

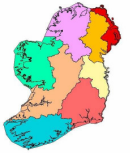
# Waste Water Treatment Plants and Industrial Discharges

South Eastern River Basin District

Environmental Awareness Officers  
Workshop

23<sup>rd</sup> June 2008

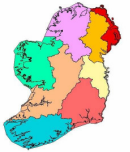
## Water Matters



### How can wastewater and industrial discharges cause water problems?

- Inadequately treated effluents can lead to unacceptable levels of pollutants (nutrients, bacteria, organic materials or dangerous substances) in receiving waters.
- The amount of dilution available (or assimilative capacity) is an important factor: a discharge from a small village into a large river may pose no threat to water quality, whereas a discharge from a larger town may cause significant quality deterioration in the receiving waters if the level of treatment isn't adequate.
- Spills to surface waters from sewerage networks release untreated wastewater and stormwater, which can have nutrients, bacteria, organic materials and dangerous substances from homes and industries, metals and hydrocarbons from vehicle exhausts and run-off from roads, pesticides from parks, golf-courses and gardens. Leaking of pollutants from underground sewers and tanks can threaten groundwaters and surface waters.

## WWTP Legislation



- Urban Waste Water Treatment Directive 91/271/EEC
- Urban Waste Water Treatment Regulations (S.I. 254 of 2001)
- Water Services Act 2007 (S.I. 30 of 2007)
  - governing functions, standards, obligations and practice in relation to the planning, management, and delivery of water supply and waste water collection and treatment services (i.e. water services). It consolidates and modernises the legislation governing water services. It focuses on management of water ‘in the pipe’, as distinct from broader water issues such as river water quality.
- Waste Water Discharge (Authorisation) Regulations (S.I. 684 of 2007)
  - The licensing and certification authorisation process is being introduced on a phased basis depending on PE. WWTPS with a PE of < 500 must apply to the Agency for a certificate of authorisation



