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SUSTAINABILITY BEST PRACTICE IN PPP: CASE STUDY OF A HOSPITAL PROJECT IN THE UK

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Globally, sustainable development has been given high priority for the Government agenda in order to achieve a balance of social, economic and environmental factors. The UK government realise the importance and criticality of sustainable development and they intend to use the public procurement power to demand more sustainable public building development to improve energy efficiency and reduce carbon emissions. Public Private Partnership (PPP) is an effective procurement tool for the government to deliver the provision of public services. In the UK, the most common PPP form is Private Finance Initiative (PFI). Up until March 2012, a total of 717 PFI projects have been delivered to sustain social and economic development in the UK (HM Treasury, 2012). There is potential to use PPP to incorporate the sustainability agenda and support low carbon economic development. However, little research has been conducted to demonstrate the benefits and advantages of the PPP procurement system incorporating sustainable development. This paper aims to demonstrate best practice in sustainable development through PPP (PFI) procurement system in the UK. It initially illustrates the relationship between PPP and sustainable development and then uses a case study of one of the largest PPP hospital projects in the UK, utilising interviews and secondary data to show evidence of how the sustainability issues have been addressed within the procurement process and the advantage and limitations of using the PPP procurement system in delivering sustainable development. The results show best practice across different strands of sustainability through contribution to local employment and the local economy, a high percentage of waste recycling, dust and noise reduction and technical innovations such as green roofs, natural ventilation and a focus on occupant comfort.

Keywords: Hospital, PPP/PFI, Public Procurement, Sustainable Development, UK.

INTRODUCTION

How to achieve sustainable development is one of the fundamental challenges for society worldwide. Contrasting with conventional methods, sustainable development provides a new route for us to live within the fragile natural system in order to conserve resources and protect the environment. At a national level, the UK government has a significant role both in establishing sustainability policies and regulations and in leading the sustainable business revolution and provide the quality of life for this and future generations (DETR, 1999). To achieve a better quality of life is not easy; it requires the highest level of government commitment and deliverable action plans from all sectors. One of the key toolkits for the UK central government is to use public procurement to demand sustainable products and services and to stimulate the domestic market. The UK government buys £125 billion worth of goods and services each year (HM Treasury, 2007). The scale of this purchasing offers an additional policy tool to the traditional approaches such as regulation and economic instruments.

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Public Private Partnership (PPP) is a public procurement system by which the public sector contracts to purchase quality services on a long-term basis so as to take advantage of private sector management skills without a significant initial outlay of public funds. In the UK, the most common PPP model is the Private Finance Initiative (PFI). PFI is an essential item of the government's Public Private Partnership toolkits. It is significant in delivering objectives in a number of policy areas such as Education, Health and Transport and so on. Up until March 2012, a total of 717 PFI projects have been delivered to sustain the social and economic development in the UK, while 648 projects are operational (HM Treasury, 2012). In theory, PFI has a natural relationship with sustainability (BRE, 2002 and Hill and Collins, 2004, Zhou, 2006, 2008). For example, the new contract form forces the private sector, particularly the main contractor, to invest more time and capital in their projects. The life cycle of the facility should be taken into account in order to achieve maximum benefits and reduce the risk transferred to the private sector. The government has recognised these PFI characteristics and the significant role of PFI in delivering sustainable development. Zhou *et al* (2005) have shown that PFI is a mature and dynamic public procurement system, which facilitates the delivery of sustainable development.

This paper aims to demonstrate the best practice of sustainable development through PPP (PFI) procurement system in the UK. It initially illustrates the relationship between PPP/PFI and sustainable development and then uses a hospital project to measure how the sustainability issues have been addressed within the procurement process and the advantage and limitations of using PPP procurement system in delivering sustainable development.

