

Avoiding future floods & droughts



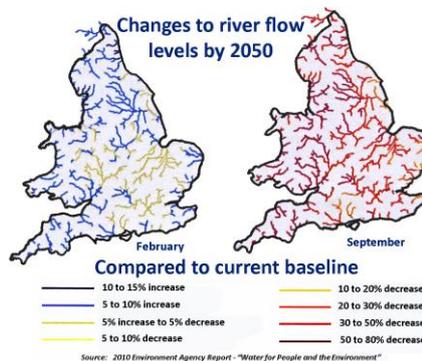
about the author ...

Lutz Johnen is Managing Director of water management specialists Aquality Trading & Consulting Ltd. He is a founder-

member of the UK Rainwater Management Association, and also its current Chairman.

predicting dire consequences ...

As recent floods have shown only too clearly, we ignore the forces of nature at our peril, with “100-year rainfall events” seeming to occur much more regularly than the name would suggest. Worryingly, this is all of a piece with predicted changes in weather patterns which foresee the UK in the future experiencing milder wetter winters. These are forecast to raise river levels by as much as 15% above their current high-water marks, with inevitable damaging consequences to people, the environment, and the economy.



politics vs results ...

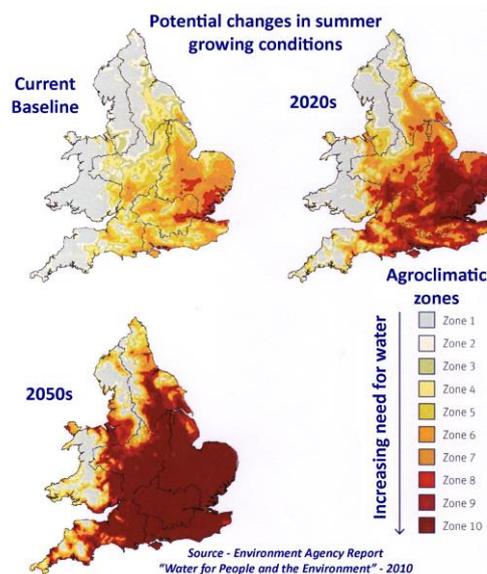
The political outcry which inevitably accompanies flood events leads to the Environment Agency prioritising flood-defences with all available resources, the general call by those effected being to dredge water-courses and raise river banks. All very understandable when personally affected, but not necessarily the right short-term answer to a long-term challenge.

Improving local water-courses as a conduit for water has two obvious potential downsides; firstly it is prone to moving the flooding problem downstream to new sufferers, and secondly does nothing to address the other side of the water equation which is the need

to meet later demand. This will only become a political issues once droughts occur as regularly as floods currently do, by which time it may well be too late to react.

taking a twin-track approach ...

Often overlooked amidst the human misery caused by flood events, however, is the other aspect of changing weather patterns, namely dryer summers. These are predicted to lead to water shortages, wreaking damage on water-dependent industries such as agriculture. According to the latest IPCC Report, of the two, floods and droughts, the latter pose a far greater future threat to the UK.



The answer, whilst by all means doing everything possible to mitigate current flood risks, is to take a look at the supply side of the water equation now, rather than wait for the problem to arrive.

Taking agriculture as a key example, predictions are that growing conditions throughout much of the England will deteriorate markedly in coming decades, making adequate water-supplies an issue as soon as the early 2020s.

This means that it is in farmers' own interests to address this looming problem right now, in order to safeguard the future value of their land.

As a broad principle, this means managing the water flowing through and over their land in the winter, to establish a reserve of water for subsequent summer use. The encouragement and resources needed to do this is a political issue that has yet to be faced.

attenuate & re-use ...

Although the right approach will inevitably vary with the topography and local rainfall characteristics, the broad principle must include storing sufficient water when and where it falls, to meet later dry weather irrigation demands. This has the beneficial secondary effect of reducing down-stream flood risks whilst the rain is falling, correspondingly affecting the scale and nature of investment in flood defences.

It goes without saying that a consequence of this logic is that planning and investment to avoid future floods and droughts needs to be undertaken in an integrated and holistic way, a conclusion soundly endorsed by a recently published survey of more than 1,000 water management professionals.

sustainable urban drainage (SuDS) ...

Meanwhile, a significant proportion of local flood risk arises from the rainfall falling on urban areas, a factor resulting in a long-standing requirement for the incorporation of sustainable drainage (SuDS) on all new developments. This means that the new roofs, roads and other hard surfaces associated with new developments must avoid adding to existing down-stream flood risks.

Where this cannot be achieved by simply draining the surface water into the ground through soak-away pits, then the normal approach is to use techniques similar to those advocated above, namely to attenuate, or temporarily store, the water until it can safely be released into the storm drain system.

Re-using this attenuated water for non-potable uses, such as toilet-flushing, to help address future water shortages would appear the logical next step, as already highlighted in the Welsh Government and Mayor of London SuDS Standards.

For more information see www.ukrma.org

