

# IISDREPORT

## *Harnessing the Power of Public-Private Partnerships: The role of hybrid financing strategies in sustainable development*

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*February 2012*



## *Acknowledgements*

In addition to the many conversations and colleagues that have contributed to this paper, IISD would like to specifically acknowledge and thank the following individuals and organizations for their contributions to the discussion and research that have gone toward its development.

Abby Semple: ICLEI - Local Governments for Sustainability

Caroline Visser: International Road Federation

Geoffrey Hamilton: United Nations Economic Commission for Europe

Helder Chambal: Universidade Técnica de Moçambique

Jamie Brown: Basel Agency for Sustainable Energy (BASE) and eCOS

Louise Gallagher: United Nations Environment Programme Chemicals Branch

Michel Crevecoeur: United Nations Environment Programme Finance Initiative

Peter Nohrstedt: Swedish Environmental Management Council

Sven-Eric Hargeskog: Affärskollegan Sweden

Tina Perfrement: Perfrement Environmental Consulting Ltd (Australia)

The authors would like to thank Mark Halle, Executive Director IISD Europe, for his ongoing support in developing a focus on public-private partnerships, along with the project administrators Fabrice Ressicaud and Deborah Roosen for their important contributions.

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## *Introduction*

The last 20 years have seen the rise to power of public-private partnerships (PPPs) as a means of crowding in investment and expertise from the private sector to the delivery of public goods and services. Widely utilized because of their purported advantages in off-budget funding, PPPs are a mechanism that modern governments regularly turn to in order to fulfill their responsibilities on public infrastructure and services. This trend is likely to continue following the 2007-2008 global financial crisis that sees many jurisdictions strapped for cash and seeking alternative methods of meeting the increasing demands for investment in public sector development.

Whether PPP is an appropriate, successful, responsible, effective, efficient or legitimate method of public procurement is not the subject of this paper. Similarly, it seeks neither to provide a guide for creating or using PPPs, nor comprehensively explain or assess the issues involved in what are extremely technical and complex legal contracts drawn up between public bodies and the private sector. On these matters there is a myriad of research and discourse in the public domain, all by authors better qualified than we are, and we see no real justification for attempting to re-invent the wheel. What this paper *does* intend to do, however, is take the discussion around the value and relevance of PPPs and examine it through the filter of environmental and sustainable development, with an eye to future benefits and practices for all nations.

As such, the paper starts from the assumptive foundation that PPP is a popular method of public procurement that will remain central to government policy across the developed world in the short- to medium-term future. Furthermore, considering the ongoing acceptance of PPPs in many middle-income economies, and the specialized challenges facing lower-income economies in the provision of public infrastructure and services, it is not difficult to imagine PPP becoming manifestly popular across the developing world.

Sitting, as it were, on the cusp of a potential large scale take-up of PPPs that will influence the shape of many projects around the world, it is important to insure the vehicle is properly constructed and reflects international best practices and understandings of sustainability. It is the intention of this paper, therefore, to open the discussion on environment and sustainability within PPP and provide preliminary observations with which to inform future actions and research.

Part 1 of this paper will provide the context of the document, ensuring the reader has a basic understanding of PPPs, including a brief explanation of the various types of PPPs along with the main advantages and disadvantages. Part 2 will broaden the discussion and provide a comment on the state of play in PPP around the world, in addition to examining several institutional structures. Part 3 takes a more in-depth approach as it casts an eye over five case studies from different PPP jurisdictions, focussing on the environmental and sustainability implications present in each project. Part 4 will sharpen the discussion by considering PPPs from a sustainable development perspective, highlighting some lessons learned and commenting on topics that are considered important for further consideration by governments, researchers and practitioners alike.

## **PART 1: What Are PPPs?**

### **1.1 Definition**

Public-Private Partnerships is a generic name that is being applied to several different types of contractual agreements between the State and the private sector for the purpose of public infrastructure development and services provision. A long time provider of goods and services to the government through traditional methods of procurement and privatisation, PPP sees the private sector increasingly taking on activities previously considered the exclusive responsibility of the State, as the State becomes the “buyer” rather than the supplier of services. As the word “partnership” suggests, the aim is to create an infrastructure “dream team” by combining the best capabilities of the public (legislation, regulations, social concern) and private (innovation, efficiency, finances) sectors to find a solution to infrastructure-related public needs. PPP therefore describes the structure of the relationship between the two parties and ensures that the best of both contributes to optimal public services. What this involves and the part each of the parties will play in a project is obviously highly contextual, but there are some general principles that frame a PPP and separate it from other procurement methods.

There is no one single, concise definition of PPP.<sup>1</sup> Accurately defining a PPP is problematic because by nature it is a contextual concept, responding to the institutional, legal, investment and public procurement settings of different jurisdictions, whilst also considering the contextual nature of individual agreements.

Although in a constant state of flux, PPPs can generally be said to include:

- long-term contracts/agreements/relationships
- a private funding component
- provision of services or infrastructure through the private sector
- significant transfer of risk to the private sector, such as investment, design, construction, or operational risks
- complex contractual responsibilities and deliverables that vary over the contract period as the project moves through its phases, such as from finance to construction and operation
- the return of infrastructure/services to the control of the State at the end of the contract term or;
- the provision of services by the private sector on behalf of the State following the fulfilment of design and build responsibilities

*For the purposes of this paper any reference or discussion of PPPs is framed by a definition that consists of all the points listed above.*

Common areas where jurisdictions differ in their application of PPP will be in:

- whether there is a public sector finance component, and if so;
- the percentage to which financial investment is generally divided between public and private sectors
- the method of remuneration to the private sector, i.e., user fees (concession) or government payments (availability-based)

Although initially restricted to public infrastructure in the form of roads, railways, prisons, government buildings, power generation, or water and waste treatment facilities, PPP has increasingly moved into the provision of so-called “soft infrastructure,” such as schools, hospitals, and health services, as it continues to diversify across markets.

<sup>1</sup> To view a range of PPP definitions from across the world, see the recent Discussion Note from the Indian Ministry of Finance, which includes definitions from 19 different jurisdictions, countries and agencies. The note can be retrieved from <http://www.pppindia.com>.

## 1.2 Points of Clarification

### *Concessions and Concession PPPs*

There is some confusion on the delineation between concession contracts and concession PPPs, which has arisen because these two forms of public procurement do share some features; this confusion was exacerbated during the early years of PPPs by the use of terms interchangeably. Some overlap still exists today, where emerging nations, for example, lack the capacity to undertake sophisticated PPP agreements and concessions can form simple or early forms of PPP and can often be included in statistics as PPP agreements. Concession contracts and the term “concessions” as utilized within PPP are, however, separated by subtle points of difference.

Public service concessions describe a contract for the private sector to have exclusive rights to operate, invest in and maintain a public sector responsibility or utility, whereby the private company derives part or all of its income from the operation of the service. As distinct contract types, a concession agreement’s main point of difference from a PPP is the reduced emphasis on large private finance components and the fact that ownership of the facility remains with the public sector during concessions.<sup>2</sup>

Where the two terms are combined, a “concession PPP” refers specifically to the manner in which the private sector generates its income or is paid for its services, which is generally through the collection of user fees (tolls, water usage), such as in the case of a tolled roadway.

### *Availability-Based PPP*

In availability-based PPPs, on the other hand, the private sector partners derive their income from government payments. Here, the public authority makes payments to the private company based on pre-arranged contractual conditions relating to when, how, and to what extent a public service is provided or made available. This may be found, for example, in the provision of power, where the public sector will make payments according to the plant’s output capacity, regardless of whether that output is utilized or not. Availability-based PPPs are also more common in soft infrastructure such as education or health that has no clear user fee or self-funding ability. A further limited application of availability payments are the so-called “shadow tolls,” where the private sector will not collect real tolls but will receive payment from the public authority based on infrastructure usage.

### *Privatization:*

PPP are not to be confused with privatization, where a service or facility is fully transferred to the private sector by sale/disposal, including all the associated assets and liabilities, for operation according to market forces. PPP sees the temporary transfer of a service or facility to the care and responsibility of the private sector through a long-term lease agreement, with the service or infrastructure potentially returned to government control at the completion of the contract term. The extent to which the government regains ownership at the completion of a PPP depends on whether the facility or service was, in fact, originally owned by the public sector and the terms of the PPP agreement. PPP agreements may see the private partner operate services according to market forces, but it is generally within a protected framework of minimum incomes and thresholds guaranteed by the public sector, and minimum services

<sup>2</sup> Ownership is not always a point of distinction because in some concession cases the public authority is not the owner, as in logging or mining for example, where the public authority gives a concession to the private company to fully exploit a piece of land they own. Such agreements could be classified as PPPs when, in exchange for usage rights, the private partner will agree to certain preconditions of land development, rejuvenation or public access. For an example of a “green” PPP that uses such a model, see the case of logging and land management in Chesapeake Bay in the State of Maryland, United States.

or supply demanded of the private partner. PPPs are therefore, according to individual project choices, positioned at various points along a continuum that sees total public sector provision at one end and privatization at the other.

*Private Finance Initiative:*

The Private Finance Initiative (PFI) is the form of PPP used within the United Kingdom and the term used to describe all such agreements, with the title “PPP” rarely appearing. First introduced by the British government in 1992, the PFI is a form of PPP that insists on private sector finance provision. Just as in PPP, a PFI will see the public sector as both an enabler and purchaser of projects, while the private sector becomes the designer, builder and operator on behalf of the government. Whereas the inclusion of public finance is optional to some PPP models, the responsibility for project finance also falls to the private partner within PFI, making most agreements design-build-finance-operate mandates (Allan, 2001). As a variant of PPP, any reference to PFI can be reasonably equated with PPP theory and practice at its core level and considered to infer the same meaning. Indeed, the United Kingdom is considered to be the leading developer and practitioner of PPP over the last 20 years, with major contributions through PFI practice and experience.

### 1.3 Types of PPP

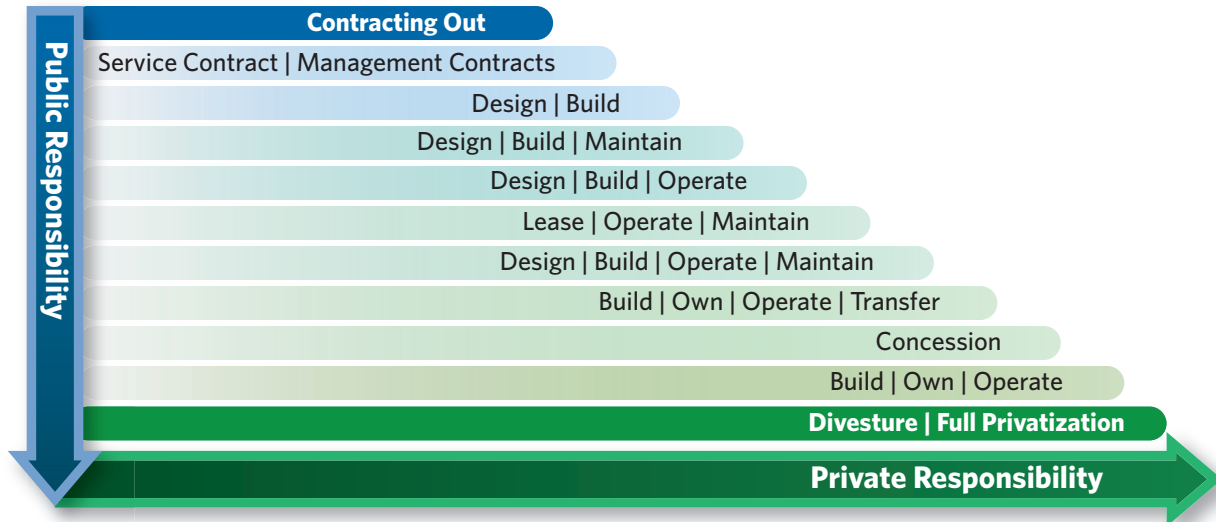
There are a range of options available to public authorities that wish to involve the private sector in the procurement process, and within that continuum PPP can take many forms according to the jurisdiction in which it is operating. Three common examples that also help to describe the nature of the relationship between public and private sectors are:

- Build-Own-Operate-Transfer (BOOT): The private sector is responsible for the design, construction and operation of the infrastructure over the project term, with ownership and control returning to the public sector at contract's end.
- Build-Own-Operate (BOO): Here the private sector retains complete ownership of the infrastructure after completing the design and construction phases and also continues to operate the facility, essentially replacing the government as provider of public services for the length of the contract term.
- Build-Transfer-Operate (BTO): In this case the public sector assumes ownership of the infrastructure on completion of the design and build phases, leasing it back to the private sector for operation.

