An Assessment of the Social Impacts of SUDS in the UK

This information sheet is summary of a report entitled 'An Assessment of the Social Impacts of Sustainable Drainage Systems in the UK'. The report was prepared as part of a DTI and industry funded research project to investigate the economic incentives, social impacts and ecological benefits of sustainable drainage systems (SUDS). The report's main author was Stella Apostolaki of Urban Water Technology Centre, University of Abertay, Dundee supported by HR Wallingford as project managers and report editors.

As part of this research, a series of reports have been produced:

SR 622: An Assessment of the Social Impacts of Sustainable Drainage Systems in the UK

SR 625: Maximising the Ecological Benefits of Sustainable Drainage Schemes

SR 626: The Operation and Maintenance of Sustainable Drainage Systems (and Associated Costs)

SR 627: Whole Life Costing for Sustainable Drainage

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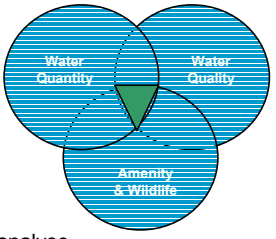
Introduction

All new and innovative drainage technologies applied in either residential or commercial developments, besides being technically and economically viable, must be designed to be accepted by the public. Poor public perception of SUDS may be a deterrent for developers in using them at new sites, as it can negatively influence buyers' decisions to acquire property within the development. In contrast, positive attitudes towards SUDS can attract house-buyers and raise property values in developments where these systems are applied.

Unlike conventional drainage, SUDS are likely to form part of public open spaces. This promotes interaction between communities and their local environment and can also result in amenity benefits. The 'urban drainage triangle' (CIRIA, 2000) illustrates how SUDS aim to provide an integrated stormwater management solution that addresses pollutant reduction and flood control while providing habitat and amenity benefits.



Study Objectives

The study aimed to collect and analyse information on attitudes of people (whose homes are served by ponds) towards SUDS, and to use this information to answer the following key questions:

- **Do SUDS influence the decision to buy a property?** Public perception of SUDS may result in either a motive for, or a deterrent against the acquisition of property close to a scheme.

- **Do people perceive SUDS to impact on property prices?** Depending on public attitudes, SUDS may have an impact on the development value and/or cost of individual properties. Alternatively, schemes may influence property saleability.

- **What factors influence the public's perception of SUDS?** Public perception of SUDS is likely to be linked to several factors, including scheme performance, biodiversity issues, education strategies, aesthetics, perceived health and safety risks, water quality and respondent socio-economic status.

- **How does perception of the sustainability of SUDS compare to that of other sustainable technologies?** Public perception of SUDS needs to be interpreted in relation to their views of other sustainability initiatives, e.g. recycling.

- **How do people perceive the safety of SUDS ponds?** Safety has already been proven to be one of the main concerns regarding SUDS application, for both developers and the public.

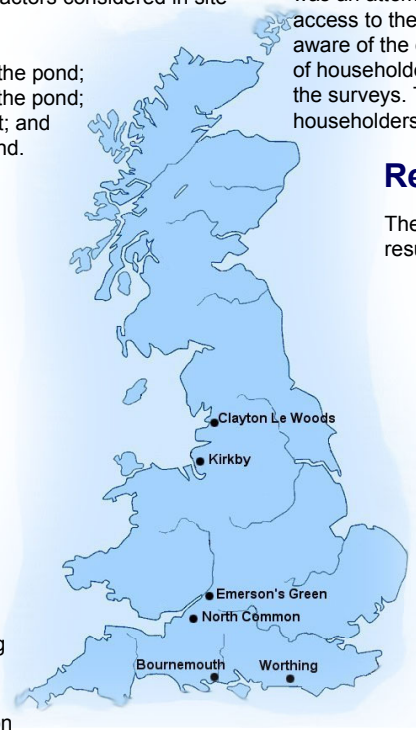
- **What role does education play in the way people perceive SUDS ponds?** Public education in the field of stormwater pollution and management may be an important contributory factor.

Site Selection

Seven sites located in Lancashire, Gloucestershire and on the South Coast were selected for the study. These comprised six SUDS ponds and one wetland. Key factors considered in site selection were:

- size of the development served by the pond;
- the aesthetic value and function of the pond;
- the degree of system establishment; and
- the value of housing around the pond.

Sites with different characteristics were chosen to allow comparison of results.



Study Methodology

The survey was applied using door -to-door, interviewer-administered questionnaires consisting mainly of open-ended questions to residents local to the identified SUDS sites.

Specific points addressed by the questionnaire were:

- Overall concerns relating to both global and local environmental issues;
- Perception and understanding of water pollution issues;
- Awareness of SUDS and appreciation of any information provided to them by developers / local authorities;
- Perceived advantages and disadvantages of SUDS ponds and wetlands;
- Suggested improvements to the performance or appearance of the pond / wetland;
- Any safety concerns associated with ponds and comparison of these risks with other kinds of hazards;
- Potential links between the implementation of SUDS and house prices / property value;
- Interest in receiving further information on SUDS and appropriate mechanisms to provide this information.

