Planning for third cycle River Basin Management Plan 2021 - 2027

December 2019

Consultation on Significant Water management Issues

Appendix 4: Further details on Urban Development

Northern Ireland Environment Agency
www.daera-ni.gov.uk

An Agency within the Department of Agriculture, Environment and Rural Affairs
www.daera-ni.gov.uk

INVESTORS IN PEOPLE

Urban Development

NIW: Provider of Sewerage Services in Northern Ireland

NIEA regulates NIW discharges to the environment under the Water and Sewerage Services (Northern Ireland) Order 2006 and the Water (Northern Ireland) Order 1999, and the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013. A significant regulatory regime is in place to ensure the continued improvement to the quality of the discharges from NIW. All WWTWs and networks are consented with conditions which are set to meet the requirements of the objectives of the Water Framework Directive. NIEA assesses compliance by sampling the quality of the effluent discharged from WWTWs and a site inspection programme.

NIW is currently funded under a Price Control Process, a 6 year investment programme which is regulated by the Utility Regulator. This process is designed to deliver a prioritised approach to investment ensuring the delivery of nominated outputs with clear deliverables. For the period 2015 – 2021 (PC15), NIW has planned investment of £446 million for upgrades. This funding includes upgrades to 19 wastewater treatment schemes to improve the quality of discharges from works >250 population equivalent and 45 small wastewater treatment works as well as improvements to 56 unsatisfactory intermittent discharges to meet quality standards. NIEA are heavily involved in the prioritisation of investment to ensure funding is targeted to those assets which would bring the most benefit to water quality.

Approximately £5.5 billion has been spent on NIW assets over the last 12 years focusing on improving the quality of discharges into sensitive waters and achieving compliance. Despite major improvements both in capital investment and operating techniques significant investment is still required to make the difference on the delivery of WFD Good Status and the protection of sensitive waters (Drinking Water Protected Areas, Bathing Water, Shellfish Waters and N2K sites).

NIW is currently developing its business plan for the next price control period PC21 (2021-2027). The investment needs have been calculated to be approximately £3 billion by NIW. The funding requirements relate to a legacy of underfunding, ageing assets, population growth including the need to respond to the pressures arising from Climate change. However, before funding is made available, these investment needs have to be determined by the Utility Regulator.

NI Water's PC15 business plan had called for funding of £1.7 billion from 2015 – 2021 to address investment priorities in water and sewerage infrastructure. However the Utility Regulator's PC15 Final Determination concluded that £990 million was appropriate in terms of delivering the improvements to water and sewerage services as required by policy, while remaining affordable to the customer in terms of charges. NIW has broadly achieved the PC15 investment requirements to date, however constrained public expenditure budget allocations has resulted in a number projects to be deferred into the next price control period with the agreement of the regulator.

It is clear that additional investment is required. Development constraints, in terms of allowing new housing and business to connect to the sewerage network, are beginning to emerge in over 70 towns and cities in Northern Ireland. If not prioritised in PC21, this issue will have consequences in terms of curbs to economic development and growth.

The introduction of a flow compliance assessment was one measure outlined in the Programme of Measures for the 2nd Cycle. We have been working closely with NIW to develop robust data collection to facilitate reported compliance assessment for flow. Through this process we have identified other opportunities to develop a new compliance model which will fully inform the prioritisation of capital investment and involve the full review of discharge consents, new sampling regimes for sanitary parameters, and reporting on flow and priority substances.

4.2.2 Misconnections to NIW Storm Drainage Systems

All new houses and businesses should have two separate sewers, separating foul water to the sewer and storm water to discharge to local watercourses. When pipes are incorrectly connected, misconnections occur resulting in direct discharge of sewage to watercourses. This tends to be either in older properties or where new appliances are connected incorrectly.

Misconnections can pollute local streams, rivers and beaches, damage wildlife and put health at risk. DfI, DAERA, NIW, District Councils and NIEA are working together to tackle the issue of misconnections focusing on preventative measures.