PPP AND SUSTAINABLE DEVELOPMENT

Since 1992, the Private Finance Initiative (PFI) has been used to modernise public services and achieve the best value of public spending in the UK. Under the PFI model, the public sector contracts to purchase quality services on a long-term basis so as to take advantage of private sector management skills without an initial outlay of public funds. Compared with traditional methods the PFI model could provide a higher profit rate for the private sector in the long term (normally a PFI contract lasts for 25-30 years) and better partnership with the public sector. After nearly 20 years' growth, the PFI model became one of the most important procurement processes for the UK governments and their agents. It has been significant in delivering objectives in a number of policy areas such as Education, Health and Transport. The government has used PFI to achieve value for money and public service excellence and it has arguably been used to lead a global public procurement revolution. Currently, however, there is a shift of opinion for using PFI from social infrastructure (such as schools and hospitals) to economic infrastructure (such as energy, water, transport and waste management) to support sustainable growth of the UK economy (HM Treasury 2010). This has partly arisen due to recent questions on PFI performance in terms of value for money. However, while the debate on the benefits of PFI may have entered a new and more vigorous phase there is no doubt that it has already had a major impact on infrastructure development in the UK (NAO 2011). In addition with another 61 projects in procurement this is set to continue for some time (House of Commons 2011). As such it has potentially a major impact on the capacity of the UK

construction industry for addressing sustainability objectives through public procurement of major projects.

PFI can offer real scope to promote sustainable construction (Addis and Talbort 2001). Hill and Collins (2004) found that the PFI mechanism can be used as a lever to move the construction sector in the UK towards greater sustainability of its products and practices. It incorporates whole-life costing, as opposed to lowest initial price and should encourage a more sustainable approach. The transfer of risks such as energy consumption to the private sector may provide an incentive for investment in more efficient energy usage. If environmental requirements prove too expensive or result in inappropriate levels of risk transfer, however, projects may fail the value for money test, or become unaffordable. The critical factor is to ensure that sustainability gains are assessed against value rather than cost. PFI clients generally specify outputs rather than input. Clients can use this opportunity to specify a required sustainability performance (e.g. energy usage per year) rather than specifying the use of low energy equipment or facades. It is then the contractor's responsibility to find the most cost-effective way of delivering the performance level demand. Furthermore, the long-term and integrated nature of PPP services (particularly the PFI contract) has incentivised the contractors to consider the synergies between the design of an asset and its ultimate operating cost (OGC 2002).

RESEARCH METHODOLOGY

This study uses the case study approach to examine the best practice of sustainable PPP projects in the UK. One of the largest hospital projects has been selected to evaluate its sustainability performance through its procurement process. The data of the Hospital has been collected from a variety of sources. They include primary data through three semi structured interviews and secondary data through government reports, contract proposal, email information, and a number of newspaper articles. The three interviewees are Sustainability Strategy Manager; City Planner and Contractor's Environmental Advisor. Each interview took about 1 – 1.5 hours in length and was recorded and transcribed. The interview was designed to cover:

- Key stakeholders' experience and attitudes regarding sustainability;
- The project's objectives, client sustainability priorities and how the supplier responded;
- The project's sustainability performance level and benefits from social, economic, environmental and technical aspects.

Content analysis technique has been used to evaluate the primary and secondary data in order to identify the best practice of sustainability through the PFI project.

DATA PRESENTATION AND ANALYSIS

St Bartholomew's (Barts) and the Royal London Hospital is the biggest hospital PFI scheme and one of the top ten PFI projects in the UK. It combined two large and old hospitals to become one massive redevelopment project including transforming one old hospital into a Cancer and Cardiac Centre of Excellence. This project is worth £1.1 billion. The project consortium includes one main contractor: Skanska and two investors: Innisfree and the Dutch Infrastructure Fund. The Special Purpose Vehicle

