Lee Tunnel and Beckton Sewage Treatment Works Extension scheme

ODA Consultation
Application Reference 08/01158/ODA

Comments by
CC Water London and South East Committee

13 August 2008
Lee Tunnel and Beckton Sewage Treatment Works Extension Scheme

Introduction

1. The Consumer Council for Water is the independent body that represents water and sewerage consumers throughout England and Wales. We have four regional committees in England and one in Wales. This representation is made on behalf of the Consumer Council for Water, London and South East Committee.

Summary

2. The frequency and volume of storm overflows mixed with raw sewage at Abbey Mills accounts for half of the total overflows to the Tideway as estimated by the Thames Tideway Strategic Study Group. This clearly constitutes a major point source of pollution.

3. We support the action required to deal with this, and do not oppose any part of the present planning application in so far as it relates to the Lee Tunnel and expansion of capacity at Beckton to deal with the additional flows from the Lee Tunnel, and population expansion in the Beckton catchment. It makes good a clear inadequacy in the capacity of the Victorian infrastructure to move combined sewage and storm water from the main junction point of the northern interceptor sewers on to Beckton.

4. Our comments relate entirely to the value for money of the wider Thames Tideway Tunnel scheme, and are relevant to the present application only in so far as there is a necessary connection. We make them now so the planning authorities can consider how far it is necessary to address them in the context of the Lee Tunnel and Beckton planning applications, or how far they can be deferred for a full inquiry into the Tideway scheme as a whole.

5. Our key concern relates to the huge costs associated with the wider scheme and the potential impact this will have on Thames Water customers’ bills, which combined with other investment requirements will lead to problems of affordability amongst low income groups, and push more customers into water poverty, unless alternative funding arrangements can be found.

The Wider Thames Tideway Scheme

6. We would be grateful if the following considerations could be taken into account in the Borough’s consideration of the scheme, and by each of the planning authorities in their decisions on the appropriate form of
procedures, including public inquiry or inquiries, on the overall set of measures to be adopted.

Costs/Benefits

7. Our key concern is the cumulative impact of these and other investments on water and sewerage bills paid by all Thames Water customers over the next decade and beyond. The key point is that there is an upper limit on the expenditure that can be justified in relation to the benefits, or reduced damage to health and the environment, produced by the overall Tideway and Lee tunnel schemes.

8. The costs of a high risk tunnelling scheme at depth through variable and saturated ground cannot be regarded as fixed, and there is as yet no clarity as to how the risk of overspend will be managed and allocated between company, contractors and consumers. There is also substantial evidence that benefits may have been overestimated.

9. We agree with Ofwat’s assessment in January 2007 that -

“All the work done to consider yet further improvements to the Tideway demonstrates that it would not achieve value for money. Indeed the evidence strongly suggests that the benefits would be very limited from the proposed sewer interceptor, whether in terms of health improvements, nuisance reduction, or environmental improvements. Any such improvements would not be in any way proportionate to the very high cost - well over £2billion for each of the variants of option 1. Indeed, the proposed interceptor tunnel raises issues of planning and construction risk which we consider likely to be greater than those associated with water company capital investment programmes generally.

None of the options investigated has been shown to represent value for money. The costs of all options are huge . . . In contrast, the tangible benefits offered by the options are uncertain, marginal at best, and subject to erosion by climate change to the extent that the dissolved oxygen objective will fail to be met at some point within the first 60 years of operation. The cost benefit analysis has not taken climate change into account and has thus produced net present values (npv) that are overstated. Even so, all options have been calculated as having negative npvs when benefits accruing to Thames Customers are used. “(Letter from OFWAT Board to Minister for the Environment, January 2007. ’)

10. In these circumstances it makes sense to draw the planning authorities’ attention to the extent of the economic case that can be made out against the full Thames Tideway scheme, which includes the Lee Tunnel extension and Sewage Treatment Works improvements at Beckton.
11. It also makes sense to separate and bring forward the measures to deal with the most polluting discharge. This may help to establish cost and risk sharing arrangements for the project as a whole. The outturn will be a critical factor influencing whether the full scheme, including the much longer tunnel from Hammersmith to Beckton, can be justified, or should be replaced by an alternative package of measures.

