The Role of Planning Legislation, in the Control of Water
Pollution from Intensive Agricultural Enterprises
in County Monaghan.

Presented in Part Fulfilment for the
Degree of Master in Science in Environmental Protection

By

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Supervised by

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I would like to acknowledge the support and patience’s of my family and close friends, without which this thesis would not have been possible.

This thesis is dedicated to my mother Barbara and the memory of my father Paul.
THE ROLE OF PLANNING LEGISLATION, IN THE CONTROL OF WATER POLLUTION FROM INTENSIVE AGRICULTURAL ENTERPRISES IN COUNTY MONAGHAN.

Rosie Morrissey.

ABSTRACT

This thesis is set against a background of a decline in water quality and continued expansion of Intensive Agricultural Enterprise’s (IAE’s) in County Monaghan. It examines the Planning process to determine its effectiveness in controlling IAE’s in Monaghan and addressing the issue of declining water quality. The sources of pollution have not been proven but agriculture is clearly implicated in its decline. It is vital that farmers achieve a balance between P inputs and outputs, while minimising nutrient ‘leaks’ to the environment and meeting production targets.

The thesis describes trends in IAE’s which illustrate rapid growth from 1980 to 1990 and a levelling off of agricultural developments since then. The number of planning conditions attached have increased over recent years notably with the introduction of NMP in 1996.

On the basis of this review the following must be considered for formal inclusion in the planning process.

1. Research to identify and quantify point and non point P sources and control of these sources.
2. Forward planning to protect the environment and also allow further development of the agricultural sector.
3. Unified approach from the mushroom industry to tackle problems associated with the management of SMC.
4. Need for environmental polices to be formulated and implemented to prevent the further decline of water quality.
5. Education of farmers is vital on all aspects of Total Quality Management.
6. Use of a GIS would be a major tool in the control of IAE’s.
7. Increase in resources to enable adequate monitoring of IAE’s and watercourses.

County Monaghan’s economy depends significantly on agriculture for employment and general prosperity. A balance has to be found between agricultural developments and protection of water resources in the County.
CHAPTER 1.
INTRODUCTION.

Water is a major national asset. In Ireland, we often take our plentiful supplies of water for granted but it is an essential ingredient in our daily lives. It provides us with drinking water, basic raw material for agriculture and industry and is an important amenity and recreational resource. County Monaghan's economy depends significantly on agriculture for employment and general prosperity. However, agriculture is implicated in the serious decline in water quality in the County. A balance has to be found between agricultural development and the protection of water resources.

County Monaghan accounts for 5% of the national Gross Agricultural Output (GAO) but has only 2% of the national utilised agricultural area. The county's farming enterprises are geared to intensive production, particularly poultry and the mushroom production. The farming practice within different catchments is skewed, with one of its seven catchments, the Blackwater, accounting for 60% of the County's estimated GAO. The nature of agriculture with its concentration on poultry production is resulting in a significant surplus of phosphorus (P) within the county. This was identified as a controlling factor of the decline in water quality.

The control of development within the catchment area of the lakes and natural watercourses to prevent pollution and maintain water quality to a standard consistent with its existing and anticipated uses, is one of the objectives of the Monaghan County Development Plan. However a serious decline in the quality of rivers and lakes in County Monaghan is highlighted in reports on national water quality. (EPA, 1996 and MAWMS, 1994)
This thesis is set against a background of a decline in water quality and the trend for a continued increase in the development of intensive agriculture enterprises (IAE's) in County Monaghan. The thesis examines the trends in the development of IAE's in the period 1980 to 1996. It will review the environmental planning process, how it has responded to controlling IAE developments in Co. Monaghan and how environmental planning and legislation might be used to meet its objectives.
2.1. WATER QUALITY.

2.1.1. Introduction.
This section provides an overview of surface water and groundwater quality in County Monaghan.

2.1.2. River Water Quality.
The classification system for river results is based on a biological assessment, which is believed to provide a more accurate picture of the long term effects of pollution.

Class A waters are in a 'satisfactory' condition (unpolluted water) and will have no problems relating to existing or potential uses. Classes B and C waters are polluted by inorganic nutrients, the principal characteristic is eutrophication which may interfere with the uses of such waters. Class B water is considered to be slightly polluted, while Class C is considered to be Moderately polluted. In Class D waters, excessive organic loadings lead to deoxygenating and may produce 'sewage fungus' growths and most beneficial uses may be severely curtailed or eliminated, the water is considered to be seriously polluted. (EPA, 1996)

During a river survey a length of the river channel is evaluated. The results are presented as the length of river in a particular Class expressed as a percentage of the total river length surveyed.
River Quality: Current Status.

Nationally in 1991-1994, 13,200 kilometres of river and stream channel were surveyed. The temporal trends in national river quality show 71.2% of river/stream channel length surveyed were in a satisfactory condition (Class A). There was a significant increase in the percentage of rivers/stream length in Classes B and C from 10% in 1971 to 28.2% in 1991/1994. Interestingly, there was a significant decrease in the percentage channel in Class D over the same period (Table 2.1).


<table>
<thead>
<tr>
<th></th>
<th>% Total channel length surveyed in each class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>83</td>
</tr>
<tr>
<td>Class B</td>
<td>10</td>
</tr>
<tr>
<td>Class C</td>
<td>9</td>
</tr>
<tr>
<td>Class D</td>
<td>7</td>
</tr>
<tr>
<td>Total length</td>
<td>2,900</td>
</tr>
</tbody>
</table>

The temporal trends in County Monaghan river quality show that there has been a decrease in river water quality over the years, with Class A quality water falling from 83% in 1971 to 34% in 1991/1994. There was an increase in Class B and Class C from 17% in 1971 to 66% in 1991/1994. Data showing changes in river quality for County Monaghan in the period 1971-1994 can be seen in Table 2.2.
TABLE 2.2: Temporal trends in County Monaghan river quality data 1971-1994

(MAWMS, 1994 and EPA, 1997)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>83.0</td>
<td>64.0</td>
<td>58.0</td>
<td>36.0</td>
<td>29.5</td>
<td>34</td>
</tr>
<tr>
<td>Class B</td>
<td>6.0</td>
<td>16.0</td>
<td>10.5</td>
<td>41.0</td>
<td>34.5</td>
<td>22</td>
</tr>
<tr>
<td>Class C</td>
<td>11.0</td>
<td>16.0</td>
<td>30.0</td>
<td>21.0</td>
<td>34.0</td>
<td>44</td>
</tr>
<tr>
<td>Class D</td>
<td>--</td>
<td>4.0</td>
<td>1.5</td>
<td>2.0</td>
<td>2.0</td>
<td>-</td>
</tr>
</tbody>
</table>

Total Length Surveyed (km)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>112.4</td>
<td>109.9</td>
<td>125</td>
<td>142.5</td>
<td>162.5</td>
<td>154.8</td>
</tr>
</tbody>
</table>

The water quality data for County Monaghan shows a significant decline when compared with national averages between 1971 and 1994. Class A river channel length dropped in County Monaghan by almost 50 percentage points compared with 12 percentage points nationally. (Table 2.1 and Table 2.2). There was a corresponding increase in the river/stream length in Class B and Class C over the same period. (Fig. 2.1.)

2.1.3 Lake Water Quality.

The classification of lake quality is based on the concentrations of total phosphorus, chlorophyll and the transparency of the lake water. The lakes are classified in five water quality categories (Table 2.3).
FIG. 2.1 - NATIONAL V COUNTY MONAGHAN RIVER QUALITY
Table 2.3. Lake water quality classification (MAWMS, 1994)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultra-oligotrophic-</td>
<td>Very low nutrient input.</td>
</tr>
<tr>
<td>Oligotrophic-</td>
<td>Low nutrient input and consequently sparse plant growth.</td>
</tr>
<tr>
<td>Mesotrophic-</td>
<td>Intermediate between oligotrophic and eutrophic.</td>
</tr>
<tr>
<td>Eutrophic-</td>
<td>Relatively high input of nutrients and consequently abundant plant growth.</td>
</tr>
<tr>
<td>Hypereutrophic-</td>
<td>Lakes with high level of artificial nutrient enrichment.</td>
</tr>
</tbody>
</table>

A survey of lake water quality of 35 lakes in County Monaghan was conducted in the summer of 1992. A comparison was made between the 1992 results for County Monaghan and the most recent national lake survey (1991/94) which covered 135 lakes nation-wide (Fig. 2.2.). Lake quality in County Monaghan compares unfavourably with the National average. No lakes in County Monaghan are classed as oligotrophic compared with 48% nationally. The percentage of mesotrophic lakes nationally are 29%, compared to 23% in County Monaghan. Just over 48% of Monaghan lakes are eutrophic compared with 18% nationally and 29% of lakes are hypereutrophic compared with 5% nationally. (MAWMS,1994).

In 1989/90 a national survey of lake quality using remote sensing was carried out by the Environment Research Unit (ERU), the results of this survey confirm the poor quality of County Monaghan lakes (MAWMS, 1994).
2.1.4. Ground Water Quality.

Ground water quality in the County was surveyed in 1981 (NERDO, 1981). More recently 43 new deep bore wells were sampled by Teagasc. Monitoring was carried out in 1992 and 1993. Two wells had high, naturally occurring sulphate levels, these were excluded from the summary discussion. Thirteen wells (32%) showed the presence of E. Coli and of these nine also had either elevated chlorides, ammonia, iron, manganese or high sodium/potassium ratios. Only three wells had nitrate levels in excess of the E.U. guide levels with two exceeding the Maximum Allowable Concentration (MAC) value. Iron levels in excess of the Drinking Water Regulations were found in 58% of the wells, 54% had manganese in excess of the MAC and 39% had both high iron and manganese. Only one well complied entirely with the Drinking Water Regulations, but if wells with naturally occurring high iron and manganese levels are excluded, 7 additional wells comply with the Regulations. The
results of this limited survey do not necessarily reflect the quality of ground water over the entire County (MAWMS, 1994).

2.1.5. Summary of water quality status in County Monaghan.
The quality of surface and ground water in the County is poor when compared with the national average. Significant improvements are required if the water quality objective of the County Development Plan are to be achieved. The sources of the pollution have not been proven but agriculture is clearly implicated in its decline (MAWMS, 1994).

2.2 THE IMPACT OF AGRICULTURE ON WATER QUALITY.

2.2.1. Introduction.
Intensification, using external inputs particularly nutrients (N and P) has been critical in agriculture achieving increased productivity. This has created manure management problems for the farmer. The development of intensive production systems, based on periods of indoor feedings, has resulted in large volumes of manures requiring storage and management. The use of ‘bag’ fertilisers reduced the reliance on manures as a nutrient source for crop production. The result has been the idea of ‘waste disposal’ rather then ‘nutrient recycling’ of manures on many farms (Carton and Magette, 1997).

2.2.2. Biosolid production on farms.
Animal manures contain significant quantities of nutrients, between 54 and 99% of the N, P, K in the feed ingested by Irish farm animals is excreted. The excreta is naturally recycled back to the soil during the grazing season. For animals fed indoors, the manure is collected
and generally applied to land. In the soil, microbes will decompose the manure resulting in the release of the nutrients back to the soil. In an open environment this may create certain pollution risks, which are amplified by practical management and technological problems associated with land spreading of biosolids (Magette and Carton, 1997).

The sources of these biosolids produced on farms are varied e.g. animal manures, silage effluent, dairy washings and contaminated runoff from farmyards. The nutrient composition is influenced by the type of animal, the animals diet, storage conditions and the extent of the dilution with either water, bedding or litter. An indication of the mean nutrient composition of various manures is given in Table 2.4. On intensive pig and poultry farms, nutrient management difficulties are magnified because nutrient inputs (feeds) are produced on other farms. This creates a large nutrient surplus which requires significant land areas for spreading wastes to avoid overapplication of nutrients, particularly P.

Animal manures are high strength with potential to cause serious water pollution problems, the manures have considerable amounts of organic matter and reactive inorganic species that will exert excessive oxygen demands on surface waters. Land application is an economically and environmentally friendly option for realising the manures nutrient value (Magette and Carton, 1996).
TABLE 2.4: Composition of various animal manures (4 % dry matter) and raw domestic sewage (Magette and Carton, 1996).

<table>
<thead>
<tr>
<th>Component</th>
<th>Dairy cattle</th>
<th>Beef cattle</th>
<th>Swine</th>
<th>Poultry</th>
<th>Human</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD</td>
<td>6,000</td>
<td>6,700</td>
<td>12,800</td>
<td>9,800</td>
<td>200</td>
</tr>
<tr>
<td>COD</td>
<td>36,200</td>
<td>35,600</td>
<td>32,800</td>
<td>36,000</td>
<td>450</td>
</tr>
<tr>
<td>Total solids (TS)</td>
<td>40,000</td>
<td>40,000</td>
<td>40,000</td>
<td>40,000</td>
<td>500</td>
</tr>
<tr>
<td>Nitrogen (N)</td>
<td>1,600</td>
<td>1,900</td>
<td>2,500</td>
<td>2,900</td>
<td>30</td>
</tr>
<tr>
<td>Phosphorus (P)</td>
<td>300</td>
<td>400</td>
<td>950</td>
<td>1,100</td>
<td>10</td>
</tr>
<tr>
<td>Potassium (K)</td>
<td>860</td>
<td>1,100</td>
<td>1,400</td>
<td>1,100</td>
<td>10</td>
</tr>
</tbody>
</table>

2.2.3 Nutrient Losses.

Nutrients from fertiliser or manures not utilised by plants may 'leak' from soil to ground or surface waters, these losses are economically and environmentally undesirable. Nitrogen and Phosphorus are the two nutrients of major agricultural importance that have the greatest potential to create water pollution. Both nutrients can be either; taken up by plants, move to surface water by runoff (P), move to groundwater in leaching (N) or be immobilised in the soil/organic matter pool.

*Nitrate Leaching* is the major pathway by which N leaks from agricultural systems to water resources. Nitrate is only weakly absorbed by the soil and remains in the soil solution.
Water is the transporting agent for nitrate, which it is highly mobile under wet conditions and easily leached from the soil (Daly, 1991).

