

WATER QUALITY GOVERNANCE

The Catchment-Based Approach to managing water quality in England

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National water quality context and main challenges, including the costs of water pollution

England is a developed and mostly post-industrial society with associated water quality issues. Former problems of water pollution from point sources such as factories and other industrial activity have declined through both structural change in the economy and effective regulation. That said, legacy water quality problems from industrialisation include persistent pollution from old mine workings (now managed through public investment in the absence of historic polluters), and morphological alteration to waterbodies as a result of human activity (such as navigation, use of water for power, flood defence activity etc.).

The most significant modern water quality problem is “diffuse” pollution which is difficult to attribute to specific sources. This arises in both rural and urban areas. In the former, agriculture and rural land management collectively causes pollution to waterbodies from runoff of pesticides, nitrates, sediment, organic material etc. In urban areas, a range of substances from silt and sewage overflow to metals and chemicals typically pollute the urban water environment, which is also often characterised as heavily modified from nature in terms of morphology. This can make the water environment unattractive to those living in urban areas, with many waterbodies in towns and cities suffering from legacy modifications reflecting earlier economic uses and pollution.

Population and economic growth contribute to diffuse pollution. Growth in urban areas has increased pressure on sewerage systems which risk more frequent overflow. Vibrant urban development activity increases the likelihood of drainage systems being misconnected, with sewage ending up in places where it shouldn't. Similarly, historic policies such as agricultural subsidy frameworks and land use planning systems have contributed to water quality pressures.

Water quality is improving, however, through regulation and investment. Since 2010, water utilities have invested around £3.5bn in improving the water environment. Although 19% of surface waters currently meet “good” or better ecological status as defined in the EU Water Framework Directive, this status involves meeting all of a number of sub-elements such as fish, plant life and water chemistry. When considering those underlying elements individually, some 83% achieve good or better status.

The economic cost of water pollution in England is difficult to estimate, though a 2010 report by the National Audit Office put the cumulative cost of water pollution at between £700m and 1.3bn per annum (NAO 2010). More recent work to assess the costs and benefits of options to deliver the Water Framework Directive suggests that the benefit from preventing deterioration and improving the water environment where technically feasible amounts to around £23bn (Environment Agency 2015).

National policy responses to manage water quality

Point-source pollution has historically been tackled through a framework of regulation implemented by Her Majesty's Inspectorate of Pollution and now the Environment Agency, which is mature. Since 2000, England as part of the UK has adopted an approach set out in the EU Water Framework Directive (WFD) which involves plans to improve the water environment, and prevent deterioration, in each of ten River Basin Districts. Over the 2015-21 period, improvements worth £3.7bn are being implemented across a variety of sectors, with 14.5% of waterbodies expected to see some improvements in at least one quality element. The WFD brings together the management of water quality (including bathing and shellfish waters) with water abstraction and flood management. To be fully successful, this involves strong collaboration both across water management sectors and across stakeholders, and the rational geography for managing such complex interactions is the rural or urban catchment or watershed. English water management is, in principle, built on the internationally recognised practice of Integrated Water Resource Management.

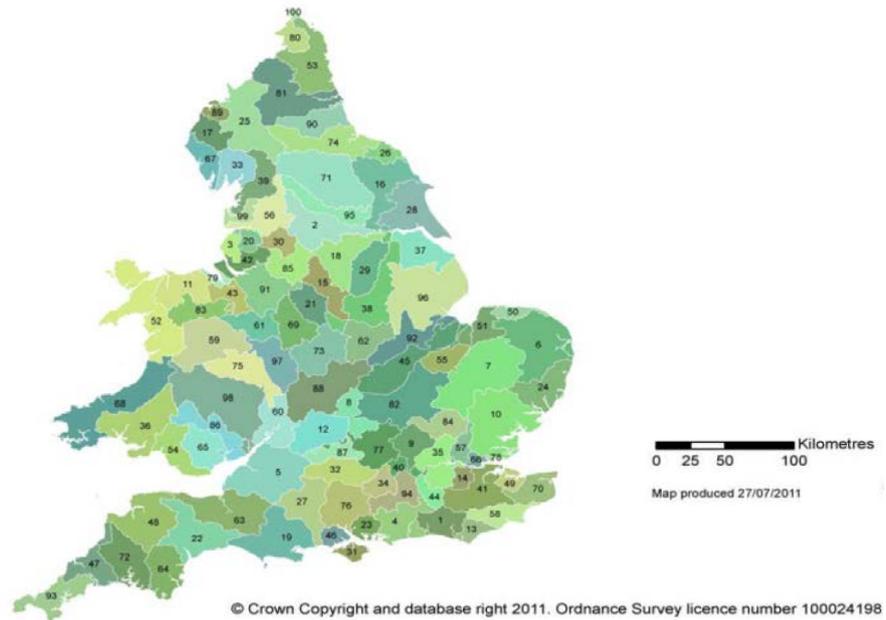
In practice, developing a fully collaborative catchment-based approach to water management has taken time, and is ongoing, but in recent years the Department for Environment, Food and Rural Affairs (Defra) has sought to accelerate the development of a governance framework to deliver true collaborative catchment-based management. Alongside this, it has provided public funding for rural and urban water improvement measures, and worked with the economic regulator of the privatised water utility sector (the Water Services Regulatory Authority or Ofwat) to ensure the water services sector plays a full part in improving the water environment and preventing deterioration. Defra and the Environment Agency also regulate agriculture and provide support to help farmers meet their requirements and improve the water environment.