Although we have not expressly included reference above to financial arrangements, the private sector traditionally assumes the majority of funding/financing responsibilities within these types of PPP. Jurisdictions will have different approaches to incorporating private sector finance and often utilise different names such as ‘Leasing’ - which are build-operate-transfer type contracts used in France minus the private sector finance component. ‘Joint Ventures’ are another type of PPP whereby the public and private sectors create a separate legal company to jointly finance, own and operate projects, such as occurs in the United States. Some PPPs, such as examples found in wastewater treatment in Canada, relate to ‘Operate and Maintain’ where the private sector has no previous involvement in the design and build phases but merely operates a service or provides overall management of a facility (Grimsey & Lewis, 2007).

The inclusion of practices and terminology from traditional public/private procurement relationships only manages to further confuse the discussion and blur the lines of PPP definition. In reality there is a myriad of variations that have been built on the principles of “BOOT”-style PPPs, and further reading will reveal an almost endless list of acronyms describing each mutation. Figure 1 illustrates the PPP continuum, also demonstrating the diverging correlation of responsibility for the public and private sectors according to various PPP approaches.

**FIGURE 1: PUBLIC-PRIVATE PARTNERSHIPS CONTINUUM**



Source: Adapted from Palmer, G. (2009)

## 1.4 Pros and Cons of PPPs

What follows is a general disclosure of the arguments for and against PPPs as found in mainstream discussion and literature. Because of the highly contextual nature of PPPs and the differences we see in their application around the world, each point should be understood to be of a general nature and not relating to specific individual examples.

At a theoretical level, it is not uncommon to see the supporting arguments outweigh the negatives on the topic of PPPs. While this may be the case, it is important not to underestimate the drawbacks associated with PPP agreements, and due care should be taken to genuinely assess the suitability of PPP for each project and reduce the risks associated with such agreements.

### Potential Benefits:

- *Value for money:* Utilizing private sector skills and technology to deliver projects in a more efficient manner, resulting in either lower costs or a superior product for the same investment.
- *Optimization of the design and operation:* Using outputs based specification allows room for and promotes innovative solutions from the private sector on the design, operation and maintenance aspects of the project, with the intention of improving effectiveness whilst reducing costs over the whole life cycle.
- *Quicker delivery of project:* Private sector capacity and flexibility are seen to be superior to the public sector, and PPPs therefore allow projects to be finished more quickly and on schedule than those attributed to public sector provision.
- *Risk transfer:* Project risks (e.g., finance, timeframe, planning permits, community consultations) are transferred to the party best equipped to deal with it, both in terms of expertise and costs, to the stability and benefit of the project.
- *Increased investment in public infrastructure:* Governments are able to implement projects more frequently and on a larger scale because the private sector finance element reduces its need to raise or budget additional funds, as is the case in standard procurement.



- *Increased budget/financing certainty:*
  - The transfer of responsibility (and risk) to the private sector for some of the project elements shields governments from unforeseen financial liabilities following cost overruns, delays, or operational difficulties that would otherwise impact upon the budget bottom line.
  - Project finances are secured for the length of the contract and not subject to cyclical political budget adjustments, allowing for greater investment planning and efficiencies throughout the management, operation, and maintenance phases of the project.
- *Improved service delivery:*
  - Allows both sectors to operate within their sphere of expertise, the government in policy and governance, the private sector in the technical aspects of design, construction, operation, and management.
  - Payments that are linked to performance targets or requirements provide an incentive to perform that is too often absent in public provision of services.
- *Whole of life cycle<sup>3</sup> approach:*
  - Because the design, construction and operation are often undertaken by the one consortium there is a greater integration of the different elements and more coherence to the final product, unlike standard procurement options which may see several different subcontractors operating in loose cooperation.
  - Motivated by the desire to preserve long-term value of assets and to minimize costs, whole of life cycle responsibilities encourage the private sector to choose the most appropriate technology for the long term and adequately maintain it. This may be in contrast to decisions by governments that are often guided more by short-term financial pressures and think in much shorter cycles according to political terms and budget constraints.
- *Access to additional capital/off-balance sheet financing:* Because all or a large percentage of finance in PPP is provided by the private sector, the government is not responsible for raising funds from within its own coffers or adjusting budgets to allow for large infrastructure spending. This is particularly advantageous during times of fiscal crisis where the government is already short of funds or where the government may have a poor credit rating and is not able to raise the necessary finance. International and national accounting standards do provide some guidance as to what and how PPPs are recorded on balance sheets, but the issue is far from secure.
- *Political advantage:* There is political leverage to be gained from PPP agreements in terms of public perception and financial management credentials, as projects are delivered on time with less impact on the budget and provide superior quality infrastructure or services.
- *Private sector growth and stability:* PPPs provide the private sector with access to reduced risk, secure, long-term investment opportunities that are underwritten by government contracts. Such agreements ensure private capital flows, provide investment opportunities, and stimulate local industry and job markets.

*Potential Disadvantages:*

- *Higher cost:*
  - The borrowing rates given to the private sector may be higher than those typically available to governments.
  - An expensive tender and negotiation process, including higher contract transaction costs paid to legal and accounting firms, can neutralize any savings made in design and construction phases.

<sup>3</sup> A phrase that is widely used in PPP discussion and literature, the term “whole of life cycle” is here not to be confused with the “cradle to grave” concept that is common in life cycle costing. Here the term refers to the factors mentioned and does not imply the assessment of assets from a financial, environmental and social costing perspective.

- Transferring risk from one party to another has its price, and the private sector will expect guarantees of income proportionate to its risk burden.
- *Reduced competitiveness:*
  - High tender and transaction costs, along with complicated and long-term contracts reduce the pool of private sector companies with the capacity to apply for certain projects, reducing the government's choice and competitive tender processes.
  - Exclusivity agreements awarded to winning companies lock them into guaranteed profits and, in reality, creates monopoly markets, reducing competitive pressure to reduce costs and enhance services.
- *Complicated and lengthy tender process:* PPP contract and negotiation periods are often more complex and protracted due to the nature of the multi-party, financially intricate, and long agreement terms inherent in the relationship.
- *Lack of capacity:*
  - It is necessary for both the public and private sectors to possess PPP-specific capacity for an agreement to be signed and administered successfully. Such capacity is absent from many jurisdictions, both at a national and regional level, and it takes both time and experience to establish it.
  - An over-reliance on external consultants also leads to an expertise flight, where any knowledge gathered throughout projects is not retained by public bodies or private companies, but rather lost to external sources, making it difficult to build knowledge and lessons for the future.
- *Rigid/inflexible/long contracts:*
  - In order to provide stability and security over time, long contracts can become rigid and inflexible, reflecting point-in-time circumstances and then locking them in over the contract period.
  - It remains difficult for governments to adequately structure contracts that take into account future unforeseen events or circumstances, and it is often difficult to adapt and change contractual responsibilities as the context changes.
  - Future generations cannot respond to their individual circumstances but must adhere to outdated operations from previous decades.
  - Building flexibility into contracts is an expensive proposition because as the investment become less secure it may become necessary to further incentivize the private sector.
- *Delays and holdups:*
  - The private sector is not impervious to project stoppages, and the complicated nature of the agreements between PPP partners can increase delays, as disputes take longer to be settled and any unforeseen eventualities that takes place in future years involve a lengthy renegotiation of the contract.
  - The start of projects is also delayed by complex partner negotiations, sometimes further exacerbated by the political debate and public opposition that can surround PPP projects.
- *Higher consumer prices:*
  - Driven by a need to cover high levels of cost plus make a return on investment, market-driven pricing can see services cost the consumer more than if delivered by the public sector.
  - The issues of competitiveness and monopolies also mean there is potential for abuse in regards to user fees.
- *"Double taxation:"* The general public may perceive user fees as a form of "double taxation" whereby they are paying for services they feel their taxes should be providing or already have paid for. This will be noticeable in the case of toll ways, for example, where tolls have not existed under previous public sector provision and where there was no tangible cost to the user.

- *Less accountability/transparency:*
  - project transparency is weakened under the PPP model because of the difficulty in accessing private sector information, now considered of commercial value or commercial-in-confidence by the consortium.
  - Whole of project evaluation becomes problematic for similar reasons, as data is spread over numerous sources, compiled differently, and not always available for public scrutiny.

## *PART 2: Global Context*

The aim of this section is to take a quick look at PPP around the world, in order to develop a better understanding of its impact and influence and create a foundation for evaluating PPP and thus understand its value for sustainable development. To do this, we look at some PPP data from around the world, look at PPP market maturity conditions, and delve, albeit briefly, into dedicated PPP units and the European Commission's current legislative position on PPPs.

### 2.1 State of Play in PPPs Around the World

#### 2.1.1 Statistical Caution

Global comparison of PPPs is fraught with difficulties because of divergent approaches across jurisdictions, where it is not possible to directly compare one nation's PPP figures with another's, as a project classified as PPP in one country would be excluded in another. Similarly, the financial reporting of PPP investment is an ongoing challenge and an issue that is not fully reconciled in regards to the way data is both recorded and reported. Consequently, it is often difficult to assess PPPs' relative sizes and contribution to each sector or the economy as a whole. As a result, any data reported here should be treated extremely carefully and only considered within the context of the study from which it was drawn. Data is presented here only as an indication of PPP activity in various jurisdictions across the world, not an extensive quantitative analysis, and due care should be taken in direct comparison and analysis of data from different jurisdictions.

#### 2.1.2 European Union

In the 20 years between 1990 and 2009 there were more than 1,300 PPP contracts over €5 million signed within the EU, with a combined capital value in excess of €250 billion. The U.K., Spain, Germany, Italy, France and Portugal are the main proponents of PPP in Europe, together accounting for 92 per cent of all PPPs between 1990–2009. The U.K. is far and beyond the biggest user of PPP with some 67 per cent of the total EU numbers, with Spain the closest competitor a distant second with 10 per cent. Examining the figures from the perspective of total value bears out a similar result, with the U.K. accounting for 52.7 per cent again followed by Spain et al. While these figures alone may suggest a distortion of the popularity of PPP in Europe, trends over time indicate a slow but steady diversification of PPP across other countries. Accelerating quickly in the 1990's, the U.K.'s share of the EU projects began a general decline in 2001 and reached its furthest point of difference in the height of the global financial crisis in 2008, with its share falling below 50 per cent (Kappeler & Nemoz, 2010). As a leader in the field of PPPs and one of the first jurisdictions to undertake them, it is not surprising to see the U.K.'s (waning) domination here.

In terms of distribution, **transport remains the dominate sector across continental Europe, where from 2005–2009 it represented 41 per cent of the number and 76 per cent of the value in PPPs.** Education and health was the next significant sector, contributing 26 per cent of the total PPP numbers and 11 per cent of total value. PPPs in the environmental sector have shown a steady decline, with numbers falling from just under 30 per cent in the period 1995–1999 to just under 10 per cent in 2005–2009 (Kappeler & Nemoz, 2010).

The recent financial crisis has had the effect of knocking the wind out of PPPs, reducing numbers and value to levels seen in the first half of the decade, prior to the spike in 2006/2007.<sup>4</sup> This is most dramatic in terms of total value, where, while PPPs are still seen as an accepted procurement method, there has been a shift away from large PPP deals. Not only did the average PPP value in Europe reflect a 50 per cent decrease when comparing 2007 and 2009 figures, averaging €91 million, but the number of projects over €500 million dropped by around 60 per cent for the same time period (Kappeler & Nemoz, 2010). While these figures suggest less exuberance and more restraint within the PPP market during the 2007–2008 global financial crisis, they may also be seen as a correction of unnaturally high numbers and values in the years 2006/2007, immediately before the financial crisis. Since 2007, some 350 new projects representing almost €70 billion have reached financial close (Kappeler & Nemoz, 2010). Despite the spread of PPPs across Europe, experience remains patchy amongst both member states and different sectors, and a global survey from 2007 suggests that PPPs only account for about 4 per cent of all public sector investment (EU Commission, 2009a).