When manures are applied to soil, the rate at which N is converted to nitrate by soil microbes is dependent on waste characteristics, especially the ratio of carbon to nitrogen (Magette and Carton, 1996). Soil type has a great influence on the amount of nitrate which reaches groundwater. Nitrates can leach to groundwater through freely drained sandy and gravelly soils but the potential to leach decreases with the increasing amount of fine clay particulate in the soil (Carton, Sherwood and Power, 1991). The risk of nitrate leaching to groundwater is great for soils with shallow water tables.

Plants exert an influence on the extent of nitrate leaching through their N uptake patterns. Crops with long growing seasons e.g. grasses, have a greater opportunity for N uptake than crops with short growing seasons. Applying fertiliser or manures at times when plants need N is critical for minimising nitrate leaching. In Ireland, grass begins to incorporate N in mid to late February and continues until late August. Each crop has a characteristic N uptake pattern, which should be matched by N application (DAFF and DOE, 1996).

*Phosphorus Runoff.* Repeated heavy applications of animal manures to soil can cause a build up of soil P levels. Increased soil P levels are associated with increased potential for release of water soluble P and the resulting increase in potential for water pollution. In freshwater systems, minute concentrations of soluble P (0.01 mg/l) are sufficient to cause algae blooms if other environmental conditions are satisfactory (Magette and Carton, 1996). These blooms can reduce oxygen levels in water to levels that result in fish kills, increase water treatment costs and are aesthetically unacceptable (ENFO, Briefing sheet 11).
Losses of P in runoff tend to be higher from ‘heavy’ soils than from ‘light’ soils (with high sand contents) because the former have lower infiltration capacities. Leaching of P from mineral soils generally does not occur, although P can be lost via leaching from highly organic soils and from very sandy soils.

Phosphorus in runoff can be either in soluble (dissolved) or ‘attached (adsorbed to soil particles) form. The concentration of P within the upper 1 to 3 mm of soil can be diluted by precipitation, permitting P to be released into solution. Highly erodible soils also are susceptible to P losses in runoff and must be managed so that soil particles carrying attached P do not leave the site and reach surface waters.

Losses of P in runoff can be high where organic wastes have been applied to soils at application sites that are prone to generate runoff. Such sites would have low infiltration capacities, high soil moisture contents, high water tables or other restrictions to absorption of precipitation. While not all P lost from a site in runoff actually reaches receiving waters, minimising P losses is crucial (Magette and Carton, 1996).

2.2.4 Summary of the impact of agriculture on water quality.

Intensive agriculture has led to the production of large volumes of manure, which contain significant quantities of nutrients. Careful land application is an economically and environmentally friendly method of managing these manures. It is vital that farmers achieve a balance between N and P inputs and outputs, while minimising nutrient ‘leaks’ to the environment and meeting production targets. Animal manures are a valuable product in spite of the challenges they present to the farmer and the potential pollution threat it represents.
2.3 THE CONTROL OF WATER POLLUTION FROM AGRICULTURE.

2.3.1. Introduction.

Agriculture has changed over recent decades, with increased use of inorganic fertilisers and chemicals for controlling weeds and other pests. Other changes include larger animal herds, higher stocking rates and increased use of feed concentrates. Modified animal housing design and the use of high density, confined production practices are other changes. The result of all of these changes have been higher concentrations of nutrients, organic matter and chemicals on Monaghan farms compared to those operating a few decades ago. Consequently the pollution potential of modern farms is significantly greater than that of the more extensive farming systems of previous decades.

2.3.2. The difficulties of controlling water pollution from farming.

Several unique characteristics of the agricultural industry make pollution control difficult. Firstly, the basic medium for almost all agricultural production, the soil has physical, chemical and biological characteristics that may vary widely. Secondly, land based agricultural production systems involve large land areas. Farms are open to the effects of uncontrollable and largely unpredictable climatic events, which add variability to production conditions. Finally, production of basic agricultural products involves small profit margins, so increased production costs associated with pollution control are difficult to transfer to consumers.

From an environmental management perspective, the intensification of farming in Monaghan and its conduct in the open and variable environment present many difficulties. Production inputs, which may become pollutants, such as nitrogen (N) and phosphorus (P), cannot be
collected, removed and treated once they are added to the production system, it's not feasible for farming because collection is not practical (e.g. runoff from farm fields) and their occurrence often is unpredictable (i.e. weather dependent). Finally although farmers are highly trained and experienced in agricultural production, they are not experts in pollution control (Magette and Carton, 1996).

2.3.3. Agricultural water pollution control principles.

Pollutants of primary concern from agricultural include N and P, organic matter, pathogens, synthetic organic chemicals (pesticides). There are two sources of these potential water pollutants on farms. These are point sources (farmyards) and non point sources (fields). The techniques used to minimise pollution risks from the two sources are different, although good management is a basic requirement for the success of all methods.

Point Sources.

Key point sources of pollution in agriculture systems are the farmyard. Point source pollution normally arises from inadequacies/deficiencies in the collection and storage of biosolids on farms. They include discharges from dirty yards and the facilities used to store animal manures (DAFF and DOE, 1996). These sources pose threats to the water quality because they concentrate large amounts of potential pollutants in a relatively confined area. Minimising pollution risks from point sources depends on properly designing, constructing and managing the farm facilities. The intended purpose of controls for most agricultural point sources of pollution are to contain pollutants and prevent their uncontrolled release. The basic requirements for such facilities is adequate storage capacities, structural integrity and careful site locations. However, these must be managed properly to achieve their design objective (Magette and Carton, 1996).
Non point sources.

Non point sources are fields losses of manure's/slurries/fertiliser. Point source pollution occurs when organic or chemical fertilisers are applied to land in quantities excessive to crop requirements and/or when ground or weather conditions are unsuitable (DAFF and DOE, 1996). The precise origin of pollutants from these areas cannot be clearly identified. Precipitation and snow melting (creating surface runoff and interflow) transport nonpoint source pollutants to surface water. Drainage water through the soil profile is the transport mechanism for pollutants to groundwater. Controlling agricultural non-point source pollution depends largely on preventing pollutants from leaving the soil i.e. keeping nutrients within the confines of the root zone and field edge. Good management practices (code of good practices) are the most important non-point source pollution control techniques. In some cases these can be supplemented by structural or vegetative controls (Magette and Carton, 1996).

2.3.4. Point source controls.

Site Selection. The proximity of any source of pollution to receiving waters is a major determinant in the relative pollution risk posed by the source. Site selection is the primary step in designing facilities that will contain agricultural pollutants on the farm. As a rule, these facilities should be located as far as practicable from surface waters and down gradient from nearby groundwater wells. Facilities should be placed where soil conditions are suitable. This is determined by soil borings or test pits.

Sizing of Storage facilities, the purpose of agricultural point source pollution control facilities is to contain potential pollutants. Achieving this objective is dependant on providing structurally sound facilities with adequate capacities to hold the pollutants, until
they can be further managed, typically by application to land. (Magette and Carton, 1996).

Design capacities are determined by the rate at which pollutants are generated and the required storage period. Storage capacities have to take into account the quantities of dirty water, dairy washings or silage effluent, that are added to the storage facility (Carton and Magette, 1997). The contributions of direct precipitation must also be considered for uncovered tanks. Minimising the size of the facilities is accomplished by excluding as much rainwater as possible and reducing the area of uncovered ‘dirty’ farmyard areas (DAFF and DOE, 1996).

*Design and Construction.* Most agricultural point source pollution control facilities are reinforced concrete or steel structures that must be designed according to accepted engineering standards and procedures. The corrosive nature of many agricultural pollutants requires that special precautions be taken to select resistant construction materials. The foundations should be sufficient to prevent differential settling of facilities, that would weaken the structural integrity or cause leakage (Magette and Carton, 1996). The design and construction of biosolid storage facilities must meet the minimum specification requirements of DAFF or other approved standards (DAFF and DOE, 1996).

### 2.3.5. Non Point Source Controls.

Agricultural non-point source (NPS) pollution controls are managerial, structural or vegetative practices. The objective of all techniques is to prevent or reduce the availability, release or transport of agricultural pollutants to receiving waters. The term best management practices (BMP) is often used collectively for these pollution control techniques.
Land application of biosolids.

Land application of biosolids is the most economical, practical and environmental sustainable method for managing agricultural manures. Application of manures to land recycles valuable nutrients and organic matter into the system. The following factors have to be considered to reduce the pollution potential.

Rate of Application. For the soil system to function effectively, biosolids must be applied to land at rates that do not exceed either the instantaneous or long term assimilative capacity of the soil system. Problems resulting from organic overloading are rare when animal biosolids are surface applied at agronomically acceptable rates.

Rate of Application-Hydraulic. Hydraulic loading influences the instantaneous assimilative capacity of soil when biosolids are applied. Application rates that exceed the infiltration rate of the soil will result in surface ponding, surface runoff and the consequent transport of pollutants off the land. Biosolids spread at times when the soil is not saturated and at agronomically acceptable rates is unlikely to exceed the infiltration capacity of the soil, so direct runoff of polluting matter is extremely unlikely. Applying liquid biosolids in quantities greater than the soil retention capacity results in leaching from the root zone and increased potential for groundwater contamination or runoff risk (Magette and Carton, 1996).

Rate of Application-Nutrients. For environmental sustainability, the spreading rate of biosolids should reflect both the nutrient requirements of the crop to which they are applied and the nutrient status of the soil (DAFF and DOE, 1996). Organic biosolids rarely contain the major plant nutrients (N,P,K) in the relative proportion that are required by plants. Inorganic fertilisers are often used combined with biosolids to meet nutrient requirements.
Analysis of the soil and the biosolids is imperative to minimise pollution potential and the need for inorganic fertilisers (Magette and Carton, 1996).

*Timing of biosolid Application* is dependent on a combination of crop, site and weather factors. Biosolids should be applied as early as practicable in the growing season, so as to maximise the uptake of nutrients by crops and minimise pollution risks (Sherwood, 1992). Applying biosolids when heavy precipitation is imminent increases pollution potential. Adequate storage capacity and attention to management is essential to being able to apply biosolids at the proper times (DAFF and DOE, 1996).

*Application Methodology.* The techniques by which biosolids are applied to land are dictated by their characteristics, the production system and sometimes by regulatory considerations. Whatever the application technique, care must be exercised to assure that the application equipment is calibrated and operated to give the target application rate. Teagasc research is continuing to improve spreading systems (Sherwood, 1996).

2.3.6. **Summary of the control of water pollution from agriculture.**

Adequately sized, properly designed and constructed facilities are a fundamental requirement for the safe management of biosolids. A high standard of management practice in respect of all storage facilities is essential to optimise their function and reduce pollution risks. The land spreading of biosolids should be carried out in accordance with a Code of Good Practice for land spreading. The Code provides recommendations for maximising biosolid nutrient utilisation and pollution prevention.
2.4: THE MONAGHAN AGRICULTURAL WASTE MANAGEMENT STUDY (MAWMS).

2.4.1. Introduction.

The MAWMS report examined the character of agricultural activities in Monaghan and in particular, the generation and management of biosolids by agricultural. An assessment was made of the ‘environmental sustainability’ of current and projected agricultural activities within the context of Monaghan’s soil and water resources base.

2.4.2. Findings.

Surface and ground water quality.

Water quality data indicated a sharp decline in the water quality of Monaghan’s rivers and lakes (as detailed above) from nutrient enrichment especially P.

Phosphorus balances.

There is a significant P surplus applied annually to the soils of Monaghan (the average annual county surplus is 28 kg/ ha.). The P supply from purchased fertilisers exceeds crop requirements by 50 % and farmers appear to take no account of the P contribution from land applied animal biosolids. The extent of the P load in animal biosolids indicates that the county’s land resources are not adequate to sustain continued land application without increasing the potential for increased losses to the water resources. The P surplus must be reduced to limit the risk of water pollution.
Agricultural enterprises.

Poultry and mushroom production account for 47% and 12%, respectively, of the county's Gross Agricultural Output (GAO), compared with 4 and 2% of the National GAO. Acceptable biosolids management/treatment options and increased Local Authority monitoring resources will be required to ensure that the necessary water quality and environmental standards within the county are achieved.

Waste facilities and management.

The environmental audit conducted suggested that an investment of up to £62 million is required to upgrade all farm waste facilities to acceptable standards. On 20% of farms the level of management of existing facilities was considered inadequate. Investment in farm pollution control facilities and better farm practices are required for future sustainable biosolids management options in the county.

Soil resources.

Information on soils in Monaghan is extremely limited and generally inadequate for making site specific decisions. The clay soils of the county have a relatively low inherent runoff risk. The potential for runoff from clay soils is exacerbated by the drumlin topography and their associated steep slopes, localised high water tables, rainfall patterns. Variability within and between catchments is significant, which increases the difficulty in providing a countywide recommendation for land spreading. A sound scientific basis for rational land use strategies and decisions on a county-wide basis is comprised by the absence of reliable and detailed soils information.
2.4.3. Recommendations.

A variety of strategies could be adopted to provide solutions to the problems identified above. There are problems associated with each of these strategies so they would not provide a complete solution. The strategies include:

1. restrictions on P fertiliser use,
2. low P feeds for the poultry industry,
3. control future agriculture expansion,
4. regulations to control biosolids management,
5. education to improve biosolids management practices,
6. incentives to improve biosolid storage facilities on the farm,
7. redistribution of the raw biosolids within the county.

The study identified a set of six recommendations which if fully implemented should permit a continued expansion of farm enterprises while reducing the impact of agriculture on the environment. Part implementation of the recommendations cannot be expected to provide the required balance between environmental concerns and continued expansion in farm enterprises.

Recommendation 1.

A centralised biosolids redistribution and processing utility is required to provide a solution to the P surplus within the county. However a detailed feasibility study of this option is needed. More P is being produced (in agricultural wastes) than can be utilised at recommended rates on agricultural land. Phosphorus surpluses can be reduced or eliminated by:
A. Reducing P imports to existing agricultural operations, which would require either cutbacks in current levels of production or radical changes in existing production practices. The former are economically unattractive; the latter are technologically not achievable at present.

B. Increasing P exports from areas with large surpluses. This can be accomplished by redistributing biosolids. There is some resistance among Monaghan farmers to accept biosolids from off-farm sources. However it may be possible to change this attitude through education. Alternatively, excess biosolids can be processed into a form which farmers would be more likely to accept. This is obviously a long term solution considering the costs involved and the logistics of biosolids transport from farms to the treatment plant.

