

**Evidence to EPA Oral Hearing
for
Fingal Landfill Facility at Nevitt, Lusk,
Waste License Proposed Decision
Registration No. WO231-01
Balbriggan, March 2008**

Statement of Evidence by Shay Lunney
Local Evidents

OH Doc No: 48

Rec'd From: Shay Lunney

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**Thanking you Mr. Chairman, I plead with you to
indicate to the EPA the disaster this proposed landfill
would be on our environment**

Evidence to EPA Oral Hearing

For

Fingal Landfill Facility at Nevitt, Lusk

Waste Licence Proposed Decision

I live in Walshestown, Lusk Co Dublin which is adjacent to the proposed facility Ref WO 231-011, now known as the Fingal Landfill at Nevitt Lusk.

My submission of evidence to this EPA Oral Hearing in relation to the above PD Proposed Decision.

I am relatively new to the area of Lusk . I moved here with my wife Bernadette and our two children, Beverley, now aged 19 and Glen now aged 16.

Our reasons for the move to Walshestown was as follows:

To improve our quality of life and offer our children an opportunity to live and appreciate life in a semi rural setting.

To prepare for the future in the form of a more significant property investment as I am a self employed Systems Technician for the last 20 years and in the earlier years was unable to provide for a pension. So we decided to trade up from our 3 bedroomed semi detached house in Swords which was mortgage free) and invest in a larger and more expensive property by securing a fairly sizeable mortgage.

6 September 2004

The 6 September 2004 is a memorable day for me for two reasons:

1. The applicant officially announced the proposed site for a massive dump which was to be the Nevit.
2. This was the day we lifted the roof off the original cottage as part of the extension and renovation project we undertook.

I would like to start by referring to the cross examination OF Mr Jack O'Sullivan this morning by Mr Flanagan.

I noted that during one of Mr Flanagan's questions to Mr O'Sullivan regarding the EIS – Mr Flanagan stated that any new information presented by our group had nothing to do with the EIS.

Is is not the case that the PURPOSE of this hearing is to gather all information, old and new, and mainly any new information is fundamentally relevant to the EIS and this proposal.

I also note whilst Mr Flanagan was cross examining another witness before today he was referring to emissions and he stated that controlling emissions was easily achievable.

But, today we heard evidence from Ms s Perry Long that the smells at the Inagh facility are not being controlled in accordance with that waste licence application and may I state for the record that certain members of the same consultancy firm (RPS) were in fact involved with the application for the site at Inagh, Co Clare.

Naming of the Site

Article 1 of the Planning Act states that all planning applications must contain the correct name of the applicant and the correct details relevant to the application.

So as the applicant is in fact a planning authority why were there so many different titles describing the site..

1st Title Tooman

The extent of Tooman located within the site was about 6 acres in total but yet it gained the title Tooman it was also known as Site B, Site 6, and then the Fingal Landfill.

Then it eventually was given the title of the Proposed Fingal Land Fill at Nevitt at Lusk.

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Fingal County Council
Comhairle Chontae Fhine Gall

FINGAL CITIZEN CHARTER

Fingal County Council is a public service provider. This means that our role is to be of real service to our citizens. We want to improve your quality of life and your physical environment in ways that do not compromise the quality of life for future generations.

If we are to achieve this then we need to work in partnership with you the Citizen. There is much that you can do to help. A lot of Council funds are taken up solving problems that could be prevented by good citizenship. Look at how much we spend on cleaning up litter every year? Just imagine if citizens made a decision not to throw litter on our streets? If there was no litter, we could use this money on really necessary things like increased funding of the Disabled Persons Grant Schemes, buying more Library Books and developing much needed Community and Recreational facilities.

We have drawn up this Citizens Charter so that you, the Citizen, are clear on the quality of service you can expect from us in Fingal County Council as stated in our Corporate Plan. We also want to make clear how you, as a Citizen, can exercise your responsibility in improving quality of life in Fingal.

THIS IS WHAT YOU CAN EXPECT FROM US

In Fingal County Council we want to provide all our citizens with quality service. We know that our citizens may be different on the basis of age, gender, religion, race, membership of the Traveller community, disability, sexual orientation, marital status and family status. We will make sure that we uphold equality legislation (such as the Equal Status Act, as amended, 2004) and work to remove any barriers that prevent groups or individuals from accessing our services. Staff training will be carried out so that we can better understand and respond to these different needs.

Brief of evidence by
my Shay Lunnay.

Summary

1. National Campaigns

Race against waste and changing our ways were both national campaigns introduced to encourage a change of thinking and a more responsible approach to waste management. However while Fingal County Council invested heavily in both of these campaigns they remained seriously lacking when it came to developing their new waste management plans, and it appears they ignored the very campaigns they promoted and continue to promote.

This does not represent international best practice.

Waste Hierarchy

The EU waste hierarchy of preferred options for waste disposal places landfill at the very bottom of the scale, yet Fingal County Council choose landfill as their first choice option.

This does not represent international best practice.

Unsustainable Option

A proposed plan for landfill with capacity for 10-11 million tons of mixed waste for a period of 25-30 years in 2007 is certainly not demonstrating any consideration for the obvious change in government policy or the palpable shift to the alternative options currently available such as waste to energy or embracing the waste hierarchy in its proper order of preference for waste disposal.

