

**THE CASE**  
**AGAINST THE THAMES**  
**TIDEWAY TUNNEL**  
**&**  
**IN FAVOUR OF INTEGRATED**  
**WATER RESOURCE**  
**MANAGEMENT**  
**FOR THE THAMES TIDEWAY**

**BY**  
**THE 'THAMES BLUE GREEN**  
**ECONOMY' GROUP**





<b>CONTENTS</b>	<b>PAGE</b>
<b>1) SUMMARY CASE</b>	<b>1</b>
<b>2) INTRODUCTION</b>	<b>2</b>
<b>3) NEED</b>	<b>3</b>
<b>4) FINANCING</b>	<b>5</b>
<b>5) COSTS</b>	<b>7</b>
Thames Water Customers' Costs	
Project Costs	
EU Fines	
<b>6) CONFLICTS OF INTEREST</b>	<b>8</b>
Thames Water – DEFRA and HM Treasury – PWC – OFWAT	
Non-Competitive Bidding	
<b>7) THAMES WATER – DEBT RIDDEN AND TAX     HAVEN BASED</b>	<b>12</b>
<b>8) EQUATOR PRINCIPLES</b>	<b>13</b>
<b>9) CARBON ACCOUNTING</b>	<b>14</b>
<b>10) THE ALTERNATIVE: INTEGRATED WATER     RESOURCE MANAGEMENT</b>	<b>15</b>
<b>11) CONCLUSION</b>	<b>18</b>



## 1) SUMMARY CASE

This paper sets out the case made by the Thames Blue Green Economy<sup>1</sup> (TBGE) group against Thames Water's (TW) Thames Tideway Tunnel (TTT). The evidence shows that the TTT is an outdated and expensive folly, which is not needed to maintain the Tideway's water quality and is an extravagant way to deal with the occasional flushes of storm water that the sewer system is unable to cope with. This has become particularly evident since the completion of sewage treatment plants at Beckton and Mogden, and the building of the Lee Tunnel.

In our view, the TTT construction should be stopped and alternatives put in place.

There is a much cheaper, quicker and more sustainable – from an economic, environmental and social perspective - package of alternative measures, known as Integrated Water Resource Management (IWRM), to maintain Tideway water quality.

Raw sewage is not discharged to the Tideway. The discharges are mainly rainwater with a small proportion of foul water. IWRM should be implemented instead to deal with those rare occasions when London's drainage system cannot cope with storm water run-off. Integrated Water Resource Management packages are now used by cities all over the world to maintain river quality in a sustainable manner – London is the only city pursuing the very disruptive option of building an enormous and unnecessary concrete tunnel underground.

Moreover, the financing of the Tunnel and Thames Water is suspect. Thames Water itself is owned and controlled by investors in a tax haven (Luxembourg). The company has paid over £1.1 billion in dividends to shareholders but has paid no corporation tax to the UK Treasury, for the past five years. In addition, it has borrowed over £5 billion via a company in another tax haven, the Cayman Islands, to fund its operations.

TW is loading the costs of construction for TTT onto water consumers across the whole of the Thames Water region, and not just the Inner London area that the TTT is supposed to serve. Additionally, although the TTT is supposed to be an entirely private sector venture, the Government has agreed to underpin the total costs of TTT from public money.

For too long, people have focused on the aesthetic benefits of green infrastructure, when what is also at stake is public health, local employment, the energy we consume, the quality of the air we breathe and the water we drink, as well as the money we spend.

Although preliminary works for the construction of the Tideway Tunnel have begun, it is not too late to call a halt, and complete a Thames water quality management programme that meets the environmental, community and economic needs of London.

---

<sup>1</sup> TBGE is a broad coalition of water industry experts, engineers, academics, politicians and environmental representatives who support an Integrated Water Resource Management (IWRM) approach to maintaining water quality instead of the needless and hugely expensive waste water tunnel promoted by Thames Water

## 2) INTRODUCTION

The problem: When it rains heavily in Central London, Thames Water's (TW) sewers cannot, on occasion, cope with the extra volume of storm water. As a result, such wet-weather flows, comprising mostly rainwater rather than untreated effluent, are passed into the Tideway as Combined Sewer Overflows (CSO).

In 2005, a team chaired by Professor Chris Binnie, comprising TW, DEFRA, the Environment Agency, and the GLA, with OFWAT (the 'independent' Regulator) as observer, recommended upgrading existing Sewage Treatment Works (STWs), constructing the Lee Tunnel and the Thames Tideway Tunnel [TTT] to solve the problem and to comply with the 1991 EU Urban Waste Water Treatment Directive (UWWTD). In 2005, the capital cost estimate for TTT was £1.7 billion, with estimated economic benefits of £3-5 billion. This represented the best answer to the problem with the technologies available at the time. The approach, therefore, was to improve sewage treatment and create additional capacity.

Today, in 2016, TTT remains unbuilt. Moreover, technologies for collecting, storing and managing water outflows have changed dramatically. Effective and cheaper options - e.g. real time in-sewer controls, Sustainable Drainage Systems (SuDS), the use of permeable materials, distributed storage, rainwater harvesting and other components of an Integrated Water Resource Management approach are now available to manage flows and maintain or improve water quality. Meanwhile, some £1.4 billion has been spent on the upgrades at the Tideway STWs (at Mogden and Beckton) and the recently completed £635 million Lee Tunnel. Overall, these measures, already undertaken by TW, effectively meet the requirement of the EU UWWTD in respect of storm overflow volumes.<sup>2</sup>

TTT is a very special infrastructure project – not just in its grandiose construction, but also in its financing and control. It is supposed to be a wholly funded private sector venture, yet it has been sponsored and underpinned by Government, which is using public money to remove any financial risk from TW and its corporate shareholders. While certain types of private sector initiative may justify government underwriting, it is hard to understand why a company that is building a concrete tube underground, and whose finances are shored up by tax havens (see section 6, below), merits any taxpayer support. These are questions that the government has so far refused to address.

