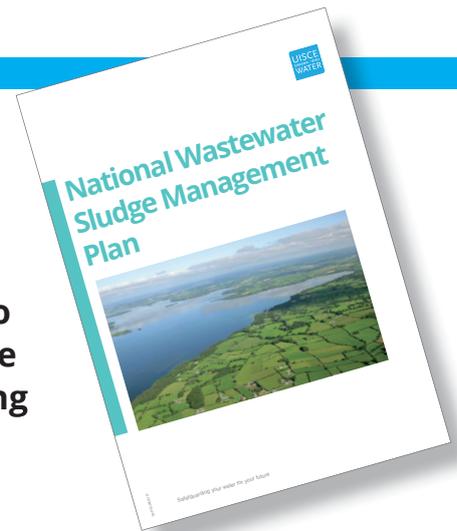


The National Wastewater Sludge Management Plan

September 2016

What is the National Wastewater Sludge Management Plan?

Irish Water has published a long-term National Wastewater Sludge Management Plan (referred to as the NWSMP) that outlines its strategy to ensure a nationwide, standardised approach for managing wastewater sludge over the next 25 years.



Why do we need the National Wastewater Sludge Management Plan?

Irish Water has looked at how wastewater sludge is currently managed throughout the country and estimates that the quantity of wastewater sludge generated is expected to increase by more than 80% by 2040 as new and upgraded plants to treat our wastewater are completed. The management of this wastewater sludge poses economic, planning and environmental challenges.

The NWSMP presents a national approach to wastewater sludge. This will ensure that, for the first time, treated wastewater sludge across the country is effectively managed, stored, transported and re-used or disposed of in a sustainable way, to the benefit of the public and the environment we all live in.

The National Wastewater Sludge Management Plan is available for download at
www.water.ie/wastewater-sludge-management



Treatment of Wastewater Sludge

Since its incorporation in 2014, Irish Water has taken over the responsibility of providing water and wastewater services in Ireland from 31 local authorities. This includes managing approximately 856 water treatment plants and approximately 1,000 wastewater treatment plants.

Wastewater from our homes and businesses must be treated to ensure that it is not a threat to public health or the environment when discharged to the receiving environment.

Irish Water's responsibility starts when wastewater reaches the public wastewater network and includes its transfer to wastewater treatment plants, the treatment itself and the subsequent discharge of the treated wastewater back into the water environment.

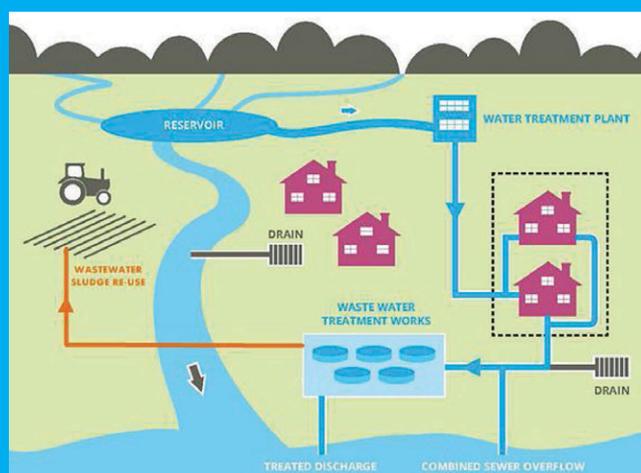
Wastewater sludge is what remains in a wastewater treatment plant after the treated water has been discharged to our rivers and seas. It is made up mainly of energy rich organic matter that has been removed during the treatment process and is a valuable by-product of the wastewater treatment process. Further treatment is required to this sludge to ensure the safe and efficient re-use or disposal of this resource.

Prior to treatment, wastewater sludge is made up mostly of water with the solids that have been removed as part of the wastewater treatment process. Wastewater sludge treatment processes can be generally divided into three main categories:-

- Sludge volume reduction – the reduction of sludge volumes is provided mainly by sludge thickening and dewatering processes;

- Sludge quantity reduction – breaking down the organic solids in the sludge using a biological process for example using aerobic or anaerobic digestion;
- Sludge biosolids production – where the sludge is treated to become a 'biosolid', an organic recycled material that is biologically stable and free of harmful bacteria or viruses and can be safely reused or disposed of.

The type and level of treatment depends on the amount of wastewater sludge generated and the reuse or disposal options available.



Transport of Wastewater Sludge

Transportation is a significant part of the sludge management process both in terms of cost and the environment. It is estimated that approximately 900,000 m³ of wastewater sludge is generated every year (equivalent to approximately 50,000 truck-loads). Transport journeys can include the following:

1. Transport of wastewater sludge from small wastewater treatment plants to Satellite Dewatering Sites - where the sludge volume reduction takes place;
2. Transport of wastewater sludge from Satellite Dewatering Sites to medium sized wastewater treatment plants and Sludge Hub Centres (centralised wastewater sludge treatment facilities that treat the wastewater sludge to produce a biosolid).
3. Transport of the biosolid to be reused on agricultural land.