Recommendation 2

The Local Authority should establish environmental targets for water quality and P surpluses to be met over a phased period of time. The necessary resources must be made available to the County Council so as to ensure the achievement and maintenance of these targets. The Local Authority should establish a time frame for compliance with environmental standards for water quality based reduction of P discharges. A Code of Good Practice should be developed which sets down the requirements to eliminate the excesses resulting from poor biosolids management practices.

Recommendation 3.

A campaign, including education, incentives and regulations to promote the adoption of Total Quality Management (TQM) in biosolids management and nutrient management planning (NMP) on all farms should be undertaken. The TQM promotes the use of nutrients from all sources in an environmentally friendly and economically sound way. It includes
waste management on the farm, evaluation of site limitations, timing and method of application, equipment calibration and record keeping. NMP matches nutrient application from biosolids and fertilisers to crop requirements and prevents the unnecessary build-up in soil nutrient levels.

Recommendation 4.
Upgrade biosolids management facilities on farms by providing an incentive system based on risk and farmer ability to pay. For Monaghan farmers, having adequate waste storage facilities is critical to providing the necessary flexibility in the timing of biosolids applications because of the limited number and duration of suitable slurry spreading dates.

Recommendation 5.
A unified approach from the mushroom industry (compost manufacturers, growers, processors and SMC contractors) is required to provide a sustainable management solution for SMC. Centralised facilities are required for de-bagging. Marketing of unprocessed SMC and new production techniques such as reusable containers for the compost to replace plastic bags should be investigated.

Recommendation 6.
Undertake comprehensive data base development programme including a detailed soil survey of the county. There is an urgent requirement for a quantitative assessment of vulnerability to pollution of the main agricultural soils and landscapes.
2.5. COUNTY MONAGHAN.

2.5.1. Introduction.

This section will give an outline of the location, climate, topography, soil, groundwater resources, the agricultural trends and intensive agricultural development in the County, to provide a background for the study.

2.5.2. Location and Extent.

County Monaghan is situated in north-central Ireland. It is roughly elliptical in shape and is bounded by counties Cavan, Meath, Louth, Fermanagh, Tyrone and Armagh. The County occupies 1,294 square kilometres (129,400 ha.), the MAWMS farm survey indicated that 107,090 ha are utilised by farmers. There are seven river catchments within the County (Figure 2.3).

2.5.3. Topography and Geology.

The County occurs within the Drumlin Belt of North Central Ireland. The topography is divided into four main zones (Fig. 2.4)

*The Southern Lowlands*, which are floored by Carboniferous and Permian beds occupy the southern portion of the County. Elevation ranges from 30-100m and the topography consists of relatively distinct south easterly oriented drumlins. Lakes, which are fairly evenly distributed, and bogs occupy the depressions.

*The Central Uplands*, occur in the south central and central parts of the county and coincide with the Silurian and Ordovician beds. Elevation ranges generally from 100-200m, Mullyash Mt. is over 300m high. The topography is drumlin-like, they frequently coalesce forming a landscape of numerous little hills. Lakes and bogs occupy many of the depressions.
Figure 2.3. The river catchments in County Monaghan (MAWMS, 1994).
The Central Lowlands, occupy a corridor between the Central Uplands and the mountainous North West. Elevation ranges from 50-100m, it is underlaid by Carboniferous shales and limestones. The topography consists mainly of drumlins with varying orientation, the depression are occupied by lakes.

The Mountainous North West, occurs north of the Central Lowlands, it is underlain mainly by Carboniferous sandstones. Elevation ranges from 100-400m, the foothills are characterised by long drumlin-like ridges of ground moraine.

2.5.4. Ground Water Resources.

Groundwater is a significant natural resource. Protection from pollution is vital because pollution may last for months, even years. The significant aquifers are shown in Figure 2.5

Aquifer area A occurs in the Monaghan-Clones area in the Basal Clastics and Lower Limestones, it underlies Major Soil Division 1. Aquifer area B represents a minor aquifer and occurs in a confined area in the southern tip of the County in the Lower Limestones.

Aquifer area C occurs in the northern part of the County in the Calp Sandstone, it underlies parts of Major Soil Divisions 3, 9, 10, 11 and 12. Aquifer area D occurs in the Upper Limestones in the north-western tip of the county and the southern slopes of Slieve Beagh, it underlies parts of Major Soil Divisions 10 and 11. Aquifer area E occurs in the Upper Limestones in the Carrickmacross area in the south of the County, it underlies Major Soil Division 2. Aquifer area F occurs in the Triassic Sandstones south-west of Carrickmacross, it underlies Major Soil Division 6.
Figure 2.4. Topography and Geology of County Monaghan (MAWMS, 1994)
Categories of vulnerability of aquifers, based on the average travel time for a pollutant to the water table and on the dept of overburden, have been compiled at national level.

Aquifer areas A, B, D and F are classified as having moderate vulnerability with 0.5m of boulder clay, localised occurrences of sands and gravels increase the vulnerability ratings. The vulnerability of the aquifer area C is also moderate but increasing to high in the upper slopes of Slieve Beagh. The vulnerability of aquifer area E is classified as high but with a section north of Carrickmacross as extreme. Much variability, however, occurs within each area. Thus detailed investigation is necessary in conjunction with individual developments to quantify the risk of pollution.

The low level of agricultural activity in the Slieve Beagh area should present minimal risk to the section of the aquifer with high vulnerability. Aquifer area E, however, occurs in an area of relatively high agricultural activity and is thus sensitive to pollution particularly in the area directly north of Carrickmacross (MAWMS, 1994).

2.5.5. Soils.

Specific information on the properties of County Monaghan soils is extremely limited especially in relation to those that influence pollution risk. There is considerable variability in the soil type within and between catchments. The existing data provides only a very general and therefore inadequate outline of the physical and soil resources of the County.

Twelve Major Soil Divisions have been mapped (MAWMS, 1994). There are similarities with the geology map and thus a clear relationship between the major soil divisions and the aquifers. Deposits of sands and gravels are common in the northern and southern parts of the County. Their position in the glacial drift and in the topography is important in the
Figure 2.5. Significant aquifers in County Monaghan (MAWMS, 1994).
assessment of pollution risk. Major Soil Divisions 11, 12 and 13 are mostly unsuitable for biosolids applications. The reminding Divisions are generally suitable for spreading however, because of the natural variability, each site should be assessed individually.

The significant aquifer recharge areas of the County are classified, on a national basis, as having moderate vulnerability. Most of the Proules and Glyde catchments (major Divisions 2 and 6) overlie an aquifer area that is especially sensitive to pollution.

2.5.6. Climate.

The pattern of rainfall restricts the number and duration of suitable biosolids spreading opportunities during the year. Climatic data indicate that the best probability for low risk land spreading of wastes occurs from April to mid August. However, the year to year variability in the rainfall pattern implies that there are safe spreading periods at other times of the year.

The months with the greatest inter-annual variability are February in the east and north-midlands, April in the south, and May in the west. Runoff risk increases as the soil becomes saturated, therefore the climatic influence on run-off risk may be assessed by the frequency of very wet days (i.e. the number of days with > 10mm of rainfall). On an annual basis there are 22 such occasions at Clones and these normally occur during the period August to March, with the most frequent occurrences in October and November. However, it should be noted that the number of days with .10 mm of rain is less than 15% of the average of wet days in the year. Short bursts of heavy rain can also cause run-off; on these occasions, the rate of rainfall exceeds the infiltration capacity of the soil.
2.6. AGRICULTURE IN COUNTY MONAGHAN.

2.6.1. Introduction.

The establishment of the European Community in 1973 encouraged farmers to produce large quantities of food, to ensure Europe was self sufficient in food production. Emphasis was on the production of large volume rather than quality. The policies of Common Agricultural Policy (CAP) encouraged farmers to expand their enterprises to meet the increased production demands. In the mid 1970's the vast sums of money required from the community to maintain the payment of real prices to farmers and also to dispose of surpluses prompted a major rethink of CAP. In 1977 a prudent price policy was established which resulted in a fall in the real prices of agricultural products (Moffit, 1996). The most recent radical attempt at reform has effectively limited production in dairying, cattle, sheep and tillage to 1992 production levels. It is extremely difficult to envisage marked expansion in these enterprises for the remainder of the decade (MAWMS, 1994).

In contrast to grass based enterprises, pigs and poultry have developed with minimal or zero support from the CAP (MAWMS, 1994). The constraints placed on 'traditional' farming enterprises by the CAP reform package forced farmers to seek alternative sources of income. Farmers began developing intensive agricultural enterprises (IAEs) i.e. mushrooms, poultry and pigs. This shift in focus in agricultural policy at European level is mirrored in County Monaghan by the trends in planning applications for IAE.

2.6.2. Mushroom Industry.

The mushroom industry in County Monaghan is a large, economically important component of the County’s agricultural enterprises. Approximately 32% of Irish mushroom production
and 33% of mushroom growers are located in the County. Mushroom houses accounted for
12% of the county’s GAO and there were about 183 mushroom houses in the county. Just
under 4% of all farmers in Monaghan listed mushrooms as their main farming
system. (MAWMS, 1994).

In 1979 Monaghan Mushrooms submitted the first mushroom planning application in the
County, which was to erect a mushroom composting and growing unit. In 1980 permission
was granted to Monaghan Mushrooms for the erection of a mushroom processing factory, a
mushroom growing unit and a composting and pasteurisation plant. The growth of the
mushroom processing industry caused an increased demand for mushroom growers. The
expansion of the mushroom industry throughout the 1980’s was very rapid but stabilised
in 1996, the anticipated growth rate for mushroom production is 5% per annum over the
next 5-10 years. The industry is a significant producer of waste nutrients in the form of
spent mushroom compost (SMC). The projection for the industry indicates a 63% increase
in SMC production over the next ten years (MAWMS, 1994).

The poultry and mushroom industries are inter-linked as mushroom compost incorporates
dry litter from the broiler production sector. Compost is traditionally prepared from straw,
horse manure, poultry manure and gypsum.

The SMC must be removed after each cropping cycle. More than half of the SMC is spread
on land with the reminder being disposed of in a number of unacceptable ways e.g.
dumping. A development with 3 standard tunnels, each with a 900 bag capacity (18 t), and
with five cropping cycles will produce approximately 270 t of SMC, which would require
54 ha of grassland so as not to exceed the recommend P application rate. The MAWMS
estimated that the total quantity of mushroom compost used annually, in County Monaghan was 76,000 tonnes from 181 mushroom farms. The SMC is spread on the farmer's own land on 35% of mushroom farms. Most mushroom producers are on farms with an area of less than 20 ha. while many operate significantly smaller holdings. This means the SMC cannot be safely utilised on the mushroom farms and must be removed (MAWMS, 1994).

The Irish systems of mushroom cultivation uses plastic bags which constitute a serious disposal problem. About 3.2 million plastic bags in County Monaghan require disposal annually. Discarded plastic bags constitute a serious visual pollution problem for the mushroom industry. The development and introduction of machinery for SMC removal from plastic bags is an essential requirement for all management options (MAWMS, 1994).

2.6.3. Poultry Industry.

Poultry production in Monaghan accounts for about 55% of the national poultry output. Approximately 5% or 302, of all Monaghan farmers consider their main enterprise to be poultry. There are seven poultry production systems which produce different types of manures. Broiler, turkey and layers account for 87% of the production systems. It is estimated that 44% and 61% of the total poultry places are associated with farms with more than 20 and 40 ha, respectively. However 10% of poultry farmers have no land. It is projected that poultry output in the county will expand at a rate of 2.5% per annum with a 28% increase in manure production over the next 10 years (MAWMS, 1994).

Slurry is produced by layers, ducks and replacement pullets in 76 of the 302 poultry houses in the county. An estimated 73,867 t of poultry slurry is produced annually. Approximately, 73% of the slurry is exported off the origin farm to an average of four other farms. The
reminding 27% or approx. 20,685 t is spread on 1969 ha of land associated with the poultry farms. This is equivalent to an application of 10.5 t of manure per ha (MAWMS, 1994).

Dry poultry litter is produced on broiler, turkey, broiler breeder and 'other poultry' farms. An estimated 161,700 t of poultry litter is produced annually on the 237 farms. It is difficult to estimate the actual quantity of litter produced because bedding material is added and these quantities vary. Broiler and turkey farms produce approximately equal quantities of litter and account for 96% of the total. The Blackwater and Finn catchments contribute 79,000 and 60,000 t, respectively, or 87% to the total for the county. Approximately 67% or 108,339 t of the litter is removed off the farms (for mushroom composting and land spreading). The reminding, 53,361 t, is land spread on the 7,240 ha associated with these poultry farms. Annual application rates of this order to grassland receiving cattle slurry may be excessive indicating the requirement for more litter removal off these poultry units. (MAWMS, 1994).

Intensive poultry farms depend almost entirely on feed imported to the farm. As there is usually insufficient land available on the farms a significant nutrient surplus arises in the animal manures. This must be managed in such a way as to minimise the pollution potential. This implies that the manure must be removed from the farm and transported to other farms with a nutrient deficit i.e. those with grass based enterprises.

2.6.4. Pig Industry.

Pig production is a minority enterprise in the County. There has been some increase in the producer numbers and size of existing units, which peaked in early 1992. There were 35 pig farmers in the county. Integrated pig units (i.e. those that breed and fatten the progeny)
account for 82% of these farms. Breeding units account for 11% of all pig farms and the
remainder are produce pigs. A conservative estimate of pig slurry production based on the
number of pig places, assuming a 94% occupancy and allowing for 12.5% added water,
was estimated at 52,077 t. Just under 60% or 22 of the pig farms have slurry removed for
spreading to other farms. There is 942 ha of grassland available for the spreading of pig
slurry on the pig farms. The annual application rate by pig farmers of pig slurry on their own
land is approximately 22 t per ha. This estimate assumes that that 40% of the total slurry
production, or 20,000 t is applied to their own land. This is marginally higher than would be
required to meet crop requirements (approx. 15 t per ha.) if this land is already receiving
cattle slurry (MAWMS, 1994).

Intensive pig farms depend entirely on feed imported to the farms as with the poultry
industry the manures arising from the pig industry must be managed in such a way as to
minimise the pollution potential (MAWMS, 1994). This implies that the biosolids must be
removed from the farm and transported to other farms with a nutrient deficit, i.e. those with
grass based enterprises.