Additionally, and critically, the TTT has become much more expensive than originally conceived, as the estimated construction (not including financing) costs have soared to some £4.2 billion, and that at *2011 prices*. Also, being a long, up to 65 metres deep and 7 metres diameter, tunnel built under the Capital, it carries significant technical, construction and completion risks. And far from providing additional water quality improvements in the short-term, the TTT will take at least seven more years from 2015 to build.

---

<sup>2</sup> Binnie, March 2015: 'Thames Tideway: Measures to protect the river environment from the adverse effects of waste water discharges'

Corporately, TTT is also unique. One third of cost is to be met by Thames Water and two-thirds by a new private utility, the Infrastructure Provider (IP), now called 'Bazalgette Tunnel Ltd.'. This arrangement with the interdependency for project completion and operation between TW and IP, goes against the provisions of Regulation 5 (1) of the Specified Infrastructure Projects (SIP) Regulations, which are Parliamentary law and which state that the incumbent undertaker (here, TW) is prohibited from undertaking such a project<sup>3</sup>. To emphasize the uncompetitive and monopolistic character of the project, IP has only one supplier (of untreated water) and one customer, that being TW in both cases.

The Thames Blue Green Economy (TBGE) group is opposed to the TTT. We favour a cheaper, quicker, more effective and environmentally positive set of options to manage water flows in the Capital, namely Integrated Water Resources Management (see section 10). These types of measure, combined with the new sewage treatment works and the Lee Tunnel, will obviate the need for the hugely expensive TTT, which appears to be little more than a boondoggle project for Thames Water, their executives and shareholders (see below).

### 3) NEED

Thames Water argue that the TTT is needed to cope with the growth in population of Greater London. However, the TTT only serves Inner London, while water demand per head of population has fallen significantly in recent years<sup>4</sup> and thus sewer flows are also expected to fall. This fact, as much as the other compelling reasons against the TTT, underscores the deceptive and specious justification used by Thames Water to justify the TTT.

By 2015, the 2005 technical and environmental rationale for the Tunnel had been severely undermined. A recent review<sup>5</sup> using Environment Agency data from its automatic water quality monitoring stations along the Tideway indicates that, notwithstanding three minor breaches in 2015, water quality complies with the Environment Agency's Standards - and this is before the Lee Tunnel, designed to more than halve CSO spill frequencies, was commissioned.

The 1991 Urban Waste Water Treatment Directive (UWWTD) states in Annex 1A: *"The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs."*

The Defra River Basin Planning Guidance 2008 9.5 states: *"The Water Framework Directive requirement is to make judgements about the most cost effective combination of measures..."*

But, neither of these important requirements have been complied with to date. The TTT is intended to reduce spill frequency to about 3 spills/year yet the selection

---

<sup>3</sup> DCO, Jun 2014: Regulation 5(1), Specified Infrastructure Projects (SIP) Regulations

<sup>4</sup> Thames Water WRMP 2015-2040; link: <http://www.thameswater.co.uk/about-us/5392.htm>

<sup>5</sup> Binnie. Ibid, March 2015

process has not taken account of current best technical knowledge, and at about £4.2 billion (2011 prices) surely constitutes a reasonable definition of “excessive cost” when compared to budget estimates for other options.

With the investment that TW itself has made in recent years, the Tideway is much improved and has not breached the Tideway-specific standard for dissolved oxygen quality since the end of 2013 (when the upgrades were completed), thereby complying with EU Regulations.

The previous water quality modelling of the post STW upgrade condition shows many breaches of the water quality standards each year, an average of 3 per year of Standard 1. However, the automatic water quality monitors (AWQMs) in the Tideway show that, since the STW upgrades, there have been many fewer breaches, and none of the most serious level, Standard 1.

Comparing water quality since the STW upgrades with rainfall events over the last 19 years indicates that the Tideway water quality currently meets three of the water quality dissolved oxygen standards, and is marginal in meeting the fourth. The fourth standard was selected to ensure fish kills are within sustainable limits. Since 2003, the Environment Agency records show that only 21 fish have been killed by discharges from the CSOs to be connected to the tunnel.

Raw sewage is not discharged to the Tideway. The discharges are mainly rainwater with a small proportion of foul water. With the Lee Tunnel operational and with upgrades at five of Thames Water’s Sewage Water Treatment plants (SWTs), the CSO spill frequency volume is expected to drop by 54%<sup>6</sup>. Furthermore, the Thames Water/DEFRA modelling of the Tideway has been shown to be seriously flawed.

In 2003, the Thames Tideway Strategic Study Group (TTSSG) compared the Tunnel option to full sewer separation and SuDS alternatives. Since then, Real Time Control has been developed and this has reduced the capital cost of flooding measures. Other partial measures such as some sewer separation to discharge direct to tributaries and the Tideway, would also be cost effective. But, to date, no study has been done of a combination of partial measures using current best technical knowledge and how such a system could meet the required spill frequency. Such a system could well save capital costs of £3 billion<sup>7</sup>, when compared to building TTT, together with cumulative construction time gains.