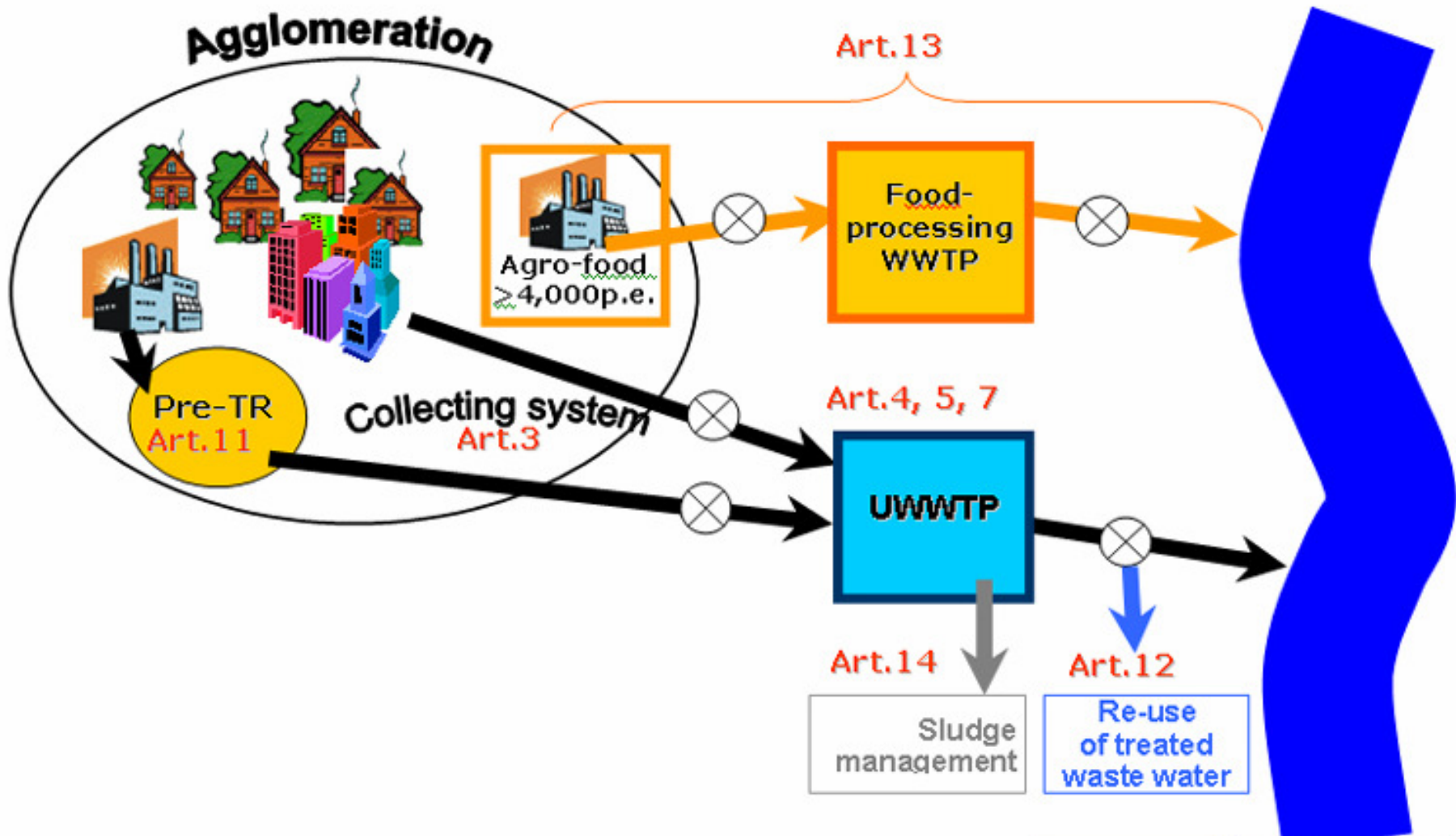
# WWTP Legislation

It is estimated that there are about 485 agglomerations that will be required to be licensed by the EPA.

The Licenses will:

- Specify emission limits in case of certain pollutants
- Require emissions to meet ELV's by specified dates
- Where appropriate it will be important for authorities to have measures approved and agreed for inclusion in the water services programme to meet this deadline
- Require storm water overflows to be activated at their design frequency. Again this may require measures under the water services programme
- Monitoring of discharges
- Measures to be taken to ensure that the status of receiving water does not deteriorate

Population Equivalent	Date
more than 10,000	14-Dec-07
2,001 to 10,000	22-Sep-08
1,001 to 2,000	28-Feb-09
500 to 1,000	22-Jun-09



**Legend:**

- Pre-TR = pre-treatment
- Agro-food = food-processing industries
- UWWTP = urban waste water treatment plant
- Agro-food >4000p.e. = food-processing industry
- Art.3, 4, 5, 7, 11, 12, 13, 14 = articles of the Directive 91/271/EEC

Receiving areas:  
sensitive area, catchment of  
sensitive area, normal area,  
less sensitive area



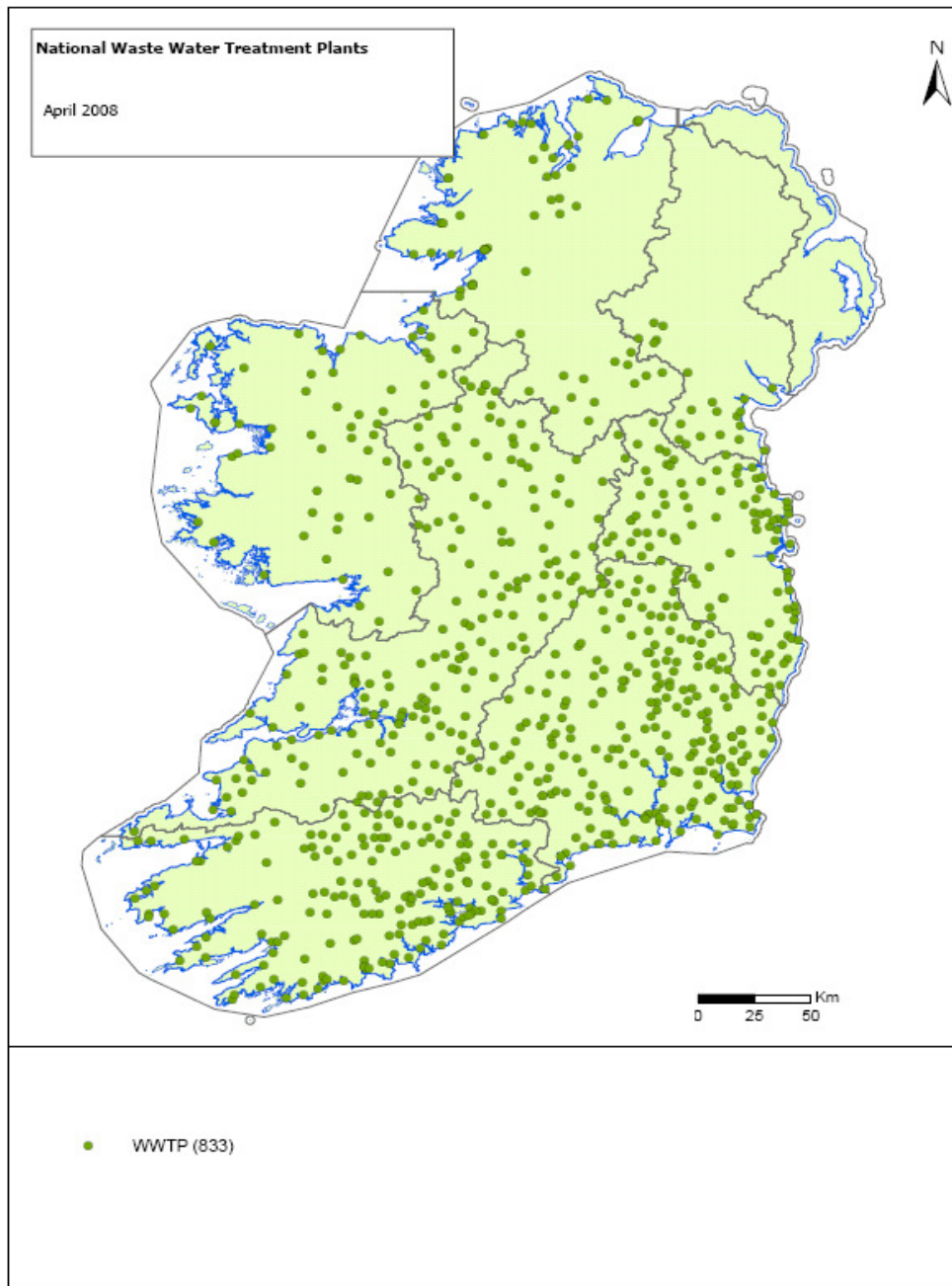
## National Waste Water Treatment Plants

