in place to ensure all staff receive training. It should be noted that five years after training, much of what has been covered can be forgotten. This raises the idea of refresher training. This does not have to take the form of formal classes. The use of newsletters can keep people involved and takes considerably less time than classes. It also reduces the need for tying up people i

classes. Specific retraining programmes can be drawn up where audit findings indicate gaps in training.

Chapter Eight

Discussion

8.1 From the introduction it can be seen that there are a number of reasons why the EMS approach will have to be considered in local authorities. These are:

- Sustainability and Local Agenda 21
- Landfill operations and integrated pollution control licences
- The Nature of the local authority
- Obligations of local authorities to the public and interested bodies
- Ability to develop from existing standards in use in local authorities

There are two standards available, EMAS and ISO 14001. EMAS was originally developed for single site industries, however the new standard has been developed to include geographically dispersed organisations like local authorities. The UK has been involved in a pilot project to develop EMAS to meet the needs and differences of local authorities to industrial sites. ISO 14001 is a newer standard. It is international and has been seen as a more achievable standard compared to EMAS. In this regard ISO 14001 can be used as the EMS part of EMAS under the new EMAS regulations (Hussey)

The author has looked at local authorities in relation to the requirements of an EMS. The following are the principal findings.

8.2

In summary the following can be said:

1. Information on uptake in Eurpoe – with the exception of the UK is not readily available. This may change with the introduction of the revised EMAS
2. Fifteen out of thirty two local authorities replied to the questionaire. This gives a good picture of the current situation in local authorities in Ireland, therefore findings can be seen as representative of Ireland.
3. No local authority had an environmental policy and subsequently no policy was attached.
4. No objectives and targets were set in thirteen out of fifteen local authorities in regard to the environment.
5. Fourteen out of fifteen authorities had no environmental auditing system in place. This, coupled with the lack of objectives and targets must make it difficult to determine if work being carried out is effective.
6. No public statement on environmental performance is issued in ten out of fourteen authorities while one authority did issue a statement.
7. A general breakdown of replies are presented in Appendix 3. This shows the replies concentrated in the areas of 'no system' in place with lesser numbers in 'informal systems' through to 'formal systems'. If one removes the answers to question 16 which is discussed in the following point, a significantly fewer number of formal responses are presented. This

situation is common across the board and therefore many authorities face the same challenge. There is scope for these authorities to come together to formulate an approach to common problems. The legislation CD currently being prepared by the Environmental Protection Agency is an example of a positive initiave. This would be a huge task for any single local authority to undertake. Consultants for the EPA are undertaking this project and all authorities will benefit and save valuable time in the process.

8. One area where the authorities did give a very positive response was in the area of emergency plans. All 15 said they had either a formal or fully formal system in place. One word of caution should be given here. The definition of an emergency in the Limerick County Council Major Emergency plan is:

'A major emergency is any event which, usually with little or no warning, causes or threatens death or injury, serious disruption of essential services, or damage to property, beyond the normal capabilities of the Gardai, Local Authorities and Health Services.' (Limerick County Council, 1995) The guidelines to implementation of ISO 14001 do not elaborate on what constitutes an emergency plan. It is possible that EMS may require an emergency to be defined as an event less serious that that defined in local authority emergency plans. This is a matter that should be investigated further.

9. Section two of the survey, indicated a positive response to enquiry in interest in EMS with ten out of fifteen replies stating that they would be interested in EMS. Areas being looked at are as follows:

- ISO 14001
- Green Government Guide
- Local Agenda 21

If one looks at this answer with the willingness of three local authorities to participate in the EPA pilot project on the EMS legislation list, it is clear that there is interest in this issue nation wide.

10. Difficulties highlighted are as follows:

- Time
- Resources
- Staff
- Commitment
- Training
- Fear of failure
- Lack of awareness
- Structure

Implementing an EMS takes time and requires resources. The restriction on recruitment poses a difficulty in this regard. For this reason the long timetables indicated by UK local authorities would appear reasonable. They were as follows:

County Councils	4 – 10 years
District Councils	1 – 6 years
Unitary Authority (Riglar)	4 – 10 years

It should be accepted that implementation of an EMS is a long-term goal.

11. Some work has been undertaken in the areas of water conservation with 9 out of fifteen operating a system to reduce water wastage. This is an example of work being done that would dovetail into an EMS if it were developed. A survey carried out by the Department of the Environment and Local Government stated that 11 Departments out of 19 who responded to the survey were involved in reduction of water wastage.
12. Other areas where initiaves are being undertaken are in the use of email and recycled paper. All Government departments surveyed use email (DoELG 1998). 50% of departments recycled paper in 1998. In this area, Local Authorities are comparable with a 54.5% rate of recycled paper use.
13. Only three out of fifteen authorities had an environmental purchasing policy and only three used the Green Government Guide. While this is a low number it must be remembered that where an initiave is successful in one local authority, others will observe and learn. Government Departments are ahead of Local Authorities in the area of purchasing

policy with 50% of those surveyed having an environmental purchasing policy (DoELG 1998)

14. There were a number of authorities that had quality initatives in place through the ISO 9000 series. This is a very positive thing as the systematic, documented approach is common to quality systems. As staffs within local authorities tend to move from section to section, this will encourage the movment of experience gained by individuals to move into other sections.

