



The Metropolitan Glasgow Strategic Drainage Partnership

The Metropolitan Glasgow Strategic Drainage Partnership (MGSDP) is an innovative and collaborative venture between local authorities (Glasgow City Council leading), Scottish Environment Protection Agency (SEPA), Scottish Water and Scottish Enterprise that will upgrade and modernise Glasgow's drainage and sewerage network to reduce flooding and support urban development requirements, while improving water quality and the environment.

Improving River Water Quality

Scotland is renowned for the quality of its water bodies. We all enjoy the benefits of a clean and healthy water environment. Our rivers, lochs and groundwater provide water to drink and to grow our food. Scotland's economic success depends on good water quality to attract large numbers of people to take part in recreational activities.

One of the major challenges for the Metropolitan Glasgow Strategic Drainage Partnership (MGSDP) is to continue to support efforts to improve water quality in Scotland, through the river basin management process, while delivering the improvements necessary for reducing flood risk and improving drainage for homes and businesses in the Glasgow area.

River water quality improvement across the Glasgow area is one of the MGSDP's five objectives.

One of the ways of achieving this objective is improving the sewer network and waste water treatment works in the area.

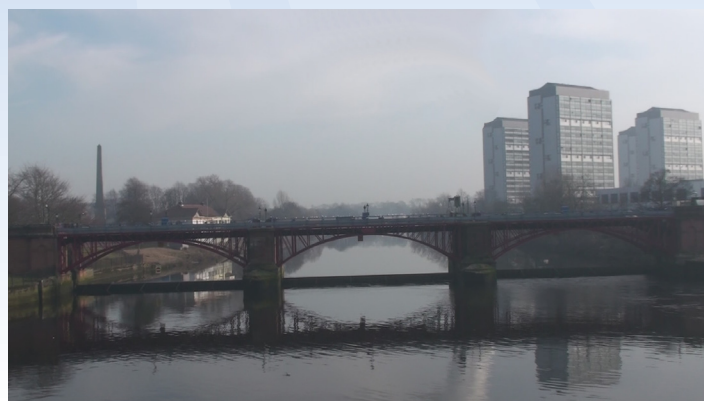
Scottish Water has been enhancing its existing hydraulic and water quality models for the River Clyde, White Cart Water and the Clyde estuary to support the improvement of sewer networks and waste water treatment works in the metropolitan Glasgow area.

More than £1.5m has been invested over the past 18 months, collecting data and carrying out model development and enhancement work.

Scottish Water has carried out this work in close collaboration with technical experts from the Scottish Environment Protection Agency (SEPA) and these tools have been approved by SEPA.

This means that both Scottish Water and SEPA believe that these tools will now enable a robust definition of appropriate solutions to resolve the river and estuary water quality issues.

These detailed, dynamic and complex water quality models are key tools in the feasibility work associated with identifying sustainable and efficient improvements required to achieve the water quality targets set by the European Union Water Framework Directive, introduced in 2000.



The River Clyde near Glasgow Green in central Glasgow

These models allow Scottish Water to understand the relative impact of each pollution source, e.g. discharges from sewer networks, and also permits the determination of the most cost-effective improvement strategy that will deliver the long-term target water quality objectives for each water body.

Making strategic changes and improvements to waste water treatment works will enable Scottish Water to contribute to these water quality objectives.

Scottish Water has completed the strategic modelling work and has produced an outline waste water strategy for Glasgow's Waste Water Treatment Works. The proposed phased approach to the implementation of the outline waste water strategy will permit the achievement of long-term water environmental objectives by the Water Framework Directive compliance deadline of 2027, while allowing for the achievement of each phase to be measured and the scope of future phases to be refined.

Scottish Water is consulting on the outputs from the outline strategy with a view to progressing to more detailed design work.

Scottish Water Accepts Review of Water Charges

A key milestone in the Metropolitan Glasgow Strategic Drainage Partnership's plans to improve the waste water network in the Glasgow area was reached early this year.

In January 2010, Scottish Water formally accepted the economic regulator's, the Water Industry Commission for Scotland [WICS], Strategic Review of Charges 2010-15 (SR10): the Final Determination.