833

From SE Initial  
Characterisation Report

[www.serbd.ie](http://www.serbd.ie)

95 WWTP within the South  
Eastern River Basin  
District with Population  
Equivalents above 500 PE





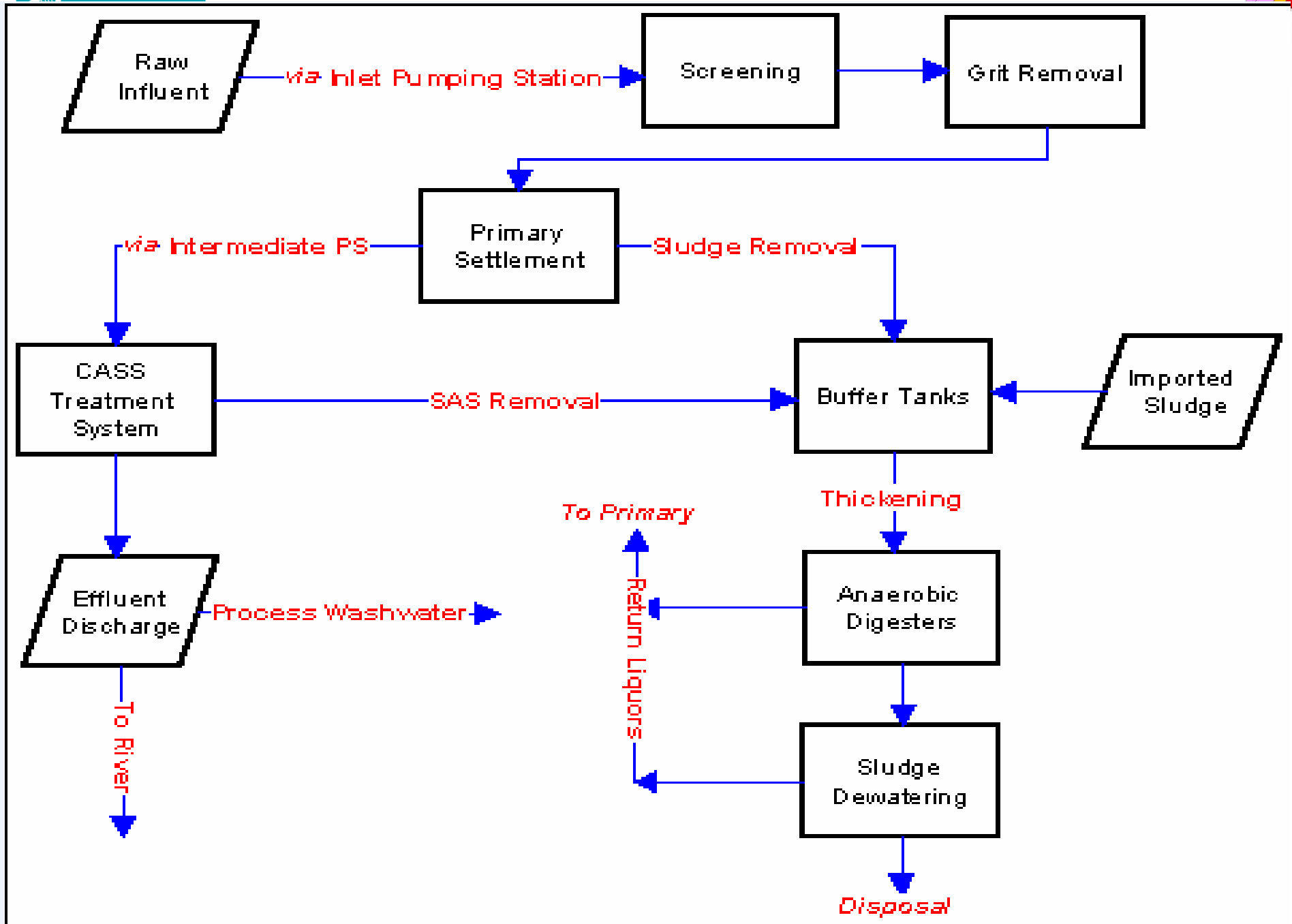
**Preliminary Treatment:** The removal of gross solids in sewage and the removal of grit.