All of the above shows that many local authorities have a significant amount of work to do to implement an environmental management system. The survey indicates that the principal areas where work is needed are in the setting of objectives and targets. As fourteen out of fifteen authorities who replied had no environmental auditing programme in place, audit findings could not be considered in management reviews. One outcome to be expected from this is that in an area of numerous legal requirements and responsibilities, there is no way of ensuring that all significant impacts are being addressed. This exposes local authorities to the possibility of their negatively impacting on the environment without their knowledge and reduces the control the authority has on its impact on the environmental impacts.

With regard to knowledge of the environmental aspects, the survey found that nine local authorities had no system of listing its significant aspects.

Three had an informal system and only one had a formal system. No authority attached a list of aspects as requested. From this it can be said that – with the exception of one authority - on a countrywide basis local authorities tend not to pull all aspects together. This is a fundamental part of an environmental management system. The question has to be asked, how can an authority assure the public and interested bodies that it is doing it's best at managing its impact on the environment without a list of where it is causing the impacts?

The aspect list is a basic tool for an authority to manage its impact on the environment. The aspects lists produced in Chapter Six outlines possible impacts for all authorities. This is a generic list. This list was produced from first principals. It can be used like a shopping list where local authorities can consider if they have particular impacts. It is clear that this is not the place to try to quantify impacts but areas where this is possible have been highlighted. Once this list is drawn up, priorities can be made with regard to measures to prevent and/or reduce the impact on the environment. This would ensure that the limited moneys provided to the authorities are used in the most effective manner.

Local authorities will also be sure that they are aware of all possible ways they can impact on the environment.

This list looked primarily at direct impacts on the environment. The principal indirect impacts were also mentioned. It was felt that at this time it would be best for local authorities to concentrate on direct impacts and the subsequent

task of assigning priority. When the skills have been developed in this area and the experience of implementing an EMS has progressed, indirect impacts could be considered.

It is further seen in the survey replies that training is skewed to the informal end of the scale. Three authorities had no training programme in place, eight had an informal system in place and four had a structured approach.

As no authority had an EMS in place there would be no programme of training for EMS implementation. The training programme in Chapter seven suggests an approach to this issue. It suggests a schedule and those who should attend. The schedule also suggests time spans. These were drawn up with the fact that all staff already has heavy workloads to deal with. Therefore it was felt that sufficient time should be provided to allow people to organise to attend without loosing the training momentum. This suggested schedule could be tailored to meet the needs of individual authorities. A study should be carried out in each authority prior to initiating training to obtain an accurate picture of the needs to the authority. It may be that some aspects of the training have already been covered and that there is no need for this element. Introducing an environmental management system is a huge commitment for an authority. It must be accepted that initially outside training will have to be purchased. This can be a costly exercise and therefore it is in the interests of the authority to train a number of members of staff to continue this training. This will reduce expense and will ensure that the

training is tailored to the individual needs of the authority. This will happen, as the members of staff who conduct the training will have an intimate knowledge of the authority.

With regard to outside training, the costs here could be further reduced if the authority has space to train in-house. This will preclude the need to pay expenses for staff as well as trainers.

Chapter Nine

Conclusions

9.1 In conclusion it can be said that local authorities have a long way to go to implementing an environmental management system in their respective authorities.

This goal should be seen as a long term goal and as a positive initiave as it will fullfill requirements placed on the authorities under LA 21.

The basic steps have yet to be taken. The first of these is the development a legislation list. This is being undertaken by consultants on behalf of the Environmental Protection Agency.

Step two is to know how the authority impacts on the environment. The objective of forming a generic aspects list was achieved. The development of an aspects register provides a clear list of all impacts the authority has. The checklists provided in chapter six can be used as a tool to start authorities on the path to developing their own specific aspects list.

Training is seen as essential to implementing the system. The objective of formulating a training schedule and suggested course contents was achieved. As local authorities are complex organisations any EMS developed will be complex too. It is essential that staff are properly trained. This will lead to reduced implementation times as there will be less error due to staff being unsure of what is required of them. It will insure a better EMS.

These are considered the initial building blocks that must be in place for authorities to implement an EMS.

A guide to two important elements in implementing an EMS in a local authority have been generated. This, coupled with the EPA project will provide a valuable initial guide to those authorities interested in environmental management systems.