This determines the amount of money Scottish Water is able to raise through customer charges over the next five years to deliver the agreed levels of service and quality enhancements set out by Scottish Ministers.

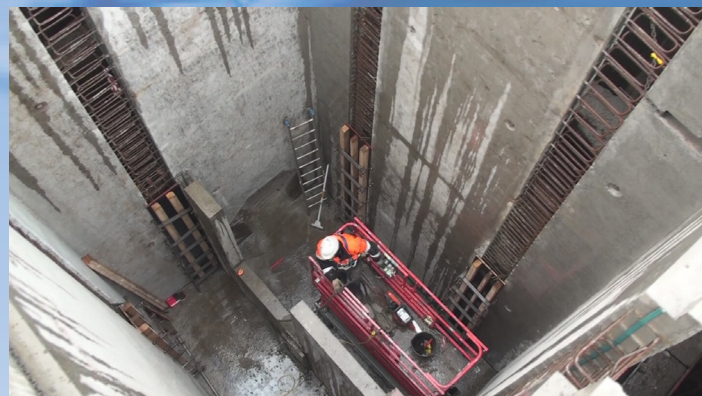
Within these targets, Scottish Water has been funded to undertake strategic study activities, predominantly based on water quality challenges but also development, and following agreement with all stakeholders begin implementation of improvements that are consistent with the MGSDP's objectives.

These objectives are:

- ***flood risk reduction;***
- ***river water quality improvement;***
- ***enabling economic development;***
- ***habitat improvement;***
- ***integrated investment planning.***

Scottish Water's 2010-15 plan includes provision for undertaking the following wastewater related activities:

- Completing six strategic catchment studies across Scotland, including the Glasgow Strategic Study.
- Improving 224 Unsatisfactory Intermittent Discharges (UIDs), 197 of which are located in the metropolitan Glasgow area and will continue to improve the water quality of the Clyde Estuary, the River Clyde and its tributaries.
- Maintain the current size of Scottish Water's register of properties at risk of sewer flooding by removing around 360 existing and emerging properties, some of which will be in the metropolitan Glasgow area.



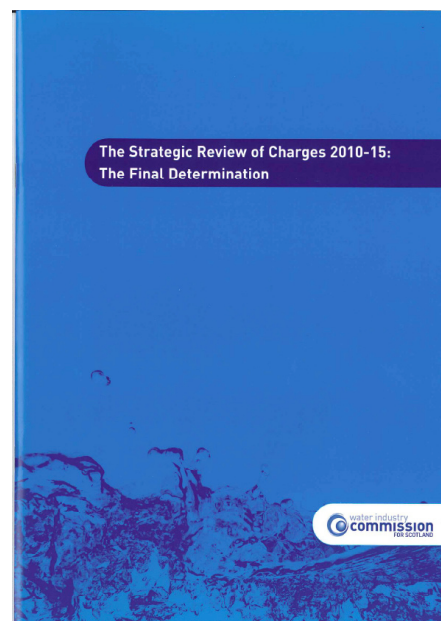
Work progressing on a Scottish Water project to improve the waste water infrastructure in the Blochairn Road area of Glasgow

- Improved odour control at Dalmarnock Waste Water Treatment Works (WwTW) in advance of the Glasgow 2014 Commonwealth Games.
- Improvements to nine WwTW in the upper River Clyde to improve the quality of their discharges and therefore the water quality in the River Clyde.

In addition to the defined programme of improvements, an undefined allowance of £180m (2007/08 prices) has been allowed for other requirements identified during the period and agreed for funding by Scottish Ministers. It is expected that a portion of this will be invested in the Glasgow area.

Scottish Water has already started design and development on the majority of the programme through its early start initiative, which will enable the benefits to be delivered to customers more quickly. Additionally, work on the Glasgow Strategic Study is well under way.

All projects will be subject to Scottish Water's investment governance processes to ensure the correct solutions are delivered for customers and that the solutions meet the MGSDP's objectives.