2.6.5. Summary of agriculture in County Monaghan.

The mushroom industry is an economically important component of the county’s
agricultural enterprises. The industry is a significant producer of nutrients in the form of
SMC, which can not be utilised on the majority of mushroom farms. Pig production is a
minority in the county. Biosolids from IAE’s should be removed from the farms with
insufficient land to farms with a nutrient deficit.
CHAPTER 3.

PLANNING LEGISLATION IN IRELAND.

3.1. INTRODUCTION.

The Local Government (Planning and Development) Act, 1963, is the foundation of all planning legislation in Ireland. It was the forerunner of all subsequent legislation relating to environmental issues. The 1963 Planning Act was “An Act to make provision, in the interests of the common good, for the proper planning and development of cities, towns and other areas, whether urban or rural (including the preservation and improvement of amenities thereof)…….” (Local Government (Planning and Development) Act, 1963)

Local Government (Planning and Development) Acts, 1963 to 1983 provide environmental control mechanisms concerning the use of land and require that any development of land or property must be carried out under and in accordance with permission obtained from the Planning Authority, unless it is specifically exempted. Categories of exempted development are set out in planning law. (DOE, PL.9,1995.) Subsequent legislation and associated regulations were enacted to provide a means of protecting the environment from pollution by intensive agricultural developments.

All well prepared planning application now give at least a preliminary indication of how it is proposed to minimise environmental damage. Development Plans include policies and objectives to environmental management including many aspects of pollution control. The Planning and Development Acts, have in the absence of other effective legislation controls provided a means for controlling some aspects of pollution, particularly in the case of new developments. (Scannell, 1995).
3.2. PLANNING AND DEVELOPMENT ACTS AND REGULATIONS.


This Act provides the framework for the planning and development, including the making of development plans, control of development and such matters relevance to the environment. Under section 26 a Planning Authority may grant permission subject to conditions. Under section 4 (1) (a) “developments consisting of the use of any land used for the purpose of agriculture or forestry and development consisting of the use for any of those purposes of any building occupied together with the land so used,” was deemed to be exempt from planning controls. (Scannell, 1995).

3.2.2. Local Government (Planning and Development) Regulations, 1977

These Regulations consolidated previous provisions relating to development plans, permission requirement and appeals. More specifically, in relation to this study, these regulations de-exempted certain agricultural developments. Section 10 and the third schedule (part three) brought certain intensive farming activities under planning control for the first time. Three classes of agricultural buildings were defined and parameters were established for each beyond which an agricultural development would no longer be exempt from planning control. Up to 1977 the use of land for agriculture was exempted from planning control. Class 7 structures, for the housing of pigs, cattle, sheep or poultry having a floor area not exceeding 400m² and with ancillary provision for effluent storage were deemed exempt developments. There was, no limit to the uncontrolled development of intensive farming operations provided that they were carried out in cumulative units of less than 400m². (Scannell, 1995).
3.2.3. Local Government (Planning and Development) Exempted Development and Amendment Regulations, 1984.

These amended the 1977 Regulations and revised the definition of exempted development in relation to agricultural buildings and structures (ENFO, Fact sheet 12). The 1984 Regulations extended the range of Class 7 works consisting of the provision of a roofed structure for the housing of pigs, cattle, poultry, donkey or horses and any ancillary provision for effluent storage. The maximum floor area for exempted buildings was reduced from 400 m² to 300 m². In addition, an overall aggregation limit of 450 m² for buildings in this class within the same farmyard complex or within 100 m of that complex was introduced. Most importantly, a new condition on exemption was introduced requiring that no structure be exempt unless adequate effluent storage facilities were provided having regard to the size, use, location and the need to avoid water pollution (condition 6) (Dodd, 1986).

Class 8 developments was broadened to include purpose built effluent storage facilities which are not ancillary to any of the buildings in Class 7 or Class 8 buildings/structures but which are necessary to avoid water pollution. All buildings and structures not already covered in class 7 and class 8 including mushroom growing units were covered in class 9. No buildings in this class were to be used for the housing of animals or the storage of effluent. Of particular relevance to the mushroom industry in Monaghan was the introduction of a maximum floor area of 300 m² for each class 9 structure with a maximum of 900 m² area in aggregate in the same farmyard complex or within 100 m of that complex.
3.2.4. Local Government (Planning and Development) Regulations, 1994.

The standards outlined in these regulations are those which are currently in use for exempted developments. Exemptions for agricultural works as outlined in the 1994 Regulations apply only to agricultural buildings erected in ‘rural’ areas. These exemptions are specified in Part III of the 2nd Schedule of the Regulations. Planning permission is not required for these works unless they are subjected to EIA procedures under EC (EIA) Regs, 1989. (Scannell, 1995).

Class 6 (roofed structures for the housing animals having a floor area not exceeding 300m²) is very similar to Class 7 of the 1984 regulations but was extended to include goats, deer and rabbits to reflect changing agricultural trends. The conditions are very similar to those detailed in the 1984 Regulations including the total aggregate floor area which remains at 450m².

3.2.5. Local Government (Planning and Development) Act, 1990

This Act clearly establishes for the first time that a refusal of a development on the grounds that it would cause serious water pollution or pollution connected with the disposal of waste is a non-compensatable reason for refusal of planning permission. Prior to this compensation may have been payable for a refusal on water pollution grounds.

3.3. ENVIRONMENTAL PROTECTION AGENCY ACT, 1992.

This act gives the Environmental Protection Agency (EPA) responsibility for preventing and controlling environmental emissions from certain activities with potential for significant impact on the environment through the operation of a system of Integrated Pollution Control (IPC) Licences, as detailed in Part IV of the Act. (DOE, PL.9, 1995.). These
licences apply to a range of activities listed in the First Schedule of the act and covers environmental pollution, which are defined as air, water, waste and noise emissions. The licensing system applies both to new activities and to existing activities, although existing activities will be brought in on a phased basis. (Menzies, 1992).

For the scheduled activities, the new IPC licences supersede existing licences under other Acts and Regulations. This Act represented a major step forward in the consolidation and updating of the law on the prevention and monitoring of environmental pollution. Responsibility for the issuing and patrol of integrated pollution control licences (IPCL) was passed from the Local Authority to the EPA. The EPA have to be satisfied that emissions will comply with prescribed Standards and that the licence will use best available technology not entailing excessive costs (BATNEEC) to limit pollution before it grants a licence.

Where a development has been granted an IPC licences, or is required to have one, neither the Planning Authority nor An Bord Pleanala may refuse permission for the reason that the development would cause environment pollution or grant permission subject to conditions which are for the purposes of controlling environment pollution. A Planning Authority shall not consider any matters relating to the risk of environmental pollution from the activity. If the development which is the subject of the IPC licences application has already been granted planning permission, or if a planning application has been made but not determined, then the EPA must consult with the Planning Authority, in relation to the development. The EPA may attach to the licence such conditions as may be specified by the Planning Authority for the proper planning and development of the area or such stricter conditions, as may be deemed necessary. For scheduled activities the Planning Authority must now defer to the EPA in matters relating to pollution.
The provision for IPCL establishes a uniform system for all environmental media in all parts of the country, thus ensuring consistent and uniform standards. They reduce the bureaucracy inherent in the present system where a number of different licences and permits may be required for the one site.

The EPA (Licensing)(Amendment)Regs,1996 provide for that the 3rd September 1996 was the relevant day for the purposes of the definition of 'established activity' in section 3 of the EPA Act 1992, in respect of intensive agriculture.(DOE, 1996).

Section 76 of the Act empowers the Agency to prepare and publish Codes of Practices or approve a Code of Practice drawn up by any other body. These Codes provide practical guidance with respect to compliance with any enactment or otherwise for the purpose of environmental protection.

3.3.1 EPA (Extension of powers order), 1994

This order has extended to the EPA some powers and function of Local Authorities under the Local Government (Water Pollution), Act 1977& 1990. A distinction was established between the powers of the Local Authority and the EPA in relation to the assessment of applications where pollution is an issue. If an IPC licence is involved, the sole Authority is the EPA. The Local Authority retains control to enforce non IPC licences and can only take action against activities where an IPC licence is not involved. The EPA is also permitted to prosecute under existing water pollution legislation, the EPA is not limited to prosecutions of offences committed by those with IPC licences.
3.4. ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

3.4.1 Introduction.

The term EIA usually applies to the process of examining an activity for its environmental effect prior to making a decision on its implementation. An environmental impact statement (EIS) is a document or report that contains an analysis of the information gathered through carrying out an EIA. In Ireland in the 1976 Local Government (Planning & Development) Act specified that environmental studies .."be carried out where a project was polluting or likely to cause pollution and where the project costs was in excess of £ 5 million pounds", However the studies were not mandatory nor were they required, for public development. (DOE, PL.9, 1995).

3.4.2 European Communities (Environmental Impact Assessment) Regulations, 1989 and Amendment 1994.

These Regulations modified existing Acts so as to incorporate the EIA/EIS process into Irish law and in particular into the Planning system. Certain agricultural and land use developments projects which, prior to the adoption of the 1989 Regulations had been outside the planning process, were subsequently incorporated into the planning control system. Part 5 of the Regulations lists types of projects for which an EIS must be submitted with the planning application and the information to be contained in the EIS. The First schedule lists the projects and thresholds limits as outlined below. The most recent (1994) amendment to the 1989 Regulations made the EPA the competent Authority for the assessment of an EIS in cases where an IPC licence is required. An EIA is obligatory for all projects needing an IPC licence from the EPA. (Thorn, 1994).
The following agricultural developments must be subject to an EIA as part of the planning process.

A. The use of uncultivated land or semi-natural areas for intensive agricultural purposes, where the area involved would be greater than 100 hectares.

B. Poultry rearing installations, where the capacity would exceed 100,000 units and where units have the following equivalents

\[1 \text{ Broiler} = 1 \text{ unit} \quad 1 \text{ Layer, turkey or other Fowl} = 2 \text{ units}\]

C. Pig rearing installations where the capacity would exceed 1,000 units on gley soils or 3,000 units on the other soils and where units have the following equivalents.

\[1 \text{ Pig} = 1 \text{ unit} \quad 1 \text{ Sow} = 10 \text{ units}\]

An EIA will be required for the projects even where the listed thresholds are not exceeded, if the Planning Authority consider that there may be significant effects on the environment.

3.5. SUMMARY.

Planning legislation was examined and legislation that could be used as a tool to control IAE’s was detailed. Planning Regulations set out developments that are classified as exempt development. The EPA Act and EIA Regs provided for the introduction of IPC licences and an EIA to be carried out respectively for IAE’s over certain thresholds. The environmental planning process was examined to see how successful it has been in controlling the nutrient losses from agriculture.
CHAPTER 4.

MATERIAL AND METHODS.

4.1. STUDY METHODOLOGY.

This research addresses the role of the Local Authority in controlling agricultural activities and the need for a balance between continued expansion of the agricultural sector and protection of the environment in County Monaghan. The Environmental section of Monaghan County Council, is concerned with the protection of the environment. This section also considers agricultural Planning Applications, the increase of which in recent years has made achieving a balance between protection of the environment and the economic needs of the County more difficult.

A number of secondary sources were reviewed during the course of the research for the chapter containing the literature review. These sources were examined to outline what had been published, what research had been carried out and findings of this research. The most relevant piece of literature examined was the Monaghan Agricultural Waste Management Study (MAWMS), as it implicated intensive agricultural developments in the decline of water quality in County Monaghan. The MAWMS conducted intensive research on the mushroom and poultry industries, and their effect on the environment.

It was necessary to review Planning legislation to find out the level of control the Local Government Planning and Development Acts, 1963-1993 have on intensive agriculture. The principal reason for the review of planning legislation was to focus on the role of planning as a regulator of intensive agricultural developments, rather than purely on environmental legislation.
In addition to this secondary research, primary research was conducted by way of an examination of planning applications in County Monaghan. How the planning system is addressing the issue of declining water quality was examined. Trends in planning permissions granted for agricultural developments processed by Monaghan County Council from 1980 were identified. These give an indication of the development of intensive Agricultural enterprises. How the planning process in Co. Monaghan has advanced and changed, inline with changes at national level, to address the challenge of intensive agriculture was reviewed. All planning permissions granted for intensive agricultural development in 1980, 1985, 1990, 1996 in terms of the conditions imposed and how these conditions have evolved were examined.

The results section is divided into two sections, section one outlines a general description of planning conditions applied to planning permissions and the second section details the temporal trends in the conditions applied to IAE’s between 1980 and 1996.
CHAPTER 5.

RESULTS.

5.1. PLANNING APPLICATIONS.

Agricultural planning applications forms have changed over the years. All the application forms have the general questions including name, address, proposed development, area of site. From 1980 to November 1985 the forms were the same as those for applying for a dwelling houses. There were no agricultural/environmental related details requested. The forms required no details of types and amounts of manure, livestock numbers, acreage, storage capacity (Appendix 1).

In November 1985, the application form became more detailed. Details of acreage of the farm, existing and proposed numbers and types of livestock to be overwinted, the existing and proposed types and amounts of manure to be managed of per annum, method and capacity of slurry and effluent storage facilities were requested (Appendix 2). The 1996 Application forms request type and numbers of animals housed over the winter period, type and amounts of waste to be disposed of and acreage of silage cut to be submitted (Appendix 3). The planning application forms has been changed over the years due to changes required by Planning Regulations and the problems identified by County Council staff.

The intensification of agriculture and the generation of a variety of different types of biosolids resulted in many developers being dependant on off site management for manure's/slurries e.g. the intensive pig, poultry and mushroom sectors. Agricultural biosolids were exempt from the 1979 European Community Waste Regulations and problems with unsatisfactory management such as dumping of slurries and SMC became
more widespread as the industry intensified. In the 1980's, an attempt to control biosolid management at planning application stage were made. The practice of requiring “letters of agreement” between the biosolid producers and recipients were introduced in 1985.

In the early 1980’s the management of poultry litter via the mushroom industry commenced. There was one contractor transporting manure at this time. The contractor submitted a letter agreeing to take poultry litter from a named farmer and bring it to a named compost yard (Appendix 4). The agreement changed in 1996 when the County Council issued a standard form to be submitted with each application for a dry litter poultry house, which in addition to details requested in 1985, requires information regarding to the type and quantity of manure to be collected per annum (Appendix 5). In 1990 there were four contractors taking dry poultry litter from farms in the county.