This is certainly not international best practice.

2. Waste Regulator.

Ireland urgently needs a waste regulator as it is considered untenable that local authorities are both market player in and regulator of the waste management industry as an area, which requires immediate attention.

of

As the EPA have made it abundantly clear that they do not have the powers of enforcement required to apply the necessary penalties for breaches of environmental law, this results in self regulation by the local authorities.

Self regulation does not work.

This is not international best practice.

Landfill Capacity

Fingal County Council have demonstrated the need for this landfill due to the imminent closure of landfills at Arthurstown, Kill, Co.Kildare and Baleally, Lusk, Co.Dublin. However the true situation is reflected in the lowering of landfill levies due to the excess landfill capacity currently available in Dublin. The precautionary principle is an EU statutory instrument, which seeks to guard against over compensation of landfill capacity. Failure to have regard for this principle is **failing to apply international best practice.**

3. A 30 year message.

The population of the four Dublin local authorities and the adjoining counties who's waste will go to this landfill will amount to approximately half of the entire population of Ireland, continuing to support landfill disposal until 2037. This is completely at odds with all of the following;

- Race against waste (campaign)
- Changing our ways (campaign)
- The work of the European Environment agency
- The revised waste framework directive
- The expert panel for climate change
- The intergovernmental panel on climate change
- EU Recommendations to reduce the amount of waste going to landfill by 75% by 2010 ~~2009~~
- Placing Europe's biggest landfill on top of a perfectly good, functional aquifer which sustains the horticultural industry in Fingal (currently 55-60%)
- The precautionary principle-EU statutory instrument
- The proximity principle-EU statutory instrument
- The European court of justice who recently ruled that Ireland broke EU law by authorizing a landfill in Wicklow, despite knowing that dangerous pollutants would contaminate the ground water. (This is a replica case)
- The placing of the landfill below the water table
- Ignoring the advice of 5 senior consultant Hydrogeologists and the Geological Survey of Ireland over the opinion of one person (namely) Mr. Shane Herlihy (RPS) Hydrogeologist.

To disregard all of these is to fail to exercise **International Best Practice**.

4. Waste is an Asset

The planning and licensing authorities urgently need to alter their vision on waste and stop viewing it as a national burden, but rather as a national asset. They must seek to recover the true value of waste in terms of energy recovery and electricity generation. To continue to opt for an out of sight out of mind approach to waste disposal (landfill) and to continue to destroy the environment while doing so, is synonymous with times past when there were no alternatives. The only logical explanation one can find in a plan such as this is financial exploitation in a market place where the local authorities have the upper hand.

Viewing waste as an asset would be embracing international best practice.

5th National Waste Summit / Policy Change *TOOK*

The 5th national waste summit is taking place on the 27/28th November 2007 in Croke Park, Dublin. If the EPA are to continue to grant licenses for independently unchallenged proposals such as the Tooman / Nevitt landfill. What is the point of all the major stakeholders in the waste management business converging on Croke Park

to discuss the available alternatives, that presumably minister Gormley is seeking to secure policy change on, **in line with International Best Practice.**

5. **A Bitter Pill to Swallow**

Due to successive failures on the part of policy makers and planning and licensing authorities, Lusk is facing another 30 years of probably the worst burden any community could have (landfill). Along with the choking by the Baleally landfill gases, Lusk residents suffered the choking of broken promises by a council that has failed them and failed them miserably. To this day the residents of Lusk have not received brown bins from the local authority which might indicate an attempt by Fingal County Council to remove organic waste from landfill. But yet they feel we should accept Europe's Biggest Landfill.

This is not international best practice.

As a large agricultural region this community has always fended for itself, but not only are we being expected to accept this landfill, but we are also expected to standby and watch the destruction of a national food industry by the locating of this landfill on our national resources and source of Public Water supply. One would not expect to see such a catastrophe in Bogata in Columbia never mind Nevitt. The applicant failed to provide an assessment of the vast horticultural industry or the full extent of the aquifer below the site.

The EPA act of 1992 clearly states that regard should be had to any industry potentially affected by a proposed landfill.

Is this a breach of the EPA own rules?

Questions for the EPA

Why are the EPA and its inspectors not listening to all the experts, Who have produced sufficient evidence as to why the Nevitt is not suitable for landfill?

Why are the EPA accepting the application for the proposed landfill and its supporting EIS when there are numerous objections and submissions opposing it with extraordinarily factual data indicating why the site is not suitable for landfill. The EPA are duty bound to protect the environment. So why is it in their interest to grant a licence for a facility for a 30-year period knowing fully that it will damage the environment. ?

For the EPA to have full regard to international best practice they urgently need to start listening to the various panels of experts who have provided excellent factual data indicating why this landfill must not be permitted to threaten an existing public water source, a separate future water source and an established national food supply industry.

** Not Referring to the inspectors Present*

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**CONDITION 3.7.2 – “drainage layer” and
SCHEDULE D – “stability calculations”**

We most strongly object to the manner in which both the EPA and RPS are addressing the geotechnical aspects of the proposed development. The lack of clarity in what exactly is proposed is illustrated clearly by the changes now requested by the applicant to the conditions set by the EPA.