12. The legal framework for water privatisation means that final costs and servicing of the debt and enhanced asset values arising from the scheme are born in the end by Thames Water customers, although it will be important to leave proper incentives and risk sharing in place for the construction phase. The Tideway and Lee tunnels and associated sewage treatment improvements are only part of the investment requirements facing the company. There are other cost pressures waiting in line not least those arising from the Water Framework Directive (WFD), on which draft proposals are expected from the Environment Agency in December 2008.

Impact on Thames Water Customers’ Bills

13. The peak impact of the combined costs of the Tideway and WFD measures is expected to fall in and beyond the AMP 6 investment period: from 2015 onwards. Thames Water has proposed an investment package leading to price increases of between 20 and 21% in real terms between 2010-11 and 2014-15. OFWAT will consider and respond to these proposals leading to a final determination of price limits in November 2009. The extent of possible overall price increases is critical for the longer term sustainability of water and sewerage charges for low income households. It remains a possibility that some very significant costs will be combined with a redistribution of those costs from richer to poorer households as customers are transferred to a metered basis of charging.

14. The distributional shift is implicit in the policy of compulsory water metering in areas of water scarcity. Thames Water’s draft Water Resource Management Plan (dWRMP), on which consultation closes on 27 August, proposes to work towards near universal metering by 2020. This means phasing out rateable value based charging. We are concerned that this will have two adverse effects: higher charges for larger households, especially households with children, and a higher share of the overall burden of investment being born by low-income households.

15. The Environment Agency is challenging water companies in London and the South East who have not set a 2015 deadline to complete programmes of universal metering. The Agency’s comments on Thames’ dWRMP are expected. There is provision for public inquiry to resolve any outstanding differences. CCWater will be formally responding to the Thames Water dWRMP later this month. Our central concern is that metering must be
managed in a way that protects low income and vulnerable households, and in particular households with children, and does not leave them with a sharply rising share of the costs arising from environmental investment programmes. These costs are not directly related to the volume of water each household consumes, as they cover the cost of fixed assets and of surface water drainage management as well as foul sewage treatment.

16. The possibility of a more regressive distribution of these public good investment costs is important across the region, but the largest concentrations of low income households are, of course, in inner London, and in eastern inner London in particular.

17. The extremes of wealth in London are greater than anywhere else in the country, to the extent that, after housing costs, nearly 30% of households in inner London have incomes equivalent to the lowest quintile or 20% nationally, while nearly 30% have incomes equivalent to the highest quintile.

18. For households with children wealth inequalities are even more pronounced, with nearly 50% of such households in inner London on bottom quintile incomes.

The Legal Requirement

19. We note that the planning statement submitted by Adams Hendry on behalf of Thames Water Utilities Limited justifies the necessity for the scheme in terms of both policy frameworks and statutory requirements, including European requirements and the policy decisions of the responsible Minister, supported by the former Mayor.

20. In particular, paragraph 2.17 refers to the Urban Waste Water Treatment Directive:

“The aim of the Urban Waste Water Treatment Directive (UWWTD) is to prevent the environment from being adversely affected by the disposal of insufficiently treated urban wastewater. It contains the following requirements which are directly relevant to the proposals:

• “Urban waste water entering collecting systems shall before discharge be subject to secondary treatment or an equivalent treatment” (Article 4);
• “Given that it is not possible in practice to construct collecting systems and treatment plants in a way such that all waste water can be treated during situations such as unusually heavy rainfall, Member States shall decide on measures to limit pollution from storm water overflows”;
• “Urban waste water treatment plants are designed, constructed,
operated and maintained to ensure sufficient performance under all normal local climatic conditions.” (Article 10), and
• “The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding volume and characteristics of urban waste water, prevention of leaks; and limitation of pollution of receiving waters due to storm water overflows.”