### 2.1.3 United States

According to a 2010 PriceWaterhouseCoopers report, the United States showed some reluctance to undertake PPP agreements prior to 2007. The analysis highlights misgivings and misconceptions on the side of government officials as a contributing factor in this, and cites capacity development as a key hurdle that must be addressed if the trend is to be improved. Nevertheless, PPP is gathering momentum, perhaps through necessity and convenience following the credit crunch, as 25 U.S. States have current PPP-enabling legislation—a necessity to provide the authority for transacting a structured finance deal (PriceWaterhouseCoopers, 2010). According to the 19th annual “International Major Projects Survey” carried out by the *Public Works Financing* newsletter (2010), which has been tracking PPP activity continually since the 1980s, the United States has had a total of 363 funded PPP projects between 1985 and 2010, with a total value in excess of US\$59.5 billion.

### 2.1.4 Canada and Australia

Canada can be seen to be very similar to its Commonwealth cousin Australia. Both jurisdictions have been utilizing PPPs since the early 1990’s and have developed comprehensive policy guidelines and legislation for what can be considered a comparatively smaller market in terms of total number of projects undertaken. In Australia, PPPs capture a large slice of the infrastructure market in terms of total government procurement, at between 10–15 per cent (Infrastructure Partnerships Australia, 2007), and had already seen more than 127 projects at a combined value of AU\$35.6 billion before the end of 2005 (English, 2006). Canada, by comparison, has seen a little over 100 projects at around the US\$31 billion total value since 1985 (Public Works Financing, 2010).

### 2.1.5 Emerging Nations

Developing countries have also dipped their toe in the waters of PPP, as throughout the 1990’s many nations followed the industrialized trend towards private sector involvement in public service provision. The World Bank’s “Private Participation in Infrastructure Project Database” provides a statistical analysis of what private participation in infrastructure (PPII) looks like for low to middle economies and is useful for indicating trends. However, it must be noted that projects included in this database extend beyond the definition of PPP and it also incorporates private participation in infrastructure that is absent of private investment, such as management and lease contracts. The

<sup>4</sup> Please note that these figures relate only to agreements that reached financial close and may not reflect all PPP activity for the specified time period, as projects still under negotiation are not represented.

data collected is also restricted to publically available data and relates only to projects that have reached financial close. As such, any trends or inferences that emerge from this data should not be seen to represent PPP activity exclusively. Nevertheless, the data is useful for suggesting trends in private sector participation within emerging economies and sectors.

As in Europe, the figures rose quickly in the 1990's as PPI took hold: total values skyrocketed from US\$17 billion a year in 1990 to US\$128 billion in 1997, but plummeted by a combined 45 per cent for 1998 and 1999 as the effects of the 1997 Asian Financial Crisis were felt through much of the developing world (Izaguirre, 2002). The period 1990-2000 was dominated by the "Latin America and Caribbean" region, which accounted for 48 per cent of the investment value, while the regions of "East Asia and the Pacific" followed by "Europe and Central Asia" represented the next largest portions, with 28 per cent and 13 per cent respectively. "Sub-Saharan Africa," along with the "Middle East and North Africa" lagged behind significantly, with 3 per cent each. During this period, Brazil clearly led the way with total investments of US\$123 billion, followed by Argentina, Mexico and China (which had the highest number of projects), before Malaysia, Philippines and the Republic of Korea form a group at around 30 per cent of Brazil's total (Izaguirre, 2002).

The years from 2000 to 2009 saw some levelling out in the distribution of PPI across regions, as "Latin America and Caribbean" traded places with "East Asia and the Pacific," slipping to 22 per cent of total projects, although it retained the greatest slice in terms of value at US\$152 billion, as large projects drove its activity. Sub-Saharan Africa saw a marked improvement of 7 per cent in its number of projects from 1999 to 2009, with 43 of the 48 nations in the region implementing PPI projects. Although, at only 238 projects in total, the average number of projects per nation over a 10-year period is incredibly low, especially according to strict PPP definitions, and considering that Nigeria and South Africa each accounted for more than 25 per cent of the region's investments. Energy and Telecom were consistently the most popular sectors across all regions, achieving large slices of the regional investment and together often accounting for around 80 per cent of investment (PPPI Database, 2009).

The PPI market in developing nations was slow to recover from the shock of the Asian Financial Crisis, taking a full decade to regain pre-crisis levels. Bottoming out in 2003, the decline was then reversed quickly, as total investment commitments to infrastructure projects rose from around US\$70 billion in 2003 to over US\$160 billion in 2007. The sudden resurgence in PPI figures can in part be explained by GDP growth over that period driving need for infrastructure development, but is also a result of the increased project finance available at the time. Similar trends have already been identified in the EU PPP experience, where 2006/2007 can be seen as abnormally high years in terms of project number and values. It is possible that the developing world benefited during this period from a liquidity spillover from the industrialized nations and has seen comparative growth trends in PPI (Leigland & Russell, 2009). Considering the decline of PPI following the 1997 Asian Financial Crisis and the unusual circumstances that drove its resurgence, some fear a "lost decade" in developing country PPI, and it is not yet clear to what extent the market has been effected in the long term as figures continue to rise and decline across the statistical tables, fluctuating from quarter to quarter and across different sectors and regions.

While the use of PPI has spread into most developing countries, the larger and wealthier markets still dominate the investment tables and see return business. Between 1990 and 2003, the top 25 developing countries with PPI investment account for almost 90 per cent of investment in the developing world, while the bottom 64 account for just 1 per cent (Thomsen, 2005).

## 2.2 Institutional Structures

The global approach to PPP is driven by contextual differences and priorities at the national level, which contributes to a divergence on institutional structures and legislative approaches across jurisdictions. Here we illuminate the role of institutional structures and legislation as indicators of a nation's PPP market maturity, singling out dedicated PPP units as a key contributor to a market's development, and take the European Commission's approach as a mini-case study in legislating PPP. We will also briefly consider the global financial crisis of 2007-2008 for its impact on not only the numbers and value of PPPs globally, but its potential to modify theory and procedure. Lastly, we will question the value and quality of PPP toolkits and preparation guides.

### 2.2.1 PPP Market Maturity

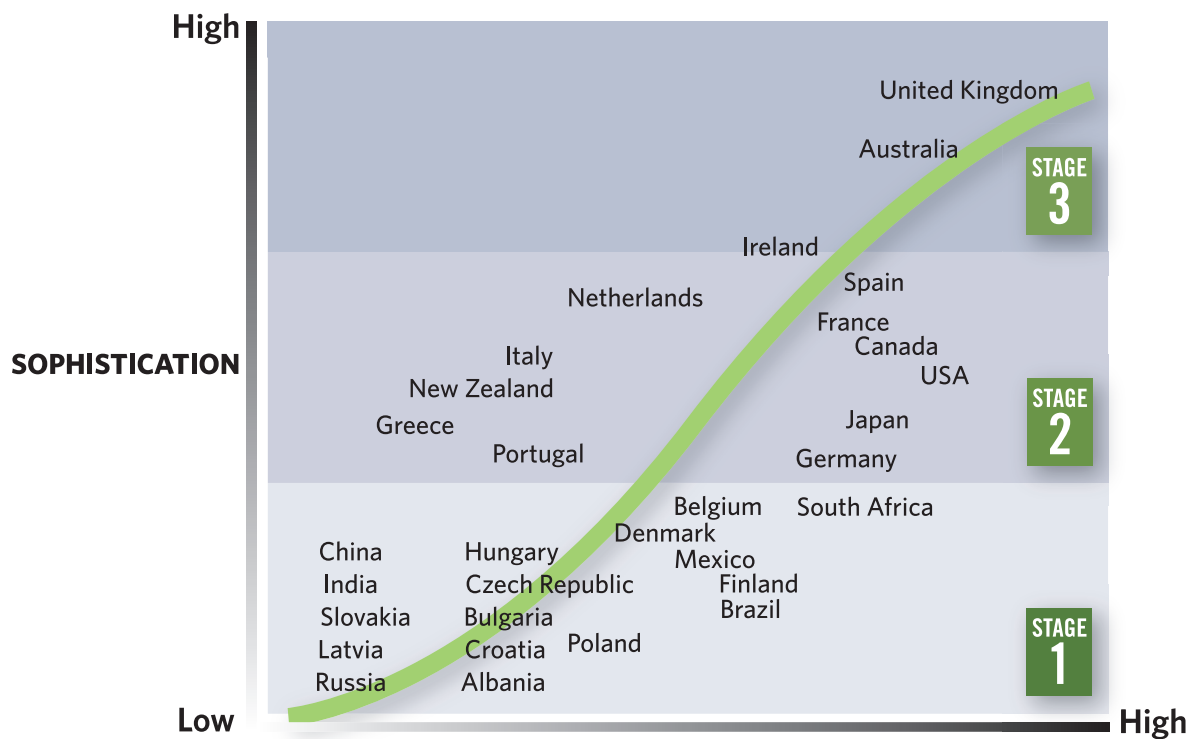
While PPP has been in use as an officially defined concept since the 1990s, its application has been patchy and inconsistent across jurisdictions. The U.K. has been at the forefront of PPP use, and led its development through policy and experience—no country comes close to its number of projects. There is, however, a difference between the number of PPPs that a jurisdiction undertakes and the maturity of its PPP market. The maturity of a market refers to the sophistication of its PPP mechanisms and is judged through its understanding of PPP as seen through its framework and models, and is influenced by contextual factors such as political climate, culture, capital markets, or policy framework. The following figures suggest three stages of PPP maturity and indicate the relative maturity of various jurisdictions from around the world in the form of a Market Maturity Curve.

**FIGURE 2: STAGES OF PPP MATURITY**



Source: Deloitte Research. (2007)

**FIGURE 3: PPP MARKET MATURITY CURVE**



Source: Deloitte Research. (2007)

### 2.2.2 Dedicated PPP Units

As PPP popularity and practice have grown, so too has knowledge about them and the methods by which they are administered. The creation of dedicated PPP units has been seen as one such mechanism by which governments can define, regulate and build public sector capacity in regards to PPPs, and has been attributed by the UN as an indicator by which a nation’s PPP maturity is assessed (United Nations, 2007). The OECD recently conducted an investigation into this under-reported area of PPP and identified that over half of its members reported the existence of a dedicated PPP unit at the national level (OECD, 2010).<sup>5</sup>

In its 2010 book on dedicated PPP units, the OECD identifies the practice whereby jurisdictions that undertake multiple PPPs create a dedicated unit as a single oversight body. This is not to mean a unit within a given public sector department to oversee an individual project, but a unit that is specifically mandated to deal with all PPPs within the jurisdiction.

Potential functions of a PPP unit include:

- *Policy guidance:* developing and advising on policies, procedures, guidelines and legislation
- *Technical support:* assisting government bodies throughout the PPP project cycle
- *Capacity building:* training and education of public sector officials
- *Promotion:* ensuring awareness and understanding of PPP within the private/public sectors and the wider community at large

<sup>5</sup> These OECD members with PPP units are identified as Australia, Belgium, Canada, Czech Republic, Denmark, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Netherlands, Poland, Portugal and the United Kingdom.



- *Green lighting or “gatekeeper:”* responsible for approving various stages of the PPP process, potentially including final approval

Within the OECD, dedicated units were found in three different locations within the public sector framework. The vast majority are located within the finance ministry and operate according to regular departmental structures. The second option is a variation that places the unit within a specific relevant department that is likely to utilise PPP, such as an infrastructure ministry. Lastly is the creation of an independent government agency that may be partly or fully owned by the government, and connected via a secretariat through which regulation and authority are administered (OECD, 2010).