In the early 1980’s the County Council accepted informal agreements between landowners for the land spreading of manures (Gavin, 1996). In 1985 letters of agreement for the use of land for the spreading of manures detailed the biosolid producer, names of recipients and the location of the land (Appendix 6). Since 1995 Monaghan County Council have used a standard letter of agreement which details names and addresses of both the landowner and producer of the biosolids, the type and quantity of biosolid per annum to be landspread, area and location of land where biosolids will be spread (Appendix 7). The County Council also request that the recipient landowner submit type, number of livestock and acreage of silage cut. The Environmental section use this information to calculate the amount of biosolids being spread on the land, so as the hydraulic load was not exceeded.
The MAWMS and a number of other studies associating nutrient runoff from land with eutrophication problems highlighted the need to examine nutrient as well as hydraulic loading on land spreading areas. Soil analysis and NMP's became a condition of planning in 1990 and 1996, respectively. In 1996 the County Council began requesting a NMP to be submitted with applications for intensive agricultural developments. The requirements of the NMP were updated early 1997 to include the consideration of land slope.

The NMP is used by the County Council to,

1. Evaluation of farm resources- description of all land on the farm i.e. soil type, dept, fertility, crops grown and area.
2. Inventory of all types and numbers of animals on the farm.
3. Analysis of nutrients in the soil and in the animal manure's.
4. A NMP in summary form is used by the farmer and Local Authority. (Carton et al, 1996.)

A NMP provides the recommended application rate of animal biosolids, mineral fertilisers and lime. These recommendations take account of the sensitivity of the area and will reflect the extensive or intensive nature of the farm enterprise. The information requested to be submitted in a NMP in 1997 is detailed in Appendix 8. Teagasc gather information on the total area of land, number and type of livestock/ number of mushroom houses and nutrient levels of the soil etc. and draw up a detailed NMP, an example of a NMP is in Appendix 9.
5.2. CONDITIONS.

5.2.1. Introduction.

The conditions attached to planning permissions granted were examined. For presentation purposes the standard conditions applied in a given year are reported. However in exceptional circumstances e.g. difficult site conditions or if water pollution problems were encountered on site, additional conditions were attached. Conditions can be divided into those relating to the farmyard (point sources) and those relating to landspreading (non point source) and off site disposal. These conditions have changed over the years due to developments in environmental legislation and onsite experiences gained by County Council staff.

5.2.2. Point Source.

The control of point sources was addressed by conditions relating to the location and structure of the storage tank and the required period of storage. The condition addressing the issue of the type, quantity of biosolids produced and storage period varied from 1980 to 1996. It was found that the entry of storm waters to slurry storage facilities significantly contributed to point source pollution problems. Therefore, conditions relating to the separation of clean and dirty waters and the provision of guttering were introduced to address this issue.

In 1980 a pig unit was conditioned to provide a slurry storage tank, but no size was included. A condition that the development be a specified distance from a watercourse was also attached. Poultry houses were conditioned to provide a sludge tank to hold one years wash water. There were no such conditions relating to mushroom houses in 1980 (Appendix 10).
The provision of slurry storage facilities for a period of 6 months was generally introduced in 1985 for pigs and poultry developments due to pollution problems arising from the management of biosolids outside the growing season. In the same year the provision of washwater tanks was required but no storage period was specified for mushroom house (Appendix 11). From 1996 onwards the same condition was applied to dry litter poultry units. In specific cases a distances for farmyard structures from watercourses were specified. The general provision of storm water collecting systems was introduced in 1985 for pigs units.

5.2.3. Non Point Sources.

The conditions relating to non point sources are outlined below and examples of conditions attached to planning permissions in 1990 and 1997 are detailed in Appendix 12.

**Code of good practice (COP).**

Environmental pollution from agricultural biosolid management arises from poor management. Therefore, conditions relating to good management practices e.g. the provision of adequate storage conditions, time and rates of application of biosolids, maintaince of farm records were included in grants of planning permission. In 1980 there was one COP condition attached to a grant of planning permission for pig units which generally stated that no slurry be discharged to a watercourse. There were no COP conditions attached to grants of planning permission for poultry or mushroom units. Towards the end of 1985 more restrictive conditions for mushroom and poultry houses were introduced.
In 1985 mushroom houses conditions generally included a provision that “SMC to be applied to land in a manner so as not to give rise to pollution” and general conditions relating to landspreading and the keeping of records were attached. As the problem of dumping of mushroom compost intensified in 1990, conditions stating “no change in the approved method of waste disposal to take place without the prior approval in writing of the Local Authority ” and “If the Local Authority thinks the disposal of waste is causing pollution, the disposal operation shall stop.”, were introduced. In the early to mid 1990’s a condition requiring that SMC be landspread in accordance with crop requirements was introduced. In 1996 conditions attached to grants of planning permission for mushroom units stated that SMC generated be recycled by an approved operator and used for horticultural purposes. Other solid waste including plastic bags be disposed of in accordance with current Waste Regulations and the Litter Act, 1982.

In 1985 poultry houses were conditioned to operate on a dry litter system (where appropriate) and a condition that numbers of poultry to be housed could not be increased without prior permission from Monaghan County Council was introduced. In 1990 conditions were introduced which required records of on site disposal to be maintained. In mid 1990’s a further condition was introduced that poultry litter be disposed of via the compost making industry. The latest COP conditions for intensive agricultural developments are tied combined in a general condition that all biosolids and fertiliser be landspread in accordance with the current Code of Good Practice issued by the DAFF and the DOE, and requirements of the County Council.
Buffer zones (BZ).

Proximity of landspreading areas to watercourses has been a cause of concern. Buffer zone (BZ) conditions were introduced which prohibits spreading in certain areas or within a specified distance of a watercourse. The exclusion of these BZ from available landspreading areas is taken into account when land available for landspreading is being examined.

In 1980 there was one BZ condition included, for pig unit developments. In 1985 grants of planning permission for pig and poultry units were conditioned that, adequate strips of land on which no spreading was to take place to be left near watercourses, ditches and lakes. In 1985 for mushroom houses the conditions stated no spreading of biosolids to take place within 10-20 m of any watercourse or on waterlogged land or adequate strips of land where no spreading to take place near watercourse to be left.

In 1990 for pigs and 1990 and 1996 for poultry houses the conditions were as in 1985. In 1990 and 1996, conditions attached to grants of planning permission for mushroom houses were the same as in 1985 and a new condition was added which prohibited the spreading of biosolids within 50-100 m of a sensitive lake i.e. a water supply source. These distances have increased to be between 50-300 m depending on the size of the supply.

Spreading dates (SD)

SD conditions help regulate when farmers can spread biosolids on land to prevent water pollution e.g. no spreading of biosolids to take place during winter months. There were no SD conditions attached to any grants of permission for any of the developments in 1980. The condition, “no spreading of waste to take place during winter months, on waterlogged or frozen land or during or after heavy rainfall” were introduced for pig and poultry units in 1985. There are no SD conditions for mushroom houses.
In 1990 the SD conditions attached to poultry and mushroom houses were the same as those used in 1985. In 1993 the SD conditions attached for pigs were that manures to be landspread earlier rather than later in the growing season. In 1996 conditions relating to SD are outlined in the DAFF and DOE Codes of Good Practice which applicants are conditioned to implement.

**Nutrient management (NM).**

There were no NM conditions included with any grants of planning permission in 1980 or 1985. As the problem of excessive soil nutrient levels and nutrient surpluses in the County were highlighted in the early 1990's, pig and poultry farmers were conditioned to carry out and submit soil analysis every 3-5 years. Later applications were conditioned to submit a NMP every 3-5 years. In 1990 there were no NM conditions incorporated in a grant of planning permission for a mushroom house. Since 1996, farmers in the pig, poultry and mushroom sectors proposing to landspread biosolids are required to submit a NMP for approval prior to the granting of planning permission. Where planning permission is granted the NMP is conditioned to be updated every 3-5 years.

**Land requirement (LR)**

Land requirement is a calculation of the amount of land needed by a farmer to spread his biosolids from a proposed development. In the late 1980's prior to the introduction of NMP, the County Council began assessing land requirement (LR) for the disposal/recycling of manures. Requirements were based mainly on hydraulic load estimated from figures produced by the DAFF. Some large developments, particularly pig units, were conditioned to maintain a specified land bank area available for landspreading of manures. In 1980 and 1985, in the majority of cases, there were no calculations carried out on acreage required
for the landspreading of biosolids. In 1990 the County Council began calculating the land required for all IAEs, land requirement increased over the years as more information became available on soil nutrient levels and their affect on the environment.

**Land Suitability (LS)**

There were no LS conditions attached to poultry or mushroom developments until 1996. In 1980 and 1985 no account was taken of the suitability of the land submitted for the spreading of biosolids. From 1990 to date, when processing a planning application, the land submitted is inspected and areas are deducted which are not suitable due to sloping or wet land areas.

5.3. **TRENDS IN AGRICULTURAL INDUSTRIES.**

5.3.1 **Introduction.**

Trends in planning permission granted/refused for agricultural developments processed from 1980 to 1996 were identified, the trends are outlined in Table 5.1. and Figure 5.1. These trends are detailed under mushroom, poultry and pig trends.

There were six and thirty nine planning permissions granted for IAE’s in 1980 and 1985 respectively. In 1988 there was a peak in IAE’s when one hundred and thirteen were granted, this declined to seventy in 1990 and in 1996 twenty one applications were granted. There are eight applications with requests for additional information, which are treated as incomplete applications (one mushroom house development, three poultry developments, one pig unit and three general farm buildings). For IAE’s four were asked for NMP and one was asked to submit an EIA.
TABLE 5.1:  Number of developments granted.

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Fig 5.1 - MUSHROOM v POULTRY v PIG DEVELOPMENTS GRANTED
5.3.2. Mushroom Industry Trends.

**Number of permissions granted.**

In 1980, there was one Mushroom development granted. There were no mushroom developments granted in the years 1981 to 1984. Numbers granted increased to twenty two in 1985 and peaked at sixty eight developments in 1988. Numbers declined to a total of eleven granted in 1990 and four developments granted in 1996 (with one application incomplete).

The size of the mushroom house developments (number of houses) granted per application has increased over the years. In 1980 there was only one single house development approved, in 1985 a total of sixty three houses were approved (4 one house, 3 two house, 11 three house, 1 four and six house and 2 five house developments). The size of the developments peaked in 1988 when there were a total of 279 houses approved (6 one house, 10 two house, 12 three house, 2 four house, 26 five house, 9 six house and 1 seven eight and ten house developments).

In 1990 there were 28 houses granted (4 one house, 3 two house, 1 three house and 3 five house developments). In 1996 there were a total of thirteen mushroom houses granted (1 one and two house developments and 2 five house developments). The total number of mushroom houses granted from 1980 to 1996 were 1,013. The trends in planning permission granted for the mushroom houses can be seen in Table 5.2.
### TABLE 5.2: Number of Mushroom Houses Granted per Annum.

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**Total Numbers:** 1 63 26 90 279 194 28 58 101 51 103 6 13

*Conditions attached.*

In 1980 there was little concern regarding minimum acreage required for the spreading of SMC. There were no controls attached relating to water pollution. In 1985 maps of proposed spreading lands for biosolids from mushroom houses were requested, but no calculations on minimum acreage required were carried out. Condition attached were 2-3 COP, 1 BZ, 1ST, no LR were included. In 1990 three acres per mushroom house per annum was required for the land spreading of SMC (LR). Conditions relating to 5-7 COP, 1-2 BZ, 1 ST were attached. In 1993, the County Council increased the acreage required for spreading of SMC to five acres/house/year. The MAWMS (1994) stated that a farmer needs approximately fifty acres per annum for the spreading of SMC from one house. In 1996 the
majority of mushroom developments were requested to submit a NMP before a decision could be made on the application. If the Development was granted the following conditions were attached 7-9 COP, 1 ST , 2 NM, 1-2 BZ.

Trends in conditions.

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<th>NM</th>
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</table>

Grounds for refusals.

In 1986, 1988, 1989 and 1994 one mushroom house was refused. In 1987 a 4 mushroom house development was refused but An Bord Pleanala overturned the decision. In 1996 a 5 mushroom house development was refused. The primary reasons for the refusals were on traffic grounds. Other reasons included noise and vibration problems, reduced house prices and they would be injurious to the amenities of the areas. In 1993, a twelve mushroom house development was refused as it would have been intrusive in the landscape, contrary to the County's Development Plan in relation to water resources and tourism and on traffic grounds. This development was also refused due to a desire to control development within the catchment area of lakes and watercourses, prevent water pollution and maintain water quality to a standard consistent with existing and anticipated uses.
5.3.3. Poultry Industry Trends.

Number of permissions granted.

The first poultry developments granted in County Monaghan were in 1974. Numbers of poultry developments granted increased from three in 1980 to sixteen in 1985, poultry peaked in 1990 when there were fifty nine developments granted and then declined to seventeen granted in 1996 (two applications not complete) (Table 5.3.). Figure 5.2. compares mushroom and poultry planning permissions granted.

The size of poultry house developments granted per application has also increased. In 1980 there were three one house developments granted. They increased to nineteen houses in 1985 (13 one house and 3 two house developments). The numbers peaked in 1990 when there were eighty three poultry houses granted (37 one house, 20 two house and 2 three house developments). Numbers have declined in recent years, with twenty three houses granted in 1996 (11 one and 6 two house developments). Figure 5.3 compares the number of poultry and mushroom houses granted.

TABLE 5.3: Number of Poultry Houses Granted Per Annum.

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</tr>
<tr>
<td>Total Numbers:</td>
<td>3 19 26 24 54 54 83 51 24 11 22 32 23</td>
</tr>
</tbody>
</table>
Conditions attached.