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Appendix 1

Questionnaire on Environmental Management Systems in Local Authorities in Ireland.

The answers are to relate to your Local Authority organisation as a whole.

Questions in **Section 1** are to be answered using a numerical system as shown below.

1	No system in place
2	Informal system in place
3	Formal system in place. The system is not set to any National/ International standard, no formal auditing of the system.
4	Full formal system in place, set to a recognised standard, audited updated as needed.

Example:

Does your Local Authority have an environmental auditing programme in place?

Ans. **1**

{There is no environmental auditing system in place in the Local Authority}

If there are any queries please contact me at:

Ms. Cait Gleeson, Limerick County Council, Environmental Laboratory, Ballykeeffe, Co. Limerick.
Phone (061) 302470
E-mail elab@iol.ie

Your co-operation with this survey is greatly appreciated.

Questionnaire on Environmental Management Systems in Local Authorities in Ireland.

Section 1

1. Does your Local Authority have an environmental management system in place?

---

2. If yes who is the designated person responsible for implementing and maintaining the system?

---

3. Has your Local Authority got an Environmental Policy including a commitment to continual improvement and a commitment to comply with all relevant legislation?

---

4. If there is a policy could please you attach a copy?

5. Has your Local Authority got a list of all the environmental aspects of its activities that it can control?

---

6. What monitoring is routinely carried out on the Authorities impacts on the environment?

---

7. If there is a list of aspects could you please attach a copy?

8. Does your Local Authority have a procedure to identify and have assess to all relevant environmental legislation?

---

9. Does your Local Authority have documented objectives and targets to reduce the impact of its most significant aspects on the environment?

10.Are the roles, responsibilities and authorities of staff clearly defined in relation to environmental protection and management?

_____

11.Has your Authority got an training programme in place?

_____

12.Is there a programme to ensure that staff who may , through their work impact on the environment are appropriately trained?

_____

13.Does your Local Authority currently have procedures in place to optimise internal communications?

_____

14.Is there a system of documentation control in place?

_____

15.Are there documented procedures for operational control?

_____

16.Is there an emergency plan in place?

_____

17.Are environmental matters considered in your emergency plan?

_____

18.Does your Authority monitor the key impacts of the Authority on the environment?

_____

19.Is there a procedure in place to deal with departures from normal standards or procedures?

_____

20. Do you keep a complaints register?

_____

21. Are management reviews carried out on a regular basis?

_____

22.If reviews are carried out, how often do they occur and who conducts the review?

_____

23. Is there an environmental auditing programme in place?

_____

24. Does your Authority issue a public statement on its environmental performance?

_____

Thank you for completing section 1

Questionnaire on Environmental Management Systems in Local Authorities in Ireland.

Section 2

Questions in **Section 2** on the whole require a YES/NO answer. This is for your convenience. If you can provide further details it would be greatly appreciated.

1. Is your Local Authority interested in adopting a systematic approach to environmental management through the introduction of a formal Environmental Management Systems?

_____

2. If yes have what steps been taken to date?

_____
_____
_____
_____
_____
_____
_____

3. Could you provide a brief outline of the problems being encountered?

_____
_____
_____
_____
_____
_____
_____
_____
_____

4. If another approach is being considered please outline.

5. Does your Authority's purchasing policy take the environment and the issue of sustainability into account?

6. Do purchasing requirements for equipment include environmental considerations such as 'take-back', recyclability and suppliers environmental record?

7. Are there arrangements to ensure that water wastage is kept to a minimum?

8. Have targets been set for the reduction in the consumption of energy in your Local Authority buildings?

9. Has your Authority adopted any of the recommendations put forward in the Department of the Environment publication, Green Government Guide?

10. Is recycled paper in use in your Authority?

11. Is there a policy to promote the use of E-mail in your Authority?

12. Are there procedures for the identification and disposal of hazardous waste in your Authority?

13. Do any sections of your organisation have a formal quality system in place?

_____

14.Could you please list these sections and name the standard achieved.

_____
_____
_____
_____

Thank you for completing section 2.
I would greatly appreciate it if you could return this survey in the envelope provided as quickly as possible.