TTSSG selected fish as representing the Tideway ecology. TTSSG reported an observed baseline of 8 fish kills per year, and this was part of the evidence on which the ECJ found the system failed the UWWTD. Since 2003 only two fish kills have been reported due to Abbey Mills spills and two due to Tideway CSOs. Compared with the modelled estimates of 45 fish killed, there were in reality only 3 kills, casting doubt on the reliability of the models.<sup>8</sup> Further, Abbey Mills related fish kills will

---

<sup>6</sup> Thames Water, Needs Report CSO 2009 Model Data Table 4 - Post Lee Tunnel Average spills per annum as DEFRA assessment

<sup>7</sup> See calculations in DoT London Secondary Roads Data & Green Roofs costed Excel book – NB not published but submitted to the Independent Planning Inspectorate in a previous, less precise form

<sup>8</sup> “Measures to protect the river environment from the adverse effects of waste water discharges”  
Binnie: 21st January 2014



possibly be dealt with now that the Lee Tunnel is operational. Since a resilient fish population can withstand at least 10% mortality each year, it would appear that the Tideway ecology is therefore already sustainable – once again obviating the need for the TTT.

Such conclusions are supported by reports from The Zoological Society of London: 'Marine Mammals Thriving in the Thames' (BBC, Aug. 20, 2015) and The Port of London Authority's The Tidal Thames Newsletter, Aug. 2015, 'Fish Survey shows Thames is a River of Life'.

The water quality model shows that, post the STW upgrades, there should on average be about 3 breaches of standard 1 and nearly 3 of standard 2 a year. Actually in the upper Tideway between mid-2012 and mid-2015 there were none; and, since mid-September 2012 to mid-September 2013, there were none in the lower Tideway. This demonstrates that the TW water quality modelling is not robust, and is not sufficient to support capital expenditure of £4.2 billion on the TTT.

OFWAT concluded that the TW sewer modelling for household flooding considerably overestimated household flooding from the sewers and stated that sewer modelling is "unreliable and inaccurate"<sup>9</sup>. It is likely that, were the models to be re-calibrated to meet actual Tideway water quality, then the CSO spill frequency would be appreciably lower. This has not been done to date.

Alternative options to maintain and further improve Tideway water quality use a combination of measures such as sewer separation, real-time control within the sewer/interceptor connections, the use of dispersed detention tanks and the full instigation of 'SuDS' Regulations throughout London. These effective measures are cheaper, quicker to implement and much lower risk than the TTT – and are supported by the Flood and Water Management Act 2010. They should be implemented, and the Tunnel halted before more time and money is wasted.

Moreover, despite the considerable engineering design effort to date on the TTT project, other unacceptable technical and environmental risks remain. These include: greenhouse gas emission impacts, odour management, capacity utilisation, security control, sediment removal, technical obsolescence and construction disturbance.

#### **4) FINANCING**

TW delayed building the TTT for many years [which also raised the prospect that the EU Court of Justice would fine the UK Government unless action was taken – see below].

By 2010-12, TW had become significantly, financially weaker than in 2005/6, viz. Balance Sheet values below. It had become clear that TW could not fund TTT from its own resources unless it strengthened its balance sheet by issuing more capital.

---

<sup>9</sup> <http://www.ofwat.gov.uk/regulated-companies/investigations/closed-cases/thames-water-sewer-flooding/>

However, TW's private sector owners turned down that option. It would weaken the return on their investment. So TW turned to the Government for help.

<u>Year</u>	<u>2005</u>	<u>2012</u>	<u>2015</u>
Shareholder funds [£ million]	1,661	1,401	1,439
Long-term debt [£ million]	1,661	8,050	10,020

It was then that the byzantine project structure for implementing TTT was devised, with OFWAT being directed by DEFRA in August 2015 to issue a License to a new Tunnel utility, "IP", i.e. Bazalgette Tunnel Ltd.. One third of TTT is to be built by TW and two-thirds by this new provider, Bazalgette. This unusual and suspect arrangement simply underscores the uncompetitive and monopolistic character of the project; as noted above Bazalgette has only one supplier (of untreated water) and one customer, which is TW in both cases. There are significant problems with this funding package for Bazalgette and TTT, because these suspect arrangements:

- pass completion risks from the private developer onto captive customers and can avoid normal environmental, social or climate change constraints. Customers have to pay charges covering debt service and dividends for Bazalgette and part-TW throughout the 7-year construction period.
- are uncommitted and incomplete at the outset of construction,
- and leave DEFRA, and thereby Thames customers, open to potentially huge (multi-£billion) contingent liabilities. This potential public sector liability is not found either in the Treasury's 2015 Red Book, or DEFRA Accounts to date, and therefore do not count as public sector borrowing for the convenience of the Chancellor.

Indeed, the financial problems facing the building and funding of the Tunnel are so serious that bidding for the special-purpose TTT by IP, now Bazalgette, the company licensed to build, own and operate the Tunnel for Thames Water, must be considered 'uncompetitive' with only two bidders. This breaches normal competitive tendering standards for public service contracts, which require "genuine competition", not least when only two bidders are involved. Furthermore, HM Government is having to provide financial support to Bazalgette investors and lenders to secure the necessary long-term funding commitments from these risk averse private sector actors.

Thames Water has gone out to tender with a contract for household debt collection services covering an annual debt forecast with a total value of £121.5 million. This equates to over £20.00 per domestic bill payer. Why are those who pay being forced to pay for recovery of debts from those who do not pay? <sup>10</sup>

---

<sup>10</sup> <http://www.waterbriefing.org/home/contracts/item/12173-thames-water-tenders-amp6-7-debt-collection-services-contract?>

## 5) COSTS

OFWAT is charged with ensuring that customers get a good deal, as agreed in the 5-yearly price reviews with the water companies. However, this duty has not been discharged well, according to the Public Accounts Committee Report January 2016:<sup>11</sup>

*“By consistently overestimating financing costs, Ofwat has allowed companies to make windfall gains which have not been shared in a structured way to ensure customers get a fair deal. Ofwat uses comparisons between water companies to help improve overall efficiency, but acknowledges that it should do more to benchmark companies’ costs with other sectors and internationally, to ensure that the amounts customers are charged are minimised. Ofwat should also do more to promote water trading between companies instead of developing expensive new supplies.”*

This certainly seems to be the case with Thames Water and the TTT!