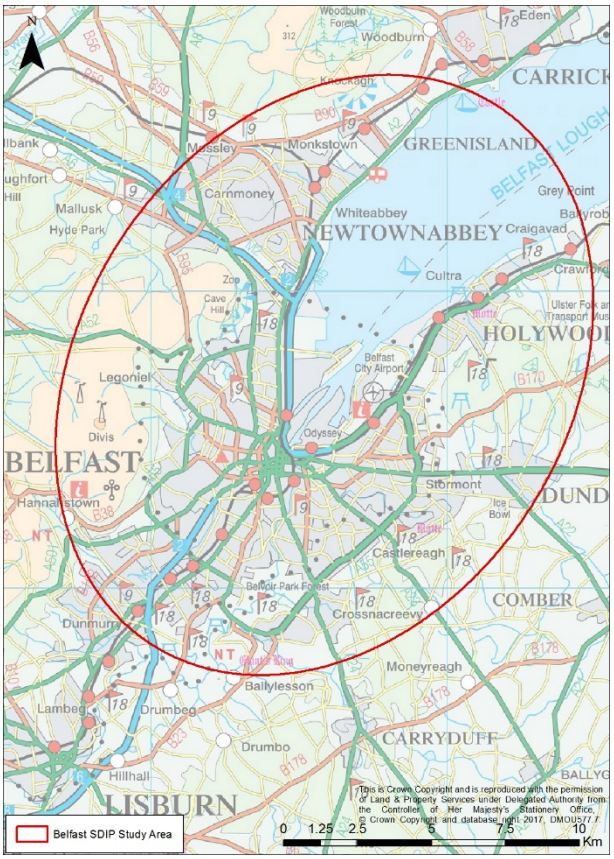
- **ConnectRight campaign**

NIEA and NIW are supporting the ConnectRight campaign. The campaign is a partnership of organisations who are working to reduce water pollution from drains and sewers. The campaign focuses on:

- Raising awareness and understanding of/about misconnections, sewers and drains and the environmental problems that they cause.
- Helping property owners and professionals to check drainage connections and take action.
- Ensuring new drainage is connected right.
- Helping to develop and support effective practice, policy and regulation.
- Sharing information and evidence about the problem and supporting research and development of long term solutions.

- **Strategic Drainage Infrastructure Plan for Belfast**

Within the 1st cycle RBMPs, the objective for Inner Belfast Lough was to achieve moderate status by 2015, while making progress to good status by 2027. Although the 2015 classifications were moderate overall, there were concerns during the 1st cycle that the dissolved inorganic nitrogen loading is largely attributed to combined sewer overflows from the sewerage infrastructure and the discharges from WWTWs. It is estimated that together, these make up 50 % of the overall loading of DIN to Inner Belfast Lough alone. There is also evidence of deteriorating microbial water quality at the Shellfish Water Protected Areas located in Inner Belfast Lough. The sewerage networks and WWTWs serving Belfast are also nearing capacity and need significant upgrades to facilitate future growth and development. Current estimates indicate that without significant upgrades, there is a risk that NIW may not be able to permit some new connections in Belfast from 2021. It is therefore unlikely that



Belfast City Council's proposed Local Development Plan can be implemented without significant parallel investment in drainage & wastewater treatment.

While there is already considerable joint working by the various organisations to address flooding problems and improve/protect water quality in the environment there is as yet no agreed cross-department infrastructure plan at a strategic level to support economic growth, provide for the long term management of flood risk and improve water quality in the wider environment.

In July 2014, the Northern Ireland Executive agreed to set up an interdepartmental group to develop a 'Strategic Drainage Infrastructure Plan' (SDIP) for Belfast to **protect** against flood risk, **enhance** the environment and support economic **growth**. To facilitate the development of the SDIP for Belfast, DfI is taking forward the Living with Water Programme (LWWP), the Board of which includes senior representatives from: DfI Rivers and Roads, DfI Finance, and DfI Water and Drainage Policy Division (WDPD); NIEA; The Utility Regulator; BCC and NIW. The programme is focused on developing integrated, catchment based solutions and where possible avoid traditional hard engineered drainage and wastewater solutions involving long-term operating and maintenance costs. It is estimated that the delivery of this programme will cost in the region of £1b. This funding is currently not secured.