**Primary treatment:** Treatment by a physical and/or chemical process involving settlement of suspended solids. Typically, such treatment will reduce BOD of the incoming waste water by at least 20% and total suspended solids by at least 50% (Urban Waste Water Treatment Directive, 91/271/EEC).

**Secondary treatment:**  
Treatment of urban waste water by a process generally involving biological treatment with a secondary settlement or other process in which the requirements established in Part 1 of the second schedule Urban Waste Water Treatment Regulations, 2001 (S.I. 254 of 2001) are respected.





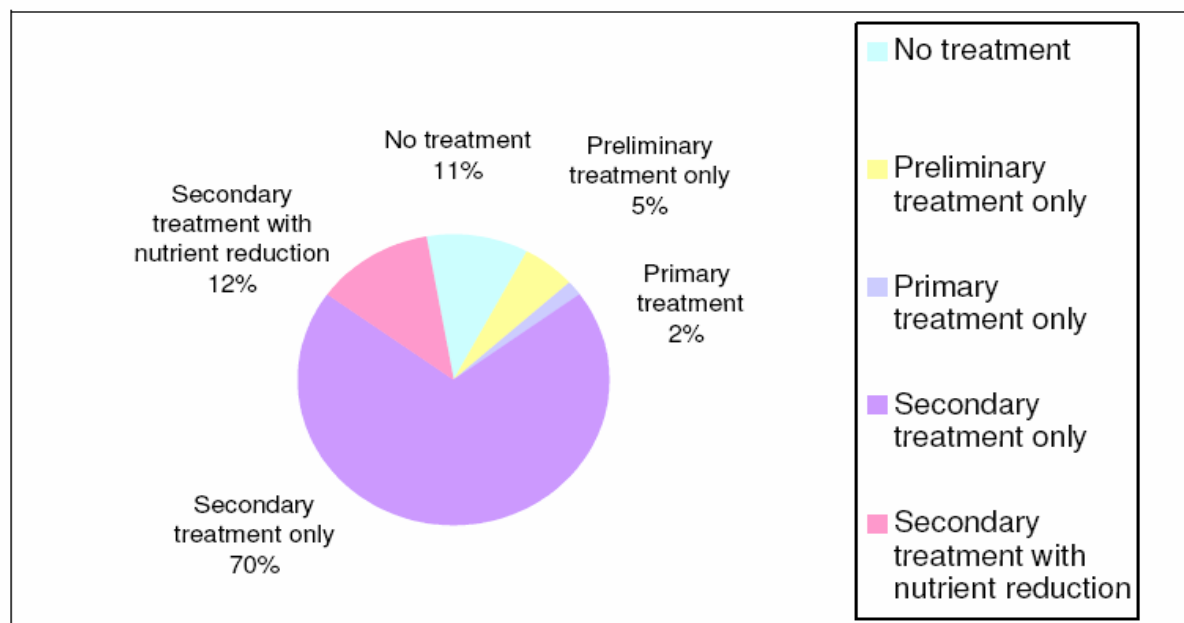




# Urban Waste Water Discharges in Ireland A Report for the Years 2004 and 2005

478 agglomerations with Population Equivalents Greater than 500 Persons

## Treatment Levels





# Urban Waste Water Discharges in Ireland

## A Report for the Years 2004 and 2005

- Compliance with discharge limits for the very large plants (i.e. >15,000 p.e.) has improved; however the majority of smaller treatment plants are not complying with these limits.
- Local authorities failed to take the required number of samples at 38% of wastewater treatment plants with a population equivalent of 2,000 p.e. or over and where samples were taken, 43% of these were taken incorrectly (i.e. Flow proportional or time-based 24-hour samples were not taken).
- 121,750 tonnes of dried sludge was produced nationally by wastewater treatment plants in the period 2004-2005. 76% of this went to agriculture and 17% went to landfill.

## Water Services Investment Programme



*“Relates to the provision of major water and sewerage schemes to meet the strategic objectives for investment in water services infrastructure”*

### **Produce a single prioritised list incorporating water, waste water and sludge management schemes**

It is a rolling 3 year programme approach to investment in wastewater and water treatment nationally and most recently rolled forward on the 17th of 2007 in relation to the period 2007-2009.