We hereby object in the strongest possible terms to any changes to the above EPA conditions for the following reasons

- The EPA has stated that a drainage layer (below all cell liners) is necessary “so that shallow perched groundwater can be pumped during the construction and filling of the cells”. No mention is made of the fact that where artesian conditions exist substantial springs emanating from both the underlying confined aquifer and horizontally from the perched confined aquifer are highly likely. Neither the EPA condition nor the revised proposal suggested by the applicant is likely to adequately address this groundwater control problem, and it is clear that a comprehensive geotechnical assessment, as requested by the EPA of the applicant, is required as part of the EIS.
- The request by the applicant for a waiver of stability calculations until some future date is also objected to. It has been our consistent stated position, in numerous submissions to the Agency, that the construction of a multi-celled lined landfill on this site is precluded due mainly to the existing artesian conditions. Stability calculations will show this to be the case, particularly and irrefutably so with reference to the sidewall liners.

We note that the Agency has not acceded to our numerous requests for the inclusion in the EIS of geotechnical and stability calculations under the terms of the Precautionary Principle before a licence is issued. The absence of these calculations and failure of the Agency to rectify these and the many other irregularities in the EIS will be the subject of a complaint by this Group to the European Commission.



DOCUMENT CONTROL SHEET

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Document No.	MDE0005Rp002DUN					
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1 INTRODUCTION

The suitability of six sites in the Dublin region as possible landfills are currently being investigated by RPS-MCOS. Four of these sites are situated in Fingal County and two in the borough of Dunlaoghaire and Rathdown. The following report looks at Site G situated south east of Kiltarnan Village.

2 EXISTING ENVIRONMENT

2.1 GENERAL

Farming within Site G would appear to be extensive with grass being the principal crop. Many of the holdings do not seem to be reliant on farming as a main income source and it would appear that most farming is done on a part time basis. Enterprises include horses and dry stock (See Figure 2.1).

2.2 SOILS

Detailed soil maps were produced for a number of counties by An Foras Taluntais in the late 1960's. Unfortunately, no detailed soil survey was undertaken in County Dublin. The principal soil types encountered during the walkover of site G in May 2003 were Acid Brown Earths and Brown Podzolics. These soil types in this geographical location are generally well drained with substantial yield potential. This was confirmed during the walkover and is consistent with the initial land use survey carried out by Farm Management Consultants Ltd. in July 1999.

* 3 POTENTIAL IMPACTS

There are a number of possible impacts that landfills may impose on agriculture in a region: -

- Loss of land which may reduce the farm holding to such an extent as to make it non viable;
- Severance of the farm by the landfill. This may range from a minor severance causing only slight inconvenience to a major severance that may threaten the practicability of current enterprises on the farm;
- Increased traffic levels in the environs of the farm causing problems with the day-to-day management of the farm, from moving stock to moving large machinery. Increased traffic may also cause elevated noise and dust levels. These may cause disturbance and subsequent loss of performance in more sensitive stock such as horses and dairy cows;
- There may also be problems with animal health and welfare due to such factors as:
 - Contaminated water supplies (surface and ground). Contaminated water supply may also affect irrigation of vegetable crops;
 - Spread of litter and debris;
 - Scavenging birds may cause the spread of certain diseases such as salmonella; and

- Vermin, pests and insects may all have a negative affect on animal health and welfare. *

4 METHODOLOGY

Two methods were used to examine agriculture in the proposed sites: -

1. Desktop study – Examining both aerial and ordinance survey maps;
2. On Site Study – This was carried out in the spring/summer of 2003. All the lands were walked over and where possible land uses and enterprise type were identified. Fields with obvious paddock grazing systems and/or yards observed with milking facilities were assumed to be involved in dairying. Other grass fields with no evidence of being used for dairying or that had sheep or beef animals grazing were assumed to be involved in drystock. Stud railing and/or bloodstock in fields were categorised as horse or drystock/horse enterprises and fields with cereal stubble or growing a cereal or vegetable crop were categorised as tillage.

5 SITE G

The area of the site is approximately 75 hectares and consists of 27 landowners of which 11 are involved agricultural enterprises and 1 in involved in horticulture. Table 1 shows the individual landowners and the enterprises encountered on the walkover.

Table 1 Site G Landowners and Land Use

Land Use	Approx. Area (ha)	Percentage of Total Area
Residential	5.5	7.2
Non-residential		
Vegetables	0.7	0.9
Cereals		
Ploughed		
Grassland - Dairy		
Grassland - Drystock	68.7	90.1
Woodland – Commercial		
Woodland – Non-commercial	1.3	1.7
Total	76.2	

As can be seen from the above table, grass is the principal crop grown in this site.

The horticultural enterprise consisted of two polyethylene tunnels with irrigation for these tunnels from the stream that flows to the south of this holding. The owner of these tunnels expressed concern that a landfill would interfere with flows in this stream and subsequently his ability to irrigate his tunnels.

The horse enterprises in Site G appeared to be of low commerciality with some livery and a small amount of specialist breeding.

The lands to the east of the site have poor drainage arising from springs surfacing on the lands and subsequently draining overland to the nearest watercourse. These lands may possibly be drained which would enhance their ability to grow grass and extend the window of opportunity for which these lands could be utilised.