Application of Questionnaires

The questionnaire surveys were carried out at the 7 selected sites during the spring and summer of 2002. At each site, there was an attempt to reach every house that either had direct access to the pond or that was located close enough to be aware of the existence of the pond. In each area, around 60% of householders who were approached, agreed to participate in the surveys. This amounted to about one third of the householders in each location.

Results

The following general points can be drawn from the results:

- Attitudes towards SUDS appeared to differ according to site characteristics and scheme performance.
- Opinions about SUDS ponds seemed to be formulated according to how well established or not the pond was within the residential area.
- In contrast to surveys investigating public attitudes towards catchment pollution applied in the US, most people asked in these UK surveys (92%) were able to link their everyday activities to potential catchment pollution, a fact that indicates a high perception of water quality issues. However, the results demonstrated a lack of public awareness of SUDS specifically.
- Attitudes to SUDS ponds were more positive than attitudes to swales, as evaluated during previous work by the author. Although the flood prevention function of swales was appreciated, the benefits from SUDS ponds were more appealing and obvious. The attraction of wildlife to the ponds, the increase in the amenity and recreational value of the surrounding areas, the improvement of the landscape, and the environmental nature of the drainage methods, all played an important role in achieving positive attitudes towards the systems.

The Public's Overall Environmental Concerns

The major environmental concerns outlined by participants at all sites were air pollution, water pollution, disposal of solid waste and global warming.

The Public's Perception of Water Pollution Issues

Only 50 % of participants were aware of how rainwater falling on urban areas is managed or where it is discharged. However a high proportion of participants (> 92%) linked their everyday activities to watershed pollution. Major contributions were thought to arise from detergents, car washing, domestic washing and toilet waste.

Public Awareness of SUDS

The research demonstrated a lack of public awareness of SUDS as a whole, although most participants in locations where SUDS have been used had formed strong opinions about the specific systems within their residential areas. Overall, attitudes towards SUDS were positive, although knowledge of their flood prevention and water treatment benefits was poor. This lack of knowledge is considered to be one of the main factors that can generate negative attitudes towards SUDS. It appears that public education can have a critical role in influencing acceptability of new or innovative practices within residential areas.

Public Perception of the Advantages & Disadvantages of SUDS Ponds & Wetlands

In areas with well-established ponds, the main advantages were considered by residents to be:

- Attraction of wildlife to the ponds and the creation of new habitats;
- Increase in the amenity and recreational value of the surrounding areas;
- Improvement in the landscape;
- Their role in reducing flood risk.

All of the above topics played an important role in formulating positive attitudes towards the systems. Increased safety risks, and specifically the potential danger of children drowning, was indicated as the main perceived disadvantage of the ponds.

Safety Concerns

In areas with well-established ponds, with rich marginal vegetation, safety was rarely perceived as an issue. At sites comprising newly established ponds, with limited or non-existent marginal vegetation, or where slopes were perceived to be over-steep, safety concerns were high. Whenever safety was cited as a concern, the vast majority of participants (about 85%) still preferred to live next or near to a pond; rather than further away.

In all areas, a busy main road was considered to be the most dangerous hazard to live close to, while ponds were considered safer than rivers or landfill sites.

Suggested Improvements

Increased maintenance of the ponds and their surroundings were the most frequent suggestions. Requested maintenance included pond cleaning, removal of silt, and vegetation management. In sites where concerns over safety were high, the introduction of natural barriers around the pond was also suggested. Other proposed improvements included the provision of benches and the creation of walkways to increase the amenity value of the pond.

Links Between SUDS & Property Values

Well designed and managed SUDS appear to have a positive affect on house saleability and on house prices. In areas with well-established ponds, there is perceived belief among the residents that their properties would fetch a 10% premium, along with an increase in saleability. Where houses were sited close to poorly designed and / or maintained ponds, it was felt that the saleability and price may be compromised.

Public Interest in Further SUDS Information

The majority of the participants (70%) were keen to receive more information regarding the SUDS ponds. They particularly asked for information about the function and efficiency of the systems, the reason for their existence in that particular area, and the flora and fauna present in them. The most appropriate method for receiving this information (as indicated by the respondents) would be the distribution of leaflets or newsletters.

Recommendations

Several recommendations can be made based on the results of the public perception surveys. These recommendations do not address matters of technical design but address public acceptability issues such as scheme, appearance, design characteristics, and maintenance issues.

Design

- Ponds should be made as “natural” in appearance as possible.
- Marginal vegetation and planting adjacent to SUDS is important and should include native species.
- Shore slopes should be gentle.
- Natural barriers (e.g. planting) should be introduced to help manage perceived safety risks.
- Deep water warning signs should be used.
- Benches should be introduced.
- Picnic tables, walkways and children’s play areas should be considered.
- Land based wildlife and aquatic species, including fish, should be encouraged to colonise the system and its marginal areas.

Operation and Maintenance

- Litter and silt removal programmes should be given a high priority.
- Clearing of inlets and outlets should be regularly undertaken.
- Management of marginal vegetation should be regularly undertaken.

Education

- Pre-purchase information on local drainage and SUDS proposals should be provided to householders.
- Educational campaigns should be set up for local community groups.
- Interpretation boards should be introduced around SUDS.