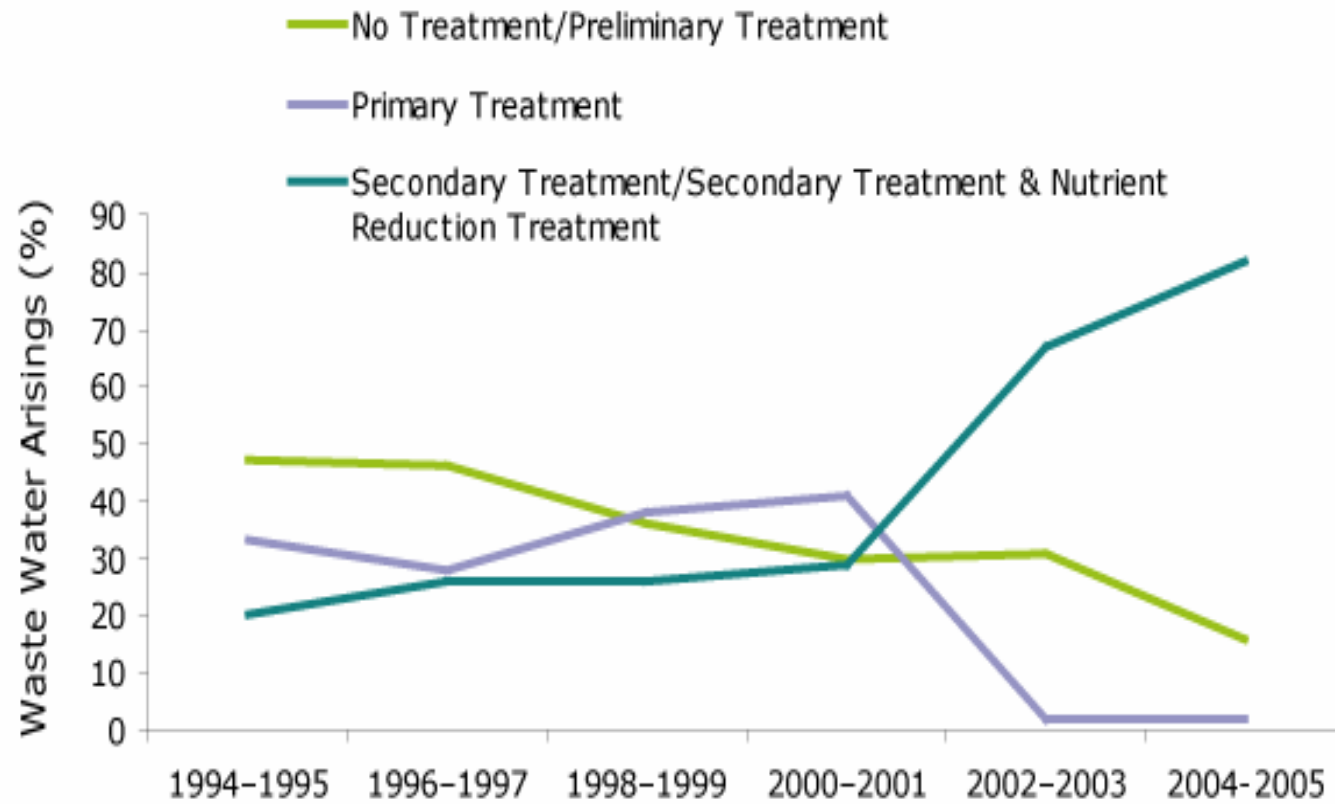
#### **Included in the Programme are:**

- 77 ongoing major schemes
- 443 new schemes to commence construction in the period 2007 – 2009, and
- 194 schemes to advance through planning stages.