21. Whilst it is clearly the opinion of the European Commission and the Environment Agency, and apparently also of DEFRA, that there is no alternative to the full Thames Tideway scheme to secure compliance with the requirements of the Directive, there remains some ambiguity as to what exactly it does require.

22. No precise clarification can be derived from exchanges between the European Commission and DEFRA. Since the former began infraction proceedings in April 2006, these exchanges have been confidential.

23. It is clear from the second extract in the paragraph above that there is no requirement to construct collecting systems that never overflow after heavy rainfall, and that Member States have a degree of discretion in the measures they decide to limit pollution from storm overflows.

24. It is also clear that urban wastewater treatment plants should ensure sufficient performance under all normal local climatic conditions.

25. The Directive, no doubt by design, does not put numbers on the frequency of events which are to be regarded as “unusual” or “abnormal” and it may be that the present frequency of overflows at Abbey Mills and Beckton would be difficult to justify in any circumstances.

26. However there are no records of the frequency of gravity overflows along the Tideway, as opposed to those produced, as at Abbey Mills, from pumping stations.

27. We welcome steps being taken to monitor these gravity overflows.

28. The ambiguity of the fourth extract from the Directive above is crucial to the question whether the Tideway scheme as a whole needs to be shown to be cost beneficial before it proceeds.

29. Does the requirement that collecting systems shall be designed, constructed and maintained “in accordance with the best technical knowledge not entailing excessive costs” mean that where costs of the best available scheme exceed benefits, there is no requirement to extend their capacity, in particular in respect of storm overflows? Or does it mean that in certain unspecified
circumstances there is an absolute requirement to extend the capacity to reduce the frequency of storm overflows, and “best technical knowledge not entailing excessive costs” applies only to the means by which the absolute requirement is delivered?

30. The position of the Environment Agency appears to favour the second interpretation. For example in a Board paper of January 2008, discussing the implementation timetable for WFD, the following passage is included:

"3.2 For statutory schemes, driven by existing Directives, the requirement for action is often absolute and the only discussion is around which solution is most cost effective. In contrast, action to achieve many of the WFD objectives must be feasible, proportionate and the benefits must be shown to outweigh its costs. If there is uncertainty that an outcome will be achieved, estimates of benefits must be reduced accordingly. The guidance has the effect of targeting actions in the RBMPs to those areas where:

i) action is required because of existing Directives (irrespective of the next three points);

ii) there is reasonable confidence that there is significant risk (including actual evidence) of ecological damage;

iii) there is reasonable certainty between those risks and potential causes; and

iv) there is reasonable certainty that a remedial measure would give the predicted positive effect."

31. A similar belief in the “absolute” of requirements under the UWWTD has been asserted by the EA at planning inquiries for schemes undertaken to secure UWWTD compliance.

32. DEFRA has taken the position that a cost benefit evaluation was an important stage of reaching its decision on the Tideway Tunnel options, although whether it did this simply to decide between options or also in order to decide whether any scheme was required (thereby assessing its infraction risk) is obscure.

33. When the Minister’s decision was announced in March 2007 it is possible that no full connection had been made between the Tideway decision and separate proceedings in which a UK court had gone to the European Court of Justice (ECJ) for clarification of the relationship between the Urban Waste Water Treatment Directive and the Waste Directive.
34. The case concerned the escape of solid waste from the sewage collecting systems, and responsibilities and legal requirements concerning resulting pollution of land. The full judgement may have no more than an indirect bearing on the present planning application, which concerns escapes to water.