(SPV) company, Capital Hospitals, is responsible for designing, building, redevelopment and maintaining the hospital buildings until 2048 (Skanska, 2010). The redevelopment work began in May 2006 and scheduled to complete in 2016. Because it is the largest hospital project, there are a number of institutional forces pushing the project to become more sustainable. The local authority, Greater London Authority, established a sustainable development commission and published a practical guide for new business proposal writing in 2004. In this guide, it introduced a '4Rs' (Responsibility, Respect, Resource and Results) principle as London's sustainable development framework which was developed in 2003. Moreover in 2006 the Mayor of London's office published a supplementary planning guidance for sustainable design and construction, which set a new policy framework for all new buildings' design and construction in London. To be in line with the national and local sustainable development policies, the NHS Trust recruited a sustainable regeneration manager in 2004 and published its outline regeneration and sustainability strategy. The strategy outlines the role of the trust in sustainable development and how it could act as a good 'corporate citizen' and make a strong impact on redevelopment and local regeneration and make a contribution to east London's economic growth. Moreover the NHS Environmental Assessment Tool (NEAT) has been developed by the Building Research Establishment (BRE) and the Department of Health. Based on the above institutional forces, the hospital and PFI consortium together established six sustainability strategic objectives as below (Attifield, 2004, Barts and The London NHS Trust, 2006):

1. To provide 21st century healthcare in an environment of which staff, patients and our local communities can be proud;
2. To reduce the maintenance backlogs of today's ageing building stock and introduce output-based standards that will ensure a 'nearly new' quality for at least 30 years;
3. To design and provide buildings that will be able to respond flexibly to the Trust's evolving clinical strategy and advances in modern provision;
4. To put patients at the heart of the new hospitals and transform the hospital experience for millions of patients from London and beyond;
5. To improve environmental quality; and
6. To improve cost efficiency.

The objectives above address sustainable development from three dimensions: social, environmental and economic, for example, the fourth objective shows that the project will become a user-centred sustainable PFI project, the fifth regards environmental issues and objective six is to face the economic challenge and to ensure the project is economically sustainable. The tendering process took over four years, with a 28 month preferred bidder period. During the negotiation stage, the contractor proposed a sustainable development strategy programme with its client to build up common understanding of sustainable development under this project context. Furthermore, in order to maximise the contribution of the PFI scheme to regeneration, the Trust (2006) developed a sustainable regeneration strategy focused on enhancing employment opportunities for local people. The Trust is also considering how it can use the project to embed sustainability in the way it manages its day-to-day operations. The aim of this strategy is to maximise the return on the investment in the new hospital in terms

of local regeneration benefits and sustainability outcomes. This also links the investment to positive community health outcomes and contributes to the Trust's corporate citizenship agenda. As a result, a Sustainable Development Index (see figure 1) has been created to minimise the ecological footprint of the Trust's work and physical development and maximise its contribution to community health.

	CORPORATE Finance & Policy	SOCIO-ECONOMIC Employment, Economy, Neighbourhood	ENVIRONMENTAL Design & Build, Transport, FM
EMPLOYER			
PURCHASER			
CORPORATE ROLE	MINIMISING THE ECOLOGICAL FOOTPRINT- MAXIMISING COMMUNITY HEALTH		
DEVELOPER			
ESTATE/ FACILITIES MANAGER			

Figure1: Barts and the London Hospitals' sustainable development index (Source: Barts and The London NHS Trust, 2006)

The hospital environment has been designed with airy glass atria, pedestrian piazzas and landscaped gardens, to create a warm, safe, welcoming and healing sanctuary from the bustling urban environment of the City, which embedded London City's Green Transport plan and sustainable design solutions. The PFI consortium had set sustainability targets during the construction stage (Skanska, 2006):

- Achieving a rating of 'excellent' for all new buildings, using the NHS Environmental Assessment Tool (NEAT)
- Recycling 65% of their waste, and
- Sourcing 20% of their energy from renewable sources.