### Urban Waste Water Treatment (Source: EPA)

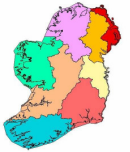


## Integrated Pollution Prevention Control

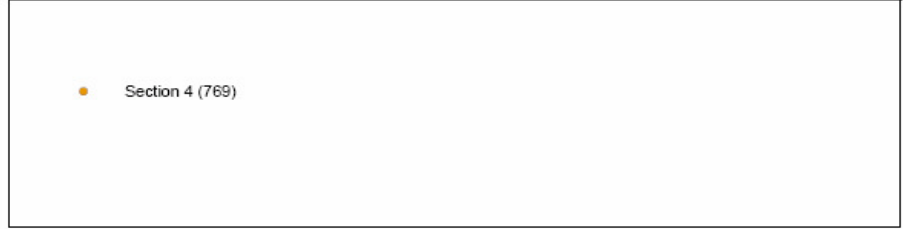
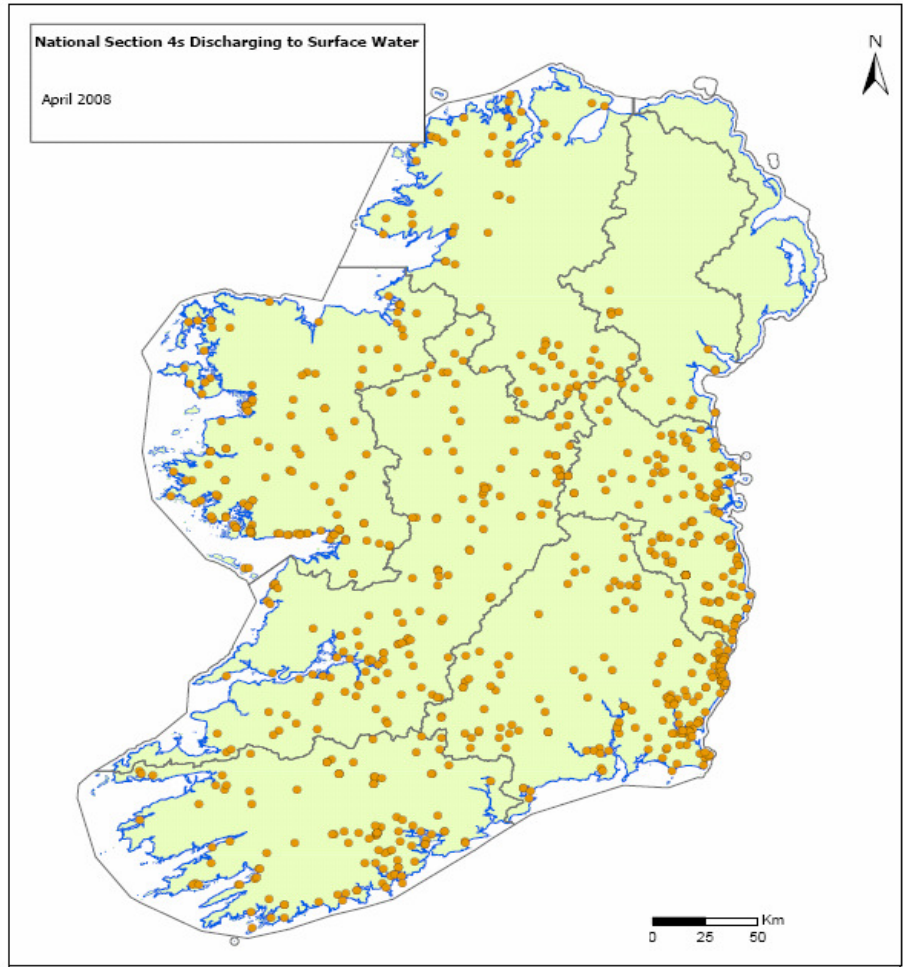
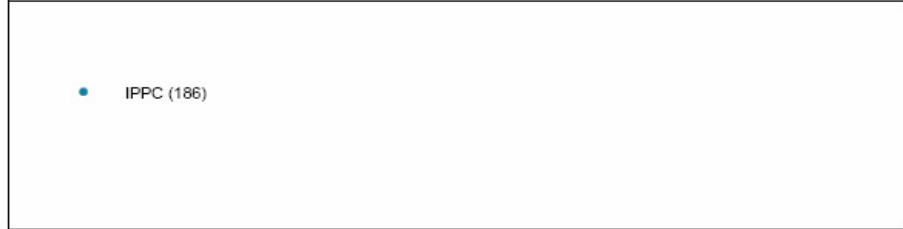
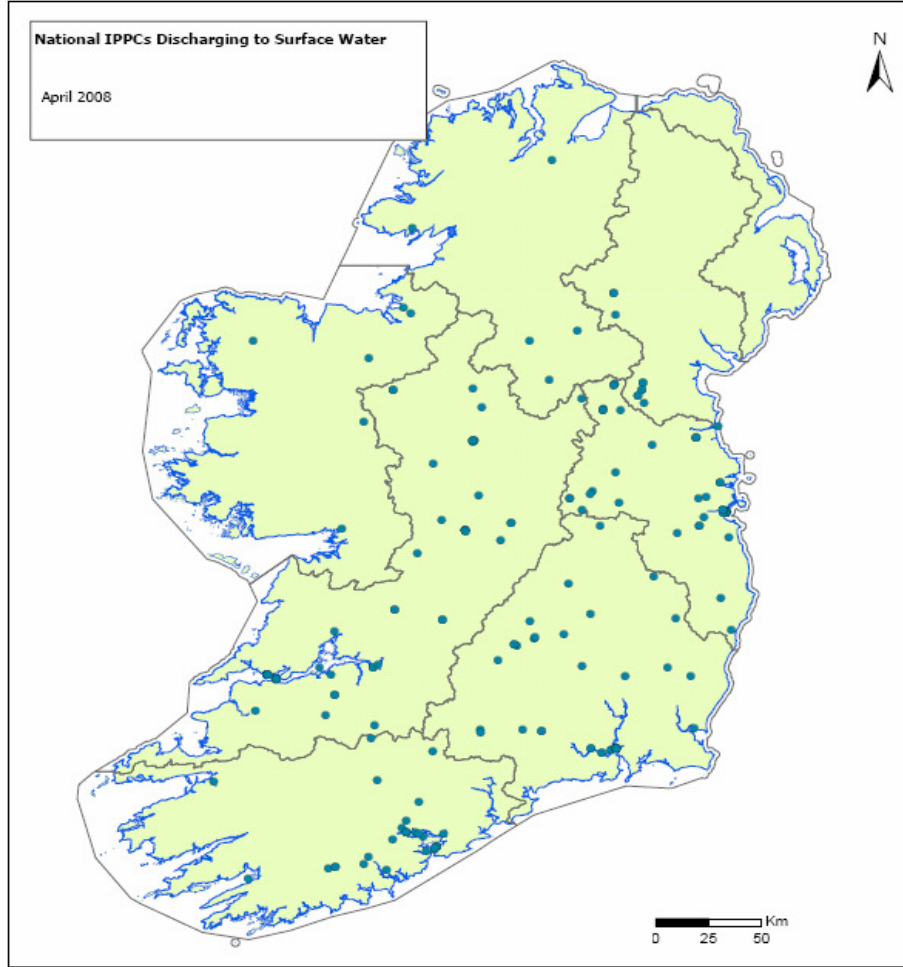