35. However the ECJ’s judgement in the case in May 2007 produced a significant clarification resolving the potential ambiguity described in paragraph 28 above. The ECJ found, quoting from advice from the Advocate General, that

“39 Accordingly, the Urban Waste Water Treatment Directive regulates the escape of waste water from collecting systems and even accepts this where prevention of such escape in accordance with the best technical knowledge would entail excessive costs. In addition, any leaks that may occur are to be repaired according to the same principles, since this forms part of the required maintenance of the collecting system.

40 Contrary to the view of the Environment Agency, the Urban Waste Water Treatment Directive does not thereby fail to achieve the level of protection required under the Waste Framework Directive, Art.4 of which provides for a prohibition on the uncontrolled release ["unkontrollierte Ableitung"; "dumping" in the English version] of waste. While the escape of waste water could be regarded as an uncontrolled release, this prohibition cannot apply absolutely to every instance of release. Rather, the scope of the prohibition should be limited in accordance with the principle of proportionality, to the effect that the holder of the waste cannot be accused of an uncontrolled release where he has exercised due diligence.

41 The Urban Waste Water Treatment Directive provides precisely for the standard of diligence to be exercised. It lays down the measures to be taken to prevent uncontrolled escape of waste water. Regard is to be had to the best technical knowledge, and the costs of securing the collecting system are to be weighed up against the possible damage in the event of overflows.”

36. We conclude from this that:

i. it would be wrong to argue that the requirement for the full Tideway and Lee tunnels is absolute, in the sense that it does not matter whether the scheme is cost beneficial or not;

ii. it is important, for an investment on this scale it is good regulatory practice as well as good law, to show with reasonable confidence that there is significant risk (including actual evidence) of ecological damage;
iii. there is reasonable certainty between those risks and potential causes; and

iv. there is reasonable certainty that a remedial measure would give the predicted positive effect, and

v. Infraction proceedings against the UK would have to show that measures were cost beneficial in order to be consistent with EU legislation and the interpretation of the ECJ.

37. There is scope for further evidence and developments under each of these headings:

Ecological considerations

38. The considerations are as follows:

i. **Cost benefit.** Whether the full scheme is cost beneficial depends on the final balance between any revised estimates of costs and cost risks on the one hand, and benefits or possible damage from overflows on the other. We have no further information about costs than those given in the Thames Tideway Regulatory Impact Assessment in January 2007. There is however some uncertainty about benefits (see Para 53 below.)

ii. **Significant risk of actual ecological damage.** The planning note gives an assessment of ecological risk. It does not address the environmental downside of the substantial carbon footprint of such a large concrete and steel structure as the full Thames Tideway tunnel, estimated at 590,000 tonnes of CO2 in embedded energy, plus another 181,000 tonnes in energy for tunnel boring (see table 15, Thames Tideway RIA.) Nor does it address the possibility that the ecological impact of the tunnel may be overtaken well within the life of the asset by further adverse changes in the ecology of the river due to rising temperatures. The study by Fawley Aquatics for the Thames Tideway Strategic Study Group remains the most comprehensive study of the difference a Tideway tunnel might make to the sustainability of various fish species in the Tideway. A comparison of tables 6.10 and 6.11, showing the difference in expected fish mortalities with and without a tunnel, illustrates a very finely balanced case for the investment in purely ecological terms. It is not clear whether the further modelling reported in Chapter 8 of the Environmental Impact assessment overtakes this. There has been some discussion of the progressive development of standards taking account of water framework directive technical advisory group work. This moves the focus on from acute events, i.e. fish kills (the aspect offered to respondents in willingness to pay (wtp) valuation work) towards chronic influences on sustainability and the EA’s wider objectives for protecting the river. These may involve a degree of future-proofing against global
warming. Improved summer levels of dissolved oxygen may allow salmon to migrate at higher temperatures. If such considerations are in play, they should be made explicit—especially where they carry a significant carbon cost.

