

## Environment Agency Overview

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The Environment Agency (EA) is responsible for protecting and improving the environment of England. Its scope of activities includes the regulation of industry, waste, water quality and resources, fisheries, conservation and ecology, and flood management. It works closely with partner organisations in other parts of the United Kingdom, who together provide environmental services across the whole of Great Britain and Northern Ireland.

## Open Data & Digital Transformation

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The EA manages and reports on large volumes and varieties of complex data. Much of this data is highly technical and scientific, relating to measurements taken to assess and help improve the overall health of the environment.

Under the UK Government's drive to make its data as widely available as possible, much of the EA's data is available as Open Data. As a result, this data is subject to extensive external scrutiny and analysis. Currently over 1,500 EA data sets are in the public domain, with more released every day.

A digital transformation programme is also underway to replace much of its legacy IT and provide an increasing number of services online. The EA recognises the importance of high quality data to support these digital services.

## The Challenge

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Like many large organisations, the EA's data assets are distributed across many platforms, ranging from legacy systems to state-of-the-art applications. Integrating data from these sources to ensure interoperability is a complex undertaking.

In addition to technical integration challenges, ensuring a common vocabulary and definitions across disparate scientific teams has been challenging. This has been hindered by inconsistent data definitions, variable data quality, data duplication and a lack of formally defined metadata.

For example, before this effort began, there were at least 16 different definitions of the term 'Catchment'. The different definitions included reporting catchments, water resource catchments, and catchments based on hydrological connection. Waterbodies themselves were inconsistently named, with individual functional teams often using different names for the same waterbody. Even the way water measurements were taken and published varied from team to team, making it difficult to have consistent environmental monitoring and reporting across the organisation.

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*Establishing data standards is an important step in bringing our information together so we can be better integrated and work together more efficiently.*

*- National River Basin Operations Manager*

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These inconsistencies resulted in wasted time and effort and were at risk of negatively affecting the reputation of the EA. To resolve this, a group of scientists and data professionals worked together to improve data standards across the EA.

## A Focus on Data Standards

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A primary role of the EA is to enforce environmental standards, and the goal is to mirror this focus on standards in the way it manages its data. Setting and enforcing data standards is a high priority within its overall data improvement activities.

In order to help the EA support its digital services portfolio and Open Data initiative, Global Data Strategy assisted in the creation of data models, standards, and controlled lists for environmental measurements, waterbody catchments, Local Authority names, and more. These efforts helped ensure that data captured by those digital services is standardised and consistent for easier integration and better usability.

For example, a logical data model for the Measurements and Observations data domain was created to support environmental measurements. This model is used as a tool to define and communicate a common

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*The expertise from Global Data Strategy has helped accelerate the data standards effort and has increased the visibility of the work across the EA. Their data modelling skills have been essential in creating the common language and understanding of measurement data across the EA. This is a critical step in achieving consistency in our data.*

*- National Data Standards Lead*

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language and way of working across the EA. This effort has also helped prioritise future data standards and reference data sets.

## The Value of Communication & Collaboration

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The process of building data models and data standards in a collaborative way developed a shared business and IT understanding of key data domains. Through this process, multiple teams across the organisation were able to create a common language to facilitate consensus-building and data exchange.

This consensus-building activity helped increase the profile of data standards across the EA and helped win senior management support for future work.

Better data will help the EA to meet its statutory and regulatory obligations and external reporting in a more efficient way. Rather than wasting valuable time and effort trying to integrate and cleanse disparate data sets across the EA, targeted standards effort can be performed up-front, so that the report production process will become more streamlined and cost-effective.

The delivery of consistent data standards will increase the data quality in new applications and systems, and will save time and money by facilitating the reuse of data standards and data sources across distributed platforms. With digital services being the new 'face' of the organisation in coming years, it is increasingly critical that the data that supports this public interface is of high-quality and efficiently managed in a consistent way.

## Summary

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The Environment Agency has put a strong focus on data as the foundation for its digital transformation and Open Data efforts. Common standards and data models are a critical part of the organisation's vision.

Collaboration and consensus-building played a critical part in the success of this initiative, and data models were a helpful tool for building consensus in the production of data standards and shared reference data.

Across the Environment Agency, data standards are now firmly part of its strategic data improvement agenda, helping it in its aim to become a truly data-driven organisation.