Appendix 2

Answers to Section One of the survey on the status of Environmental Management Systems in Ireland

Question	L.A. 1	L.A. 2	L.A. 3	L.A. 4	L.A. 5	L.A. 6	L.A. 7	L.A. 8	L.A. 9	L.A. 10	L.A. 11	L.A. 12	L.A. 13	L.A. 14	L.A. 15
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										Name					
3	1	2	4	1	1	2	2	1	2	2		1	2	2	2
4															
5	1	2	2	1	1	1	1	2		1	1		3	1	1
6	3	2	4	1	1		1	1	2	2	3	1	2	3	
8	3	2	2	1	2	1	2	2	2	3	3	3	1	3	1
9	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1
10	2	2	3	2	3	1	1	1	3	1	2	2	1	2	1
11	2	2	3	2	2	1	1	3	2	2	2	2	3	1	3
12	2	2	1	2	2	1	1	1	2	2	3	1	3	1	2
13	2	2	1	1	2	1	1	1	2	2	1	2	3	2	2
14	2	2	2	1	1	1	1	1	1	1	2	3		2	1
15	2	2	3	1	2	1	1	2	2	2	2	3	3	2	2
16	3	4	4	3	3	4	3	3	4	3	4	3	3	3	4
17	2	2	3	3	3	4	1			3	3		3	2	4
18	3	2	3	2	1	1	1	1	2	1		2	3		4
19	2	2	2		2	4	1	1		1		1	1	1	4
20	2	2	3	1	3	2	1	2	1	1	3	2	3	3	1
21	1	2	3	1	2	4	1	1	1	2	2	3	1	1	
22	1	2	3		1	4			1	2	4	2	1		
23	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
24	2	2	4	1	1	1	1	1	2	1	1	1	1	2	1

Appendix 3

Summary of answer type: Section 1

	L.A.1	L.A.2	L.A.3	L.A.4	L.A.5	L.A.6	L.A.7	L.A.8	L.A.9	L.A.10	L.A.11	L.A.12	L.A.13	L.A.14	L.A.15	Total
Answer 1	7	1	4	13	10	13	17	13	7	10	6	8	9	8	9	135
Answer 2	10	19	4	4	7	2	2	4	9	8	5	6	2	7	4	93
Answer 3	4	1	9	2	4		1	2	1	3	5	5	9	4	1	51
Answer 4			4			5			1		2				4	16
Total																295

Appendix 4

Compilation of answers to Section One of the Survey on the status on Environmental Management Systems in Local Authorities in Ireland

Question Number	No System in place	Informal System in place	Formal System, not Audited	Full Formal System, with auditing & to set standard	No Answer Given
1	15	0	0	0	0
2	0	0	0	0	0
3	5	7	0	1	1
4	0	0	0	0	0
5	9	3	1	0	2
6	5	4	3	1	2
7	0	0	0	0	0
8	4	6	5	0	0
9	13	1	1	0	0
10	6	6	3	0	0
11	3	8	4	0	0
12	6	7	2	0	0
13	6	8	1	0	0
14	8	5	1	0	1
15	3	9	3	0	0
16	0	0	9	6	0
17	1	3	6	2	3
18	5	4	3	1	2
19	6	4	0	2	3
20	5	5	5	0	0
21	7	4	2	1	1
22	4	3	1	2	5
23	14	1	0	0	0
24	10	4	0	1	0

Appendix 5

Answers to Section Two of the Survey on the Status of Environmental Management in Irish Local Authorities.

Question	No. 1	No. 2	No. 3	No. 4	No. 5
1		Yes	Yes	No	Yes
2	none	Agenda 21 plan	ISO 14001		Looking @ EMAS
3	time, staff, commitment	difficulty starting off	Resources		Staff, time resources, Commitment of management
4	none	auditing, green house keeping	No		
5	none	Yes	No		No
6	none	Yes	No		No
7	none	No	Yes	Yes	Yes
8	none	Yes	No	No	No
9	none	Yes	Yes		No
10	none	Yes	No	Yes	No
11	yes	Yes	Yes	Yes	No
12	none	Yes	No		Yes
13	yes	No	No	No	No
14	Roads design, fire on the way	N/A	N/A	N/A	N/A

Question	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12
1	Nn answers supplied	Yes	Yes	Undecided	Yes	Yes	Yes
2		None	GGG, LA21 officer	Watch developments	Pilot Project	LA21 team	Nothing
3			Time, resources, lack of awareness		Time, training	Time, structure, fear of failure	None
4							None
5		Yes	No	No	No	No	Yes
6		No	No	No	No	No	No
7		Yes		Yes		Yes	Yes
8		No	No	No	No	Yes	Yes
9		No	No		No	Yes	
10		No	Yes	No		Yes	Yes
11		Yes	Yes	No	Yes	Yes	Yes
12		Yes		No	Yes	No	Yes
13		No	Yes	No	No	No	No
14		N/A	Motor tax - ISO 9002	N/A	N/A	N/A	N/A

Question	No. 13	No. 14	No. 15
1	Yes	No	Yes
2	Workshop		None
3	None		
4	Development of LA21		
5		No	Not really
6		No	
7	Yes	Yes	
8		Yes	
9		No	
10		No	Yes
11		Yes	Yes
12	None	Yes	
13		Yes	
14		Motor Tax, Roads Design	