Contributing to River Basin Management Targets

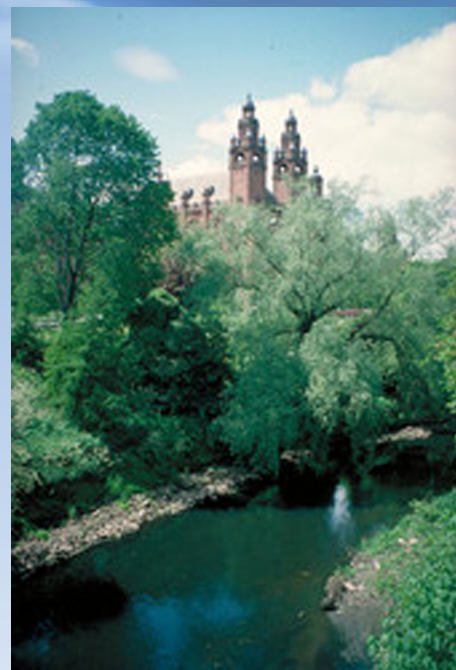
Our water environment is an integral part of our cultural fabric, but how do we go about protecting and, where necessary, improving it? The answer lies in river basin management planning, which uses local and national expertise to develop and implement sustainable water use for every water body in Scotland.

River basin management planning (RBMP) is the water management system established by the European Union's Water Framework Directive (WFD). Two river basin districts (RBDs) were established in Scotland; the Scotland RBD covers most of the country and is managed by SEPA, while the Solway Tweed RBD covers the waters of the Solway and the Tweed and is jointly managed by SEPA and the Environment Agency.

A large proportion of the waters in the Scotland and Solway Tweed RBDs are of high quality. However, around 35% in Scotland and 51% in the Solway Tweed are under significant pressure from human activity and are not in good condition. Restoring waters to good status will take time, so improvements have been prioritised over the periods 2009–2015, 2015–2021 and 2021–2027. The overall aim is for 98% of waters in the Scotland RBD and 92% in the Solway Tweed RBD to be in a good condition by 2027; achieving that goal will safeguard and increase the water environment's ability to support economically important water uses and to supply us with safe drinking water. It will protect and extend the natural biodiversity of our waters and enhance the fish and shellfish stocks on which the future of our commercial and recreational fisheries depends.

The MGSDP Implementation plan will contribute significantly to the success of the Scotland river basin plan. All partners within the MGSDP already had a separate responsibility for delivering good water quality under the plans, but together, as the MGSDP, we will be able to work together to deliver the improvements necessary for the benefit of Scotland, as well as the metropolitan Glasgow area.

Further information on river basin planning is available at www.sepa.org.uk/water/river_basin_planning.aspx.



The River Kelvin in Kelvingrove Park, Glasgow

Shawfield Flood Risk Assessment

Over the next few years the historical communities of Bridgeton, Dalmarnock, Parkhead, Rutherglen and Shawfield in the east end of Glasgow will undergo massive change, with investment on a scale never seen before.

As part of this work Clyde Gateway Urban Regeneration Company (URC), the company that will deliver most of the infrastructure, has commissioned a Strategic Flood Risk Assessment of the Shawfield area to manage surface water, mitigate flooding and provide drainage solutions, to allow development to take place.

The risk of flooding in this area is high due to a variety of sources including the Polmadie Burn, trunk sewers, ground water and the River Clyde.

The assessment, which is now close to conclusion, has included mapping the catchment area to see how its watercourses integrate with each other and computer modeling to test different flooding scenarios to understand the effect on the land, and therefore the possible consequences for development in the area.

Carrying out assessments such as this is key to informing the masterplan of the Clyde Gateway area, which includes some venues for the Glasgow 2014 Commonwealth Games, and will ensure that surface water is managed and the risk of flooding is reduced.

The recommendations from this report will help to develop flood risk management solutions which may include influencing land use and planning, making changes to existing infrastructure and constructing flood defences.

White Cart Flood Prevention Scheme

High up in the farmlands of East Renfrewshire engineers are working on Phase 1 of the White Cart Flood Prevention Scheme, Glasgow City Council's £53million plan that could save many homes and businesses along the White Cart River from millions of pounds worth of flood damage.

For nearly a century the White Cart has inflicted serious flooding on homes and other properties on the south side of Glasgow. More than 20 significant floods have taken place since 1908 and in 1984 more than 500 homes were affected by flooding.