Furthermore, there are two unique characteristics to show how stakeholders have involvement in the PFI sustainable development:

- 1) Interactive stakeholder consultation: the PFI consortium has consult over 400 stakeholders including clinicians, patient and community groups to evaluate the redevelopment plan. The evaluation stage took about 18 months.
- 2) Sustainability Champions are from both the NHS Trust and Skanska, introduced to promote the integration of sustainability into the project. The client also employs an environmental manager whose responsibility is to develop the sustainable PFI development strategy. Furthermore, the

contractor's environmental team supports the provision of more sustainable technical solutions during the construction phase, for instance to use acoustic screens to reduce the noise on site and reusable packaging to reduce the waste on site.

According to the main contractor Skanska's report (2006), Barts and the London hospital has won many sustainability awards: e.g. a Corporate Social Responsibility Awards from Construction News, a national Innovation Award from the Chartered Institute of Waste Management and a Sustainable Procurement Award at the national Sustainable City Awards.

DISCUSSION AND CONCLUSION

The case of Barts and the London Hospital has significant results to demonstrate the best practice of sustainable development through the PFI procurement system in four dimensions: Social, Environmental, Economics and Technical:

- **Social Sector:** this project provides modern hospitals and benefits the people in East London, the city and the wider community with space for 1,248 beds in a modern purpose-built environment that is suitable for the provision of healthcare in the 21st century. The NHS trust' sustainable regeneration programme contributes to the local employment level.
- **Economic Sector:** the £1bn redevelopment project has big economic impacts to the city of London. The sustainable regeneration programme will also contribute to the local economy, for instance, Skanska sources from the local labour market, use local businesses and services during the construction period and 17 per cent of the project workers are from local area. This help the project reduce recruitment cost/agency staff costs and provide a big saving in capital cost. Moreover, new evidence from Environment Agency's CRC Energy Efficiency Scheme shows that Barts and the London NHS Trust saves over £800,000 from energy efficiency of the redevelopment project (Barts and the London NHS Trust, 2012).
- **Environmental Sector:** This project was built on brownfield land and recycled over 98% of waste and 50,000 tonnes of demolition waste diverted from landfill (Construction Excellence, 2007, WRAP, 2007, Skanska 2010), which is higher than their set target of 65% waste recycled. Moreover, dust and noise disturbance was minimised during demolition to reduce pollution. An off-site construction consolidation centre was used for the Barts Hospital redevelopment to store construction materials before they were transported to the site (Skanska, 2010). This project also achieved ISO 14001 for Environmental Management System (EMS).
- **Technical Sector:** An acoustic screen made from aluminium panels with sound deadening foam is used to reduce the noise level. Green materials are promoted on site, for example, according to Skanska (2010) all timber used on the project is from sustainable sources certified by either the FSC (Forest Stewardship Council) or the PEFC (Program for the Endorsement of Forest Certification). Barts Hospital also has 1100m² green roof coverage as 20 per

cent of total roof area. However due to a limit funding, full green roof coverage was not possible. Natural ventilation and a large central atrium are used to enhance the human experience inside the hospital, and make it more comfortable for the occupants (staff and patients). The large airy atrium in the hospital will provide more natural light to the inside of the building, reduce energy use and save operational costs.

This case study demonstrates that the PFI procurement system has advantages in integrating Sustainable Development. The main contractor, Skanska, could use their sustainability strength and assist the NHS trust to set and achieve those sustainability targets in the early stage of the project. Moreover, this project has a long term strategic plan which embeds sustainability principles and aims to address the sustainability issues through the whole procurement process. However, there are some barriers for PFI projects to implement sustainability, for example, limited available budget for spending in sustainable technologies and materials and the strict legal requirements and long term contract conditions limit the future adoption of new sustainable construction technologies.

This project is the largest PFI hospital scheme in the UK and it is a flagship of sustainable building and the best example in the PFI industry and the Department of Health. Although one case study is insufficient in proving that PFI/PPP is an effective procurement system in delivering sustainable development, lessons learned from this case study could provide some guidance for PPP project's client and its consortium and demonstrate how stakeholders could work together to achieve their sustainability targets. It is worth undertaking similar case studies, particularly in different types of PPP/PFI projects, to identify their sustainability performance or best practice in the UK and other countries.

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