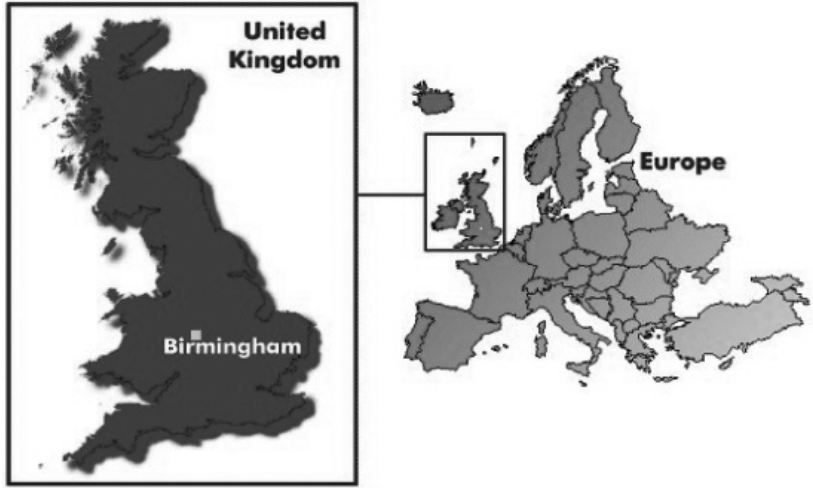


SWITCH PROJECT: BIRMINGHAM, UK

BIRMINGHAM - UK



Birmingham considers itself to be the “second” city in the United Kingdom. It has a population of 1 million and lies at the heart of an urban conurbation known as the West Midlands which has nearly 6 million inhabitants.

BIRMINGHAM LEARNING ALLIANCE

In Birmingham there have been three full Learning Alliance (LA) meetings and a launch meeting as well as hosting the First Scientific Meeting in January 2007.

Membership is growing and starting to influence other related projects taking place in the city to address climate change impacts.

The LA is set to expand to take on-board a much wider representation and include more members from the national and local levels.

Description of LA process

The launch meeting and two LA meetings were held in the Arup Midlands Offices and one of the LA meetings was hosted by Key Stakeholder Severn Trent Water in their headquarters building in Birmingham.

A questionnaire was used very early on in the LA formation process that asked questions on issues and problems relating to water management in the city. This was used as a positioning statement which will help to define the “baseline” for future improvements in technologies and management systems.

The LA currently has representation from the main stakeholders in the water management of the city and a wider group of stakeholders are increasingly joining into the Learning Alliance with some recent strong encouragement from national representation.

LA Members

Birmingham City Council,
Severn Trent Water Limited,
Environment Agency,
British Waterways,
Solihull Metropolitan Borough Council,
Consumer Council for Water – West Midlands,
West Midlands Regional Assembly,
Advantage West Midlands – Regional Development Agency,
OFWAT – The Office of the Water Regulator,
CIWEM – Chartered Institution of Water and Environmental Managers,
Natural England,
Developers and Designers.

VISION & GOALS FOR URBAN WATER MANAGEMENT

The Vision and Goals for Urban Water Management in the City of Birmingham is still developing but our initial concept is that a more centralised water management body may be a real benefit so that water companies, regulators, customer care and planners can channel their ideas and resolve areas of potential conflicting pressure.

Adoption of new processes and the uptake or wider use of technologies along with more integrated management will provide a place where the inhabitants and visitors to the city can enjoy good quality water services that promote the sustainable use of a valuable commodity for the benefits of the citizens, the environment and wildlife alike. The vision is for Birmingham to become an example of Sustainable Integrated Urban Water Management that is recognised not just at the national but very much at the global level as well.

MEASURING SUSTAINABILITY

At a Visioning Workshop held in the city recently the Learning Alliance members gave some thought to identifying Sustainability Measures and Indicators for their vision of Birmingham in 2050.

Much of this related to:

- demand reduction;
- affordability;
- source control of pollution; and
- re-use of stormwater and final effluent.