In 1980, there was no calculation of acreage required for the spreading of poultry biosolids. There was 1 ST condition attached. In 1985, maps of lands available for spreading of poultry manure were requested. No calculations on acreage needed were carried out. Attached were 5 to 12 COP conditions depending on whether the poultry house was dry litter or slurry based, 1 ST, 1 to 2 BZ, 1 SD. In 1990 a minimum of 2,000 gals/acre/year for the spreading of poultry slurries was generally required. Dry litter was generally taken by a contractor to the mushroom industry. When biosolids were being spread on land, there were 13 to 16 COP, 1ST, 2 BZ, 1 SD, 1 NM. In 1992 a soil nutrient analysis and a nutrient budget programme was required to be submitted before a decision. In 1996 the County Council standardised what was to be submitted, and called it a Nutrient Management Plan (NMP). In 1996 for landspreading a NMP was required prior to processing of the planning application and 12 COP, 1 ST, 1 SD, 2 BZ. conditions were attached. The information requested in a NMP changed at the beginning of 1997, when the slope of land was taken into account.

Trends in conditions.

<table>
<thead>
<tr>
<th>COP</th>
<th>BZ</th>
<th>ST</th>
<th>NM</th>
<th>LR</th>
<th>LS</th>
<th>SD</th>
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<tbody>
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<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Grounds for refusals.

In 1981 a poultry house was refused as it would be contrary to the proper planning and development of the area. In 1985 one poultry house was refused. In 1986 and 1989 a 2 house poultry development was refused. In 1988 a single house and a 2 poultry house development were refused. The primary reason for the refusals were on traffic grounds. In 1989 two single poultry house developments were refused and in 1990 a 2 poultry house development was refused due to proximity to dwellings, a hazard to public health and deprecation of property values. An Bord Pleanala granted one of these poultry houses. In 1990, two single broiler house developments were refused, as they were to close to a lake for the burial of diseased birds and because of smells, hazard to public health and contrary to proper planning and development of the area.

In 1995 a poultry house was refused, because any intensification on this site would cause overdevelopment and it was a hazard to public health. In 1996 there were 2 refusals for a 2 poultry house development, one of the refusals was due to an unsatisfactory arrangement for the management of poultry manure, on traffic grounds and the threat of water pollution. The other development was refused because it would seriously injurious to the amenities of the area.

5.3.4. Pig Industry Trends.

Number of permissions granted.

There were two pig units granted in 1980, one in 1981 and a peak of four developments granted in 1982. The pig industry in County Monaghan has suffered a decline in subsequent years. There have been one or two developments, granted in some years and none in other.
There was one pig unit granted in 1985, none in 1990 and 1996. There is one pig unit application not complete in 1996.

Conditions attached.

In 1980 the County Council were using 1,500 gallons of pig slurry/acre when calculating the amount of land needed for the spreading of slurry. There 1 COP, 1-2 BZ, 1 LR conditions attached. In 1985 there were 10 COP, 1 SD, 1BZ, 1ST. conditions attached. In 1989 a slurry disposal programme including maps of land available for slurry disposal, land use and ownership of land were required prior to processing of planning applications. A soil nutrient analysis and nutrient balance programme have been requested since 1993. The last pig unit was granted in 1993 and the conditions attached were 9 COP, 1 ST, 1 BZ and 2 NM. In 1996 and 1997 specified information was required to be included in a NMP prior to the processing of an application.

Trends in conditions.

<table>
<thead>
<tr>
<th></th>
<th>COP</th>
<th>BZ</th>
<th>ST</th>
<th>NM</th>
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<td>1993</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
6.1. INTRODUCTION.

The objective of the thesis was to examine the role of planning legislation, in the control of water pollution from IAE’s in County Monaghan. The MAWMS report indicated that agriculture in the county has a large potential to impact on water quality. The planning process can only attempt to control the development of new IAE’s. It is very difficult to monitor its potential in reducing nutrient losses to water. The proportion of new developments to existing enterprises creates a challenge in apportioning the relative contributions of new and existing enterprises to nutrient loss. There are two sources of nutrient loss from agriculture, point and non-point sources. The conditions applied in the planning process are discussed separately under these two headings.

6.2. POINT SOURCE.

The conditions applied to control point sources initially were the requirement for biosolid storage from 1980 for poultry and 1985 for pig and mushroom developments. The requirements for biosolid storage are site selection, sizing and construction of the storage facilities.

6.2.1 Site Selection.

The approach in the planning process for site selection to control pollution is by inspection of the proposed site. Conditions on sitting are applied at the discretion of Local Authority staff, taking into account site conditions e.g. proposed distances from a watercourse. An evaluation of the proposed site in terms of soil suitability as determined by soil boring or
test pits could provide a better approach to ensuring the selection of a safe site particularly in vulnerable areas.

6.2.2 Sizing of the Storage Facilities.

Design capacities are determined by the rate at which manures/washwaters are generated and the required storage period. Existing storage and proposed storage capacities are checked to ensure there will be adequate storage based on figures submitted on the application form. A 24 week storage period is used due to the weather and soil conditions in Monaghan. Consideration could be given to the sizing of washwater tanks for dry litter poultry units and mushroom houses, to ensure adequate washwater storage. Applicants could be requested to submit details of the proposed cleaning process of the houses and predicted volumes of water to be used. The County Council need to specify volumes of all storage facilities.

6.2.3 Design and Construction.

Currently nothing is specified in planning conditions regarding the design and construction of storage facilities. Storage facilities must be designed and constructed in accordance with good engineering standards. It is important that to ensure that tanks are built in line with accepted standards and procedures to prevent failure and also to ensure that the farmer gets good value from the contractor.

In summary, the planning process effectively addresses point source pollution control in County Monaghan but control could be improved if planning conditions were attached regarding the sizing of washwater tanks and good design and construction standards.
6.3 NON POINT SOURCE.

6.3.1 Introduction.

The number of conditions applied to grants of planning permission for intensive agricultural developments has increased in the last 15 years. Application of biosolids to land recycles valuable nutrients and organic matter. However, the application must be managed properly to avoid pollution.

The application of conditions for the control of non point source pollution began in 1980 for pig units and 1985 for mushroom and poultry houses. The primary requirements of non point source controls are rate and timing of application of biosolids and application methodology.

6.3.2 Rate of Application.

Biosolids must be applied to land at rates that do not exceed the assimilative capacity of the soil system. In 1980 and 1985 the majority of planning applications processed included no calculation of acreage needed for the landspreading of biosolids. From 1985 planning application forms became more detailed. They included numbers/type of livestock or number of mushroom houses, amount of biosolids produced etc., so that some estimate of the application rates proposed could be made (based on hydraulic load). In 1990 the County Council began calculating the land requirement for all intensive agricultural developments.

In the early 1990's there was a shift in emphasis from hydraulic to nutrient load. The County Council began requesting the submission of a NMP for manures/slurries proposed to be spread on land from intensive agricultural developments, prior to a decision being
made. The information to be submitted with a NMP was standardised in 1996 by the Council and was further amended in early 1997 to consider the slope of land.

Prior to 1996 Teagasc recommended levels of 15 mg/l and 30 mg/l of P for grazing and silage land respectively. Teagasc reduced the recommended soil P levels to 10 mg/l for grazing and 15 mg/l for silage land (MAWMS, 1994). In 1996 Teagasc stated that there was no crop response to phosphorus over 6-10 mg/l for grazing land and 4-6 mg/l for silage land (Teagasc, 1996). Monaghan County Council current guidelines recommend soil P levels be maintained below 10 mg/l. The County Council were requesting soil analysis every 6 hectares, in 1996 this was reduced to every 4 hectares.

The Local Authority must be satisfied that sufficient land area is available for the disposal of manures in a manner that minimises the risk of nutrient runoff. This requires that records are submitted annually as per the conditions attached to planning permissions granted. Examination of manure management records combined with soil testing provides the most efficient way of ensuring such a system is the implementation by farmers. Revised NMP’s should be submitted every 3 years, to monitor soil P levels. More research is needed on the environmental effects of manure application rates, soil nutrient levels and their affect on water quality.

6.3.3. Suitability of land spreading areas.

Land slope, soil type and climatic conditions determine the times when land spreading will not endanger water quality. ADAS in their pollution risk assessment of landspreading areas define non- Spreading areas as Very steep slopes (> 14 degrees) where the risk of runoff exists throughout the year. Very high risks areas are described as fields next to
watercourses, springs or boreholes where the soil is at field capacity, and there is steep slope (9-14 degrees), or moderate slope (4-8 degrees) and a slowly permeable soil. (ADAS) The topography of County Monaghan would make it virtually impossible for most areas to comply with criteria similar to that in the UK. The EPA have issued integrated pollution control licensing BATNEEC guidance notes for the pig and poultry sectors and state that manures should not be landspread where surface gradients are excessive; gradients should preferably be less than 11% (EPA, 1994). In County Monaghan insufficient emphasis has been placed on pollution risk from lands with moderate to steep slopes in Nutrient Management Plans submitted to date. There is a need for a protocol to assist in defining the suitability of spread land areas.

6.3.4. Timing of waste applications.
Manures should be applied at times when they will supply nutrients in line with crop requirements. Farmers are encouraged to spread early in the growing season. Manure application should be at times when soil and weather conditions are suitable i.e. not frozen snow covered, when heavy rain is forecast. The County Council should place warnings notices in local newspapers and on the local radio regarding when conditions for the land spreading of biosolids are unsuitable. Farmers should be informed of the risk of spreading when soil or weather conditions are unsuitable.

6.3.5. Application methodology.
The application of biosolids should be carried out with appropriately calibrated equipment. Band spreaders give better control of application rates and it is easier to control buffer zones. Low tractory spreaders, band spreaders or injection can be used for the
landspeading of biosolids. Conditions could be attached to planning permissions granted relating to the method of landspeading biosolids.

6.3.6. Land spreading agreements.

The Planning Authority have in the past accepted informal agreements between land owners for the land spreading of manures with planning applications. The County Council have found that details of land submitted for spreading by some new applications has already been allocated to others (Gavin, 1996). The "letters of agreements" should be legally binding on both sides, that is on the producer of the biosolids and the receiving landowner, Section 38 of the Local Government (Planning and Development) Act, 1963 makes provisions for such agreements. The agreement would impose definite encumbrances on the land. There is no doubt that an improvement on the present form of loose arrangement is required.
6.4. CONCLUSION.

It is obvious that conditions have changed over the years as the number of developments have increased. Future improvements have to be implemented if the planning process is to meet its objectives. The following are suggestions on how the environmental planning process can be improved.

1. The annual P surplus in the county was 28 kg/ha. These P surpluses may contribute significantly to the eutrophication problem of surface waters in the County. Research is needed to identify and quantify point and non point P sources so as to assist in the control of these sources. The risk of eutrophication must be lowered by reducing the P load in animal wastes and reducing the quantity of fertiliser P used in the County (MAWMS, 1994). The much more widespread use of phosphate free fertiliser is also strongly advocated (EPA, 1996). Manures should be applied at rates that supply the nutrient needs of the crop produced.

2. A need exists for forward planning to protect the environment while also allowing the further development of the agricultural sector. If Local Authorities and other concerned bodies fail to take action, the problems associated with IAE’s will intensify and inhibit further developments/expansion of agricultural enterprises.

3. Alternative biosolid management options should be examined for managing IAE’s biosolids. A unified approach from the mushroom industry (compost manufactures, mushroom growers and SMC contractors) is required to provide a sustainable management solution for SMC.
4. There is a need for environmental policies to be formulated and implemented addressing issues including the management of biosolids and the protection and improvement of quality in many watercourses.

5. NMP provides an effective strategy. However, there is a need to ensure it is not just a paper exercise. The requirements of a NMP must be adhered to and farmers educated on the implementation of the plan. Education of farmers is vital on all aspects of Total Quality Management (TQM) i.e. on the spreading at correct weather and soil conditions and nutrient planning. Education on site limitations, manure management on farms, timing and method of application, equipment calibration and record keeping are also required.

6. A GIS system would be a major tool in the control of water pollution from agricultural developments. GIS could also be used to determine the hydrologic and environmental response of areas within catchments, produce maps and data bases of quantities and sources of nutrients, soil nutrient levels, quality of surface water and ground waters, and sampling programmes. The GIS could identify sensitive areas with regard to proximity to watercourses, surface and groundwater supplies, slope and soil type. Currently Cavan County Council are using the GIS for the processing of some IAE’s.

7. The County Council requires an increase in resources if the situation is to improve. These resources would enable follow up on information requested in planning conditions e.g. soil testing, NMP, records of spreading, which are vital to control nutrient levels in the soil. It would also enable more frequent monitoring of watercourses and farm visits.
8. A degree of environmental protection can be achieved by incorporating aquifer protection plans and/or water management plans into the County Development Plan. This would ensure that any developments within an area defined by an aquifer protection or water management plan, are in keeping with the provision of these plans.

In conclusion this thesis set out to examine the success of the environmental Planning process in controlling IAE's in County Monaghan. If the quality of the environment in Monaghan is to be prevented from declining further various bodies including the County Council, farming organisations and individual farmers will have to work together to allow for sustainable agricultural development.
REFERENCES.


ENFO, The Environmental Information Service. Water Pollution, Briefing Sheet 11.


Gillmor, Desmond A and Fenton, (1994). Rural land use on the Atlantic periphery of Europe: Scotland and Ireland, Royal Irish Academy, Dublin.


Appendix 1.
2. Applicants Name: 
Address:

3. Description of Proposed Development: PIE, HOUSES

4. Location of Proposed Development: AUCHANNALEA, SMITHBOROUGH

5. Name and Address of person(s) who prepared plans:

6. Applicants interest in site (i.e. leasehold, freehold, prospective buyer):

7. If applicant is not owner, state name and address of owner:

8. Has applicant previously been made in respect of this site? If so, state, ref. No.

9. Existing use of land or structure:

10. Proposed use of land or structure:

11. a. Area of proposed site:

12. Distance of proposed building line from existing road fence:

13. Maximum height of structure over ground level:

14. Proposed external walling (State type of plaster, stonework, brick or other finish giving colour):

15. Proposed roofing (State whether slates, tiles corrugated asbestos, etc, giving colour):

16. Proposed boundary wall or fencing (State type and finish, giving height and colour):

17. a. Source of Water supply (public mains, well, group water scheme):

18. Method of Sewerage Disposal (public sewer, septic tank):

19. Is notice displayed on site at main entrance from public road?

20. Was notice published in newspaper? (enclose full page)

I certify that the information given above is correct.