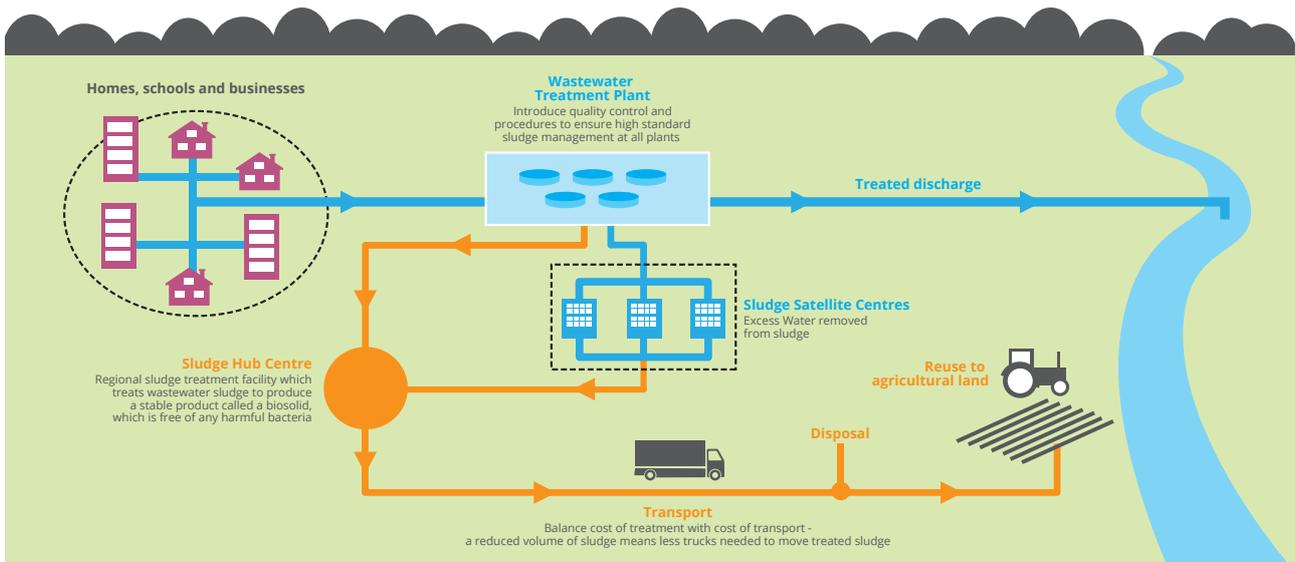
There is a balance to be achieved between the cost and environmental impacts of wastewater sludge transport and the cost and environmental impacts of treatment to reduce the volume of wastewater sludge.

The use of a 'Sludge Hub Centre and Satellite Dewatering Site' system for the management of wastewater sludge has been implemented in a number of counties in Ireland. This use of a Sludge Hub Centre backed up with Satellite Dewatering allows for economies of scale and greater flexibility in the selection of treatment processes, particularly energy recovery.

Options for Reuse or Disposal

At present 98% of wastewater sludge is treated to produce a biosolids product, which is being reused in agriculture. There are very limited alternative options currently available in Ireland. However, it is considered important to explore alternative outlets further to reduce the risks associated with depending on a single outlet.

In response to feedback from two public consultations, the NWSMP focuses on future biosolids use being targeted at crops such as non-agricultural and crops for animal feed.



Key Measures Included in the NWSMP

Treatment and Transport

Following an overall assessment of current and future sludge infrastructural requirements, the following measures are proposed in the NWSMP:

- The network of hub treatment centres and satellite dewatering sites will be further developed to optimise the balance between treatment and transport costs;
- The location of 'hubs' will be considered on a regional rather than county basis and will maximise the use of energy recovery where possible;
- While thermal drying will continue to be provided where practically and economically viable, advanced anaerobic digestion is the preferred sludge treatment option for the majority of Sludge Hub Centre sites;
- Lime stabilisation at off-site centres will be phased out and any on-site lime treatment will be strictly controlled for effective treatment.

Quality Assurance, Monitoring and Reporting

The following measures are included in the NWSMP:

- The introduction of a quality assurance system for the whole sludge management process from sludge treatment through to sludge transport, storage and reuse;
- An annual audit of sludge management activities will be undertaken by Irish Water until the quality assurance scheme is fully developed;
- Standard Operating Procedures (SOPs) for wastewater sludge management will be developed by Irish Water and requirements with respect to landspreading of treated wastewater sludge (biosolid) will be included in these SOPs.

Sludge Outlet Options

The preferred option for reuse of treated wastewater sludge (biosolids) is reuse on land. Non-food tillage crops and animal feed crops will be the primary focus for reuse of biosolids. To reduce the dependence on the use of agricultural land for wastewater sludge reuse Irish Water will carry out a detailed feasibility study to investigate alternative sludge outlet options.

The SEA Statement and NIS for the National Wastewater Sludge Management are available for download at www.water.ie/wastewater-sludge-management

Environmental Assessment and Consultation

Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) have been carried out in parallel with the development of the NWSMP. The general public, interested parties and statutory bodies have been involved in the development of the NWSMP as part of the SEA and AA process through public consultation at key stages, including:

- **Consultation 1** – a six-week non-statutory public consultation seeking feedback on the SEA Scoping Report for the NWSMP to determine the scope and level of detail of information to be included in the environmental report (May-June 2015);
- **Consultation 2** – an eight-week statutory public consultation seeking feedback on the Draft NWSMP and associated SEA Environmental Report and Natura Impact Statement (NIS) (March - May 2016)

All feedback received during the public consultations was reviewed by the project team and relevant feedback has been incorporated into the final NWSMP.

The SEA Statement outlines how environmental considerations have been integrated into the NWSMP and how consultation influenced the development of the NWSMP.

What will happen next?

The NWSMP is a 25 year strategy which will be reviewed every five years. The current NWSMP will be revised and updated in 2021. The actions and objectives as set out in the NWSMP developed in 2016 will be reviewed and progress measured. The revised plan will invite feedback during its development prior to adoption.