- Integrated Pollution Prevention Control (IPPC) Directive
  - The EPA regulates major industrial activities under the Integrated Pollution Prevention and Control (IPPC) Directive which is governed in Ireland by the Environmental Protection Agency Act, 1992 and the Protection of the Environment Act, 2003
  - IPPC licences aim to prevent or reduce emissions to air, water and land, reduce waste and use energy/resources efficiently. An IPPC licence is a single integrated licence which covers all emissions from the facility and its environmental management .
  - IPPC licenses are available to download on [www.epa.ie](http://www.epa.ie)
  - EPER gives you access to information on the annual emissions IPPC licensed industries in Europe. <http://eper.eea.europa.eu/eper/>
- 40 IPPC licenses in the SERBD discharging to water
- 40 IPPC licenses in the SERBD discharging to sewer
- The categories of industry coming within the scope of IPPC licensing are: Minerals and Other Materials, Energy, Metal, Mineral Fibres and Glass, Chemicals, Intensive Agriculture (poultry and pigs), Food and Drink, Wood, Paper, Textiles and Leather, Fossil Fuels, Cement, Waste (recovery or disposal in a facility connected or associated with an IPPC activity), Surface Coatings, Other Activities (includes testing of engines, manufacture of printed circuit boards, production of lime in a kiln and manufacture of ceramic products).

## Local Authorities licences



- Local Authorities license small-scale commercial and industrial discharges to sewer and to waters under the Water Pollution Acts. Local Government (Water Pollution) Act, 1977.
  - Discharges to water and sewer have been regulated under Section 4 and Section 16 respectively of the Local Government (Water Pollution) Act 1977). Industrial discharge controls lay down effluent quality and quantity conditions in the form of emission limit values (ELV).
  - Licenses to discharge to sewers will now be granted under section 63 of the Water Services Act. The water services authorities must review and, if necessary, revise licenses to discharge to sewers at intervals of not less than three years.
- 138 industries within the SERBD discharging to water bodies (Section 4 licenses)
- 140 industries within the SERBD discharging to sewer (Section 16 licensed industries)
- Activities include aquaculture sites, quarries, agriculture related activities (such as food processing and cattle marts), leisure and tourism facilities, pharmaceuticals, light manufacturing and engineering, hospitals, schools and food related industries.





# ENVision

environmental maps at your fingertips

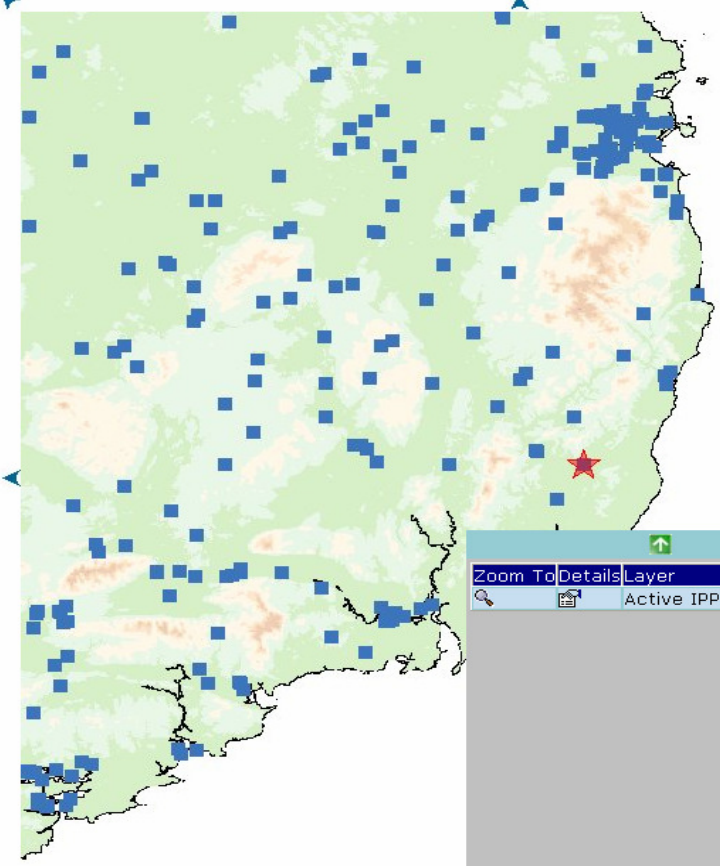
**Find Your Townland**

Select County:

**Layers**

- General Gazetteer
- Licences and Enforcement
  - Active IPPC Licenses
  - Active Waste Licenses
- Air Quality
- Water Quality
- Water Framework Directive
- WFD Protected Areas
- Water Features
- Water Regions
- Land
- General Administrative

A closed group, click to open  
 An open group, click to close  
 A visible group/layer, click to hide  
 A hidden group/layer, click to make visible  
 A map layer in scale  
 A map layer out of scale



- Legend**
- ★ Highlighted Active IPPC Licenses
  - IPPC Licensed Facilities
  - Digital Terrain Image

Zoom To	Details	Layer	Code	Name	Location
		Active IPPC Licenses	P0177-01	Irish Country Meats (Sheepmeat) Limited	Bayland

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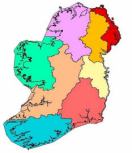




# South Western River Basin District Municipal and Industrial Regulations Study

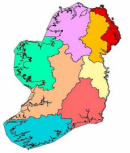
## Tasks

- Data Review/Data Gaps
- Additional Data
- Report on Measurement Equipment at WWTPS
- Development of methodology for Impact Assessment
- Apply Impact Assessment Nationally
- Test SIMCAT Model in the SWRBD
- Input into SWMI Report
- Development of suitable Programmes of Measures



## MIR Deliverables

- Revised Risk Assessment identifying river water bodies at risk nationally due to point source discharges
- GIS populated with details of point source discharges, water bodies at risk and the information linked to the criteria causing the water bodies to be at risk.
- Prioritisation model for water bodies at risk run for all point source discharges nationally.
- Report on the POMs task including an assessment of the SIMCAT model developed for the SWRBD.



## Basic Measures

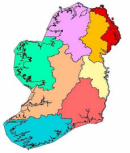
- Urban Wastewater Directive (91/271/EEC)
- Urban Wastewater Discharge Regulations (S.I. No. 684 of 2007)
- Surface Water Abstraction Regulation (S.I. No. 294 of 1989)
- Habitats & Species Directives (92/43/EEC & 79/409/EEC)
- Salmonid Regulations (S.I. No. 293 of 1988)
- Bathing Water Directive (2006/7/EC)
- Shellfish Waters Directive (79/923/EEC)
- Foreshore License Act 1933
- Planning and Development Act 2000
- *Fresh Water Pearl Mussel Regulations*
- *Surface Water Classification Regulations*

## Possible Supplementary Measures



- Regulations should be aligned with arrangements put in place to implement the requirements of the WFD
- Planning policy should be consistent with the objectives of the WFD and measures included in RBMPs
- Regulatory Authorities to adopt a common approach to issuance of licence conditions and licence limits
  - RBD approach to licence conditions and reviews
  - Common reporting of analysis
- Compliance with EPA guidance on implementation of UWWT regs.
- Management systems should be implemented and audited
- Possibly new regulations for Fresh Water Pearl Mussel and new thresholds for phosphorus
- Use of decision making tools

## Dangerous Substance Usage Study



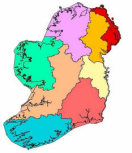
- Focussed on manufacturing & processing industry.
- Literature review established possible sources of dang subs (national/UK/SEPA studies, European guidance and legislation)
- Monitoring data analysis for design of surveillance programme.
- Update of pressure data inventories & GIS registers was carried out.
  - Industrial – IPPC licensees were surveyed by questionnaire for use & discharge of dang subs. AER and EPER data was also used.
  - Forestry – WRBD Coillte Usage Data
  - Agriculture – Pesticide Survey information
  - Aquaculture – Marine Institute study
- A revised risk assessment was prepared.
- An IPPC estimated of annual average load (tonnes/year) from IPPC industries for Organic load / Nitrogen & phosphorus / Priority Substances and Candidate Relevant Pollutants
- Recommendations for prioritising IPPC license review was developed.



## Basic Measures, Modifications & New Controls

- The new EQS Regs will require that all IPPC and industry licenses are reviewed. The study developed a procedure to prioritise IPPC review.
- LAs will be required to prepare pollution reduction programmes and inventories of pollutants under the new EQS Regs
- The review of industry licences alongside the recent licensing of WWTP will quantify discharges of priority substances (priority hazardous subs) & specific relevant pollutants. Note WWTP licenses subs need updated.
- The availability of AERs and PRTR results electronically and compliance with REACH will assist the development of further dangerous substances inventories.

## Supplementary Measures & Actions



- National Dangerous Substances Awareness Campaign – support for environmentally friendly products, better labelling schemes
- Effluent characterisation to investigate the treatment of dangerous substances in WWTP
- Further investigations into leachate constitution and its treatment



**Thank you**