Signature of applicant (or his agent) ______ Date 15-4-50

Note: Please see overleaf.
Appendix 2.
**Application For Permission**

- **Applicants Name:**
- **Address:**
- **Description of Proposed development:**
- **Location of Proposed development:**
  - (Give Townland & O.S. Sheet No.)
- **Name & Address of Person(s) who prepared plans:**
- **Applicants interest in site:**
  - (i.e. leasehold, freehold, prospective buyer)
- **Has application previously been made in respect of this site?**
- **Existing use of land or structure:**
  - a. Existing no. & type of livestock
  - b. Proposed additional no. & type of livestock
- **Acreage of Farm**
- **Area of site**
- **Gross floor space of buildings**
  - (state in sq. metres)
- **Amount of fee submitted**
- **Basis on which fee calculated**
- **Distance of proposed building line from existing road fence**
- **Maximum height of structure over ground level**
- **Proposed external walling (State type of plaster, stonework, cladding or other finish giving colour)**
- **Proposed roofing (State whether corrugated asbestos, corrugated iron etc.)**
- **Proposed boundary wall or fencing (State type and finish, giving height and colour)**
- **Source of water supply (public mains, well)**
- **Method of waste storage, slurry tank (include capacity)**
- **Capacity of proposed slurry tank.**
- **Acreage, available for spreading slurry**
- **Distance from nearest dwellinghouse**
- **Is notice displayed on site at main entrance from public road?**
- **Was notice published in newspaper?**
- **Enclose copy**

---

**Signature of applicant (or his agent):**

**Date:**

---

**Approvers:**

**Date:**

---

**Approvers:**

**Date:**
Appendix 3.
**MONAGHAN COUNTY COUNCIL**

**PLANNING APPLICATION FORM**

**AGRICULTURAL DEVELOPMENT**

<table>
<thead>
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<th>APPLICATION TYPE:</th>
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<tbody>
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<tr>
<td>Exempted:</td>
<td>O.S. Sheet Ref.</td>
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</tbody>
</table>

Tick appropriate box
(Approval should be sought only where outline permission has been granted)

1. Applicants Name: ____________________________

2. Applicants Address: __________________________

3. Telephone Number: __________________________

4. Description of Proposed Development: _________

5. Location of Development (Townland & O.S. Sheet No.): __________________________

6. Name & Address of Person(s) who prepared plans: __________________________

7. Applicants interest in site (leasehold, freehold, prospective buyer): __________

8. Has application previously been made in respect of this site? If so state Ref No. __________

9. Existing use of land or structure: __________________________

10. Acreage of farm: __________________________
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<tr>
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<td>Area of site</td>
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<tr>
<td>12.</td>
<td>Distance of proposed building from public road</td>
</tr>
<tr>
<td>13.</td>
<td>Maximum height of structure over ground level</td>
</tr>
<tr>
<td>14.</td>
<td>Proposed external walling (state type of plaster stonework, cladding or other finish, giving colour)</td>
</tr>
<tr>
<td>15.</td>
<td>Proposed roofing (corrugated asbestos, corrugated iron, etc, giving colour)</td>
</tr>
<tr>
<td>16.</td>
<td>Proposed boundary wall or fencing (State type and finish, giving height and colour)</td>
</tr>
<tr>
<td>17.</td>
<td>Source of water supply (public mains or well)</td>
</tr>
<tr>
<td>18.</td>
<td>Distance from nearest dwelling house, school, church or building used for public assembly</td>
</tr>
<tr>
<td>19. a.</td>
<td>Existing no. and type of livestock</td>
</tr>
<tr>
<td>b.</td>
<td>Proposed additional no. and type</td>
</tr>
<tr>
<td>c.</td>
<td>Types and numbers of animals housed or in open yards over winter</td>
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<tr>
<td>20.</td>
<td>Types and amounts of waste to be disposed of per annum (State units in gals/m³)</td>
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</tr>
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<td>Proposed</td>
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<td>21. a.</td>
<td>Method or slurry and effluent storage</td>
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<tr>
<td>b.</td>
<td>Capacity of all slurry and effluent storage facilities (Units in ft/gals/m³)</td>
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<tr>
<td>(ii)</td>
<td>Proposed storage facilities</td>
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<td>22. a.</td>
<td>Method of disposal of farmyard wastes</td>
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<tr>
<td>b.</td>
<td>Acreage available for spreading of slurry</td>
</tr>
</tbody>
</table>
23. a. Acreage of silage cut per year
   - First Cut
   - Second Cut
   - Third Cut

24. Number of silage bases on farm

25. Method of collection and storage of silage effluent from each base

26. Are extract fans to be installed?

27. Gross floor space of proposed building(s)
   (State in sq. metres) (See attached)

28. Total area of such structures situated within the same farmyard complex or within 100m thereof

29. Amount of fee submitted

30. Basis of which fee calculated

31. Was notice published in a newspaper
   (enclose 2 copies)

32. Is notice displayed on site?
   (enclose 2 full page copies)

I certify that the information given above is correct

Signature of applicant (or his agent) ____________________________ DATE__________________

Agent's Telephone No. ____________________________
Appendix 4.
To whom it may concern,

I have agreed to take the above manure from ___________ Poultry House at
Deppycross. It

This manure would be supplied to
Molly Comfort for making mushroom compost as
its only a short distance from to transport

Yours sincerely,

Seán McElvaney
Appendix 5.
Agreement between Waste Poultry Litter Contractor and Producer

I

Name of Contractor

of

Address.

Tel. No

Agree to collect

Type and quantity of waste per annum

From

Name of Producer

of

Address

Tel. No

Contractors Signature

Producers Signature
Appendix 6.
Scotstown
Co. Monaghan

To Whom it may Concern

I, give permission to spread Compost on my lands of 100 acres in the Townlands of Rough Hill, Annahaghet North at any time.

Yours sincerely

[Signature]

[Stamp: Donegal Ed. Com.]
PLANNING SECTION
8/4/85
Ref. No. 52495
Appendix 7.
Agreement between Landowner Receiving Agricultural Waste and Producer of Waste

I

Name of Landowner

of

Address

Give

Name of Producer

of

Address

Permission to landspread

Type and quantity of waste per annum

On _______ acres in my ownership at ________________________________ location(s) with O.S. No.

Landowners Signature ________________________________

Producers Signature ________________________________

Date ________________________________
Appendix 8.
MONAGHAN COUNTY COUNCIL GUIDELINES:
NUTRIENT MANAGEMENT PLAN AND LANDSPREADING OF MANURES

The Nutrient Management Plan shall include:

1. Details of all livestock, poultry, mushroom units, etc. associated with landspreading areas.
2. Details of quantity of manures and their nutrient content.
3. Details of soil type and drainage characteristics.
4. Results of soil nutrient analysis (one sample per 2 - 4 Ha. of all landspreading areas).
5. Maps of scale 1:2500 showing the location of all land available for landspreading and indicating the following:
   - Ownership and acreage of each farm,
   - Location of soil sampling areas in 4 above,
   - Buffer zones to be maintained in the vicinity of all watercourses, lakes, wells, water supplies, and dwelling houses.
   - Areas where land gradients exceed 14 degrees.
   - Areas subject to flooding.
6. An assessment of the relationship between manure application rates, artificial fertiliser application rates, crop nutrient requirements and soil nutrient levels on all landspreading areas.

NOTES:

- The N.M.P. shall not include any unsustainable build-up of soil nutrient levels.
- Hydraulic and nutrient loads shall be specified.
- Landspreading of manures on steep slopes shall be avoided.
- Increased buffer zones and reduced application rates shall be considered when landspreading manures on moderate slopes.
- Soil phosphorus shall not exceed 10 mg/l.
- Where soil P levels exceed 10 mg/l a detailed programme for a reduction of soil P levels shall be included in the N.M.P.
- Where manures are landspread on applicants own lands a surplus of 10% of the total suitable landspreading area shall be available.
- Where manures are landspread by agreement with other landowners, a surplus of 30% of the total suitable landspreading areas shall be available.
- Soil nutrient sampling and analysis shall be carried out by an approved agency.
- A copy of the N.M.P. shall be maintained by the developer and updated every 3 - 5 years.

The N.M.P. shall comply with recommendations in the Dept. of the Environment and Dept. of Agriculture, Food and Forestry Code of Good Agricultural Practice to Protect Waters from Pollution by Nitrates.
Appendix 9.
13 February 1997

Threemilehouse
Co.Monaghan

Re N.M.P. for Planning Ref:

Dear:

Please find enclosed N.M.P for disposal of hen slurry on land bank which you provided. This is based on the latest Johnstown Castle proposed figures for Phosphorous.

As you will note the available land is only just adequate to accept the Poultry Slurry produced on your unit and does not therefore satisfy the Co. Council requirement for 30% surplus area where it is spread on other people’s land. This shortfall could be met by acquiring additional slurry spreading rights or having some waste removed by licensed haulier. I enclose copies of N.M.P for Co. Council and the land owners concerned.

Yours sincerely

Teagasc Advisor
PROPOSAL FOR DISPOSAL OF HEN SLURRY

Assuming that cattle slurry is returned to area from where it came i.e. the silage area, and using the reduced Phosphorous application levels proposed in the draft discussion document - "Phosphorous Recommendations for Grassland", the following is the capacity of lands sampled to take hen slurry.

The lands for which there is a slurry spreading contract are:
1. Threemilehouse
2. Newbliss
3. Latnamard
4. Clones

<table>
<thead>
<tr>
<th>Sample No</th>
<th>Soil P Index</th>
<th>Crop</th>
<th>P Rqmnt Kgs/Ha</th>
<th>Area Ha</th>
<th>Spread area Ha</th>
<th>Total P Kgs P</th>
<th>Poultry Slurry M³</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>JAF 1944</td>
<td>2</td>
<td>Grazing</td>
<td>20</td>
<td>5.72</td>
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Total: 109.25 97.78 2116.56 423.31
The total capacity of the spreadable area of all the lands sampled to take poultry slurry based on Phosphorous requirement is 423 M\(^3\). The amount of slurry produced by 10,000 layers is 421 M\(^3\). Additional land may be required to satisfy the Local Authority requirements. Alternatively removal of waste by licensed haulier may suffice.

Maps and soil test results are enclosed.

Signed:

Teagasc Advisor

Enc./
Appendix 10.
Monaghan County Council having considered the application of the above named for consent permission under Section 24 (1) of the above Act for an pig-house at Smithboro.

have decided to grant consent permission subject to the following conditions:

1. Entrance to be widened on Clonee side by approximately 18' for a distance of 15 yards along the house and the hedge on Clonee side to be cut for a distance of not less than 60' along main road.

2. No sludge or slurry from the proposed units to be permitted to enter the canal or any natural watercourse. All effluent from the fattening unit to be disposed of by land spraying and no spraying to be carried out within 100' of canal or any watercourse.

3. A land area of minimum 200 acres suitable for spraying of slurry to be maintained at all times and to be available to the owner for carrying out spraying operations.

4. No spraying of slurry to be carried out within 70' of the boundaries of any roadway stream or adjoining property and no spraying to be carried out when the direction of wind is such that slurry mist could be conveyed to any public road or residential property.

5. All slurry disposal tankers and tractors to be hosed down as appropriate prior to exit from site onto the public roadway during spraying operations. There is to be no deposit of slurry along the public roadway between fattening unit and spray area.

6. An adequate odour masking compound to be used during spraying operations and within the fattening unit at any time as required by the planning authority.

7. No structure to be less than 100' from the canal or from stress bordering the southern boundary of the site.

8. Subject to the above conditions the development to be carried out in strict conformity with the lodged plans and specifications.

The reasons for the imposition of the above conditions are:

1.-5. To prevent the creation of a health hazard and protect the amenity of the area.

6. To prevent the creation of a health hazard.

7. To prevent pollution of watercourses.

8. To prevent unauthorised development.

The reference permission referred to in this notification shall be issued on the expiration of the period for the taking of an appeal to An Bord Pleanala against the Council's decision if there is then no appeal before the Bord.

An appeal against the decision referred to in this notification may be made to An Bord Pleanala, Floor 3, Blocks VI and VII, Irish Life Centre, Lower Abbey Street, Dublin 1 by the applicant within one month from the date of receipt by the applicant of this notification or by any other person within 21 days of the date of the decision.

An appeal to the Bord will be invalid unless it is accompanied by a deposit of £10. This deposit will be refunded after the appeal is either determined or withdrawn, unless the Bord is of the opinion that the appeal is vexatious and directs that the deposit be forfeited.

Copy Served by
Registered Post 1366
Receipt No. 2
Signed Assistant

Signed on behalf of Monaghan County Council

ADMINISTRATIVE OFFICER

DATE 12/4/80
Monaghan County Council having considered the application of the above named for outline permission under Section 24 (1) of the above Act to:-

have decided to grant outline permission subject to the following conditions:

1. The following requirements of the fire authority to be complied with in this development. 1. Suitable type fire extinguishers to be provided.
2. Sludge tank as indicated on revised drawings lodged 26/5/80 to be provided for holding of one years wash water.
3. Subject to the above conditions, the development to be carried out in strict conformity with the lodged plans and specifications.

The reasons for the imposition of the above conditions are:-
1. To prevent the creation of a fire hazard.
2. To prevent the creation of a health hazard.
3. To prevent unauthorised development.

The outline permission referred to in this notification shall be issued on the expiration of the period for the taking of an appeal to An Bord Pleanala against the Council's decision if there is then no appeal before the Bord.

An appeal against the decision referred to in this notification may be made to An Bord Pleanala, Floor 3, Blocks VI and VII, Irish Life Centre, Lower Abbey Street, Dublin, 1 by the applicant within one month from the date of receipt by the applicant of this notification or by any other person within 21 days of the date of the decision.

An appeal to the Bord will be invalid unless it is accompanied by a deposit of £10. This deposit will be refunded after the appeal is either determined or withdrawn, unless the Bord is of the opinion that the appeal is vexatious and directs that the deposit be forfeited.

Signed on behalf of Monaghan County Council

Copy Served by

Registered Post 22/7/80

Receiver No. 149

ADMINISTRATIVE OFFICER

22/7/80
Appendix 11.
application by and finishing unit at Aghnagh.

1. a. Farmyard wastes, including animal slurries/soiled yard waters to be collected and stored in suitably constructed tanks of minimum 6 months capacity.
   b. Existing and new slurry/waste storage tanks to be made watertight with no pipes or holes allowing liquids to discharge to any drain, stream or watercourse.