While some of the roles fulfilled by dedicated units can be fulfilled by traditional procurement authorities or individuals with relevant knowledge, the unit represents a real centre of expertise, gathering together the knowledge and providing the capacity to improve PPP operation through the points listed above. Some genuine concerns do exist, however, regarding conflicts of interest and accountability within dedicated units. Establishing a dedicated unit could also imply to public sector departments the pre-eminence of PPP at the expense of other procurement methods, leading to a biased and shallow procurement assessment process.

If a dedicated unit is not wholly funded by the government and derive part of its income through user fees it charges to other government bodies, there is a risk that PPP can be pushed into inappropriate situations because the unit has a vested interest in producing business. Similarly, in the role of “gate keeper,” it is imperative to ensure adequate regulatory controls and transparency and accountability measures are in place to ensure honest practices and protect government interests and limit exposure to liability. Both these points are greater emphasized when the unit is partly owned and represented on the secretariat by the private sector. Part 3 of this paper will return to this topic, where the Dublin Dockland Development Authority has been chosen as a case study to take a closer look at issues arising from PPP and development units.

### 2.2.3 The European Commission and PPP

As the world’s largest and most experienced PPP jurisdiction, the European Union (EU) provides an interesting study in the way in which PPP has been integrated into mainstream procurement practices and the perceived relationships between overarching directives and national legislation. Although unique in its size and structure as a regional political and financial union, the EU story is still useful as a metaphor for individual nations, and the lessons learned from how the Union relates to PPP within its member states are meaningful for federal governments wishing to establish a successful PPP environment.

There has been a long and consistent dialogue by the policy wing of the EU, the European Commission (EC) on the subject of PPPs, but the Commission has up to this point not provided standalone PPP legislation or definitions, and has signalled it has no plans to upgrade its guidelines or create legislation in the near future (Tvarno, 2010). Rather, PPPs rely upon a supporting framework of procurement provisions, European Treaties, and certain overlapping secondary regulation to find guidance and controls. In terms of specific PPP discourse, the most notable contributions came over the last six years, when a flurry of activity saw the release of several specific PPP consultations and communications.

In 2004, the Commission launched a Green Paper on PPP, examining whether the existing structures were adequate and appropriate to meet the specific challenges of PPP in the internal marketplace (EU Commission, 2004c). The release of the report on the consultations in May 2005 (EU Commission, 2005b) was quickly followed by a Communication on the same topic in November 2005, entitled “Public Private Partnerships and Community Law on Public Procurement and Concessions” (EU Commission, 2005a). In 2008, the Commission also released

Interpretative Communications on the topic of Institutional PPPs<sup>6</sup> as well as Concessions as it related to public procurement and Institutional PPP (EU Commission, 2008), something it had flagged for further analysis in its 2005 Communication. This has been most recently followed by a Communication on Public Private Partnerships in November 2009 (EU Commission, 2009b) and intended changes to Concession legislation following a consultation in August 2010.

Sources of law that would influence PPP administration in EU member nations are, for example, the EC treaties, from which are derived the principles of equal treatment, transparency, proportionality and mutual recognition. The other obvious sources are the two procurement directives adopted in 2004, one coordinating procurement procedures within the utilities sector (EU Commission, 2004a), and the other covering public sector works, supply and services contracts (EU Commission, 2004b). Here PPPs fall within the scope of Directive 2004/18/EC, as made plain through the 2005 communication COM(2005)569, in as much as they are public contracts or work concessions. The extent to which a PPP is partly or fully covered under these directives is still dependent on individual PPP agreement context and details, and subject to clauses and articles within specific directives. For example, service concessions are excluded from the scope of 2004/18/EC under article 17, while work concessions are only partly covered within Title III of the same directive.

Within the EU procurement legislation there are four major procedures available to contracting authorities, which, although not specifically designed for PPPs, may be applicable where these are covered or partially covered by the Directives. These are; open, restricted, negotiated procedures, and competitive dialogue. Although the competitive dialogue instrument was designed to be used for the award of complex contracts (with conditions), it is not compulsory under the Procurement Directive for it to be used for PPP procurement. A recent limited survey by the European PPP Expertise Centre has suggested that, while all four procedures are in use across member states for the award of PPPs, competitive dialogue is used more frequently (EPEC, 2011b).

The survey also points to the distinct influence of national context and procurement laws in the decision about which procurement procedure to use. This suggests that jurisdictions have a favoured procurement method that suits their PPP environment and with which they are most familiar, rather than being significantly influenced by the sector, size, or value of individual PPPs when choosing procurement tools. While the results showed that open and restricted procedures are generally applied to simpler projects, the use of the negotiated and competitive dialogue procedures becomes more widespread as projects become more complex; this may be more of a comment on a nation's PPP market maturity and contextual experience than on the favouring of one particular tool over another.

Such an indirect and patchwork approach to PPPs can lack legal clarity, but the EC maintains the view that its policy position "ensures effective competition for PPPs without unduly limiting the flexibility needed to design innovative and often complex projects" (EPEC, 2011a). This approach was lauded by at least one of our interviewees, who emphasized the need for approaching PPP on a case-by-case basis, adapting the model to fit the specified outcomes, rather than becoming pre-occupied about whether or not the project fell within a legal definition of PPP. Nevertheless, **the lack of legal clarity can be a disincentive and source of concern for both the public and private sectors when approaching PPPs**, as both would wish to determine and mitigate their liability with certainty, something that is already a challenge given the complex and diverse nature of PPPs.

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<sup>6</sup> The European Commission makes a distinction between the types of PPP used in member states and separates them into two broad categories: Contractual PPP and Institutional PPP. Institutional PPP being where the public and private sector create a separate entity to administer the project together, more commonly referred to as "joint ventures" in other jurisdictions.

EU member states are in this sense essentially responsible for determining their own PPP approach and regulation, so long as it complies with the basic EU rules of procurement and does not infringe on other functions of the internal market. This means a myriad of differing approaches to PPP within the EU, as some jurisdictions possess dedicated laws, others a legal framework, and still others no legal provision at all (see Table 1). While a degree of contextual understanding is essential to a PPP legal framework and Member States must maintain the ability to influence their national PPP and procurement approaches, a greater sense of definition and continuity across the EU would encourage and facilitate PPP growth.

**TABLE 1: STATUS OF PPP INSTITUTIONAL AND LEGAL STRUCTURES IN EU MEMBER STATES**

Country	PPP Unit	PPP Law	Country	PPP Unit	PPP Law
Austria	A	—	Latvia	B	1
Belgium	C	2	Lithuania	B	3
Bulgaria	B	3	Luxemburg	—	—
Cyprus	B	—	Malta	B	—
Czech Republic	B	2	Netherlands	A	—
Denmark	B	—	Poland	B	1
Estonia	—	3	Portugal	B	2
Finland	—	3	Romania	C	2
France	B	2	Slovakia	—	—
Germany	B	—	Slovenia	C	3
Greece	C	2	Spain	—	1
Hungary	B	3	Sweden	—	—
Ireland	A	1	United Kingdom	A	—
Italy	B	3			

A - PPP unit existing (actively involved in PPP promotion)  
 B - PPP unit in progress (or existing but in a purely consultative capacity)  
 C - Need for PPP unit identified and some action taken (or only a regional PPP unit existing)

1 - Comprehensive legislation in place  
 2 - Comprehensive legislation being drafted / some sector-specific legislation in place  
 3 - Legislation being proposed

Source: van der Geest, W., & Nunez-Ferrer, J. (2011)

What the EU situation highlights is that there is a fine balance between providing guidance and supporting legislation that encourages growth and confidence, while at the same time providing flexibility for responding to individual contextual circumstance. Despite taking the right approach in desiring to preserve national discretion and contextual appropriateness, the current EC approach is cumbersome and a source of legal uncertainty, as it is necessary to piece together regulations, guidelines and case law from different and possibly contradictory sources. This does not contribute to a stable and conducive PPP environment, where confidence, certainty and trust are essential components of a successful partnership between the public and private sectors. While the Commission may periodically update and refresh directives in response to changing trends in procurement, PPP remains in a largely permanent state of uncertainty, as it has not been approached directly and comprehensively, but rather tinkered with through revisions to associated mechanisms.

#### *EU Funds and State Aid:*

There are several methods available to utilize EU Funds within PPP structures, although to date relatively few projects have taken advantage of this opportunity due to issues of fusion between EU rules, PPP models, and national contexts (EPEC, 2011b). The use of EU Funds and State Aid monies in PPP projects is not specifically excluded under regulation, but inherent rules of application that target funds to areas of need do not always match with PPP practice, making it difficult for the two mechanisms to align. Moreover, the complexities of successfully combining the planning and timing requirements of both structures may prove the most challenging to overcome. This is true in the sense that a public authority must not only verify (during the PPP planning stage) the appropriate instruments and criteria it is to meet under its grant application, but it must also be possible to integrate the individual timelines necessary to complete both agreements. Effective public sector capacity and strong “public-public” cooperation is therefore a contributing factor in the extent to which a national authority may integrate EU Funds within its PPP practices.

The planning and timing issue can be demonstrated in an example from Structural Funds, which, along with Financial Engineering Instruments and Sectoral Grants, constitute the three main avenues through which EU Funds can be accessed in PPPs. Structural Funds are granted towards the “funding gap” in revenue generating projects, and this only alongside national co-financing. This primarily rules out Structural Funds in PPPs where the public authority does not desire to co-finance, but also raises issues of timing, where it is unlikely that a private partner will commit to an agreement that contains a funding gap only covered by grants from EU Funds that are yet to receive approval. Similarly, is it difficult to accurately estimate and apply for finance during the planning stage and in advance of financial close, especially considering each tender application will have a different funding gap, making it difficult for national authorities to submit grant applications before the conclusion of the procurement process.

In general, grant funds are more targeted at the provision of assets and are therefore most appropriate to initial stages of PPP agreements and not necessarily compatible with the whole of life approach of long-term PPP projects. Grants are often also tied to timeframes, funding programs, and trigger points, which would exclude the use of grant monies for such things as ongoing availability payments, making it less appropriate for non-revenue social infrastructure projects such as schools or hospitals.

In relation to State aid, under the terms for Structural Funds it is necessary that the beneficiary must also be the initiator of a project. As the one initiating public projects and services through PPP, this generally identifies the public authority as the beneficiary of the grant. Considering the restricted application of grant monies within PPP models, as highlighted above, and the beneficiary/initiator equation, any grant that is destined to flow to the project company must be channelled through a public body. Depending on its interpretation and the application of these measures,

there is a risk that the national authority could breach the terms of State aid by potentially distorting competition. Here it is dependent on the national authority to complete its due diligence to ensure it complies with State aid regulation and rules. Mitigation of the potential for market and competition distortion may be simply achieved by public authorities through the competitive tender process that examines and selects private partners, as well as a contract that ensures the division of profits along clearly marked lines of investment and risk. As a whole, the assessment and methods of implementation of State aid regulations differs across sectors and member states, and the issue would benefit from further clarification by the European Commission.<sup>7</sup>

#### 2.2.4 PPP and the Global Financial Crisis 2007-2008

We have seen some figures earlier that indicate the financial credit crunch has had a genuine effect on the number of PPPs taking place around the world. In reality, the financial crisis will not only affect total values and projects, but will also usher in structural changes to PPP agreements and likely shape practices for some years to come. In a period where governments are looking to stimulate growth through higher public investment, PPPs offers the opportunity to roll out projects with minimal impact on the public purse whilst simultaneously supporting private sector recovery and generating employment. PPPs, however, are not immune to the effects of the financial crisis, and their attractions also undermine their stability and may disqualify them as a reasonable and viable option for governments at this time. On the surface, there are obvious implications for the “value for money” argument, as both equity and debt finance are in short supply and costs have risen. This belies, however, the ongoing influence on the way in which PPPs will be structured and negotiated into the future following substantial shifts in global financial policy and markets.

