

March 2011

Flood risk

Will the proposal change:

1. The degree of water pollution?
2. The level of water abstraction?
3. Risk of flood or coastal erosion?

The short guidance behind the link for each question helps you consider whether your policy will significantly impact on any aspect of water.

Describing and valuing impacts

The Environment Agency can advise on the extent of impacts on flood risk, which can be described in impact assessments.

Once the extent of the risk is known, it may be possible to place a monetary value on this change, building on knowledge of the social and economic costs of flooding.

1. Changes to water pollution

There are great financial and ecological benefits from reducing water pollution and government has a package of policies that aim to reduce or limit pollution to each of:

- Surface waters - lakes, rivers and streams;
- Ground water - underground water, frequently abstracted for human use;
- Coastal and marine waters - where quality affects suitability for water sports, productivity of fisheries, and ecological richness.

As surface water either percolates into ground water or flows to the sea, the quality of surface water impacts significantly on the quality of ground, coastal and marine waters.

A wide range of human activities significantly affect water quality. If your policy changes the level or conduct of any of these activities, it may significantly impact on water quality. If so, contact the policy lead for the areas mentioned below.

The policy lead, with their detailed knowledge, will be able to advise on whether your policy will have a significant impact which needs to be included in the impact assessment. They may be able to give advice on how to mitigate any adverse impacts or maximise benefits. At the very least, contacting them may reduce conflicts in government policy.

Will your policy affect the level or conduct of activities which produce:

- Point source pollution? (significant discharges of pollutants from one location)?
- Diffuse pollution from agriculture (pollution from farms all over the country)?; or
- Diffuse pollution from other sources (from households or small business)?

Point Source Pollution

Will your policy affect any of these industry sectors?

- Power generation
- Chemicals (including petrochemicals)
- Food manufacture or processing
- Metal manufacture or processing
- Paper and wood manufacture
- Water and waste treatment

If it does - by either changing the way that the industries carry out their activities, changing what they produce or by increasing or reducing output, the policy is likely to change pollution output. These sectors currently generate significant (though regulated) levels of pollutant discharge.

Diffuse Pollution from Agriculture

Diffuse Water Pollution from Agriculture is a very real problem. Phosphorous, nitrogen, silt and other materials from farms are causing significant long-term degradation of our rivers, lakes and groundwater and the plants and animals that live in them. The pollution of water has and will raise water treatment costs significantly.

Will your policy affect:

- Soil erosion - which affects the level of nutrients (especially phosphates) and silt reaching the water bodies.

- Use and management of nutrients and pesticides on farms, including fish farms (e.g. the nutrient content of animal feeds, application rates and timing of fertilizer input).
- Management of agricultural waste (manures etc).

Diffuse water pollution from agriculture comes from many types of farm, including fish farms and intensive livestock units (e.g. pigs, dairy, chickens), not only arable.

Diffuse Pollution from other sources

Diffuse pollution, from industry, is a greater concern than direct pollution. Levels of pollutants of a variety of types and from different activities have negative financial and ecological impacts.

Will your policy affect:

- Levels of Road Transport, fuelling practices and drainage from roads;
- Levels and practice of coastal shipping or inland and coastal recreational craft
- Levels of construction and construction practices
- Development or management of industrial estates
- Coverage of forest and forestry practice
- Levels of Air Transport and fuelling de-icing practice at airports
- Sources of air pollution, which reach water from roofs and hard-surfaces after precipitation
- Content and use of industrial and household cleaning products, including car-washing
- Content and urban use of pesticides and herbicides, in parks and garden
- Dog, rodent and wild bird excrement
- Stone and masonry cleaning
- Illegal waste disposal

Each of these areas currently causes significant diffuse pollution with adverse consequences. For example, road transport deposits heavy metals from brake linings and road surface wear, de-icers often significantly reduce oxygen content of water; seabird excrement has very high E.coli content causing problems meeting bathing and shellfish water standards.