Waste Management

SUMMARY

- Ireland produces 74 million tonnes of waste each year, of which agriculture is responsible for 57 million tonnes. Of the remaining 17 million tonnes only 1.5 million tonnes is household waste with various industry sectors making up the balance.
- Over 90% of household waste is landfilled, while industry rates vary depending on the sector, manufacturing provides an average at 48%. Many EU member states have landfill levels of only 20%
- It is clear that we are unable to tackle waste management effectively. We lack the required infrastructural alternatives to landfill. The scandal of illegal dumping continues to blight the countryside. Capacity shortages and lack of competition have resulted in the highest disposal costs in Europe. Business is likely to pay disposal costs of €804 million in 2004 up from €32 million in 1995.
- Waste management is an essential service, which impacts seriously on the competitiveness of all Irish enterprises. The existing range of facilities and options are significantly below what is required for a modern economy.
- Policy at national and local level has focused on household waste, which accounts for a tiny proportion, 2% of overall waste.
- There is vehement opposition to any proposed waste infrastructure developments. The newer facilities, where developed, have proved that waste infrastructure can coexist in a community.
- The current situation has come about due to poor policy decisions, a focus on household waste, poor market structure, a lack of implementation and enforcement, planning and licencing delays, and lack of co-ordination.
- Irelands approach to waste management has provoked considerable disquiet from the business sector in Ireland. A continuing failure to address the problem will damage our economy, environment and reputation as a location of choice for foreign direct investment.
- Business, through IBEC, must continue to campaign for the implementation of sustainable and effective waste management.
- The NEC is asked to support the approach outlined in this paper.

BACKGROUND

Policy

- EU waste policy requires that waste generation be significantly reduced by improved prevention initiatives and is de-coupled from economic growth. It sets hugely challenging landfill diversion targets using, recycling, reuse, recovery and thermal treatment. The EU also demands that the impact of waste facilities on the environment must be reduced and the markets for recycled products improved.
- Our National response in 1998 was to require local authorities to make waste plans to provide a blueprint to deliver environmentally and economically effective waste management. To provide scale local authorities were encouraged to adopt a regional approach rather than the existing practice of stand alone provision of waste services.
- The process finally ended in 2001 when 10 regional waste plans were adopted. At the time IBEC expressed major concerns regarding the regional approach including the following
 - failure to adequately cater for commercial and industrial waste,
 - vast underestimation of quantity of waste generated,
 - no clear implementation mechanism in place,
 - Insufficient capacity planned to allow real competition.
- IBEC also called for the establishment of a National Waste Authority to co-ordinate and drive the implementation of the plans.
- Four years on Irish waste policy has failed to deliver sustainable and efficient waste management. It is deeply disappointing that the response to this failure is not to develop a new policy but instead to call for a review of the existing regional waste plans.

Market Structure

- Currently both public and private entities provide waste services. Local authorities own all but one of Ireland's 33 landfills while private operators, own most recycling and transfer facilities.
- A clear conflict of interest exists in the overlapping roles of local authorities as planners, policy makers, regulators, service providers and owners of infrastructure. Landfill fees now provide local authorities with an extremely significant revenue stream.
- Current policy is that each waste plan should provide for self-sufficiency in that region. Therefore neither regions, facilities nor technologies compete. As the plans were drawn up using underestimated waste data, designed without excess capacity, and poorly implemented, capacity shortages, access constraints and artificially high prices are the inevitable consequences.

- Disposal costs in Ireland reflect the market structure and not the cost of providing the service. Local authorities do not compete with each other, but when in competition with the private sector do so on an unequal basis. Current structures provide local authorities with little incentive to provide better services and could actually disincentivise the move from landfill to reuse, recovery and recycling.

Lack of Progress

- It is four years since IBEC produced its last waste policy paper *The Need for a New Approach – Waste Management in the 21st century*. It is therefore timely to examine progress since then. Over the past 4 years there have been a number of developments, both positive and negative.
 - the issuing of two major government waste policies,
 - significant consolidation in the private waste industry,
 - landfill levy and plastic bag tax introduced,
 - roll out of household collection of recyclables,
 - bring banks and bottle banks extended,
 - the National Hazardous Waste Management Plan published
 - packaging recycling increased from 200,000 to 450,000 tonnes,
 - de-coupling waste generation from GDP growth has been achieved,
 - commercial and industrial packaging banned from landfill,
 - the Office of Environmental Enforcement established.
- Despite these advances, from a business perspective, the situation has worsened with increasing costs and restricted access.
- The ten regional waste plans identified 46 major national waste facilities; 12 biological treatment plants; 17 materials recovery facilities, 7 thermal treatment plants and 10 landfills. To date only a handful of the facilities are operational.
- Despite the enormous costs, we have not achieved the corresponding environmental benefit.
- Recent European Court judgements against Ireland for “general and structural” failures in implementing EU waste legislation”, may leave us liable for large daily fines.
- Illegal dumping continues to blight our countryside and we have been unable to prevent sham recovery occurring. The recently established Office of Environmental Enforcement must address these issues.
- Irelands trades on its green image. Our inability to manage our own waste, court judgements and continued illegal dumping has damaged both our environment and our reputation. It has reduced confidence of both existing companies and potential investors and a failure to address the issues will have serious and long-term economic consequences.
- Delays in the planning and licencing of infrastructure still remain. The long awaited Critical Infrastructure Bill has yet to be published.