Finance initially became harder to source following the global financial crisis, as the bond markets became less attractive and banks looked to build their capital, minimizing their exposure to single concessionaires and avoiding syndicated risk. Projects turned to a series of alternative financing structures to get pipeline projects across the line, including club deals, mini-perms, or incorporating a government finance component. In a greater reflection of the long-term fallout from the crisis, legal requirements are also likely to change as we see contracts from lenders reflect the instability and uncertainty of the market. This may be manifest through increased focus on debt provisions and tighter contracts as well as more consideration of market-flex and possibly even market-out provisions. Increased security requirements and tighter credit approval practices are also likely to follow, as lenders take a more cautious approach in exposing themselves to certain types of debt (Murphy, 2010). The reduction in asset and property values associated with the economic downturn will also make it more difficult for projects to use these as collateral when searching for finance.

What all this equates to is a shifting in the risk allocation framework that has historically been used and lauded within PPP agreements. Most of the factors identified above relate to the private sector finance component of PPP and, as such, represent an increasing allocation of risk to the private sector. The perceived decrease in the risk-return trade-off will not only determine the level to which the private sector is willing to become involved in projects, but will also influence the compensation the government is required to provide in exchange for the increased risk bourn by the private company. The government can seek to balance the increased risk through certain intervention methods, and throughout the financial crisis we have seen governments respond in a variety of ways to assist the private sector to secure finance.

<sup>7</sup> The European PPP Expertise Centre has in May 2011 published two reports on this topic (“State guarantees in PPPs” and “Using EU funds in PPPs”), which are good sources for those wishing to further examine the relationships between EU Funds and PPP beyond the issues raised here.

The U.K., the U.S. and the EU, for example, initiated co-lending, making loans to the project alongside private sector lenders. Projects in France and Australia have been the recipients of government credit guarantees, whereby the government guarantees a certain percentage of the project debt or becomes a lender of last resort if sufficient project finance cannot be raised before financial close.<sup>8</sup> These or similar acts of intervention on the part of public authorities may of course expose the government to undesirably high levels of risk that it too may be unwilling to accept. Interest rate levels, credit un-availability, stock market price decline, exchange rate depreciation, reduced domestic demand; these and many other factors can influence the vulnerability and risk association for both the public and private sectors, affecting the attractiveness and viability of PPP as a method of procurement in the post-global financial crisis climate.

While the financial crisis initially made it quite difficult for project consortiums to raise private sector money, the easing of markets will see costs fall and the return of PPP style investment to the market. The new regulatory and scrutiny aspects are, however, likely to remain within the PPP framework as lenders approach business with more caution and fail-safe's. This legacy is perhaps more significant when considering the structural implications that will flow to PPP agreements as a result of these changes, particularly as it effects risk allocation and valuation.

### 2.2.5 PPP Toolkits

The authors have conducted a non-exhaustive search of development institutions, NGO's, international organisations and national directives to ascertain the level and content of PPP toolkits and guidelines that exist in the marketplace. What has been found is an extensive collection of documents and software that has been designed to advise and assist governments develop their PPP capacity. While these documents together form a considerable resource for public authorities, or even interested private sector parties, the treatment of external sustainability and environmental issues is cursory at best.

A portion of toolkits are country- and sector-specific, such as tourism or transport, and are produced at the request of governments to guide their public sector bodies on how to begin the PPP process. Along with discussion of PPP in general, these guides will typically include sector specific information as relating to systems, standards, and regulations, as well as individual examples or case studies. Worth a specific mention is the work of PPP India, a dedicated PPP unit within the Indian Ministry of Finance, which has created an online toolkit with the support of the World Bank and AusAID in the following infrastructure sectors: state highways; water and sanitation; ports; solid waste management; and urban transport. Linked to its website, the toolkit allows public officials to click through a software program that informs, advises and directs users through the phases of planning, feasibility, procurement and implementation. Using an online format allows PPP India to update and develop the resources as their context and experience changes.

The other major collection of toolkits or preparation handbooks are those supplied by the development finance institutions, which are primarily targeted at developing or emerging economies. Comprehensive in all matters of policy and governance, these documents often approach PPPs at a strategic level, but also include actions associated with their implementation, including preparation, management, and engagement of projects. Focusing on macro and contextual considerations, documents from the World Bank, IMF or Asian Development Bank underscore the importance of correct political, legal, and financial frameworks to facilitate and safeguard successful PPP operation, whilst perhaps also driving an alternative agenda of financial reform and liberalization.

<sup>8</sup> For a deeper discussion of government intervention and trip switch clauses see Philippe Burger et al. (2009). IMF working paper WP/09144. The Effects of the Financial Crisis on Public Private Partnerships.

Somewhat complementary in the nature of its development priority is the work of international organizations such as the United Nations Development Program (UNDP) PPP programme for Service Delivery, which brings a pro-poor emphasis to PPP applications. Again dealing with policy guidance, institution building, capacity development, and project support, the tools here are differentiated by their strong focus on the poor and marginalized groups of society and a bottom-up approach to PPP creation. While the former address issues of national or regional governments, the UNDP toolkit would benefit local municipalities and civil society working on the ground in development contexts. Another UN body, the Economic Commission for Europe (UNECE), is developing a series of documents that together form a toolkit for governments wishing to build their local PPP capabilities. Incorporating the obligatory policy and governance discussion, the toolkit perhaps distinguishes itself by incorporating direct application mechanisms such as a national self-readiness assessment tool, training manuals and best practices guide. Although currently uncompleted, the toolkit will provide practical tools and hopefully also incorporate sustainable development principles, which have been a consistent element of UNECE PPP initiatives over the 10 years of its existence.

As a general rule, these documents carefully articulate the values and concerns of PPP, whilst providing guidance on the structure of the supporting political, legal and financial frameworks necessary to grow expertise and experience. However, with the exception of the UNECE work alluded to in the previous paragraph, the toolkits and preparation handbooks encountered in this study fail to significantly address sustainable development issues. That is to say that **sustainability is frequently addressed in terms of the internal stability of the PPP, but rarely in the greater context of social and environmental parameters**, and certainly with no great depth or conviction. Toolkits are a meaningful platform for demonstrating and articulating practical mechanisms for incorporating sustainable and environmental considerations into areas of planning, feasibility, specifications, performance indicators, and accountability. As a central source of guidance to emerging PPP jurisdictions and developing nations, these documents play a pivotal role in shaping expectations and practices, and as such it is negligent that they do not reflect the important considerations of sustainable development to a greater extent.

## PART 3: Case Studies

What follows are five individual case studies. Each crafted in its own individual style, these case studies were chosen for their ability to contribute to the debate on sustainable development in PPPs. Covering a broad range of sectors as well as the full 20 years of PPP practice, each case study draws upon different elements of the PPP process to highlight and identify key issues for consideration. A major theme that connects all the case studies is the centrality of planning and assessment, particularly that of the public sector, if a PPP is to be internally sustainable as well as externally considerate of the environment and society at large. It is also clear that through accessing the intelligence and ingenuity of the private sector, PPPs have the potential to make public infrastructure and services more environmentally meaningful whilst also contributing to the growth and development of the “green” sector and the “greening” of industry as a whole.

In addition to the observations contained in the concluding remarks of each analysis, collated below is a collection of lessons learned from the case studies that have shown themselves to be specifically relevant to the discussion on sustainable development.

### 3.1 Lessons Learned for PPPs and Sustainable Development

The six case studies discussed in this document enable us to draw a number of preliminary conclusions on the extent to which PPPs are being designed to enable positive environmental and social outcomes as part of a government’s sustainable development framework:

- *PPP are indeed a viable mechanism for the public sector to crowd in private capital in the delivery of public goods and services:* In principle, and dependent on context, PPPs can serve as viable tools for cash-strapped governments to deliver on their election mandates, invest in infrastructure, and deliver a range of essential public services to even the most remote areas and marginalized communities.
- *Governments have yet to use PPPs to show concerted leadership on environmental and social practice:* Although there are financial or public relations incentives related to CSR, private partners will be most influenced by specifications when they respond to and submit tenders. Because it is the public authority who sets the project parameters, it is therefore the government who determines how “green” a PPP is through its identified priorities, specifications, performance indicators and incentives. In the example of Victoria’s desalination plans, the public authority conducted extensive environmental impact assessments which influenced its tender specifications and negotiations and contributed to the environmentally sensitive design it eventually approved.
- *Provided with the correct incentives, the private sector will take the risk to invest, innovate, and provide optimum solutions that will promote sustainable development:* When given the correct balance of freedom and direction we have seen the consortiums involved in the Vancouver co-generation and Victorian desalination projects responding to environmental and social concerns with appropriate and inventive solutions.
- *Thorough pre-project assessment and evaluation are central to long-term success:* The Arlanda project was placed under threat because of inaccurate forecasts that significantly over-estimated passenger flows, threatening the private consortium’s financial viability. A detailed and comprehensive planning period will enhance project stability, but is also necessary for the public authority to identify and mitigate any associated impacts the project may have on their greater strategic plans.
- *Environmental and social sustainability have yet to be built into PPP contracts:* It is necessary to ensure that the public sector maintains a reasonable level of control and influence over the impacts of the project,



as appropriate to its mandate of environmental and social protector. Unless environmental, social and development safeguards are built into PPP contracts, the private sector may seek to act only in its own interests, which may not necessarily be those of the government or society, as seen in the case of the Arlanda Express.

- *Difficulty associated with long-term agreements:* PPP projects often involve contract terms of up to 30 to 50 years, posing a serious challenge to governments in areas such as accurately forecasting sustainability issues and future risks while adhering to rigid contracts. The Arlanda Express did not perform as forecasts had predicted and impinged on government strategic plans, but the terms of the contract restricted the public authority's response options both immediately and in the future.
- *Importance of the planning process and public sector expertise:* All the hard work to mitigate sustainability risks and maximise the contribution of the project to sustainable development goals needs to commence at the planning and negotiations phases of the project, as it is always more difficult to retroactively adjust contracts and project priorities. This highlights and emphasizes the need for sufficient public sector capacity, and sufficient political will to ensure adequate resources for the preparations phases of PPP.
- *Green technology, development and PPP are not mutually exclusive concepts:* The Moroccan solar energy case study demonstrates the tremendous potential of PPP to contribute sustainable and environmentally conscious solutions to development-related priorities.
- *Contextual understanding and responsiveness promotes stability and sustainability:* The Moroccan example suggests the need of all parties to recognise and adapt to unique situations and circumstances of both the country and PPP context. The government acknowledged its need to subsidise the technology its population could not afford in order to attract the private sector and ensure business viability. The service provider used local know-how and approaches to tackle issues of overdue fees and public scepticism inherent to the consumer market.
- *Changes will need to be made to underlying norms of risk transfer and compensation for PPPs to serve effectively as tools for sustainable development:* This is especially important in middle- and lower-income countries where approaches and perceptions to risks need to be different if these investments are to bring real and sustainable development (as opposed to growth alone). For example, the Moroccan energy ministry recognized that standard business models would not be successful in bringing electricity to its rural low-income areas. It therefore needed to step in and subsidize the private partner in order to create a viable PPP.

## 3.2 Integrating Ecological Criteria into PPPs: The case of a desalination plant in the State of Victoria, Australia

### 3.2.1 Context

#### Victoria's Healthy PPP Environment

Already making itself known as a source of funds for public infrastructure in Victoria in the early 1990s, the private sector has in the past decade widened its portfolio and increased its investment in public infrastructure, to the extent where, in 2006, public and private sector organizations in Victoria had entered into more PPP agreements than all the other Australian states combined (Public Accounts and Estimates Committee, 2006). Projects have been drawn from the traditional sectors of PPP operation and include hospital re-development, toll way roads, correctional facilities, water treatment and recovery, and a major Melbourne railway station redevelopment. The broad acceptance of PPPs in this jurisdiction is demonstrated by the variety of contract types currently in operation. This variety grants

the private sector multiple roles in the provision and maintenance of public infrastructure, including Design-Build-Finance, Design-Build-Operate-Transfer, Design-Build-Own-Operate, and Design-Build-Finance-Maintain, to name but a few. There are currently 21 PPP projects in existence valued at close to AU\$10.5 billion in capital investment (Partnerships Victoria website, 2011).