iii. **Reasonable certainty between risks and potential causes.** One of the drivers of the EA’s concerns about storm overflows in the Tideway has been the suspected impact of present conditions on salmon, and in particular the possible role in the poor or intermittent return of introduced salmon from migration. It seems to be accepted that some 40 of the 120 species sighted in the Tideway exist in sustainable populations, and that they are sustainable whether or not the full Tideway tunnel scheme is built. The absence of sustained returns of salmon from salmon migration may be a function of water quality in the Tideway, water temperature (both in the Tideway and in the Southern North Sea), water flow, and the ability of reintroduced fish to follow the olfactory clues that guide return to their natal river. Although CSO overflows can be a factor in deterring migration of adult salmon, it is unclear whether it is thought that dealing with overflows is a sufficient measure to ensure return of salmon for an extended period, despite projected temperature increases which are already near the physiological ceiling of the species in hot summers. We note also that there has been considerable difficulty in establishing contributions to the causality of fish kills, including the relative contributions from storm overflows from the collecting system and those from sewage treatment works. It is clear, however, that the most often cited event of 3 August 2004 had little to do with overflows from the Tideway collecting system. This fish kill followed a severe storm that caused release of untreated effluent from storm tanks and activated sludge from Mogden sewage treatment works, which is outside the catchment. Overflows from Mogden have played a part in many oxygen depleting events, and will be addressed by agreed investment outside the scope of the Tideway tunnel.

iv. **Reasonable certainty that the remedial measure will give its predicted positive effect.** The RIA suggests that the tunnel will not meet its ecological objectives by some point before 2080. There is a possibility that it may not meet them by 2050. If this is likely, it reduces the value for money of investment in a full Tideway tunnel.

v. **Infraction proceedings:** given the lack of information about the European Commission’s case, it is difficult to say more than that the ECJ ruling in the Bromley case is a relevant new fact. It is also notable that the only cost benefit information available to the Commission in April 2006 was net present value (npv) calculations of the Thames Tideway Strategic Study Group, based on the overtaken wtp survey of 2002. In so far as any justification for the investment is based on the requirements of the WFD, as well as the UWWTD, it is too soon to say what bearing the Directive has. As
indicated above, the Directive recognises the concept of disproportionate costs. DEFRA has yet to issue guidance on how this should be interpreted.

Health benefits

39. The potential for overstating the health benefits of the Tideway Tunnel is if anything even greater than the potential for overstating ecological benefits. Where public health benefits have been separately assessed in wtp work, they accounted for about two thirds of total values. In the study of 2002 - wtp to reduce elevated health risks was aggregated to over £4bn npv.

i. Cost benefit - An assessment of public health impact would require risk, exposure and incidence to be assessed. There is guidance associated with the Treasury Green book on the appraisal of measures intended to manage risks to public health, although it has not to date been reflected in appraisal of the Tideway scheme. The capital costs of the full Tideway tunnel scheme are equivalent to the building costs of some 50 community hospitals. As health benefits form part of the justification for the Tideway and Lee tunnel proposals, it is reasonable to examine how far, on conventional health cost benefit criteria, it could be regarded as a cost effective intervention.

ii. Significant risk of actual damage - It is agreed that risk to recreational users comes primarily from ingestion of polluted water following immersion. The “Thames Recreational Users Study” examined the health of some 2,000 rowers who regularly use the Tideway between Putney and Kew. The study found that background levels of microbiological indicator organisms regularly exceed recommended levels for recreational use at Kew, Barnes and Putney: 92% of samples found e-coli counts > 1000cfu/100ml; on less than 1% of days were samples below the “no observable adverse effect limits set by the WHO guideline standard of <40 cfu/100ml enterococci. These levels are raised in plugs of discharged waste water which may remain relatively concentrated for up to four days, with elevated samples of microbiological indicators evident up to five days after discharge. The main risk is of unpleasant short term gastro enteritic illness. The incidence of gastro-enteritic illness in the sample of rowers monitored by the HPA/PLA study between January 2005 and March 2006 was 18 reports of illness (12.8 /1000/year) The duration of illness ranged from 1 - 20 days with a mean of 3 days, and cases took from 1 - 5 days off from work (one case was ill for 20 days but not working). The numbers of reported gastrointestinal illness are particularly low, given that the incidence of infectious intestinal disease within the general population is considered to be in the region of 190 / 1000 person years. (HPA/PLA study pp49-50.) Immunity may be one reason (alongside general good health, fitness and good hygienic practice) why the gastric health of Tideway rowers is about 10 times better than in the population as a whole. There may be
unreported cases of infection amongst other groups of recreational users, many of whom use the relatively contained stretches of water in the former Docklands areas. It has also been suggested that children and first time users may be at higher risk. Clearly more could be done to understand health risks among recreational users in the Docklands area, where they may be different types of use and different exposures.