Lack of Co-ordination

- The lack of co-ordination between and within the 10 regions is a significant barrier to the development of a network of integrated waste management facilities.
- Recovery and recycling are more successful in countries with integrated waste management policies. All available options, prevention, minimisation, recovery, reuse, recycling, thermal treatment and disposal systems must be utilised
- The needs of business have not been recognised as no entity has been designated with responsibility for commercial and industrial waste. Local authorities have responsibility for household waste but not for commercial and industrial waste.

Costs

- As waste management costs apply to practically every firm, negative impacts of spiralling price rises are both severe and universal. Irish producers pay the highest disposal costs in Europe. Comparisons with the UK shows that in 2004, Irish disposal prices exceeded those in the UK by over 460%.

Figure 1 Comparison of UK and Irish Disposal Costs

Country	Average Cost €	Landfill Levy €	Total €
Ireland	165	15	180
Sweden	60	30	90
United Kingdom	17	22	39

- Disposal charges have risen dramatically and constantly since 2000 with dramatic variations in levels and rate of increase throughout the country. Charges, including the landfill levy at €15 per tonne, vary from €125 in Cavan to €230 in Cork County Council and average €180 per tonne. Over the same period the level of price rises range from 45% in Dublin to over 400% in Donegal.

Figure 2 Comparison of Disposal Costs in 2000 and 2004

County	Disposal Cost 2000 €	Disposal Cost 2004 €	% Increase
Cavan	64	125	97
Cork County Council	50	230	360
Louth	70	145	107
Donegal	24	125	418

- Disposal charges now represent a serious burden on business. Despite commercial and industrial waste volumes rising only 17% between 1995 and 2002, disposal costs have risen by 1,680% from €32 million to €538. The current annual cost on business is estimated to be €804 million.

- The huge differential in costs between North and South of Ireland has made illegal dumping and sham recovery very lucrative.

Figure 5 Cost of Waste Disposal for Industry

Year	Commercial waste (tonnes)	Industrial waste (tonnes)	Total (tonnes)	Average cost per tonne (€)	Estimated total cost (€)
1995	403,739	3,387,215	3,790,954	8.5	32 million
1998	560,068	5,771,166	6,331,234	60.58	383 million
2001	737,193	4,887,419	5,624,612	76.54	430 million
2002	607,803	3,861,061	4,468,864	120.55	538 million
2004	607,803*	3,861,061*	4,468,864*	180.00	804 million*

*estimated

Solutions

- Managing waste in a manner that is sustainable, cost-effective, co-ordinated and protects the environment is undoubtedly challenging, however it is possible and has the potential to offer significant business opportunities.
- Increasing diversion from landfill will see outdated disposal facilities replaced by modern recovery infrastructure bringing huge economic and environmental benefits to all of society. We must grasp the real and sustainable commercial and employment opportunities that exist.
- Ireland's heavy reliance on landfill and lack of integrated options has hindered recovery and recycling options. We must adopt an integrated approach and utilise all available options and introduce prevention, minimisation, recovery, reuse, recycling, thermal treatment and disposal systems.
- Thermal treatment is used in practically all developed countries to manage between 20-40% of waste. IBEC believe that thermal treatment has an important role in addressing the waste crisis.
- Local authorities require private sector capital and expertise to deliver the heavier waste infrastructure. We must encourage private sector involvement by removing the regulatory uncertainties.
- Ireland must improve enforcement of waste legislation by giving resources to agencies tasked to deal with those whose waste activities pose a major environmental threat and damage Ireland's international image.
- We must create a competitive market for waste services. It is evident that changes are required to bring competition and capacity on stream.
- Our approach to the waste problem must be co-ordinated as current policy is disconnected from the facts. Infrastructure must match populations and therefore inter-regional co-operation must be permitted. Until a National Waste Authority is established, Government should set up a Taskforce to co-ordinate and implement the regional waste plans. This Taskforce should draw up a detailed Implementation Plan clearly quantifying and identifying the actions and timescales required to deliver the infrastructure. The Taskforce should publish bi-annual reports on progress.

- We must ensure solutions are long term, effective, efficient, sustainable and protect Ireland's environment.
- A clear communication campaign is required to be run in tandem with delivering the range of infrastructure required so as to improve the confidence of all stakeholders in the approach.

Appendix 1: Local Authority Waste Charges (€ per tonne)*

County	2000	2001	2002	2003	2004	% Increase 2000-2004
Cork Co. Co.	50	60	100	230	230	360
South Dublin Co. Co.	155	155	165	175	225	45
Dublin City Council	155	155	165	175	225	45
Limerick Co. Co.	44.44	69.84	104	145	190	327
Fingal Co. Co.	50.79	102	125	165	185	264
Kerry Co. Co.	53.33	66.03	93	140	180	238
Wexford Co. Co.	45.71	82.53	155	180	180	294
Kilkenny Co. Co.	44.44	69.84	115	165	165	271
Roscommon Co. Co.			116	142	165	
Tipperary South Co. Co.	50.79	60.31	100	165	165	225
Clare Co. Co.	44.44	76.18	110	135	160	260
Carlow Co. Co.					156	
Mayo Co. Co.	44.44	69.84	123	150	150	238
Westmeath Co. Co.	40.63	63.49	125	150	150	269
Tipperary North Co. Co.			105	135	148.5	
Louth Co. Co.	70	70	145	145	145	107
Galway Co. Co.	50.79	76.18	136	139	139	147
Laois Co. Co.	48	63	105	125	135	181
Offaly Co. Co.	44	63	105	125	135	207
Cavan Co. Co.	63.5	76.2	115	120	125	97
Donegal Co. Co.	24.13	43.17	77	100	125	418
Monaghan Co. Co.	58.42	76	96	116	125	114