Case study of innovative water quality policy instrument

Project/Policy Overview

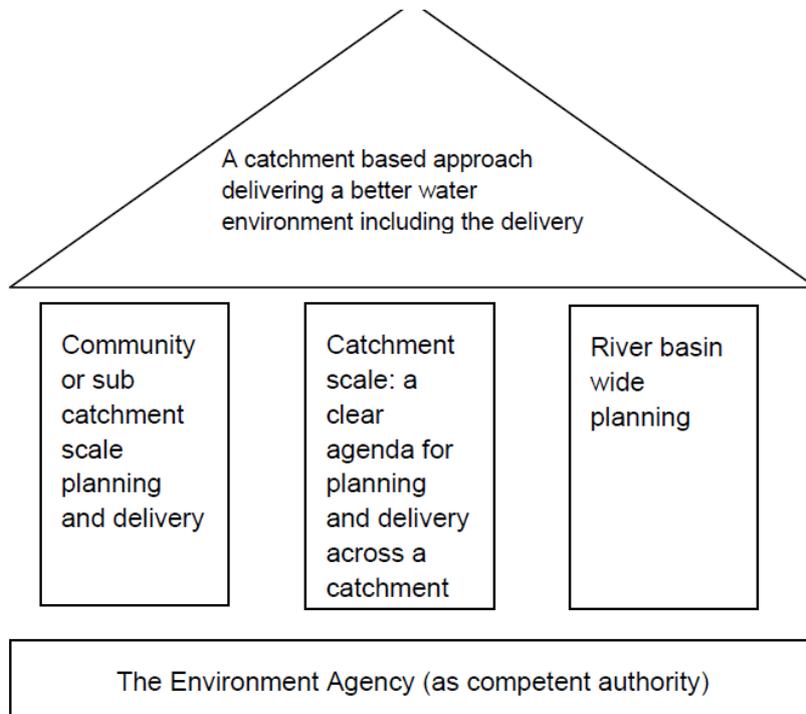
The case study concerns the actions Defra has taken to implement the "Catchment Based Approach" (CaBA) as a governance framework for improving the water environment. As stated earlier, the catchment is widely regarded as the most appropriate geographic unit for fundamental water management, integrating water quality interventions with water resources (abstraction) activity and flood management, and fostering collaboration across stakeholders. There are around 100 management catchments in England and Wales – see **Figure 1**. The management catchment has been chosen by the competent authorities (Environment Agency and Natural Resources Wales) as a way to implement their approach to WFD.

Figure 1
Water Framework Directive Management Catchments



Catchments are local, and fundamentally CaBA has been about the national government putting in place a framework to allow and facilitate local stakeholders to come together to manage their water environments to meet multiple objectives. The framework defines appropriate activity for actors at the sub-catchment, catchment, regional and national levels and is summarised in **Figure 2**.