- **Sustainable Drainage**

In recent years there has been positive implementation of Sustainable Drainage Systems (SuDS) in Northern Ireland, although most of the systems installed are 'hard engineered', rather than softer open natural solutions. The Stormwater Management Group (SMG), is an inter Departmental Group jointly led by DfI and NIEA seeking to increase the implementation of SuDS across the province looking at ways to increase use across Government Departments and considering the skills capacity in Northern Ireland to deliver SuDS schemes. The Group is also investigating mechanisms for the approval of SuDS schemes and solutions to the ongoing maintenance issues.

The Water and Sewerage Services Act (Northern Ireland) 2016, came in to operation in May 2016 and introduced a definition of SuDS which can be adopted by NIW. The new legislation ensures that 'hard' SuDS, which are normally large pipes or tanks, usually with a flow control valve, and which have been constructed to appropriate standards can be adopted and maintained by NIW.

Examples of sustainable drainage techniques can be seen across Northern Ireland, with the installation of an infiltration tank in Dundonald where this retrospective storm drainage system drains a 20 hectare housing development before a controlled release of storm water to the natural environment and thereby removing a significant quantity of storm water from the sewerage infrastructure.

NIW, DfI, Education Authority and the Department of Education invested in the development of an innovative new rainwater garden to help reduce the risk of flooding at the Clandeboye Primary School. £70,000 has been invested in the garden, which is an innovative flagship project for NIW and the DfI, and is the first of its kind in Northern Ireland. The garden demonstrates how sustainable design can reduce the risk of flooding, whilst also enhancing the environment and providing a valuable educational resource. NIW previously invested £1.7 million on a new Pumping Station within the grounds of Clandeboye Primary School. This was part of the overall ongoing £10 million investment to improve the infrastructure, reduce the risk of flooding and improve bathing water quality in the Bangor area.

- **Catchment Based approach to consenting**

NIW, AFBI and DAERA are working collaboratively on the development of an Integrated Ecosystem Model. The Model has been designed to model the complete catchment considering all inputs both point and diffuse sources within the freshwater and marine environment. The Model outputs will identify where investment is needed to make the most benefit to water quality and delivery of the WFD Good Status. Strong evidence and source apportionment modelling is required to assist decision makers and policy makers in how best to tackle the issues in both fresh water and the marine environment.

Trial projects are underway with Dundrum, LWWP, Shared Waters Enhancement and Loughs Legacy (SWELL) and the NIW Shellfish & Bathing Waters Remediation Project (SABRE) all applying the Integrated Ecosystem model principles. The outcome of the models will inform consenting decisions and investment prioritisation.

- **Shared Waters Enhancement and Loughs Legacy (SWELL)**

The SWELL project aims to improve water quality in the shared transitional waters of Carlingford Lough & Lough Foyle through the improvement of wastewater assets investing approximately £25 million.

The project will use a holistic modelling strategy which will amalgamate the various catchment and marine models to form an Ecosystem model. The output from the modelling will identify where investment is needed to ensure the greatest contribution to improved water quality. The project will also deliver two sewerage network and wastewater treatment schemes which will provide improved wastewater treatment for an additional 10,000 people in the eligible regions.

It is anticipated that the project will leave an ecosystem model for use by the water companies, environmental regulators and other stakeholders in the eligible area to identify future improvements to enhance water quality.

- **Sustainable Wastewater Treatment Technologies:**

One of the measures outlined in the 2nd Cycle required the use of sustainable technologies in wastewater treatment. NIEA has been working with NIW on the development of these schemes to ensure the treatment meets the WFD requirements. NIW has constructed three sustainable (naturally occurring e.g. reed bed, Integrated Constructed Wetlands) WWTWs. In Castle Archdale, Co. Fermanagh the wetland was constructed in April 2016, and has resulted in a 100 % reduction in electricity usage when compared to the old aerated WWTWs, which has now been fully decommissioned.

NIW has also installed a sustainable solution to replace the overloaded WWTWs serving the village of Stoneyford to the northwest of Lisburn using an Integrated Constructed Wetland (ICW) solution. This utilises a natural ecosystem to break down and treat pollutants. The award winning treatment is based on processes that occur naturally within indigenous wetlands and includes 2 initial settlement ponds and 5 treatment ponds. Wastewater passes through the integrated system in which water, plants, micro-organisms, the sun, substrate and air interact to improve water quality. The scheme also includes community access providing walkways around the ponds.