WATER SECURITY AND THE LAW: CONFLICTS AND COMPATIBILITY

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INTRODUCTION

Recent world events and natural forces, such as an increased incidence of intense drought across the United States, compel policy makers to address water security issues. Policy responses must consider existing legal frameworks or risk reversal in the courts. Legal principles often shape final policy by prohibiting some responses while allowing or even facilitating others.

Water supply and water rights concerns often present uniquely novel and complex issues. However, courts often rely on well settled, but ancient, legal doctrines in deciding water rights issues. Many courts and legislators also lack a basic understanding of the complex science of hydrology.

This paper discusses the interaction between water security and the law. Water rights form a particularly important part of the water supply security issue. Consequently, this paper focuses on water supply issues and private water rights, both with respect to surface water and groundwater, as they relate to water security measures. Both conflicts and compatibility are revealed.

WATER SECURITY

The literature fails to provide a clear definition of "water security". Some writers appear to focus upon the vulnerability of water infrastructure and water supply to terrorist attacks or other intentional acts by outside parties which contaminate public water supplies, interrupt the supply of water to the public, or both. See, e.g., Clark and Deininger 2000. This focus intensifies in the literature after September 11, 2001.

Other writers however, appear to give water security a broader meaning, without defining the scope or particulars of the term. See, e.g., Bankobeza, et al. 2001; Wouters, Salman and Jones 2001. This paper uses this approach and defines water security as assured adequate supplies of water of sufficient quality to meet the needs of human needs for agriculture, fire protection, drinking water and other essential human needs.

WATER LAW

Water law and water security in the United States draw from several areas of the law, including private property rights, local, state and federal environmental laws, federal and state freedom of information rules, and state laws regulating public service authorities. The fragmented nature of the regulation of water and water security prevents a thorough review of all areas of law impacting water. This paper focuses upon private water rights and water security. Private water

rights derive mainly from state court decisions. However, state legislatures increasingly regulate water use and water supply.

Five possible systems of percolating groundwater rights under common law exist in the United States. Abrams (1997). First, the English rule or absolute ownership rule grants the right to use water to the owner of overlying land who is able to withdraw the water. Ibid. If the withdrawal of groundwater in a jurisdiction adhering to the English Rule harms another landowner, the injured landowner has no recourse. The only exception to this rule occurs where a landowner maliciously withdraws groundwater. In that case, the injured landowner may seek recourse in the courts. Texas is the only state that has adhered to this doctrine and even Texas has made modifications. Ibid.

Secondly, the reasonable use rule, or American rule, also grants the right to use the water to the owner of overlying land who is able to withdraw the groundwater. However, the use is legally protected only if it is (1) made on the overlying tracts and, (2) a "reasonable" use. Ibid.

Third, the *Restatement (Second) of Torts*, at section 858, adopts a reasonable use rule which is basically an adoption of the riparian rights reasonable use rule. "A proprietor of land or a grantee who withdraws groundwater from the land and uses it for a beneficial purpose is not subject to liability for interference of the use of water by another, unless (a) the withdrawal of groundwater unreasonably causes harm to the proprietors of neighboring land through lowering of the water table or reducing artesian pressure, (b) the withdrawal of groundwater exceeds the proprietor's reasonable share of the annual supply or total store of groundwater, or (c) the withdrawal of groundwater has a direct and substantial effect upon a water course or lake and unreasonably causes harm to a person entitled to the use of the water." American Law Institute (1970).

Fourth, California has adopted the correlative rights doctrine that combines a rule of sharing for contract uses with a rule of priority for export. Abrams (1997). Nebraska has a similar groundwater regime. Ibid. Finally, many western states follow the doctrine of prior appropriation. Ibid. This doctrine is based on seniority in time based on the date of initiation of the use. Ibid.

Two main doctrines of private property rights apply to surface water: riparian rights and prior appropriation. Riparian rights refer to the rights of landowners adjacent to streams or rivers and entail the right of reasonable use of surface water by abutting landowners. The general rule allows use of the entire flow or the entire water surface so long as the rights of other riparian owners are not infringed upon. Abrams (1983). Minor exceptions exist to the general rule. For example, the entire flow of the stream may be used for domestic uses regardless of the impact on other riparian owners.

Similar to the American Rule for groundwater, riparianism prohibits "lift", or transport of the water from the riparian site for use on other sites. This rule applies to local governments or water authorities also. See, e.g., *Town of Purcellville v. Potts*, 179 Va. 514, 521, 19 S.E.2d 700, 703 (1942).

The prior appropriation doctrine for surface water mimics the groundwater rule. However, arid and semi-arid western portions of the United States more uniformly apply the rule to surface water in the. Tarlock (1998).