Figure 2 Governance framework overview



Reasoning for reform and the introduction of the instrument

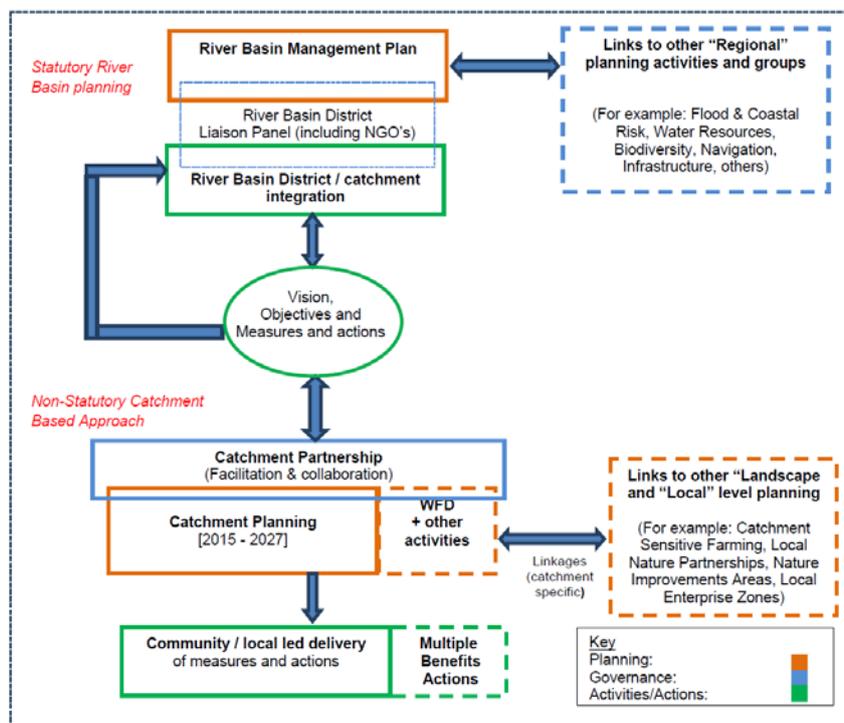
Defra’s introduction of CaBA as a national policy sought to build on and mainstream specific but isolated instances of local areas developing their own catchment-based partnerships. These had proven successful in bringing together those with interests in the water environment, developing combined plans and accessing new sources of local and other funding. Defra recognised that, as a national body, it could not effectively manage and fund interventions to improve water environments throughout all catchments on its own. Furthermore, fundamentally the water environment is localised and effective and efficient management needed to be local and integrated.

Defra sought to facilitate the widespread development of catchment partnerships by setting out a clear policy framework, highlighting how the approach could link to other local and regional planning initiatives, and providing some start-up funding. This national approach was felt necessary to overcome a fragmented planning landscape and widely different capacities of local players to fund and set up partnership activity in different areas of the country. It also established a key role for the Environment Agency, the national environment regulator and advisor and “competent authority” for implementing the Water Framework Directive, in supporting local partnerships through advice, technical support and facilitation.

Policy instrument design

CaBA is essentially about facilitating partnerships to improve the water environment in conjunction with other landscape and local planning. As such, the key design aspects are setting up governance arrangements and making the right links with other planning frameworks. **Figure 3** sets out the fundamental framework.

Figure 3 The Catchment-Based Approach (CaBA): Governance, planning and activities



The key building block of the approach is the **Catchment Partnership**. This is designed to be a collaboration of all relevant local partners such as the Environment Agency, other public agencies, Local Authorities, Water Companies and business communities such as land managers, farmers and others. The Partnership is intended to take on leadership of Catchment Planning in the local community, making links to other local and landscape-level planning. It is also tasked with overseeing local delivery of actions to improve water quality and the wider environment, including delivering multiple objectives (for example, urban regeneration or wider landscape improvement). In doing so it is intended to draw in the co-operation and funding of other partners and stakeholders to deliver a joint catchment vision for the local area. It may co-ordinate planning and action carried out at the sub-catchment level (i.e. that for individual waterbodies). The Ecosystems Services approach is intended as a guiding framework for the work of catchment partnerships, to articulate and assess the impacts of improving local environments.

The Catchment Partnership is also intended to provide input to higher-level planning, notably statutory River Basin Management Planning. In doing so it should provide bottom-up assessment of problems, priorities and actions at the catchment level, to feed in to the wider River Basin plan. This link is necessary as River Basins are arguably too large for coherent planning which respects the wide range of local aspirations and priorities. Catchment Partnerships are therefore intended to help deliver more coherent and effective River Basin Management Plans.

Catchment Partnerships are supported by a national Catchment Based Approach Support Group, to share experience and support, and provide a steering function.