Because of the comparatively long period of experience with PPPs, both State and National government have comprehensive policies that give guidance for proposed PPP agreements. This includes a National PPP Policy and Guidelines Framework (most recently updated in January 2010) along with the *Partnerships Victoria* requirements that together define the scope of services, project governance, public interests tests, probity requirements, tender processes, financial analysis, accounting and taxation, and contract management framework through which all PPP agreements are operated, in conjunction with relevant legislation Victorian Department of Treasury and Finance, 2010). Both *Infrastructure Australia* and *Partnerships Victoria* are dedicated PPP units established at the National and State levels to steer policy and guidelines. In addition there is a large body of review work comprising departmental reports, independent reviews and industry articles that has ensured that understanding and approaches to PPPs in Victoria has not remained static but has continually evolved and responded to contextual influences and international trends.

#### The Project:

In June 2009 the Victorian Government announced the successful tender for the Victorian Desalination Plant at Wonthaggi, representing the largest public sector investment into water infrastructure and also the largest desalination plant under development in Australia.

Part of a greater strategic approach to sustainable water usage released in 2004 (“Our Water Our Future”), the plant at Wonthaggi was signalled in a 2007 update in what was a specific response to the growing alarm at water shortages Victoria was experiencing as the result of a prolonged drought. Although the measures enforced from the 2004 strategic plan and a change in the attitudes of Victorians to water had reduced usage by some 22 per cent and seen water recycling in industry increase from 2 per cent in 1999 to 14 per cent, Melbourne’s water storage levels were still below 30 per cent in 2007 (Victorian Department of Sustainability and Environment, 2007).

Operating alongside other changes to the regional water network, the project will supply approximately one third of Melbourne’s residential and industrial annual water usage completely independent of rainfall. Using reverse osmosis technology, the plant is to be connected to the existing Melbourne water network through over 84 km of new transfer pipelines, supplying up to 150 gegalitres (GL) of water per year, with the infrastructure capacity to upgrade supply to 200GL. Considered as the world’s largest PPP at market at the time of tender, the project’s capital costs of AU\$3.5 billion will be fully funded by the private sector and will see a total estimated cost of nearly AU\$6 billion (Victorian Department of Sustainability, 2009a).

#### Why PPP?

Under National and Partnerships Victoria Guidelines all public infrastructure projects with a total estimated investment in capital goods of over AU\$50 million are required to include PPP as a potential procurement method. The potential of PPP for the project is considered alongside traditional alternative methods of procurement and is analyzed according to options outlined in both documents (Victorian Department of Treasury and Finance, 2010). In total, four alternative models of procurement were assessed for this project (Victorian Department of Sustainability, 2009a):

- *Traditional State-funded procurement*: under a design and construct contract, with public sector operation and maintenance of the plant, or separate short term operating contracts with the private sector;
- *State-funded alliance*: alliance for design and construction with either public sector or a further alliance for the operation and maintenance of the plant;
- *State-funded procurement under the DBOM model*: with private sector design, build, operation and maintenance of the plant; and
- *Partnerships Victoria privately funded PPP*: with private sector design, finance, construction, operation and maintenance over an extended period of time.

PPP was eventually chosen as the best method of supply through commonly held views on the advantages of PPP in effective risk transfer, whole of life efficiencies and improved asset and service quality. Considering the government's demand for flexible water delivery according to varying seasons, the environmental sensitivity of the area and the urgency of securing Victoria's water supply, it was also considered that PPP and the private sector was better equipped to deliver on design innovation, timeframe and operational flexibility (Victorian Department of Sustainability, 2009a).

#### Who does what?

The division of obligations under the PPP agreement between the parties is as expected, and follows perceived lines of expertise and desires for risk transfer. The winning consortium, AquaSure, comprising Degrémont SA, Suez Environment, Thiess Pty Ltd and Macquarie Group, is generally responsible for the entirety of the finance, design, construction, commission, operate, maintenance and handover of the Desalination Plant over the Project Term, including the construction of power supply and renewable energy offsets. The State's obligations revolve around delivering the land for the project, ensuring surrounding public water infrastructure is prepared for new service delivery, government-stakeholder liaison and consultation as well as contractual agreements relating to payment and delivery notification.<sup>9</sup> This is, of course, in addition to the preparatory work completed by the government in the procurement options analysis, business case, environmental impact studies, commonwealth and state approvals, etc.

### 3.2.2 Key Issues

#### The Environment

The desire to build environmental safeguards into the agreement was high in light of the project's specifications, namely its 38 hectare coastal location; ocean inlet and outlet pipes 1.5 kilometres in length; water transfer pipelines and power delivery infrastructure each over 84 kilometres in length; nearby communities and public beaches; native fauna and flora, and the desalination process itself. The choice of PPP for this project indicates that the government, at least in part, perceived that the private sector had more to offer in terms of environmental innovation in the design and build stages of the project and was better equipped to handle the exposure to the associated risks.

One of the evaluation criteria outlined to shortlisted bidders was environmental management; more specifically, how their proposal addressed environmental requirements listed in the project objectives throughout the design, construction, operation and maintenance phases of the project (Victorian Department of Sustainability, 2009a). Indeed, one of the stated project objectives specifically seeks to minimize impact on the coastal and marine environment from construction activity, visual intrusion, noise and waste discharge and disposal, along with

<sup>9</sup> A more detailed list of each parties obligations as well as allocation tables for each risk can be found in the Project Summary on the Partnerships Victoria website <http://www.partnerships.vic.gov.au>.

protecting the uses of the coastline immediately surrounding the facility. The desalination process is famously energy hungry, and the state attempted to counter this by optimizing energy efficiency in the plant and power supply, and by requiring 100 per cent of the operational power to be offset by renewable energy credits as a compulsory component of the tender.

As is usual in PPPs, the State obtained all the relevant approvals from both State and Commonwealth bodies, and it is important to note the extent to which public bodies must thoroughly examine all responsibilities. In this case it was necessary to comply with a host of environmental Acts, including

- the *Environment Protection Act 1970* (Victoria)
- the *Environment Effects Act 1978* (Victoria)
- the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth);
- the *Planning and Environment Act 1987* (Victoria)
- the *Coastal Management Act 1995* (Victoria)
- the *Aboriginal Heritage Act 2006* (Victoria)
- the *Land Acquisition and Compensation Act 1986* (Victoria)
- the *Heritage Act 1995* (Victoria)
- the *Project Development and Construction Management Act 1994* (Victoria)
- the *Flora and Fauna Guarantee Act 1988* (Victoria) and
- the *Water Act 1989* (Victoria).

In response to these requirements, and according to its contractual obligations laid out by the government in the Project Deed, AquaSure agreed to operate under an Environmental Management System accredited against the ISO 14001 and create a specific Environmental Management Plan that covers the design, construction, operation and maintenance of each stage of the project. Identifying key environmental issues, the plan outlines the strategies, policies and plans for managing these issues as well as legal and regulatory obligations inherent in the environmental aspects of the project. These Environmental Requirements are outlined in the Performance Management System component of the contract and covers Emergency/Environmental Incident Procedures, Training, Control of Associates, and Reporting and Auditing. Each of these overarching criteria is then related to nearly 40 specific environmental subject areas including (Victorian Desalination Project, n.d.):

- Agriculture
- Terrestrial, Coastal and Marine Flora and Fauna
- Waterways and Wetlands
- Resource Efficiency
- Ground and Surface Water Quality
- Hazardous Materials and Dangerous Goods
- Site Rehabilitation
- Air Quality
- Greenhouse Gases
- Coastal Integrity
- Commercial Fishing and Marine Tourism.

## The Environment Factor in PPP Assessment Tools

### *Public Interest Test:*

Partnerships Victoria guidelines stipulate that the public interest is a key criterion upon which to assess whether PPP is an appropriate procurement method. A Public Interest Test is conducted to assess the impact of the proposed project on eight different elements of the public interest.

Environmental issues are not explicitly outlined within the test, but are rather dealt with—although not in a comprehensive manner—by default through other concerns such as security (health and safety), consumer rights, or affected individuals and communities. Here, for example, the contractor must comply with EPA legislation regarding emissions, waste levels, water quality etc. that will govern certain levels of environmental responsibility and ensure certain standard outcomes, but environmental or green factors are not assessed as individually important to the public good (Victorian Department of Sustainability, 2009b).

### *Public Sector Comparator:*

When assessing the method of delivery for large infrastructure projects such as this one, the Victorian Government conducts what is termed a Public Sector Comparator (PSC), in what is a risk-adjusted, whole of life cost of the project if it were to be delivered by the State. Using all appropriate methodology and according to the same deliverables specified in the Project Brief, (including design, construction, operation, maintenance and facility management costs over the life of the project), the PSC is initially part of the business case then subsequently used for bid comparison. If the tender bid is found to be lower than the PSC then it is considered to be value for money. Here the possible use of PPP is judged purely on a financial value. In this case, the AquaSure proposal was approximately 14 per cent below the PSC and indicates strongly why PPP was chosen for this project.

While the project summary compiled by Partnerships Victoria acknowledges this point, it also offers other value for money justifications included in the AquaSure bid. Realistically, however, the public sector could have performed these same tasks successfully and the PPP private sector contribution shows perceivable advantage in only two of the areas proffered, namely the innovative design necessitated by strict environmental context and the use of proven desalination technology already successfully employed elsewhere in Australia (one member of the AquaSure consortium, Degremont, built and operates the Western Australia Desalination Plant). Cost and risk transfer remain the two major advantages of PPP to the government in this project.

While the different allocations of risk is perhaps relatively straightforward, risk assessment both within and outside the PSC model is, however, understandably complicated. The real issue with risk allocation is not specifically who bears what risk, but whether that risk is accurately valued and the compensation attributed to various parties for bearing this risk—an empirical challenge to say the least. The way in which risks are assessed, valued and compensated is a clear indicator of government priorities and values. Conspicuous by its absence is the lack of overt discussion on matters of environment and sustainability. **Within policy guidelines there are no tests or assessments to measure environmental benefits or sustainability as single entities, other than through compliance with already existing relevant legislation that is inherent within the project itself.**

The absence of any such mechanism, coupled with the strong bias towards the PSC and the necessary accounting tools and methodologies associated with it, risks skewing project assessment towards a purely financial priority with environmental considerations an afterthought of due diligence responsibilities. This criticism is supported by the findings of a Public Accounts and Estimates Committee report to Victorian Parliament in 2006, where it states that, although providing guidance on 10 types of risk in extreme detail, guidelines do not include any assessment of environmental risk among other things (Public Accounts and Estimates Committee, 2006). As such, the review deemed that the guidelines “do not appear to be broad enough to be regarded as a firm basis on which the government would make a final decision on the use of private investment in public infrastructure” (Public Accounts and Estimates Committee, 2006, p. 151).

#### Risk Transfer: The Biggest Influence in choosing PPP?:

While the public sector could in theory successfully undertake major infrastructure projects from a cost perspective, it is the reduced exposure to risk that has increasingly been drawing governments to PPP. One of the heralded advantages of PPP is its ability to transfer risks within the project to the parties who are best able to deal with them. From the governments perspective PPP offers “an opportunity to procure services, [whilst] leaving the risks of ownership and operation of the asset with the private sector” (Public Accounts and Estimates Committee, 2006, p. 150). One of the key designs of the Wonthaggi desalination plant relates to the flexibility with which the government can order water delivery each year according to its estimated needs. Measured in 25 gigalitre increments, the State can order as much as 150 gigalitres of water or even, should it desire, none at all. In this case, the cost of operating and maintaining the plant in a year of no water delivery falls to AquaSure, thereby alleviating the government of the risks associated with such an expense, both in real and political terms. Nevertheless, such a large transfer of risk comes at a very real cost to the government in terms of availability payments, with a PriceWaterhouseCoopers report indicating the cost of the project to be AU\$19.4 billion in nominal terms over the 30 year contract term without any water supply, and up to AU\$23.9 billion if the maximum was ordered (Jenkins, 2011).