STATE LEGISLATIVE ACTION

A recent trend finds state legislatures limiting and even attempting to eliminate private property rights in water. Courts unanimously hold that state governments may regulate water rights, within the limits of the state and federal constitutions. "Like zoning legislation, legislation which limits or regulates the right to use underlying water is permissible.... Where regulation operates to arbitrate between competing public and private land uses, however, as does the water priority statute in this case, such legislation is upheld even where the value of the property declines significantly as a result." *Crookson Cattle Co. v. Minnesota Department of Natural Resources* (1980).

Some states take the regulation a step further and assert "ownership" over water resources. For example, a Virginia statute asserts that "all of the state waters belong to the public for use by the people for beneficial purposes..."

THE PUBLIC TRUST DOCTRINE

States that declare water as "owned by the public" appear to base their assertions upon the public trust doctrine. The public trust doctrine maintains that the government (state government in this instance) holds legal title to certain natural resources, holding them in trust for the public. The public trust doctrine clearly applies to beds and banks of most navigable waters and mainly protects the public's right to navigation.

However, the public right of navigation rarely infringes upon surface water rights. More fundamentally, the doctrine doesn't apply to groundwater at all. Only one case has applied the public trust doctrine in the context of water rights. *National Audubon Society v. Superior Court of Alpine County* (the "Mono Lake" case), 658 P.2d 709 (Cal. 1983). In this case, the California Supreme Court held that the public trust doctrine applies to the nonnavigable streams affecting a navigable lake. The expansion of the doctrine from navigable waters to nonnavigable waters affecting navigable waters makes the decision significant. Further, the court explained that the public trust doctrine and the water allocation system in question operated independently of each other, but that the state must consider the public trust when allocating permitted withdrawals. The decision may be interpreted as ruling that some private water rights are subject to the public trust doctrine, but is valid only in California. No other court has adopted the Mono Lake rationale in the intervening nineteen years.

In any case, private property rights established prior to the any pronouncement of public "ownership" must either be preserved or the owner must be compensated to avoid a "takings" claim. Applying the public trust doctrine to groundwater rights undoubtedly results in a plethora of successful takings claims.

This prohibition against the taking of private property for public purposes applies even in situations where the Governor or President declares official states of emergency. "Private rights,

under such extreme and imperious circumstances, must give way for the time to the public good, but the government must make full restitution for the sacrifice." *United States v. Russell* (1871), p. 629.

CONCLUSION

Often, water rights conflict with water security policy by, for example, preventing control of water resources by government agencies. The takings clause prevents local, state and federal governments from seizing groundwater or surface water for public purposes without just compensation. The public trust doctrine, contrary to popular belief, fails to excuse governmental agencies from this obligation.

However, state and local governments may regulate water to advance the public good so long as this regulation stops short of a taking. Drawing this line presents difficulties for policy makers.

On the other hand, a system of dispersed private water wells presents a difficult target for terrorists, as opposed to a single public water supply source. Use of private water wells, for the primary water supply or even as a back-up system, should be encouraged.

Most importantly, policy makers must seek to understand the basic legal framework of common law water rights and allowable legislative alternatives to those rights. This understanding allows policy makers, federal and state agency experts and others to pursue research on water security alternatives that will result in legally defensible policy decisions.

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Table 11.1 Various definitions of "sustainable water resources development."

Definition	Source	Critique
Sustainable water resources development ensure that the benefits of use of a hydrological system will meet present objectives of society without compromising the ability of the system to meet future objectives	UK Groundwater Forum/ Foundation for Water Research	This definition mirrors Brundtland, but is anthropocentric rather than ecocentric; it presumes we can accurately pre-judge "future objectives"
A balance between the benefits of environmental protection and the costs of achieving them	Scottish Environment Protection Agency	This definition amounts to anthropocentrism in a cost-benefit framework, which is itself arbitrary due to the subjectivity inherent in valuing ecological "goods" and specifying discounting period durations
The sustainable use of water requires two conditions: (i) no loss of the potential functions of the hydrological system; (ii) preservation of ecosystems and biodiversity	Netherlands Public Health Institute	This definition seems to overlook issues of equitable allocation (which is admittedly not a huge problem in the Netherlands)
The maintenance and protection of the (ground) water resource to balance economic, environmental, and human (social) requirements	Hiscock et al. (2002)	A robust definition specifically developed with groundwater resources in mind
"Some for all, for ever" – equitable allocation and utilization of water for social and economic benefit, and through environmentally sustainable practices	South African Water Act of 1998	Perhaps the best single definition in use anywhere, especially given the expansion on the various components of the definition given in the Act

In particular, the World Humanity Action Trust advocates the use of a permitting approach (cf. Section 11.1.2) for both abstraction and discharges to water bodies (including aquifers), in which strict limits will be imposed on the duration, volume, and quality of all abstractions/ discharges, and in which the tariff structure is designed to encourage sustainable management practices (WHAT 2000).

Design of appropriate tariff structures is a challenging activity. As for many other natural resources, the economic valuation of groundwater is not straightforward, due to the need to simultaneously evaluate the value of water in use, and the value of "unused" groundwater left *in situ*,

where it performs numerous roles of ecological and social importance. While much progress has been made in the development of appropriate economic approaches applicable to aquifer management (e.g. National Research Council 1997), a wider debate still rages over the validity of attempting to compare sets of values which cannot reasonably be expressed in the same units of measurement (Martinez-Alier 2002).