Additional workshops are planned to define these in greater detail and to develop the measurement criteria needed to produce indicators.



THE CITY'S WATER SYSTEMS & PRESSURES

Although Birmingham has avoided many of the problems encountered by some areas in Great Britain associated with hose-pipe bans or drought orders, it is becoming increasingly apparent that supply problems will start to dictate how much the city can develop in the near future. Scenarios for new house builds in the city show that by 2026 water supplies will become a real problem and new draft water resource plans are starting to be drawn up to try and manage this.

Urban flooding has and will continue to be a major cause for concern with increasing localised flooding as a consequence of climate change. The Birmingham LA now has members on the Regional Climate Change Partnership and a Making Space for Water Pilot Study is going on in the city right now.

The city is served by mostly combined sewerage systems, being a legacy of the historic growth that took place in the mid to late 1800s. Much of this wastewater is treated at one of the largest wastewater treatment works in Europe which has well over one million population equivalent flows to full treatment. Energy conservation, alternative energy supplies and reuse of bio-solids are all starting to be seen as part of Urban Water Management.

Basic description

From the Midlands Region
Water supply population 7,400,000
Water demand 1,960Ml/d
Impounding reservoirs supply 28%
River abstraction supply 40%
Groundwater supply 32%
Sewerage population 8,300,000
Amount of sewage treated 2,540Ml/d
Bio-solids are disposed of to agriculture as a soil conditioning material and “green” energy is produced from the waste gasses produced in the treatment processes to off-set the energy requirements.

Issues and challenges

Currently the new Regional Spatial Strategy is looking at development options to meet the government's national housing targets. In Birmingham there are currently some 400,000 dwellings (2001 Census) and the three options for Birmingham are for the addition of either a further 70,000, 90,000 or 105,000 new houses to be built by the year 2026. This would have the effect of increasing the population to a total of approximately 1,300,000 inhabitants by 2026.

Birmingham is an international city and draws heavily on its multicultural heritage for developing new trade and business relationships around the world.

DEMONSTRATIONS

Demonstration Projects are starting to become well advanced now in the city with four areas of demonstration research being carried out by the University of Birmingham. These are:

- Ecology and hydrology of extensive green roofs
 - Understanding virus hazards in groundwater exploitation
- Natural attenuation at the river-aquifer interface
 - A new sustainability assessment modelling system for city water supplies.

Research on the four topics is currently at an early stage and the main field experiments are expected to deliver the first major results in the next 12 months. The contributions to urban water knowledge will be interesting.

POTENTIAL FUTURE SCENARIOS

Birmingham is building a reputation as a commercial centre and tourist destination. In the future, most new developments will be built at much higher density than previously experienced. Which will cause a “hardening” of the urban landscape. The population of the West Midlands is expected to increase by 6.6% between 2003 and 2023 leading to an increased demand for potable water and loads in the sewerage system and wastewater treatment plants. Climate change will further exacerbate the problem with future temperatures predicted to be up to 3°C higher than current levels by 2080.

There is increasing demand for new, more sustainable developments such as Eastside. This is a new, mixed use development to the east of Birmingham city centre. It will not only provide energy efficient housing but will also create jobs, new arts and culture facilities but will also create a new city park.

RESEARCH FOCUS AREAS

Usage and reuse of water: Work is being undertaken to develop a model which looks at the water balance as a whole and not just individual components.

Increasing biodiversity and ecology: Through developments on both brown and green land, much of the ecology has been lost and increasing development will only exacerbate this problem. Brown roofs have been put on top of a number of buildings to study the effects on ecology.

Virus transfer in groundwater: This is vital when examining the possibility of recharging groundwater as the likelihood of contaminant travel would have to be assessed. This will also be used to determine if viruses are a danger for urban wastewater injection and recovery programmes in sandstone.

Natural attenuation at the river-aquifer interface: Birmingham, along with many other cities, has been cleaning up the watercourses in and around the city. However, due to the pollutants in the groundwater, the rivers are becoming re-contaminated.