While there is a temptation and perhaps tendency to view the PSC score as a pass/fail test, National PPP policy guidelines warn against such a view and encourage the consideration of risk transfer, and more specifically a reduced exposure to risk for the State, as a key consideration in procurement options analysis. While this is a recognition of the inherent uncertainties that exist within the PSC, it also emphasizes the concept of risk allocation as a central issue in the perceived advantages of PPP to the State. Guidelines go so far as to state that while a bid may lie above the PSC single estimate value, it could be considered to offer value for money due to greater cost certainty and the State’s reduced exposure to risk offered by the PPP arrangement (Victorian Department of Treasury and Finance, 2010). While other traditional methods of state-funded procurement could successfully negotiate the design, build, operate and maintenance objectives of the project, considering the complexity of the water delivery demanded by the State and the uncertain financial climate, the reduced exposure to risk offered by PPP was no doubt attractive to the government.

#### Global Financial Crisis 2007-2008

Although initiated in 2007 prior to the collapse of the sub-prime market in the United State and the subsequent global financial crisis, the review of tenders in 2009 saw a markedly different financial climate to the one originally envisioned in the project brief. Due to a general shortage of project financing available both in Australia and internationally, the consortium led by AquaSure was unable to secure the full amount required for the project and was left with approximately AU\$1.7 billion of un-syndicated exposure at the time of signing in July 2010. It was at this

point that, in a bid to keep the project moving, the Victorian government agreed to support the syndication through a guarantee by which the State would become a lender of last resort if the un-syndicated debt was not completely sold down.

As it happened, the 12 original lead arrangers were joined by another 22 banks and funds to successfully sell down the debt and close the syndication some two months later without needing to call upon the State Syndication Guarantee facility. Although blurring the lines regarding the definition of PPP for this project, this action by the State was seen as a key factor in allowing the project to proceed and followed similar PPP action in other jurisdictions, including the M25 widening in London, A2 Poland, and Belgium Liefkenshoek Rail Tunnel, which all contained a mixture of government liquidity support to close during the financial crisis.

This move was lauded at the time by those involved in the project, with AquaSure chairman Chloe Monroe describing the wisdom of the Victorian government's provision of contingent support as allowing the project to continue despite the tough conditions of the global financial crisis, giving them a "head start" whilst still securing finance ("AquaSure Secures Financing," 2009). Many others agreed with this sentiment, as the project has now been the recipient of a total of 12 financing awards around the world, including Global Deal of the Year 2009 and PPP Deal of the Year 2009 at the Infrastructure Journal's Annual Awards, the Financial Excellence award at Infrastructure Partnerships Australia's National Infrastructure Awards, PPP Deal of the Year at the 2009 Project Finance International (PFI) awards, Asian-Counsel's 2009 Deal of the Year and Project Finance Magazine's *Deal of the Year 2009* (Clayton UTZ, 2010).

### 3.2.3 Concluding Remarks

#### A Green PPP—the Government's Responsibility?

The final design presented by AquaSure utilizes innovative solutions to environmental issues identified by the government and through stakeholder consultations within the community. Responses include:

- placing inlet and outlet pipes underground to reduce visual impact and intrusion into the coastal environment;
- placing the 87-kilometre-long power supply underground for both efficiency and in response to community concerns regarding the impact of overhead cables;
- 100 per cent of the operational power offset by renewable energy credits;
- The plant itself is sunk into the ground and will stand only 20 metres above sea level to maximise both efficiency in the desalination process and minimise visual impact;
- a living "green roof" (the largest of its kind in Australia) covered in indigenous vegetation will camouflage the plant plus add increased thermal and acoustic control while reducing corrosion and maintenance needs; and
- the 225-hectare site surrounding the plant will see a major environmental rehabilitation that involves the creation of coastal wetlands, woodlands, recreational trails and habitat renewal, including environmental planting in excess of four million plants, including 150,000 trees.

Despite the environmental considerations produced by the private partner in this example, it is the expertise, diligence, and objectives of the public sector that will determine not only the outputs from a PPP agreement, but also the methods by which those outputs are achieved. Private consortiums respond to the request for tenders issued by the government and will shape their bids in such a way as to maximize their own interests. From a sustainability and environmental perspective, it is therefore incumbent on the government to protect those interests by building relevant and adequate measures into the PPP agreement. This means thorough feasibility and impact studies, detailed

contracts and specifications that define desired outputs and performance indicators, and a rigorous accountability mechanism. Unless public authorities accept and fulfil this responsibility sustainable and environmental factors will continue to be ignored, because such considerations are not inherent to PPP tools, design, intention or framework.

The Victorian government went to extensive efforts over a two-year period to conduct environmental assessments, including 84 specialist studies and an Environmental Effects Statement totalling more than 9,700 pages, and finally created an Environmental Management Framework within which the project would operate, detailing some 221 performance requirements from across 38 different areas including wetlands, waterways, air quality and visual amenity (AquaSure website, n.d.). While the consortium responded to these elements of the agreement, their main purpose remains the design, construction and operation of a desalination plant to service Victoria's ongoing water needs, and it was this task that attracted potential bidders. The environmental assessment and requirements to the project are, however, a result of due diligence on the part of the State and not a reflection of the environmental and sustainability benefits or intrinsic components of PPP, or a desire of the private sector to safeguard the environment. **The degree to which PPP contributes to sustainability issues relies, therefore, on the competence of the individual jurisdiction.** While the word "partnership" must here be emphasized, it is in fact the State that remains the driving force behind sustainable public infrastructure.

In this case, PPP was considered because it offered optimal value for money in delivery and outcomes: while that implicitly includes a belief system regarding environmental and sustainability issues, they were not a significant factor in turning to PPP.

#### Public vs. Private Delivery

The question of whether the public sector could have contributed more innovative environmental approaches and technology in a cheaper manner relies on empirical studies not found in this paper.

It is, however, not unreasonable to imagine that the private sector is better equipped to handle specific areas of the green sector, such as technology or design. After all, government's main role remains the administration of its jurisdiction, not being at the cutting edge of green innovation and technology. The private sector, on the other hand, contains specialists in many fields because companies exist to meet a specific need, and shape their behaviour in such a way as to excel in their field. Businesses both big and small exist within a competitive marketplace that demands quality in products and efficiency in cost, resulting in an environment that has better products, knows more about them and can facilitate their use in a more cost-effective and overall efficient manner. Nevertheless, translating these perceived advantages of the private sector inherent in PPP theory to the project space remains a significant challenge.

While the government can already access this expert knowledge through traditional procurement methods, the use of PPP opens up the specialized input of the private sector into hitherto restricted spaces, such as design, operation and maintenance. PPP may also allow greater access to the private expertise found in the international market, as consortiums may draw on many different sources of service. In terms of this project, AquaSure was able to provide the services of Degrémont, an international company that has specialized in water treatment for 70 years and has experience in building and operating the same desalination technology. This was also the case for the design team, where, in addition to using leading Australian companies, AquaSure also tapped in the international market, utilizing



a concept architect from France.

#### The Successful Transfer of Risk?

Although beyond the scope of this case study and paper, it is salient to note that the Victorian government has had problems in the past with some risk reverting to it from PPP projects, including one extreme case in 2000 when the State was forced to take back ownership of the Latrobe Regional Hospital following huge financial losses and service delivery failures on the part of the contractor. The government has since addressed perceived weaknesses in the PSC to ensure it does not take on disproportionate share of a PPPs risk. However, legal action related to the recent EastLink and Spencer Street Station redevelopment PPPs has again signalled that it is extremely difficult to avoid referred risk to the State in the complex and high stakes PPPs common today. Ultimately, the government is responsible for the provision of public infrastructure and services and it is not implausible to foresee the private sector, in extreme circumstances, abandoning their contracts in the face of bankruptcy, receivership or no return on capital.

#### Ongoing Status

As the project is still in the construction phase, and according to the paper's premise, we will not be commenting in length on the success or otherwise of PPP in this project or any controversies attached to it. For obvious reasons it is impossible to know the benefits or successes of the project at this point in terms of costs, environmental outcomes, green jobs etc., and it is therefore unwise to comment categorically on the appropriateness of PPP for this project or make further conclusions regarding the use of PPP in environmentally sensitive projects. While it may be possible to, in theory, observe a combination of both sectors' expertise in use throughout this project and the facilitation of sustainable public infrastructure, we would be remiss not to acknowledge problems attached to the project.

Facing strong public rejection of the desalination plant, early stages of the consultation, environmental survey and construction were met with demonstrations and protest activity. Industrial relations disputes, while not halting construction in the long term, have been a continual issue for the consortium and are blamed for low productivity and higher construction costs, including a high profile espionage case regarding Theiss infiltrating the Trade Unions involved on the site (Thomas & Robinson, 2010). Recent developments have seen Leighton, the parent firm of construction company Theiss, in April 2011 downgrade its profit forecasts for the project from the initially anticipated AU\$288 million to just AU\$6 million. In August and October 2011 the company again downgraded its expected earnings by a combined AU\$470 million, signalling it will now expect to make a loss on the project of more than AU\$270 million, as total writeoffs related to the desalination plant now total more than AU\$750 million for 2011 (Miller & Schneiders, 2011a; Wen, 2011). Leighton cited bad weather, poor productivity and underestimates on design, construction and material costs as the main contributing factors that would see them miss the December 2011 deadline for full operation. Now running six to twelve months behind schedule, the consortium will be seeking an extension to the second deadline of June 2012, while already incurring fines of up to AU\$15 million for missing the initial December deadline. They face further penalties of AU\$1.8 million per day from June 2012 if the plant fails to become operational. Leighton has also flagged potential legal action against the Victorian Government to seek recompense for its losses and receive what it believes it is entitled to through the PPP agreement (Miller & Schneiders, 2011b).

Much has changed in both the natural and political environment since the project was initiated in 2007 (Jenkins, 2011). The Labour government responsible for the project was replaced in late 2010 by the centre-right Liberal/National Coalition, who have long been opposed to the desalination plant. Following extensive efforts to make adjustments to the project contracts, the Premier announced in early 2011 that there was not only no way to withdraw from the project, but also that no cost savings could be found or implemented within the contract structure. As reported

earlier, the project is expected to cost the taxpayer between AU\$19.4 and AU\$24 billion over the course of the contract term. Any dissatisfaction over the project and its costs have been further heightened by drought-breaking rains that arrived in Victoria during 2010 and 2011. Melbourne's water storage levels in January 2012 measured over 65 per cent, to some extent calling into question the need for the desalination plant.

### 3.3 The Importance of Comprehensive Evaluation and Detailed Specifications to Sustainability: Lessons from the Arlanda Express, Sweden

#### 3.3.1 Context

##### Sweden's PPP Environment

In what is possibly a reflection of its historical political climate and fiscal situation, Sweden has not yet embraced PPP as a procurement method. Following historical norms, Sweden has mostly financed public infrastructure projects directly through the budgets of the respective government departments. Faced with demands for public infrastructure that exceeded budget funds, the government began in the late 1980's to put structures in place to allow the public and private sectors the opportunity to together fund investments in infrastructure (Pettersson, Sundberg, & Khan, 2010).

Although the private sector has been a long time active participant in public infrastructure provision through competitive and performance-based contracts, what has typically been the point of difference is the exclusion of the private sector finance component, and therefore some of the risk transfer theories that underpin PPPs. Although a joint working group from the transport sector recommended in 2007 that PPPs should be pursued within their sector, the government rejected the need for private finance in planned infrastructure projects and shows no sign of a sharp policy direction change (Bointon, 2009). Given Sweden's highly decentralized regional government system, there is the potential that PPP will first develop at a county council level before being widely accepted at a national level.

Once considered the only real PPP in Sweden's history, the Arlanda Express has now been joined in 2010 by the New Karolinska Solna University Hospital in Stockholm. Consisting of a consortium of Swedish and U.K. companies, the new hospital will be Sweden's first PPP building and the world's largest PPP hospital, with a construction value of approximately SEK14.5 billion (US\$2.2 billion) (Skanska consortium website, n.d.).