11.2.3 How sustainable is a given groundwater abstraction?

The constraints on groundwater utility were described in detail in Section 7.2. For any one

Table 11.2 Selected recommendations of the World Humanity Action Trust (WHAT 2000, www.stakeholderforum.org/policy/governance/future.pdf) for sustainable development of water resources, and comments on their applicability to groundwater systems.

Recommendation	Groundwater issues
Water management at national, regional, and international levels must be based on the catchment	From an ecological perspective this makes sense, though many major aquifers underlie more than one surface catchment, and therefore intercachment groundwater flows must be adequately accounted for and managed
In managing water resources, institutions and individuals must take into account the impacts of their activities on ecosystems and the precautionary principle	This certainly applies to groundwater resources, though its practical application needs special care in view of the time-lags inherent in groundwater flow systems
Governments must actively encourage a greater awareness of sustainable water use and water issues at all levels of society	Educational initiatives are particularly challenging in relation to groundwater systems, given the widespread lack of a basic appreciation of groundwater occurrence
Governments should prepare legislation immediately to ensure that full cost recovery is achieved with a tariff structure designed to increase efficiency of water use	Save in emergency situations, charging people the true cost of water abstraction and supply is an important first step towards the development of an adequate perception of the true worth of groundwater in many societies
Subsidies, existing or proposed, should be carefully evaluated to ensure that they accomplish the socioequity goals advanced as their justification and do not impose unacceptable environmental impacts	This is a particular issue in relation to the uncritical approval of the use of groundwater for large-scale irrigation in semi-arid and arid countries (see Box 9.1)
Investment in water projects in international catchments should encourage co-operation between catchment countries	The same applies to transboundary aquifer systems (Section 11.2.4), in fact the problems can be even more insidious where transboundary groundwater systems are concerned, as pumping from a "downstream position" can cause drawdown "upstream" (unlike in rivers)
All financial investment should require proof that sustainable and efficient water use will be guaranteed	Besides applying this principle to direct investments in the water sector, it is also important that large "accidental" users of groundwater (such as forestry, which depletes recharge, and mining, which directly intersects vast quantities of groundwater) be subject to the same level of scrutiny
Assumptions that water will be provided for all new developments must cease	It is good practice to specify and enforce absolute limits on abstraction from many aquifers, if that prompts the siting of water-intensive industries elsewhere, so be it. Only when the political will exists to honestly make such hard (but necessary) decisions will there ever be a prospect of achieving sustainable groundwater management



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Contents

- The European Convention on Human Rights
 - Preamble
 - Article [1]
 - SECTION I
 - Articles [2] [3] [4] [5] [6] [7] [8] [9] [10] [11] [12] [13] [14] [15] [16] [17] [18]
 - SECTION II
 - Article [19]
 - SECTION III
 - Articles [20] [21] [22] [23] [24] [25] [26] [27] [28] [29] [30] [31] [32] [33] [34] [35] [36] [37]
 - SECTION IV
 - Articles [38] [39] [40] [41] [42] [43] [44] [45] [46] [47] [48] [49] [50] [51] [52] [53] [54] [55] [56]
 - SECTION V
 - Articles [57] [58] [59] [60] [61] [62] [63] [64] [65] [66]
 - Conclusion
- Protocols
 - 1. Enforcement of certain Rights and Freedoms not included in Section I of the Convention
 - Preamble

2. Everyone charged with a criminal offence shall be presumed innocent until proved guilty according to law.
3. Everyone charged with a criminal offence has the following minimum rights:
 - o (a) to be informed promptly, in a language which he understands and in detail, of the nature and cause of the accusation against him;
 - o (b) to have adequate time and the facilities for the preparation of his defence;
 - o (c) to defend himself in person or through legal assistance of his own choosing or, if he has not sufficient means to pay for legal assistance, to be given it free when the interests of justice so require;
 - o (d) to examine or have examined witnesses against him and to obtain the attendance and examination of witnesses on his behalf under the same conditions as witnesses against him;
 - o (e) to have the free assistance of an interpreter if he cannot understand or speak the language used in court.

ARTICLE 7

1. No one shall be held guilty of any criminal offence on account of any act or omission which did not constitute a criminal offence under national or international law at the time when it was committed. Nor shall a heavier penalty be imposed than the one that was applicable at the time the criminal offence was committed.
2. This article shall not prejudice the trial and punishment of any person for any act or omission which, at the time when it was committed, was criminal according to the general principles of law recognized by civilized nations.

ARTICLE 8

1. Everyone has the right to respect for his private and family life, his home and his correspondence.
2. There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.

ARTICLE 9

1. Everyone has the right to freedom of thought, conscience and religion; this right includes freedom to change his religion or belief, and freedom, either alone or in community with others and in public or private, to manifest his religion or belief, in worship, teaching, practice and observance.
2. Freedom to manifest one's religion or beliefs shall be subject only to such limitations as are prescribed by law and are necessary in a democratic society in the interests of public safety, for the protection of public order, health or morals, or the protection of the rights and freedoms of others.