iii. **Reasonable certainty between risks and potential causes.** The recreational users study includes extensive discussions of the difficulty of distinguishing between microbiological contamination from storm overflows of untreated material from sewage treatment works, from treated but undisinfected effluent from sewage treatment works, from storm overflows from the collecting system, and (in the case of some organisms such as salmonella) possible background agricultural sources. “The data from this study shows there to be statistically significant differences between concentrations of indicator organisms by location, as a whole and when defined by weather conditions. The overall trend shows improvements in water quality with the transition downstream from Kew to Putney, potentially reflecting the importance of Kew’s proximity to, and the influence of both secondary treated effluent and storm tank discharges from Mogden” p49 “there is evidence to suggest that the influence of secondary treated effluent from Mogden sewage treatment works is as great as that of the less frequent but common CSO discharge events. Under dry weather conditions, Kew consistently yielded lower water quality results than either Barnes or Putney, with detection of high numbers of indicator organisms, together with pathogens and enteroviruses. There may be an artefact of cross sectional river area and volume differences between the locations at Kew, Barnes and Putney, but the relative proximity of each site to Mogden cannot be disregarded, particularly in light of the significant input of Mogden’s’ treated effluent discharges to river flow.” P54.

iv. **Reasonable certainty that remedial measure will give its predicted positive effect** The predicted positive effect of the Tideway tunnel is to reduce the number of elevated health risk days. It is not clear what the difference is between the elevated health risk and the baseline health risk. There may be a greater chance of infection at higher levels of microbiological contamination, but the extent of difference in risk is unknown. It is unlikely that baseline conditions will be risk free, or sure to lead to a significant reduction in exposure. Indeed so far as water may appear safer, it is possible that use would rise and exposure to baseline risks could lead to higher infection rates. Baseline risks will remain significant because treated effluent is not disinfected. The use of chemicals or energy to secure disinfection would have environmental disadvantages as well as very high costs. Receiving waters are restricted in volume and therefore dilution is more restricted than where discharges are to bathing beaches. The constant turbidity of Tideway water, which blocks natural destruction of infectious agents by ultra violet light, probably means that it
will never be practicable or cost effective to bring Tideway waters up to internationally accepted standards for either bathing or recreational water. It is not part of the present package of measures to do so. A full Tideway tunnel would therefore probably reduce health risk but not eliminate it. The extent of the reduction in risk is unknown.

v. **Infraction risk.** It is not clear whether there is any infraction risk arising from health issues on the Tideway. It is not subject to the Bathing Water Directive, and reference to the health of bathers in the European Commission’s press notice may have related to other schemes.

**Valuation of benefits**

40. Valuation of benefits of environmental schemes is said to be a developing science. We accept that the value of environmental improvements cannot be assessed through market values. We also accept that it makes sense to look at the willingness to pay of those who will pay for the investment to establish what value they place on the improvements proposed.

41. The usual approach to establishing non-market values has been through stated preference studies. There have been two attempts to place a value on the Tideway and Lee Tunnel schemes, in 2002 and 2006.