This shallow, fast flowing river is prone to flash flooding and only 12 hours of rain can raise water levels by six metres.



Construction of flood defences in Cathcart

Existing flood defences along this corridor are piecemeal and isolated and major investment was required to protect properties not only from current flood risks but also from more frequent inundations expected as a result of global climate change.

Stage one of the Glasgow City Council project to construct three new flood water storage areas above Glasgow on the Earn Water, Kitch Water and the White Cart Water is well under way. The work which started in March 2008 is expected to finish in early 2011.

As part of this phase the site contractors are in the process of installing the world's largest 'hydrobrakes' to control the flow of water downstream. Large enough to accommodate a small car inside them, the five conical shaped devices let water flow through them normally until it reaches a pre-determined height then velocity causes a vortex to form. The pressure of the air within the vortex 'throttles' the flow of water, slowing it down and making the reservoir fill up. Water is then released back into the White Cart in a controlled way as it flows towards Glasgow and the city.

Phase two, constructing new flood defences including walls and embankments, started in November 2008 and will be completed at the end of 2011. The contract comprises the construction of 4.5km of both reinforced concrete and steel sheet piled flood defence walls with the provision of new drainage systems, fully automated pumping stations, landscaping, environmental improvements and the diversion and protection of utility services.

Steve Inch, Chair of MGSDP Board, said: "Changing global weather patterns are a real threat and research suggests that long-term the west of Scotland could experience more frequent and intense rainfall, increasing the risk of flooding in parts of Glasgow.

"Therefore we must push on with plans such as this one to protect businesses and homes vulnerable to flooding.

"Improving our urban flood defences in this way will also unlock the potential for development along parts of the river corridor bringing added benefits to these areas."



One of three new flood storage areas being built to control the surge of flood water upstream before it flows towards urban areas

Project Management Office

The MGSDP has so far identified 70 investigation projects which are either under way or will be undertaken in the future and form part of the Development Plan.

The Project Management Office, which comprises Jeremy Osborne, Programme Manager, Ian Lang, Technical Manager, and James Murray, Project Manager, has developed tools and reports to help the MGSDP Steering Group and the Board track the progress of these projects, including their schedules, the costs and the impact they have on the development of other Partner projects.

A key tool in this is the milestone tracker which records 11 critical milestones and shows, at a glance, how each project is progressing against the agreed “baseline” plan which stitches the whole programme together.

The MGSDP can find out very quickly, where their attention needs to focus to keep the programme on track and then look at the detailed programme schedule to find where the issues may lie.

The PMO works with the MGSDP through a series of activities aimed at keeping the Partnership working together and maintaining the cohesion that is the hallmark of the MGSDP.



*Jeremy Osborne,
Programme Manager*



*Ian Lang,
Technical Manager*

These have included workshops where technical experts from the PMO have provided the MGSDP with the benefit of experience and learning from similar project work across the UK and Europe. This ensures that the ideas advanced through the Technical Group and managed by the Steering Group into the programme are as cutting edge as possible while still keeping the “tried and tested” badge.



*James Murray,
Project Manager*

To ensure the MGSDP gets best value from any wide ranging study that it commissions, the PMO manages the development of the scope for the study. This ensures that the needs and aspirations of all Partners are included and that the scope is realistic and achievable and takes account of industry best practice. A recent example of this is the Glasgow Surface Water Management Strategy. There are a number of other studies for which the PMO are currently developing briefs.

The work of the MGSDP has been so successful that the Scottish Government has commissioned the MGSDP to provide guidelines to help others in Scotland take the same approach when implementing the new Flood Risk Management (Scotland) Act. The PMO will be leading this activity on behalf of the MGSDP in the coming months.

New DVD on the MGSDP

The MGSDP is producing a short information film on the multi-agency partnership, why it was formed, its aims, and its approach to dealing with flooding and drainage problems in an urban environment.

A limited number of DVDs will be produced. Please inform us if you would like a copy sent to you by emailing us at MGSDP@scottishwater.co.uk. The footage will also be available for viewing on the MGSDP website.

Visit our website at www.mgsdp.org for more information on our work and previous briefing notes.

For additional information



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Further update in Autumn 2010