The intended success measures of the CaBA initiative are as follows:

- To increase involvement of stakeholders in identifying priorities and taking action to address them
- To enable additional joint funded action and external investment to be leveraged
- To enable measures to be planned in a more co-ordinated, strategic and better targeted way that takes account of ecosystem functioning
- To enable different planning systems and plans to come together in a synergistic way

How the instrument works, who pays and who benefits

The CaBA initiative was first piloted between 2011 to 2013. Some 25 pilot Catchment Partnerships were established, with the Environment Agency and others funding facilitation support to a number of catchments, to explore and increase community engagement in catchment planning. “Host” organisations were established for the pilots who received guidance on objectives and milestones from Defra. The ultimate objective of each Partnership was the production of a catchment plan and a sustainable delivery package, including funding. Different approaches were trialled and the pilots were evaluated (Cascade consulting 2013). The CaBA pilots were widely agreed by regulators and stakeholder participants to have been successful. Within a year, the pilots were able to generate a sense of partnership at the local level, leading (in most cases) to the production of viable catchment plans.

Following the pilots the CaBA was rolled out more generally in 2013. Defra provided a policy framework and guidance (Defra 2013), along with “seedcorn” funding to facilitate partnerships to be set up, totalling £1.6m in 2013/14 and £1.7m the following year. Funding has generally gone to support leaders and facilitators, but there has also been investment in training, analytical and engagement tools. Defra also established arrangements for ongoing monitoring and evaluation of CaBA and the establishment of

partnerships. “Phase 2” evaluation reported in 2015 and provides evidence on the outcomes from CaBA so far (Cascade Consulting 2015).

A range of partners have become involved with Catchment Partnerships. Besides the Environment Agency (who have dedicated catchment officers in each catchment), these include Local Authorities, Water Companies, Natural England (a public nature conservation agency), Land owners and managers, local Rivers and Wildlife Trusts, fishing and other recreational groups.

Project/Policy Outcomes

Outcomes (social, economic and environmental)

More than 80% of Catchment Partnerships had had their first meeting by mid-2014, with more than 70% of partnerships incorporating aspects of water quality, freshwater biodiversity, water resources and flood risk, with a third saying these were their main focus.

Evaluation to date (Cascade Consulting 2015) reveals that over 70% of surveyed participants in Catchment Partnerships think that their partnership has improved the situation with regards to most of the wider engagement and planning outcomes set out in the Policy Framework. Most partnerships are also already successfully encouraging action in places where actions had not happened before, and enabling new measures to be planned in a more coordinated way. Evaluation also suggests that Defra funding has leveraged other funds with a ratio in the range of 3-8.

Examples of early “real world” outcomes across Partnerships have been watercourse restoration, habitat creation and restoration and the removal of invasive non-native species, impediments to fish passage and structures such as culverts. Farm visits and catchment “walkovers” have also been organised to gather info and check compliance. Footpaths have been improved, urban diffuse pollution reduction measures have been implemented, and community engagement events held.

Evaluation has also revealed that partnerships are likely to be sustained albeit they may need time to develop sustainable funding packages once initial time-limited Defra “seedcorn” funding expires.

Nevertheless, CaBA is still quite a new initiative, at least as a mainstream intervention. It is still fairly early days for tangible outcomes on the ground, and there are still challenges in particular areas such as linking up with the full range of local planning initiatives (especially wider nature and economic partnerships) and securing long-term sustainable funding streams. However, some of the Catchment Partnerships build on pre-existing collaborations, and some of these provide useful indicators of the kind of environmental improvements which can be delivered through local collaborative working.

A leading example is the Ravensbourne Catchment Improvement Group covering the Rivers Ravensbourne, Quaggy and Pool and the tidal Deptford Creek in South East London. This incorporates three Local Authority Areas (Lewisham, Bromley and the Royal Borough of Greenwich), and builds on earlier work done in Lewisham to take a “whole borough” approach to watercourse management and link improvements to wider urban regeneration initiatives. A key aspect of the work in Lewisham has been collaboration between water and parks managers and the Local Planning Authority (land use planners). This has led to a River Corridor Improvement Plan for the area which is now formally part of land use Planning Guidance.

A key focus of the Partnership is river restoration to improve social outcomes as well as biodiversity, water quality and flood risk improvements, and a key project is that at Ladywell Fields in South East London. Although delivered in 2007, in part using EU QUERCUS and LIFE funding, the project illustrates the kinds of benefits that can be achieved through collaborative planning and working at the catchment level in

urban areas. **Figures 4 and 5** provide “before” and “after” views of the Ladywell Fields parkland area which previously included a heavily canalised river around the periphery of a rather ordinary public park where the water environment delivered little benefit, had poor WFD status and was largely ignored. Significant on-the-ground changes were made to restore a more natural river alignment along with associated landscape works. **Figure 6** provides a view of the park in use after the works.