42. The first survey in 2002 valued willingness to pay for Tideway improvements in the range £70-£76 per household per year. 65% of this value came from willingness to pay to reduce health risk, so this element of non-use valuation contributed some £4.2bn of total estimated net present value for the project (discounted at the standard Treasury rate of 3.5% over 30 years, Thames customers only) of up to £6.9bn. (Tables 4.14 -5.13 of TTSS wtp study.)

43. These somewhat spectacular values were all that was available to the European Commission on npv of the project when it began infraction proceedings in April 2006. We are sure that they were unreliable.

44. A further wtp study was requested by CCWater as part of the additional appraisal work on Tideway options between June and December 2006. Although we were involved in the steering group for this study, options were limited to some degree by the strict timescale, and the difficulty of including firm information on health impacts from the concurrent but then incomplete recreational users study.

45. Details of the findings of the second survey are set out in the Thames Tideway Regulatory Impact Assessment
46. This found a willingness to pay for the administrative jurisdiction (i.e. Thames customers) of £13.02 per household per year, aggregated to £66m for all households. Results for a separate and much smaller sample of non Thames customers (Benefits Jurisdiction) found a willingness to pay of £8.52 per household per year, aggregated to £174m per annum. (2006 prices, see RIA table 1).

47. The willingness to pay of Thames Water Customers did not cover the capital costs (£2,478m) and operating costs (£366m) of the preferred option. Only on the basis of the benefits valuation, as though all English households were paying, were positive npvs possible.

48. It is hoped that the projections of bill impacts in the Regulatory Impact Assessment are now overtaken because they were based on the weighted average cost of capital post tax allowed in PR04 (5.1%) and included a substantial financeability margin. OFWAT’s position is that it should be possible to set a lower cost of capital in the PR09 price review, and unnecessary to enhance this by allowing or a financeability margin. Similar assumptions are implicit in Thames Water’s draft business plan submitted on 11 August.

49. We suggest that the planning authorities could usefully call for an updated assessment of npv calculations and bill impacts. It may be best to do this in October 2008, when some further indications of WFD related costs in the same period may be available.

50. For the time being, we have significant reservations about the benefit valuations derived in 2006 and the “all England” benefit valuations in particular.

51. Stated preference studies depend on fairness, accuracy and relevance in the presentation of improvements to those who are asked to value them. This is a difficult business, as interviewers may only have 30-40 minutes to describe the improvements and elicit values. Respondents may be more dependent than usual on descriptive material where the issue is water pollution. For the majority, their first hand knowledge of the problems to be addressed may be more limited than it would be if they were participating in surveys on, for example, the health service, policing, schools, roads, public transport or air quality of which most people would have first hand experience.

52. We think that the lack of information (at the time) on the extent of illness caused by present conditions in the Tideway was a critical weakness of both the 2002 and 2006 Tideway stated preference studies. Until the recreational users study was completed later in 2007, those responsible for the stated preference surveys on the Tideway took the view that there were
no sufficiently reliable figures to be given to respondents to wtp surveys. Respondents were asked to value a reduction in “elevated health risk days”, and given information about the rise in faecal coliform and other indicator counts in the days following storm overflows, although it was not possible to distinguish the contribution of storm overflows from the Tideway CSOs and overflows from sewage treatment works. They were given no information about the incidence of illness, or the prospects for reducing it - which would normally be an essential element in establishing the justification for a public health measure. This made it particularly difficult to assess the scale of the improvements they were being asked to value. In January this year some 100,000 -200,000 cases of norovirus infection were estimated a week in the population at large. This is the same agent in many cases, and similar symptoms, to the reported illnesses amongst recreational users of the Tideway. A £2.5bn investment to address approximately 12 cases a year might suggest an exceptional degree of priority for the health of recreational users. Alternatively it may indicate that a very soft appraisal standard, based on half informed public assessment of benefits, is being used.