2. Levels of abstraction and discharge of water and waste water

Parts of the UK suffer from water stress during periods of the year which may result in inadequate supplies of water to meet all demands without causing environmental damage. 13% of surface waters in England and Wales have abstraction rates believed to be ecologically unsustainable and an additional 10% of surface waters are at risk of having abstraction rates that are ecologically unsustainable. The expected impacts of global warming, as well as population and household growth, will make this an increasing problem for the UK. The Environment Agency is working to rectify this through its management of the system of water abstraction licences.

The demand for (potable and non-potable) water for use can directly impact on how much water is drawn out of surface waters and groundwater. Shortages of water in areas of the UK may raise the costs of supplying water. Discharges also affect water resource availability, quality, and treatment costs. Excessive water abstraction, reducing the water in local habitats such as rivers, lakes and wetlands, can change the functioning of the ecosystem, affecting local biodiversity. Continuous depletion of water resources can change the local natural environment permanently.

The report "Water resources in England and Wales - current state and future pressures" published by the Environment Agency in December 2008, contains information and maps that show unsustainable catchments and water stressed areas of England and Wales, such as the South and South East. See:

<http://publications.environment-agency.gov.uk/pdf/GEHO1208BPAS-e-e.pdf>.

The Environment Agency's March 2009 water resources strategy also contains useful information. See "Water for people and the environment Water Resources Strategy for England and Wales" at: <http://publications.environment-agency.gov.uk/pdf/GEHO0309BPKX-E-E.pdf>.

Policies which affect levels of potable or non-potable water use in these areas may have significant environmental impacts, as may policies which materially change the level, quality or location of water discharges. Policies which would merit appraisal of their impacts on water include those that:

- Change the number of households living in the South East, for example by expansion of housing;

- Change the water efficiency of household use of water, for example, through installation of water efficient toilets, water butts in gardens;
- Alter the use of water for irrigation or irrigation practices;
- Alter the use and discharge of water such as by power generators, or any other users.

If your policy may impact on these areas you are advised to refer to the Environment Agency's Water Resources and Strategy documents, mentioned above, for further information on the relevant water resources position (see <http://publications.environment-agency.gov.uk/pdf/GEHO1208BPAS-e-e.pdf> and <http://publications.environment-agency.gov.uk/pdf/GEHO0309BPKX-E-E.pdf>).

3. Exposure to flood risk

Flood risk is a very significant issue. Average damages from flooding even after accounting for existing defences - are just over £1 billion per year. Central and local government has provided for spending of £800m on flood risk management during 2010-11.

Your policy will change exposure to risk of flood or coastal erosion if it:

- Sites activities or buildings on flood plains, either coastal or river, or in areas vulnerable to surface water flooding
- Promotes or discourages any activity encroaching on river channels or flood plains or within areas at risk of coastal erosion
- Changes the run-off of rainwater (and other precipitation) from land, including in urban areas (e.g. from development)
- Takes action to manage flooding
- Accelerates coastal erosion

For example, a policy which promoted (either directly or indirectly) the development of river flood plains would be likely to both increase exposure by placing the users of the new buildings at risk of flooding **and** by altering the characteristics of the flood plains, increasing the risk of flooding downstream. It is also likely to change the run-off of rainwater.

Agricultural and land use policies have the potential to change the run-off of water from land. Changes in crop, forest or vegetation cover are likely to have an effect.

Advice and Information on exposure to flood risk

- The Environment Agency (EA) is the national source of expertise on flooding and flood risk. For advice on how your policy might impact on flood risk, contact: John Corkindale (EA economist) or the natural environment economics team at nee@defra.gsi.gov.uk who can put you in touch with the flood management specialists.
- Environment Agency maps showing floodplains (both coastal and river)
www.environment-agency.gov.uk/homeandleisure/floods/31656.aspx
- CLG planning policy guidance on development and flood risk
www.communities.gov.uk/planningandbuilding/planning/planningpolicyguidance/planningpolicystatements/planningpolicystatements/pps25/
- for initial guidance on the considerations when appraising policies which affect development of land.