### Thames Water Customer Costs

All of Thames Water’s 15 million domestic customers, from Wiltshire and Oxfordshire to Surrey and Dartford, will be paying for the £4.2 billion TTT, through a new utility tax on their water bills – even though the TTT only serves Inner London.

Thames Water has refused to state the additional cost of the TTT separately on bills. Despite OFWAT’s transparency policy, they have no power to change TW’s decision. The cost to customers will therefore be obscured. This directly affects bill payers’ ability to create meaningful business plans to disconnect from TW’s drainage system.

According to DEFRA’s own calculations, the 25 km long concrete tunnel will cost every TW domestic household an average of £25 annually by 2020/25<sup>12</sup>. For large households on meters, the bills may increase by some £120 annually. Some 15% of all families will be paying water bills at more than 5% of their total income, and 500,000 children in low income families will be hit particularly hard. A system of subsidy, paid for by other bill payers is being put in place, and will be run by Thames Water, but its effectiveness is questionable.

### Project Costs

The 2015 Defra economic case is based on a single issue stated preference study with fieldwork completed in 2006. Ten years later, this fieldwork has not been updated. Compared with the TTSSG cost benefit assessment in 2005, DEFRA has now seen fit to double the length of time, and change the benefit area from the TW sewer customers who would pay for the scheme, to the whole UK population in order to try and justify the TTT!

---

<sup>11</sup> <http://www.publications.parliament.uk/pa/cm201516/cmselect/cmpubacc/505/505.pdf>

<sup>12</sup> <http://www.publications.parliament.uk/pa/cm201516/cmselect/cmpubacc/505/505.pdf>

No evidence can be found of the disbenefits of the Tunnel being included in the DEFRA economic case. The overall benefits would appear to be negative despite the UWWTD (i.e. European law) requiring systems to be “in accordance with the best technical knowledge not entailing excessive costs.”

Thus, the projected construction costs of £4.2 billion seem wholly disproportionate to the projected benefits, and the Tunnel would fail the Best Available Technology Not Entailing Excessive Cost test. Since the solution of the STW upgrades and the Lee tunnel have already been constructed at a cost of some £1.4 billion and £635 million<sup>13</sup>, respectively, it would appear that any perceived need for TTT has been significantly reduced.

No study has been done of Real Time Controls within the existing combined sewer system or of a combination of partial measures using current best technical knowledge for the Thames Tideway. If further measures are required in addition to STW upgrades and the Lee Tunnel to reduce spill frequency and improve water quality, such a combination of partial measures could easily be developed.

## **EU Fines**

The bill to UK taxpayers for EU infraction fines for non-compliance with the 25-year-old Urban Waste Water Treatment Directive is estimated by ex-Thames Water Chief Engineer Philip Stride as £2.28 billion for the 30 kilometres of the Thames Tideway alone<sup>14</sup>. Infraction fines are accruing daily, and due to continue to rise until at least 2023, the projected completion date for the TTT.

The European Commission has already taken the UK government to the European Court of Justice, where the UK was found guilty of not conforming with the UWWTD by the due date. According to Professor Binnie, this ruling may therefore *result in additional fines of about £1.4 billion* based on an expectation of £100 million/year for the years 2009 until estimated tunnel completion in 2023. These fines can be forestalled and taxpayers’ money saved by adopting additional IWRM techniques over a much speedier timescale.

In addition, a reasoned opinion from the European Commission was recently sent to the UK Government concerning the failure of the UK to properly transpose the Water Framework Directive 2000/60/EC, because only 17% of UK water bodies achieving good water quality status by 2015, when all should have done so. If the UK fails to act upon the EC’s concerns shortly, the case may be referred to the Court of Justice of the EU causing further significant costs for the UK.

## **6) CONFLICTS OF INTEREST**

With a major public service infrastructure project such as TTT, some conflicts of interest are perhaps inevitable. But when they occur, they need to be publicly identified and, if necessary, controlling measures taken. In many jurisdictions,

---

<sup>13</sup> This was widely reported at the time

<sup>14</sup> Quotation reported by Graham Lanktree for International Business Times 10.12.15

including the EU, undisclosed conflicts of interest in public service contract tenders can lead to bidder disqualification, just as bankruptcy, guilt of grave misconduct and false declarations can too.

It is for that reason that the UN Economic Commission for Europe recently published (June 2015) its draft “Charter on Zero Tolerance to Corruption in PPP (Public-Private Partnership) Procurement”, which apply to privately owned, public service concessions such as TW and IP/Bazalgette.

Conflicts can arise when the primary interest of a party to a transaction becomes unduly influenced by a secondary, or shared interest. Further, when the possibility of such an issue arises, it is incumbent on the conflicted, particularly within the process of public works or contracts, for that party to disclose possible or potential conflicts at the outset. The structure adopted for TTT is littered with such conflicts.

When Thames Water became financially unable to fund TTT itself, unless it increased its capital base and thereby unacceptably lowered the investors’ rate of return, TW persuaded DEFRA to support TTT as a “separate” utility, or ‘IP’, i.e. the Bazalgette Tunnel Ltd. But far from IP being “separate” commercially or financially from Thames Water, key IP directors, executives, contractors, and consultants and managers were chosen and effectively appointed by Thames Water (with the surprising approval of OFWAT). Furthermore, IP is legally bound to seek Thames Water and Government approval on major decisions.

Thus, the TTT structure has provided a web of opportunity for Conflicts of Interest between officials in HM Government, DEFRA, Thames Water, IP/Bazalgette, TTT, advisors, the Macquarie Group (currently still the “Ultimate Controller” of Thames Water<sup>15</sup>), and TTT contractors.