The scheme involved introducing a more attractive, morphologically “natural” alignment of part of the river channel, facilitating public access and accompanied with landscape changes, including a wider variety of natural habitats. As well as improving the natural environment, key social and economic drivers were to increase use of the park for community amenity, provide a more attractive environment for workers, and tackle crime and perceptions of crime.

Figure 4 Ladywell Fields, Lewisham, London – before restoration



Figure 5 Ladywell Fields, Lewisham, London – after restoration



Figure 6 Ladywell Fields, Lewisham, London – after river restoration



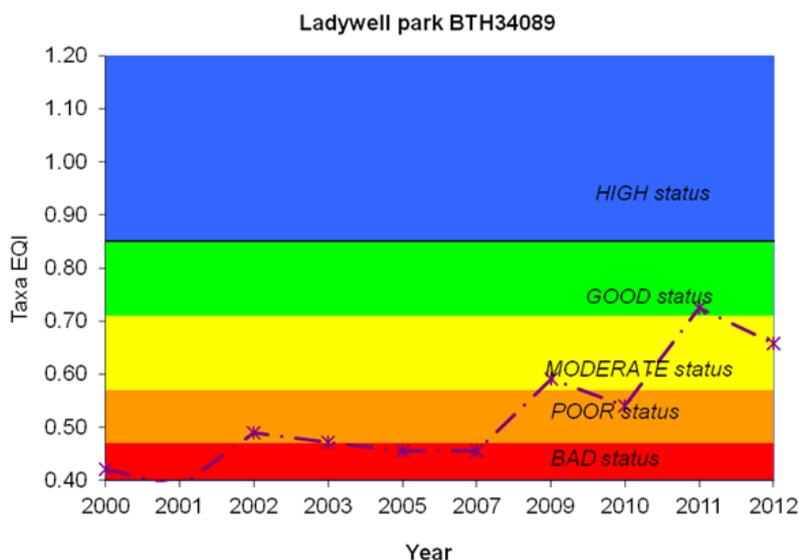
In water quality terms, the Ladywell Fields scheme has directly improved the morphology and attractiveness of the Ravensbourne water body, but it has also led to a wider improvement in water quality and Water Framework Directive status, as monitored by the Environment Agency and illustrated in

Figure 7. In wider water management terms, the new river alignment also provides some flood storage capacity to the potential benefit of Lewisham town centre, further down the Ravensbourne catchment, although this has not been tested by events so far.

Figure 7 Ladywell Fields, Lewisham, London – improvement in WFD status post restoration scheme

(Environmental Quality Indicator – scheme completed in 2007)

Scoring taxa EQI against WFD boundaries



(N.B. Final WFD classification uses Scoring taxa and ASPT)

Overall, the Ladywell Fields scheme illustrates the potential not just for water management improvements as a result of collaborative working at the catchment scale, but the scope for much more holistic benefits realisation, including social benefits such as improved community connection with the natural and water environment, educational opportunities, and reduction in crime and the fear of crime. All of these factors have been demonstrated through ex-post evaluation of the scheme, ultimately delivered because of a strong local vision for the wider benefits achievable through partnership working amongst planners, water managers and others. The evaluation, which looks at park usage – up by 250%; an increased perception of personal safety - up by nearly 50%; and the positive impact on biodiversity with significant increases in the numbers of species and types of habitat can be accessed at: <http://tinyurl.com/h685cfe>

Wider Catchment Based Approach - Challenges with implementation

Despite the successes delivered by generally longer-lived catchment-based partnerships (as in Lewisham), challenges remain for CaBA. The key ones are securing long-term funding from a range of local players, and (in some areas) making links with some other partnerships, particularly Local Nature Partnerships and Local Enterprise Partnerships (Cascade Consulting, 2015). Evaluation has also revealed that ensuring representative membership of Partnerships from local communities can be difficult, depending on the perceived priority of water management issues locally, as can getting landowners, business and local government fully involved.

Requisites to make the instrument work

Ongoing evaluation has shown that the following are key requirements to make the catchment-based approach work:

- Skills: especially in leadership, facilitation and co-ordination, as well as access to the right technical skills.
- Publicity.
- Having a robust benefits realisation plan.
- Having sustainable funding arrangements.

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