

WATER IS A VALUABLE RESOURCE

Integrated Water Resource Management (IWRM)/Blue Green Infrastructure (BGI) would save £36 Billion if implemented in London.

IWRM is a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.¹ **BGI** goes further. It aims to reintroduce in cities the natural water cycle into urban environments and provide effective measures to manage fluvial (river), coastal, and pluvial (urban runoff or surface water) flooding. BGI favours an holistic approach and aims for interdisciplinary cooperation in water management, urban design, and landscape planning. Community understanding, interaction and involvement in the evolution of Blue-Green design are actively promoted².

One of the many issues facing London, in addition to the critical environmental problems such as air pollution, the heat island effect and climate change, is the lack of IWRM/BGI approach as defined above³.

London's current Infrastructure plan at £46bn for water management is capital intensive and hence very expensive. For example, the Mayor of London's **London Infrastructure Plan** (LIP) includes an allowance for a capital spend of £46 billion to bridge a possible gap between water demand and supply developing over the life time of the plan in consequence of the predicted growth in the number of people living in London. Such a spend would imply **water bills more than trebling in real terms** and would be likely to raise questions about water affordability. The LIP does not include the additional capital requirement on the wastewater side.

London and South-East's Rainfall - In global terms, London has relatively low rainfall, but we benefit enormously in water management terms from the limited variability in rainfall over the year and very low variability between years. This means that London has not needed to have massive and very expensive storage capacity, reservoirs, to provide security against droughts. It was also able to avoid the costs of reservoirs and aqueducts by being able to abstract water directly from local rivers and, to a limited extent, from aquifers.

London's Rainfall is a Potential Resource - In crude terms, London also exports more water than it imports as it acts as a giant rainfall collector but presently rainfall is commonly treated as a problem rather than a potential resource. A general advantage of urban uses is also that we get back most of the water put into supply and potentially it is therefore available for reuse. For instance, the London Olympic Park included a treatment plant which takes raw sewage directly from the Northern Outfall sewer, which treated waste was then used to flush toilets and for garden irrigation.

¹ IWRM is an empirical concept which was built up from the on-the-ground experience of practitioners. Although many parts of the concept have been around for several decades - in fact since the first global water conference in Mar del Plata in 1977 - it was not until after Agenda 21 and the World Summit on Sustainable Development in 1992 in Rio that the concept was made the object of extensive discussions as to what it means in practice. The Global Water Partnership's definition of IWRM is widely accepted.

² Philadelphia is an excellent example of IWRM/BGI See

http://www.phillywatersheds.org/what_were_doing/documents_and_data/cso_long_term_control_plan

³ Information provided by Professor of Water Economics, Colin Green, Middlesex University.

Water Used Inefficiently at Present in London- Household water usage is 25% higher than in Germany and 50% higher than in Belgium. Large reductions are also possible for commercial and industrial uses; for example, members of the Food and Drinks Federation are committed to reducing water usage by 25%. Therefore, the potential exists for dramatic reductions in water usage.

Predicting Demand is Notoriously Difficult-At the same time, because water management is capital intensive, there is a need to predict future demand in order to have sufficient lead time to act to meet that demand⁴.

Developing Consensus Within Water Management Community- This approach adopted needs to involve: **An Adaptive Management Approach** -one that is not based upon a single prediction of the future but one which can be modified as the future pans out, and the course of action adopted can be adjusted accordingly. This tends to imply avoiding large scale capital works which have a long lead time, a high one off capital cost, and are intended to meet a predicted growth in demand⁵.

A Synergistic Approach - the costs of dealing with London's critical environmental problems and providing the necessary infrastructure are so enormous using traditional engineering approaches ('grey infrastructure') that there is no realistic choice but to look for means which give us a return of £2-3 for every pound we spend.

Reduce Water Consumption- If we reduce water consumption we also save money on foul-water collection and treatment, carbon energy requirements, and potentially, surface water collection and treatment.

Adopt an IWRM/BGI Approach- This offers a synergistic approach to addressing the water management problems of London and environmental crises such as air pollution and the heat island effect. There is enormous expertise in IWRM/BGI in UK with the Landscape Institute, Waterwise, CIRIA and the Environment Agency. The first indications are that IWRM/BGI would reduce the proposed LIP capital spend on water of £46bn to around £10bn.

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Based on Prof Colin Green's paper on this subject.
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⁴ In the 1920s, the Metropolitan Water Board was predicting that in 50 years it would have to supply water to 20 million people. But as this example shows, falls in demand can occur as well as growth.

⁵ In the 1960s, a number of very large reservoir projects, notably Kielder Water, were built to meet a predicted growth in demand which did not take place. Small scale local action is more easily tailored to a changing future and avoiding a capital investment which produces no return but an on-going finance cost.