It is the view of TBGE that these relationships and conflicts of interest undermine the integrity of the development and decision-making process undertaken for the Tunnel in recent years, and conflicts badly with OFWAT’s current assurance ‘banner’ to customers: “Trust in Water”.

Some of these questionably incestuous institutional relationships are as follows:

**Thames Water (TW) - DEFRA & HM Treasury – PwC – OFWAT:**

- PwC was appointed by OFWAT as their Financial Advisor for TTT. PwC is also OFWAT’s Delivery Partner for the PR14 negotiations, whilst at the same time auditor/advisor to at least half of the UK’s water utilities
- PwC have been auditor and, at times, advisor to the Macquarie Group, who are still the “Ultimate Controller” of Thames Water (ref Condition P of TWUL License)
- The DEFRA Minister, who confirmed that TTT should be built in 2007, has now retired and is a non-Executive Director of TW

---

<sup>15</sup> It has recently been widely reported that Macquarie has put Thames Water up for sale

- The same former Minister is on the advisory board of PwC, who are financial advisors to OFWAT on TTT and advisor/auditors to the Macquarie Group, the “Ultimate Controller” of TW
- The Chief Executive of TW since 2006 was previously Executive Director with the Macquarie Infrastructure Funds, the Ultimate Controller of TW. He has been the chief architect of TTT over the last 10 years, but has announced his departure from TW in early 2016, after receiving a 60% pay increase 2014/15
- The Managing Director of TW’s subsidiary, Thames Tideway Tunnel Co., which developed TTT for TW in recent years, had earlier been Deputy CEO of Partnerships UK in HM Treasury - the predecessor of Infrastructure UK, which had included TTT in the National Plan 2011. He had also been a member of DEFRA’s Waste Infrastructure Delivery Programme Executive. As of October 2015, he left TW for The City
- The new (2015) Chairman of CC Water, the UK’s consumer watchdog, is (or has been) an advisor to PwC, the advisor to OFWAT on TTT and advisor/auditor to Macquarie Group, the “Ultimate Controller” of TW
- Two of the four non-Executive Directors of DEFRA are (or have been) advisors to PwC, the advisor to OFWAT on TTT, etc.
- The Deputy Director of the Environment Agency, who had been spokesperson for the 2014 TTT DCO Application, is now (2015) “Strategic Water Resource Stakeholder Lead” at TW
- The largest construction contract for TTT was awarded, in effect, by TW to a joint venture between Laing O’Rourke and Ferrovial. Ferrovial and Macquarie, the ultimate owner of TW, have enjoyed a close relationship over 15-20 years on many international infrastructure projects. Indeed, the Chairman of TW is also Chairman of the Macquarie-Ferrovial JV for the operations of Southampton, Aberdeen and Glasgow Airports. Furthermore, TW awarded the systems integration contract for TTT to Amey, a subsidiary of Ferrovial.

Notwithstanding that IP/Bazalgette is meant to be a “separate utility”<sup>16</sup>, senior staff appointments for IP/Bazalgette were seemingly made by TW before IP/Bazalgette received its license in August 2015. Further, it would appear that OFWAT, by their silence and waiver of contracts, have either endorsed or been unaware of such appointments. Many of the IP appointments have links to previous TW and TTT activities, namely:

- Chief Executive: 17 years with CH2MHill, who have been TW’s advisor on TTT for at least 6 years (and to the TTSSG as Halcrow in 2005/6)

---

<sup>16</sup> Rory Stewart, MP, Minister Defra: Written Answer to a Question raised by Roger Mullin, MP, (ref 4462, 6th July, 2015) stating: “The TTT project will be financed and delivered by a competitively tendered Infrastructure Provider (IP), which will be an entirely separate entity to Thames Water”

- Chief Operating Officer: formerly Head of Major Project, TW
- Chief Financial Officer: ex-Head of European Power & Utilities, UBS, the Financial Advisor to TW, who managed the bid process for IP
- Delivery Director: with CH2MHill for 17 years
- Assistant Managing Director, ex-AECOM, but been part of TW's TTT team since 2012
- External Affairs Director, with TW for 6 years.

For a supposedly “entirely separate entity”, the staff make-up at IP seems to have very strong historical links with TW.

An independent review is urgently required to expose what is acceptable, as value for money for TW customers, and what is not. In the view of TBGE, there are too many conflicts of interest in the arrangements for the TTT project to be accidental. The Regulator, OFWAT, has, for whatever reason, been too passive in ensuring that customer interests prevail.

### **Non-Competitive Bidding**

HM Treasury's Guide on Procurement for complex investments in infrastructure assets, e.g. PFI, PPP, etc., states<sup>17</sup>:

*“The number (of bidders) invited to participate in the dialogue needs to be sufficient to ensure genuine competition and must be a minimum of three provided that there are that many suitably qualified candidates”; and [ref. para5.2.6]:“where there is an inadequate bidder response, the Contracting Authority must consider if the procurement should proceed or not (cf. Single Bidder Situations: Box 5.7)”.*

Box 5.7 (p.27) further states that:

*“Market failure or lack of competition occurs when there is only a single (or no) bidder for a project, or perhaps where there are two or more bidders but only one is considered to be credible. In the absence of competitive tension, a bidder is not appropriately incentivised to offer its best price, terms and conditions. Consequently, value for money will be difficult to achieve unless other steps can be taken to secure it. The Contracting Authority should carry out a thorough review before deciding on the way forward. If it concludes that it is not possible to take appropriate additional action to secure value for money, the procurement should be halted at that point”.*

Yet, in this case:

- there were only two bidders in the final tender for the IP License

---

<sup>17</sup> HM Treasury / OGC: “Competitive Dialogue in 2008” ref. para. 5.2.5

- in the absence of any real competition, questions have not been raised, as they should have, as to whether TTT is value for money, let alone needed
- and, a change of bid specifications took place after bids were received.