2. a. All buildings to be provided with gutters, and roof rain water to be discharged separately in closed pipes to a watercourse or suitable soakpit.
   b. All existing and proposed surface water gulleys to be designed to ensure that no polluting matter enters the surface water collection system.

3. a. Waste to be spread on land at such times, locations and concentrations as not to give rise to a public health nuisance or water pollution.
   b. No spreading of waste to take place during winter months, on waterlogged or frozen land, or during or immediately after heavy rainfall when there is a risk of surface runoff.
   c. No spreading of waste to take place within 100m of any dwellinghouse without the written consent of the owner/occupier.
   d. Spreading to be carried out in such a manner as not to contaminate any source of water used or intended to be used for human consumption.
   e. Adequate strips of land (15m minimum) on which no spreading in to take place to be left in the vicinity of all watercourses, ditches and lakes.
   f. No waste to be spread on land which is drained while there is a flow of water in such drains.
   g. No waste to be allowed to runoff, seep or discharge to any ditch, field or watercourse.
   h. No waste to be heaped or deposited on the site or in the vicinity of any watercourse so as to give rise to pollution.

4. Records of waste disposal to be maintained and made available to Monaghan County Council on request. Records to include:
   1. date and location of disposal site/s on map to scale 1:2500 showing location of all drains, streams, rivers, watercourses and other sources, of water supply
   2. quantity (weight or volume) disposed of under (1)
   3. application rate of waste on land (quantity/acre) and duration of spreading and weather conditions.

5. a. All slurry disposal tankers and tractors to be hosed down as appropriate prior to exit onto the public road during disposal operations and the wash waters safely stored.
   b. No waste to be allowed to fall onto roadway from slurry tanker and tractor as to give rise to a nuisance.
   c. In the event of this happening, such waste to be removed and cleared away as soon as is practicable.

6. If at any time the Planning Authority is satisfied that the disposal of wastes generated by this development is causing water pollution and/or public health nuisance, the disposal operation shall cease immediately on the direction of the said authority and shall not be resumed until permission is granted by the said authority.

Continued

7. Existing trees and hedgerows to be retained and to be protected from damage during building operations.

8. Subject to the attached conditions, the development to be carried out in strict conformity with the lodged plans and specifications.

REASONS FOR THE IMPOSITION OF THE ATTACHED CONDITIONS.

1 & 2 To prevent the pollution of any natural watercourse and avoid the creation of a public health nuisance.

3 To prevent pollution and avoid the creation of a public health nuisance.

4 To enable the development to be properly monitored in the interest of public health.

5 To prevent the creation of a public health nuisance.

6 To prevent pollution and the creation of a public health nuisance.

7 To secure the proper planning and development of the area.
1. Existing front boundary hedge to be strengthened by the planting of a double staggered row of hawthorn along its entire length up to the entranceway.

2. a. Access to the development to be from the existing entranceway only.
b. The entranceway to be 21m in width and gates should be recessed and open inwards only.
c. No delivery lorries or other vehicles associated with this development to be allowed park along the public roadway at any time.
d. No waste to be allowed fall onto the roadway from slurry tanker or tractor in such a manner as to cause a public nuisance. In the event of such spillage occurring the roadway to be cleaned as soon as possible.

3. a. Used compost to be disposed of at such times, locations and concentrations as not to give rise to a public health nuisance or water pollution.
b. No compost or mushroom waste to be deposited at the site or in the vicinity of any waters in such a manner as to give rise to a public health nuisance or water pollution.

4. a. All soiled waters generated from cleaning or other operation to be collected and stored in a suitable tank and disposed of on land.
b. When spent compost is disposed of on lands other than those of the applicant, a record to be kept of:
   i. location
   ii. quantity of compost disposed of
   iii. weather conditions

5. Adequate strips of ground on which no spreading is to take place to be left in the vicinity of all watercourses, ditches and lakes.

6. Where weather conditions prevent the immediate disposal of the spent compost on land, the applicant is to ensure that adequate and safe storage is provided for the holding of such waste.

7. Plastic compost bags to be disposed of in such a manner as not to cause litter or nuisance.

8. All requirements of the Fire Authority to be complied with in full in the proposed development. (See attached).

9. Subject to the above, the development to be carried out in strict conformity with the lodged plans and specifications.

The reasons for the imposition of the above 9 conditions are:

1. To protect the amenity of the area and provide shelter for the mushroom houses.
2. To prevent the creation of a traffic hazard.
3. To prevent a public health nuisance or the creation of water pollution.
4. To prevent a public nuisance or the pollution of any watercourse.
5. To protect the amenity of the area.
6. To prevent the creation of a fire hazard.
7. To prevent unauthorised development.
CONITIONS 1 - 4

1. a. Road surface drainage and road subsoil drainage to remain unimpeded.
   b. Provision to be made within site for surface water drainage and no surface
      water to be allowed to flow onto public roadway.
   c. Entrance to form a bellmouth of 10m radius with roadway.

2. a. Turkey house to be operated on a dry litter system only.
   b. All soiled waters generated from cleaning or other operations to be collected
      and stored in a suitable tank (min capacity - 5m³) and disposed of in a manner
      so as not to give rise to pollution or public health nuisance.
   c. Surface water from roofs only to be discharged to a watercourse.
   d. Records of waste disposal to be maintained and made available to Monaghan
      County Council on request. Records to include.
      (I) Date and location of disposal site/s
      (II) Quantity (weight or volume) disposed of
      (III) Application rate (quantity per acre)
   e. No spreading of waste to take place within 20m of any watercourse.
   f. If at any time the Planning Authority is satisfied that the disposal of
      wastes generated by this development is causing water pollution the spreading
      operation to cease immediately on the direction of the said authority and
      not to be resumed until permission is granted by the said authority.

3. All requirements of the Fire Authority to be complied with in full in the proposed
   development (See attached).

4. Subject to the above conditions the development to be carried out in strict
   conformity with the lodged plans and specifications.

REASONS FOR THE IMPOSITION OF THE ABOVE CONDITIONS

1. To secure a satisfactory standard of development.
2. To secure a satisfactory standard of development and prevent the pollution of
   any watercourse.
3. To prevent the creation of a fire hazard.
4. To prevent unauthorised development.
Appendix 12.
1. Ground levels to be reduced by 1m minimum and floor level of proposed poultry unit to be not more than 0.25m over this reduced ground level.

2. All soiled waters generated from cleaning or other operations to be collected and stored in a suitable tank of 6 months minimum capacity and disposed of in a manner so as not to give rise to pollution or a public health nuisance.

3. All buildings to be provided with gutters and roof rain water to be discharged separately in closed pipes to a water course or suitable soak pit.

4. a. Any waste disposed off on land to be spread at such times, locations and concentrations as not to give rise to a public health nuisance or water pollution.

b. No spreading of waste to take place during winter months, on waterlogged or frozen land or during or immediately after rainfall when there is a risk of surface runoff.

c. No spreading of waste to take place within 100m of any dwellinghouse without the written consent of the owner/occupier.

d. Spreading to be carried out with such a manner as not to contaminate any source of water used or intended to be used for human consumption.

e. Adequate strips of land on which no spreading is to take place to be left in the vicinity of all watercourses, ditches and lakes (min 20m).

f. No waste to be spread on land which is drained while there is a flow of water in such drains.

5. Records of waste disposed shall be maintained on site at developers own expense and made available to Monaghan County Council on request.

6. All waste disposal spreaders and tractors to be hosed down as appropriate prior to exit onto the public roadway during disposal operations and the wash waters safely stored. There is to be no deposit of poultry manure along the public road.

7. If at any time the Planning Authority are satisfied that the disposal of wastes generated by this development is causing water pollution and/or a public health nuisance the disposal operation shall cease immediately on the direction of the said authority and shall not be resumed until permission is granted by the said authority.

8. No increase in the number of poultry to be housed or intensification of the development to take place without a prior grant of planning permission.

Every two (2) years, applicant shall employ an approved agency to carry out soil nutrient analyses on all lands on which slurry spreading is carried out. Such sampling and analyses shall be carried out at the applicants own expense and results made available to Monaghan County Council on request. The full testing programme including parameters to be checked to be submitted to and agreed with Monaghan County Council within 2 months of issue of planning permission.
Prior to the 1st January each year, maps of lands and signed legal letters of agreements from landowners relating to all proposed land spreading area shall be submitted to Monaghan County Council for approval.

No change in the approved method of waste disposal to take place without the prior approval of Monaghan County Council.

A minimum of 6 months slurry storage capacity to be provided on site.

The proposed development to be located at least 100m from any dwelling other than that applicants.

The best practicable means to be adopted for the control of any fly infestation originating from the development.

All requirements of the fire authority to be complied with in full in the proposed development. (See Attached)

Subject to the above, the development to be carried out in strict conformity with the lodged plans and specifications

THE REASONS FOR THE IMPOSITION OF THE ABOVE ARE:

1. To protect the amenity of the area.
2 - 12 To prevent the pollution of any natural watercourse
13 & 14 To prevent the creation of a health hazard.
15 To prevent the creation of a fire hazard.
16 To prevent unauthorised development.
MUSHROOM CONDITIONS:

1. No spent compost wash water/mushroom waste or other polluting matter to be disposed of/spread within 50m of Emy Lough or 100m of Conns Lough.

2. Spent mushroom compost and any mushroom waste generated by this development to be disposed of on land in a manner so as not to give rise to pollution or to a public health nuisance.

3. All soiled waters generated from cleaning or other operations to be collected in a suitable and adequate watertight holding tank and disposed of on land so as not to cause water pollution or a public health nuisance.

4. Records of waste disposal to be maintained and made available to Monaghan County Council on request. Records to include:
   i. Date and location of disposal site(s)
   ii. Quantity of waste disposed of
   iii. Application rate of waste on land.

5. No spreading of waste to take place within 20m of any watercourse or on water-logged or frozen land.

6. No waste to be heaped or deposited at the site or in the vicinity of any waters/watercourse as to give rise to water pollution or a public health nuisance.

7. Spent mushroom compost to be disposed of in such a manner as not to cause litter or nuisance. All plastic bags to be removed after spreading of compost on land.

8. If at any time the Planning Authority is satisfied that the operation of or disposal of wastes generated by this development is causing water pollution and/or a public health nuisance the operation shall cease immediately on the direction of the said authority and shall not be resumed until permission is granted by the said authority.

9. No change in the approved method of waste disposal to take place without the prior approval in writing of the Local Authority.

10. In the event of mushroom production ceasing at this location, mushroom units to be removed and ground to be restored to its original condition.

11. a. Existing trees/hedgerows, including roadside hedgerow to be retained in this development and to be protected from damage at all times, particularly during building operations. Roadside hedgerow to be reinforced with additional planting of trees/shrubs of species native to the area.
    b. Side boundaries and line of recessed entrance to be planted with trees/shrubs of species native to the area to form naturalised hedgerow.
    c. A triple row of trees of species native to the area to be planted in area indicated 'P' on attached map to form a dense screening belt. Trees to be staggered and planted at maximum 4m centres.
    d. Planting to be carried out at first planting season after commencement of work on this development.
    e. Fencing at recessed entrance to be of stained wood.

12. Applicant to consult with E.S.B. re overhead power line prior to the commencement of any work on this development.

13. a. The septic tank effluent to be disposed of by means of a percolation system installed in accordance with Appendix attached

14. a. Building line to be not less than 20m from the centreline of the public road.
    b. Entrance to be not less than 50m from bend.
    c. Recessed entrance to be provided of sufficient dimensions to contain a standing vehicle off the public road.
    d. Level at entrance gate to be a minimum of 100mm below the road edge.
    e. Provision to be made within the site for surface water drainage and no surface water to be allowed flow onto public roadway.
    f. Road surface drainage and road subsoil drainage to remain unimpeded.
    g. Existing roadside hedge to be removed such that a sight distance of 80m is provided from a point in the entrance 3m from the road edge and 1m above ground level.

15. All requirements of the fire authority to be complied with in full in the proposed development. (See Attached)

16. Subject to the above, the development to be carried out in strict conformity with the lodged plans and specifications.
(1) The poultry house to be operated on a dry litter system.

(2) All soiled waters generated from cleaning or other operations to be collected and stored in a suitable tank and disposed of in a manner so as not to give rise to pollution or a public health nuisance.

(3) All building to be provided with gutters and roof rain water to be discharged separately to a watercourse or suitable soakpit.

(4) Poultry house waste to be disposed of via the compost making industry unless other disposal arrangements are agreed with the Planning Authority.

(5) Records of waste disposed shall be maintained on site at developers own expense and made available to Monaghan County Council on request.

Records to include

(i) Name and address of Disposal Contractor
(ii) Date of each disposal operation
(iii) Quantity (weight and volume) disposed of
(iv) Any other information as may be required from time to time by the Planning Authority.

(6) If at any time the Planning Authority are satisfied that the disposal of wastes generated by this development is causing water pollution and/or a public health nuisance the disposal operation shall cease immediately on the direction of the said authority and shall not be resumed until permission is granted by the said authority.

(7) No increase in the number of poultry to be housed or intensification of the development to take place without a prior grant of permission.

(8) Poultry house and associated tanks to be a minimum of 10m from any watercourse or ditch.
(1) Spent mushroom compost generated by this development shall be recycled by an approved operator and used for horticultural purposes.

(2) Other solid wastes arising, including plastic bags shall be disposed of in accordance with the current Waste Regulations and Litter Act.

(3) Soiled waters generated from cleaning or other operations to be collected in a suitable tank and disposed of by landspreading.

(4) Records of waste disposal/recycling shall be maintained and made available to Monaghan County Council on request. Records to include:
   i. Date and location of disposal/recycling site/s
   ii. Type and quantity of waste disposed of

(5) If at any time the Planning Authority is satisfied that the disposal of waste generated by this development is causing water pollution and/or a public health nuisance, the operation shall cease immediately on the direction of the said authority and shall not be resumed until permission is granted by the said authority.

(6) No change in the approved method of waste disposal to take place without the prior approval in writing of the Local Authority.

(7) In the event of mushroom production ceasing at this location, mushroom units to be removed and ground to be restored to its original condition.

(8) The location of a wash water tank to be a minimum of 10m from any watercourse.

(9) No waste to be heaped or deposited on the site or in the vicinity of any watercourse so as not to give rise to water pollution or public health nuisance.