53. We would have preferred a parallel assessment in accordance with the Green Book guidance on appraisal of projects to manage public health risks. The purpose of this guidance is to ensure consistency and proportionality in the allocation of resources to manage risks to public health. For illustrative purposes, NERA undertook a QALY assessment reported in Para 5.39 of the Regulatory Impact Assessment:

“Assuming that the number of recreational users per year (N) is 5000, the risk of infection during the year (R) is 18/1000, the average duration of illness as a fraction of a year (D) is 3/365 and the value of a QALY (V) is £30,000 and assuming that the loss of quality of a life during the period of illness is total, this would then lead to an estimate of the annual cost of the health impact (=N*R*D*V) of £22,000 per year. The corresponding discounted present value of such a stream of annual costs in perpetuity, if discounted using the pure time preference rate for utility of 1.5% specified in the HMT Green Book, is £1.5million. NERA states “that discounting this figure at the time preference rate for monetary income would not be correct as the monetary value of health benefits increases with income. The pure time preference rate is the rate appropriate for discounting marginal utility.”

54. The recreational users study confirms that the numbers used in this calculation are of the right order of magnitude, albeit that the annual incidence of illness amongst rowers may be slightly overstated, and the possible incidence amongst other recreational users has not been allowed for.
55. It remains unlikely that the Tideway tunnel scheme, with costs of £2.5bn and a discounted benefit stream of £1.5m, could be justified in terms of any conventional comparative appraisal of health interventions. The advice of the Chief Medical Officer might be sought to clarify these issues.

56. There must be awareness and full allowance for the possibility (or probability) that single issue surveys may overvalue, and that they are especially vulnerable where partial or inadequate information has been given to respondents. There must also be a fair assessment of the significance of alternative valuation methods, especially where different valuation methods or elicitation techniques produce widely differing results.

Conclusions

57. In conclusion:

I. We have consistently argued that the investment case for the Tideway and Lee tunnel measures should be assessed in the light of all the other pressures for expenditure to be borne by water consumers, and related to the likely impact on Thames customers’ water and sewerage bills and their ability to afford resulting increases.

II. Over the next few months significant additional information about the other investment drivers will become available to put the proposals in context.

III. There is a clear risk that long term bill impacts will be severe for some groups, and that in conjunction with compulsory metering the burden of supporting environmental investment may in future fall more heavily on lower income groups.

IV. There is also evidence that the value for money of the combined Tideway and Lee tunnel schemes is questionable. Costs may escalate, and values may have been overstated.

V. None of this amounts to a case against the Lee Tunnel proposals, or the Beckton sewage treatment works improvements to the extent that they are required to clear flows from the Lee tunnel and deal with future population growth.

VI. At some stage we trust there will be a public inquiry, including an assessment of the legal case for the full Tideway tunnel scheme construed as a requirement under the UWWTD. If value for money remains poor or marginal, we would hope that the scheme need not proceed or will go
forward in a reduced and amended form supported by other measures to ameliorate risks to the Tideway ecology or public health risk.

VII. If a full scheme is poor value for money from the point of view of paying customers, but is nevertheless justifiable in relation to national or GLA policies, for example on the grounds advanced in Para 2.1 of the planning statement (“It is unacceptable that London, which the London Plan urges should be an exemplary, sustainable World City, continues to discharge untreated sewage into the River Thames”) we suggest that a more appropriate source of finance should be considered, drawing from sources more closely attuned to the wealth of the City than water and sewerage charges. These are too regressive in relation to household income to be a satisfactory support for major civic investment.

Enquiries

58. Please address any enquiries to:

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Reference Notes

R. (on the application of Thames Water Utilities) v South East London Division, Bromley Magistrates' Court, (Case C-252/05) European Court of Justice (Second Chamber) 10 May 2007 [2008] Env.L.R. 3


Christopher Lane, Dr Susanne Surman-Lee, Dr Jane Sellwood, and Dr John V Lee, A Collaborative partnership project between the City of London Port Health Authority and The Health Protection Agency