In light of such irregularities with respect to normal UK and EU procurement procedures, TBGE believe that a review as to how the licenses and contracts were bid and awarded is both prudent and necessary, with these matters open to full public and Parliamentary scrutiny.

## **7) THAMES WATER – DEBT-RIDDEN AND TAX HAVEN BASED**

Thames Water, the company responsible for the Thames Tideway Tunnel, is owned and controlled by investors in a tax haven (Luxembourg). Thames Water has also borrowed over £5 billion via another tax haven, the Cayman Islands. The company has paid over £1.1 billion in dividends to shareholders, but has paid no corporation tax to the UK Treasury for over 5 years.

Given the recent ‘Panama Papers’ revelations, TBGE believe that Thames Water’s suspect tax haven financing should be investigated by Ministers and relevant Parliamentary authorities.

Thames Water pays very high salaries to its Directors who run the many corporate layers and complex tax avoidance structures underpinning the company. Yet the company still expects its domestic customers to pay for the £4.2 billion construction cost of the Tunnel, and the Government is to underwrite its construction.

- Thames Water is owned and controlled by shareholders in a tax haven (Luxembourg), including a Macquarie European Infrastructure Fund (majority), BT Pension Fund, and the Abu Dhabi and Chinese Sovereign Wealth Funds. Thames Water has 10 corporate layers between the UK licensed company and its shareholders. Each of these unnecessary corporate layers requires their own individual Directors, Accountants and Lawyers, each drawing down expensive fees and salaries.
- £5 billion of the company’s 2015 £10 billion debt has been raised via a Cayman Islands company, TWU Cayman Finance Limited. Given the extraordinary secrecy surrounding such tax havens, there is no way of knowing whether this money has come from drug-money laundering, terrorist or other criminal sources.
- Over the last 5 years, Thames Water has paid no UK corporation tax. Since 2004, Thames Water has paid over £3 billion in dividends to shareholders<sup>18</sup>.
- In 2014/15, Thames Water’s CEO and Financial Director received remuneration increases of 60 and 80% respectively, to £2.1 million and £1.4 million<sup>19</sup>.

---

<sup>18</sup> From Thames Water Annual Accounts, 2000-2013



- Since 2004 the debt level in the company has risen from 54% to 87%. In 2005, the total TW long-term debt was £1,661million and total equity was £1,649 million. In 2015, the total Thames Water long-term debt had risen to £10,020 million and total equity had shrunk to £1,438 million. In addition, Thames Water potentially owes HMRC some £880 million in deferred tax liabilities. Thus, the company has roughly £558 million to prop up debts of some £10.0 billion. This is not commercially sustainable<sup>20</sup>.

TBGE, while accepting that these tax arrangements appear to be legal under current domestic and international law, believe that they represent a tangible and significant ethical failing that is of material interest in governance terms for Thames Water's corporate owners and shareholders. We believe that, when taken in concert with the many apparent conflicts of interest outlined above and the debt financing arrangements of the IP/Bazalgette, that these pose a significant reputational risk to the corporate owners and shareholders of the IP/Bazalgette, as well as to five of the six major banks providing the £1 billion loan enabling the TTT to be built.

## 8) EQUATOR PRINCIPLES

The Equator Principles represent a framework, adopted by some 81 international financial institutions, for determining and managing environmental and social risks and impacts for major projects, and apply globally. Such Principles provide minimum standards for due diligence to support responsible risk assessment and decision-making.

Signatory financial institutions commit to implementing the Equator Principles in their internal, environmental and social policies, procedures and standards, and are obligated not to provide Project Finance, or Project-Related Corporate Loans, where the client or borrower will not, or is unable to, comply with such Principles.

TBGE has grave concerns over the environmental and social risks and impacts of the Tunnel, which we believe have not been adequately addressed to date. To be specific, in order for a project proposal to be compliant with the Principles, there needs to be "consideration of feasible environmentally and socially preferable alternatives" [ref. Exhibit II, item b of The Principles III].

However, OFWAT documents indicate that the equity (£1.2 billion est.) will be made up of 40% pure equity and 60% shareholder loans - another legal tax wheeze, in our view, as interest on such loans can be treated in the UK as a pre-tax cost, thereby, in effect, extracting dividends as interest payments. Hence, the leverage, assuming

---

<sup>19</sup> In 2004, the total remuneration of TWUL Chief Executive was approximately £400,000. In 2014 it was £1,294,000, an increase of 224%. Overall, directors' salaries have increased from a total of £1.35mn to £2.94mn over the same period, an increase of 118%. RPI rose by 30% in this period [ref. TW Annual Reports]

<sup>20</sup> Under Condition F of the TWUL Licence, there is a requirement for TWUL to maintain an Investment Grade status with the ratings' agencies. When privatized in 1991, this was easily achieved. Today such status is marginal, due to TWUL's vastly increased debt load, which in turn places OFWAT under pressure to accede to any TWUL demands to increase customer tariffs - even if such request from TWUL is unjustified - so as to bolster cash flow and thereby assure TWUL's status and does not breach its licence

sub-debt as “equity”, will be around 90%, whereas OFWAT under PR14 assumed leverages of 65%.

The debt is to comprise a £1 billion revolving bank facility with a 10-year maturity to be provided by 6 international banks, BTM, Credit Agricole, Lloyds, RBC, Santander and SMBC. Five of these banks are signatories to The Equator Principles, Santander apart. However, the TTT financing is arguably non-EP compliant as it fails to address Exhibit II, item b): “consideration of feasible environmentally and socially preferable alternatives” - unless one assumes the 10-year old, 2005/6 TTSS study is adequate!

## 9) CARBON ACCOUNTING

The TTT Environmental Statement states that “the project itself may also have an effect on climate change through energy consumption and the release of CO<sub>2</sub> emissions.”<sup>21</sup> The promoters of the Tunnel issued their extensive Energy and Carbon Footprint Report in 2013<sup>22</sup>. Some important observations from this evidence need emphasising.

Greenhouse gas emissions are estimated at 838,034 tonnes of CO<sub>2</sub> equivalent. From the figures in paragraphs 9.2.3 and A.1.6 of the report, these releases are equivalent to over two years of Thames Water’s total emissions from electricity used to pump and treat all its sewage and water. Thus the extra project based emissions are equivalent to a 20% increase on Thames Water’s electricity usage over eleven years.

Reference is made in the 2013 report to “fugitive” emissions due to overflows into the Thames continuing after Tunnel commissioning. The report is based on the assumption that “The project is considered to be an infrastructure scheme of national significance . . . which cannot be compromised.” Hence there is no attempt to compare the energy and carbon impact with a do-nothing or minimal option. Such a comparison would have enabled a more thorough evaluation of the environmental justification for the project.

As designed, the Tunnel will not be delivering waste water for about 97% of the time. Even during the other 3% of the time, waste water will on average only occupy a fraction of the Tunnel’s enormous volume. In other words, some 98% of the annual storage capacity will be empty.

---

<sup>21</sup> Thames Tideway Tunnel, Thames Water Utilities Limited, Application for Development Consent, Application Reference Number: WWO10001 Environmental Statement, Doc Ref: 6.2.02, Volume 2: Environmental assessment methodology, January 2013

<sup>22</sup> Thames Tideway Tunnel, Thames Water Utilities Limited, Application for Development Consent, Application Reference Number: WWO10001, Energy and Carbon Footprint Report, Doc Ref: 7.08, January 2013

## 10) THE ALTERNATIVE: INTEGRATED WATER RESOURCE MANAGEMENT<sup>23</sup>

Throughout the developed world, only London is building expensive tunnel detention tanks to hold mainly rainwater anymore. Washington D.C. abandoned its tunnel project half way through to implement Low Impact Development or IWRM instead.

Integrated Water Resource Management is a process that promotes the coordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems<sup>24</sup>.

IWRM favours a 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 promoted.

Professor in Water Economics, Colin Green of Middlesex University has argued that the implementation of IWRM in London alone would save at least £36 billion, by comparison with current proposals. This huge sum is based on pricing the multi-benefits attributed to the implementation of IWRM instead of the projected £46 Billion required for 'traditional'<sup>25</sup> water infrastructure, as promoted by TW to meet London's future water management needs; included in the London Infrastructure Plan 2050<sup>26</sup>.

For other options to The Tunnel, the scenario is set by the UWWTD, which states: "The design, construction, and maintenance of collecting systems shall be done in accordance with best technical knowledge not entailing excessive cost."

A program of much cheaper and lower risk measures could be implemented to achieve what the Tunnel might otherwise claim:

- SuDS (Sustainable Drainage Systems): many towns and cities internationally have developed SuDS schemes in recent times. For example, in Llanelli, the cost estimate for a conventional CSO reduction scheme was £600mn, but an alternative SuDS scheme, providing the same outcomes, was implemented for £145 million<sup>27</sup>

---

<sup>23</sup> 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

<sup>24</sup> Philadelphia is an excellent example of IWRM/BGI See

[http://www.phillywatersheds.org/watershed\\_issues/stormwater\\_management](http://www.phillywatersheds.org/watershed_issues/stormwater_management)[http://www.phillywatersheds.org/what\\_were\\_doing/documents\\_and\\_data/cso\\_long\\_term\\_control\\_plan](http://www.phillywatersheds.org/what_were_doing/documents_and_data/cso_long_term_control_plan)

<sup>25</sup> The proposed Thames Tideway Tunnel is an example of 'traditional' infrastructure. It will ultimately cost upwards of £20 Billion (if all costs included) and yet do nothing to improve water quality or address other key environmental problems impacting upon the Thames River Basin and London such as flooding

<sup>26</sup> <http://www.london.gov.uk/what-we-do/business-and-economy/better-infrastructure/london-infrastructure-plan-2050>

<sup>27</sup> New Civil Engineer 9th February 2015: 'Technical Excellence: Llanelli Rainscape project'

- Infiltration: The British Geological Society and Bloomberg found “infiltration schemes could be developed, subject to some technical adjustments, across 67% of London’s surface area.”<sup>28</sup>, whereas Thames Water instructed their SuDS consultant to ignore infiltration - which resulted in the SuDS option being dismissed as a solution to CSOs
- Partial sewer separation could include new development along the banks of the Tideway and tributaries discharging storm water direct to the Tideway
- Real Time Control: London has spatially variable rainfall and an interconnected sewer system with fixed weirs installed a century or many decades ago, when storm run-off was different to today. Thus, ‘Real Time Control’ using adjustable weirs and penstocks to make maximum use of the interconnected system capacity would much reduce spill frequency by diversion of flows
- Detention tanks have reduced Acton CSO spills from 40/year to 17/year.

A good example of what IWRM looks like and how it is implemented can be seen in the city of Philadelphia, in the USA. Philadelphia has a smaller population than London but it is more densely populated and has higher rainfall intensity.

Like London, Philadelphia’s central part has a combined sewage overflow (CSO) system that was constructed in the 19th century. With increased rainfall, as a result of climate change and larger populations, unacceptable amounts of sewage and rainwater are being released into the watercourses causing pollution in cities with CSO systems like Philadelphia and London.

Philadelphia considered building a further sewage tunnel, as proposed for London but after undertaking comprehensive, triple bottom line cost benefit analyses, it was concluded that IWRM was better value for money while providing a more resilient solution since it would help to address all of the water related problems and have a positive impact on communities via health and employment benefits arising from a greener and cleaner environment.

The benefits are already being experienced in the first 5 years of implementation of the 25-year Green Cities, Clean Waters IWRM program that was adopted by Philadelphia’s leaders in 2011. As a result of the immediate improvements to Philadelphia’s watercourses from IWRM, the US Environment Protection Agency made IWRM Government policy in 2012, replacing the old ‘grey infrastructure’ approach to water management.

The key principle behind the IWRM approach in Philadelphia has been to remove the first 2 inches of rainfall from the CSO sewerage system by capturing it instead via soil/water plant systems called ‘Green Stormwater Infrastructure’. Community Partnerships are seen as key to the success of IWRM and the city is continuously creating involvement opportunities to connect residents, businesses and government as neighbours and stewards of ‘their’ watersheds.

---

<sup>28</sup> Bloomberg New Energy Finance Water White Paper, 21st Oct. 2013

Other benefits of this approach include:

- IWRM is fairer. While cities like London seek to saddle water rate payers and the general tax payers with the burden of financing massive and outdated grey infrastructure projects, IWRM can minimise rate and tax increases and so help keeping water affordable for all.
- IWRM creates environmental, social and economic benefits that London's communities will miss out on.
- IWRM increases property values, beautifies neighbourhoods, reduces the heat island effect, creates natural habitats, increases bio-diversity, enhances public spaces, schools and even results in making neighbourhoods safer.
- IWRM creates jobs. Such a programme of works can help boost the green economy in London<sup>29</sup>. It can create a range of high-value skilled, as well as less skilled, new jobs, and help attract smart workers and ecologically advanced firms to London.
- IWRM can improve the mental and physical health of Londoners and contribute nationally by reducing air pollution and by making our neighbourhoods greener and more attractive to live in.

Water companies could be made to claw back excessive profits, which can be placed in an account to pay for IWRM. In addition, all surface water charges could be paid into this same account, including a new water rates charge to be levied on commercial customers for the same purpose.

In Philadelphia, storm-water regulations were based upon new, efficient, and environmentally positive approaches to storm-water management that include controls to improve the quality of storm-water prior to discharge, controls to reduce the erosive effects of storm-water, and measures to increase groundwater recharge within the areas of water quality, channel protection, flood control and non-structural site design. These regulations ensure that Philadelphia has a progressive and effective storm-water program that meets the state and federal requirements, while also coordinating with the changing regulations occurring in upstream municipalities.

There is no reason why IWRM would not work in London. Thames Water Utilities Ltd and the Government have not undertaken a feasibility study on IWRM for London nor have they understood the cost benefits of IWRM for London.

Overall, in the view of TBGE, the Integrated Water Resources Management approach offers a much wider range of environmental, economic, financial and social benefits than proceeding with the TTT. If the TTT proceeds, it is almost certain that these other sustainable alternatives will be jettisoned, for lack of investment as much as anything else.

---

<sup>29</sup> <http://rew-online.com/2015/09/30/green-building-sector-outpacing-overall-construction-growth/>

## 11) CONCLUSION

TBGE believe that TTT should be halted for many reasons, as explained above. The project is simply too risky, too expensive and superfluous to need.

Additionally, we believe that the evidence shows that Thames Water's tax arrangements represent a tangible and significant ethical failing, which, in governance terms, should be of material interest for TW's corporate owners.

When taken in conjunction with the many apparent conflicts of interest outlined above, and the debt financing arrangements of the IP/Bazalgette, these pose a significant reputational risk to the corporate owners of the IP/Bazalgette, as well as to five of the six major banks providing the £1 billion loan enabling the TTT to be built. Thames Water corporate owners should live up to their shareholder and Equator Principle responsibilities to minimize non-technical risks, and act to ensure that Thames Water's financing is ethical, sustainable and non-tax haven based.

Given the public interest dimension to this case, TBGE believe that Thames Water's suspect tax haven financing arrangements, and these conflicts of interest, should be investigated by Ministers and relevant Parliamentary authorities – and, in light of the irregularities with respect to normal UK and EU procurement procedures, TBGE believe that an official review as to how the licenses and contracts were bid and awarded is also necessary.

These actions should, ideally, be taken as a matter of urgency before Macquarie sells off Thames Water.

There are a wide range of serious and unresolved questions about the financing of the project, and its viability over the long-term. These looming risks include:

- that investors get cold feet because the project will be seen as a poor investment over the long-term
- that the banks fail to provide bank debt (due to non-compliance with the Equator Principles, for example)
- that the TTT debt is ruled to be 'on' Government balance sheet, and not 'off' as assumed – and discussions with Eurostat and IMF on this issue are ongoing
- and, that the public and investigative media start raising a stink about the many conflicts of interest bedeviling the project.

Given these uncertainties, the overall case against the Thames Tideway Tunnel detailed above, and the availability of a safer, cheaper and more sustainable alternative approach, it is surely time to call a halt to the TTT before more damage is done and more time and money is wasted.





**TBGE (the Thames Blue Green Economy group) is a broad coalition of water industry experts, engineers, academics, politicians and environmental representatives who support an Integrated Water Resource Management (IWRM) approach to maintaining water quality, and are opposed to the needless and hugely expensive waste water tunnel, the Thames Tideway Tunnel, being promoted by Thames Water.**

**For further information, please contact:**

- **Lord Tony Berkeley: [berkeleyafg@parliament.uk](mailto:berkeleyafg@parliament.uk) - (M) 07710 431542**
- **Martin Blaiklock: [tmblaiklock@me.com](mailto:tmblaiklock@me.com) - (M) 07712 583078**
- **Charles Secrett: [cmsecrett@icloud.com](mailto:cmsecrett@icloud.com) - (M) 07977 016619**