##### Project beginnings

Motivation to undertake the project and the desire to achieve it through PPP were brought about by a series of political considerations taking place in Sweden in the early 1990s. Seeking to expand the Arlanda airport to include a third runway, the government wanted to curb nitrogen oxide (NO<sub>x</sub>) and carbon dioxide (CO<sub>2</sub>) emissions to the entire precinct and restrict them to pre-1990 levels. While also offering economic and social advantages, the construction of a train service from Arlanda to Stockholm was considered to be a key to achieving its emissions target through reducing reliance on bus and car traffic to the airport. This period also coincided with a severe budget crisis, and with increasing demands being placed on the public purse, government was looking at alternative methods to funding. The involvement of the private sector not only provided potential for off-budget funding but also met the designs of the centre-right coalition minority government of the day, which was seeking to test the waters of private sector involvement in design and service provision as a means to pave the way for future involvement in a deregulated national railway market (Nillson, Hultkrantz, & Karlstrom, 2008).

Although first flagged in 1986, it was not until 1993 that the environment proved conducive and the Swedish Parliament made a decision regarding the status and composition of the proposed project and began accepting pre-qualification bids. Following the ongoing activity of a ministry working group, continued negotiations with bidders, and the submission of necessary Bills into parliament, the Arlanda Link Consortium was named as the preferred bidder and contracts were signed in August of 1994. Subsequently known as A-Train during the operational phase, the consortium consisted of domestic construction companies NCC and SIAB, European railway equipment supplier GEC Alstom, and British railway construction company John Mowlem. The Swedish Civil Aviation Administration and National Railway Administration created a company, A-Banan Project AB to act as the government's agent and administer the contracts. To avoid political influence and promote international participation, A-Banan chose to utilize consultants rather than hire staff for the company. American investment bank Solomon Brothers fulfilled the role of financial advisor, while law firm Mannheimer Swartling provided the legal consultants. Technical and evaluation support was provided for by both the Aviation and Railway administrations. Originally with 50 per cent shareholdings from each department, the Ministry for Industry is today the only shareholder. Construction commenced in 1995 and the service opened for commuters in November 1999, 12 months ahead of schedule (Omega Centre, n.d.).

#### Project Details

The project consisted of a section upgrade from two to four tracks on the existing line between the Arlanda airport and Stockholm, new trunk lines to connect the airport to existing railway infrastructure heading both south to Stockholm and north to Uppsala, new stations and upgrades, and the provision of a shuttle service between the airport and Stockholm. Although considered to be a finance-build-transfer-operate PPP agreement, finance was to come from a combination of both public and private sources. Costs were split so that the government bore financial responsibility for the northern link as well as at least 50 per cent of the costs associated with connecting both links to the existing lines running between Stockholm and Uppsala. A-Train was required to contribute 15 per cent of the total project cost through share capital or loans along with 75 per cent of the total costs for the southern link on commercial terms. In addition, the government was to provide the remaining SEK1 billion finance gap in the form of a conditional loan. Due to the varying finance structure, it is difficult to accurately cost the entire project, but rough estimates put the total cost at approximately SEK6 billion, with an estimated 40 per cent of investment costs financed through private capital (Nillson, Hultkrantz, & Karlstrom, 2008).

Once construction was completed, ownership and management of the infrastructure was transferred to A-Banan while A-Train maintained the rights to operate passenger trains for a lease period of 45 years (with the possibility of a 10-year extension), after which operation would also transfer to the government. In a distinctly different approach to that which it employed in regard to the financing, the State clearly allocated a greater portion of operational risk to the consortium by allowing it large freedoms in both the construction and operation phases. With very few minimum technical requirements established in the contracts, A-Train was free to choose any design and construction method, including choice of train, it felt maximized its specific interests. Similarly, the consortium was free to operate the shuttle service according to its own business strategy, including setting the cost of travel, with the main requirement that it run at least four trains per hour between the hours of 06.00 and 23.00. It was also responsible for the purchase and maintenance of the rolling stock in addition to the maintenance of all new infrastructure associated with both links. Along with this freedom came the acceptance by A-Train of the total market risks associated with the operational phase, including any unforeseen changes in traffic flows, inaccurate commuter forecasts or other unforeseen factors that might affect ongoing costs and revenue levels (Nillson, Hultkrantz, & Karlstrom, 2008).

### 3.3.2 Key Issues

#### Environmental Considerations

Although not the only factor, a key consideration behind the construction of a railway link between Arlanda airport and Stockholm can be found in its relationship to a proposed airport runway development. Wishing to add a third runway to Arlanda, the airport agency was required to meet strict new emission standards in regards to NO<sub>x</sub> and CO<sub>2</sub>, whereby total airport activities could not produce emissions exceeding the levels of 1990. Not only did this emission cap apply to the airport itself and the takeoff and landing of planes, but, more importantly, it also applied to all transport leading to and from the airport. Airport commuters and employees were at this time limited to road-going transport in the form of bus, car and taxi services, and a railway link was essential to reducing the reliance on heavy emission transport and ensuring compliance with future emission regulations.

#### Theory and Practice

Beginning operation at the end of 1999, Arlanda Express has seen a lower-than-expected patronage, and A-Train initially suffered through a period of reduced financial revenue. Reasons for the reduced patronage can be related to several external factors including an economic downturn in 2000, the 9/11 terrorist attacks, IT sector crash in 2002 and other similar events that stopped people travelling or persuaded them to utilise alternative means. Additionally, domestic changes outside the control of A-Train have cut into its potential client base, including the construction of three new airports in direct competition to Arlanda. Motorway upgrades between Arlanda and Stockholm along with the upgrade of affordable parking facilities at Arlanda has increased the attraction of the private car as an alternative means of transport to the Express.

As a result, the actual commuter figures are significantly below the forecasts produced through the tender process, 50 per cent lower when compared to government figures and 25 per cent less than A-Train, although a certain level of positive bias in the forecasting may also account for this variation (Nillson, Hultkrantz, & Karlstrom, 2008). This underscores some of the risks involved in PPP contracts for the private sector where, considering the length of the contracts, due care must be taken in budget forecasting and assessing the future marketplace accurately. It is reduced exposure to these kind of risks during the operational and maintenance phases that the government seeks to avoid through the use of PPP contracts.

Reduced patronage may also be the result of A-Train's business strategy, whereby it has chosen to target short trip business commuters as its main source of patronage. Consequently, ticket prices are quite high when compared with other forms of transport, and Arlanda Express does not compare favourably in monetary terms. A return ticket is more than double the price of the same journey through bus shuttle or by private car and for two or more people travelling together a taxi becomes cheaper, or one can park their private car at the airport for one week for a comparable price (Pettersson, Sundberg, & Khan, 2010). A-Train's business strategy becomes relevant when considering that it was the terms of the PPP which allowed it such far-reaching freedoms, freedoms which in turn allowed individual business decisions to affect desired project outcomes and have further strategic ramifications for the government.

Although it is not clear what the expectations were at the beginning of the project, it is reasonable to assume that the Arlanda Express has had less impact than hoped on road-based traffic flows. Statistical data from the first five years of operation suggests that, while the bus share of the market shrank marginally to a little under 20 per cent in contrast to the train's slowly increasing 25 per cent, it is still taxis and cars that dominate, with a significant (55 per cent) portion of the market share (Nillson, Hultkrantz, & Karlstrom, 2008).

As can be expected from such data, the decrease in emissions has not been as steep as was initially hoped for and needed by the Civil Aviation Administration. In fact, road transport emissions during the period 1990–2007 have increased by 30 per cent, and now account for more than 50 per cent of total airport emissions within the cap framework. In contrast, emissions from airplanes decreased by 15 per cent in the same time period, despite an increase of three million passengers. The emissions cap was breached in 2007, and from 2011 forward the Civil Aviation Administration faces legal proceedings if it does so again. An action plan created in response to the emissions problem has cited a need to dramatically reduce the emissions from road transport, suggesting public transport (i.e., the railway) needs to improve its market share to between 60 to 90 per cent, depending on passenger growth numbers (Pettersson, Sundberg, & Khan, 2010).

In 2004, Macquarie Group acquired 100 per cent of A-Train for a total consideration of SEK400 million, including its debt of SEK400 million. In 2002, A-Train's turnover was SEK340 million and Arlanda Express carried 2.4 million passengers ("Macquarie Bank Completes Its Acquisition," 2004). The Arlanda Express did not run at a profit prior to 2005, and at the time of sale it is estimated that the Arlanda Link Consortium had lost SEK200 million (Omega Centre, n.d.). Performance has slowly increased, and in 2010 Arlanda Express recorded its best ever financial results with a total revenue of SEK546 million, giving a pre-tax profit of SEK56 million. A total of 2.9 million commuters used the Express itself, and a further 1 million travelled on the Arlanda line with other train operators (Arlanda Express, 2011). The Arlanda Express service itself has also been performing strongly, now running six services per hour, and in 2010 it received its ninth consecutive "Sweden's most punctual train operator" award by the Swedish Transport Administration.

#### Flawed Planning Approach

There are several factors that are specific to the Arlanda planning and tender processes that are worth highlighting here as both an explanation of project outcomes and caution for PPP use. Following its rise to power in the 1991 parliamentary elections, the conservative liberal coalition was faced with large financial issues, political instability, and the desire to stamp their ideology on the system. It therefore became imperative that the Arlanda link was fully approved during their three years in office, and in many ways the project was rushed through the planning process.

In 1991, the government commissioned a working group to investigate how the Arlanda project might proceed, but due to lack of internal capacity the group was chaired and run by executives from SAAB Scania due to their greater experience with complicated financing and procurement methods. Neither the Swedish railways nor the National Railway Administration were included in this committee. In 1993 a sub-group of this committee, in addition to legal and financial consultants, officially formed the procurement team for the Arlanda Link project.

The project was announced in June 1993, and, following complications related to language barriers, difficulties with the technical specifications, and internal consortium issues, only two bids were officially submitted from the original 80 expressions of interest and four request for tender consortiums. The committee found neither bid to be suitable in January 1994 and again in June, following further development and negotiations, as both bids failed to fulfill the requirements. Nevertheless, following further discussions, Arlanda Link Consortium was announced as the preferred bidder in July and signed the contract in August 1994, at the last government meeting before the next general parliamentary election in just one month's time (Omega Centre, n.d.).

The final decision was based upon the only feasibility study of the project conducted by the National Railway Administration in 1990, which came prior to any decisions or recommendations arising from the conservative government or working group from 1991 onwards, and therefore does not reflect any changes in specifications or

intent. The nature of the procurement process also precluded any genuine contribution from the general public and circumvented the traditional procedure of public appeals (Omega Centre, n.d.).

The result is a somewhat patchy approach to the planning phase of the Arlanda project that represents the political imperative attached to the project, as well as the lack of specific PPP expertise or even large procurement experience at a departmental level. As the planning and negotiation phases are the most critical of the PPP process, especially considering the long-term ramifications of a weak agreement, this approach was far from ideal. Some of the unexpected and undesirable outcomes from the Arlanda Project can be attributed to this unfortunate planning process.

### 3.3.3 Sustainable Development Considerations

#### Ramifications for Sustainable Development

The operational freedom granted to A-Train through its PPP contracts has seen its individual business decisions have wider, unforeseen ramifications on the success, cohesion and future of the transport system as a whole. Protected in both a physical sense by the infrastructure it constructed and also contractually by its exclusivity agreements with A-Banan, A-Train operational decisions have significantly hindered railway passenger flows and the corresponding impact on road traffic and emissions. In turn, the Civil Aviation Administration's ability to expand Arlanda Airport to meet the demands and opportunities of a growing population is significantly affected because of risks incurred by breaching the emissions cap.

In measures designed to protect A-Trains returns on investment, it was granted exclusivity rights to the control and use of tracks and stations it financed. Subsequently, any other train operator that wants to utilize the tracks or stations from within the Arlanda Express project must lease them from A-Train. While protecting A-Train's rights and revenues, it also acts as a constriction on potential public transport services. The Arlanda Express does not service communities in proximity to the airport or along the infrastructure because of its specific brief to provide direct fast train travel between Stockholm and the airport, nor is it in its commercial interests to encourage or facilitate direct competition for itself. Other operators who could provide such a service are deterred or restricted from doing so because of the financial costs associated with leasing from A-Train. There are consequently many people and communities who are prevented from accessing this greener alternative and forced to use road-based transportation to the airport. Like high ticket prices, these factors contribute to a lower percentage of commuters utilizing train services, whether they be specifically the Express or other nearby routes. While this is not a failure of A-Train to fulfil its operational mandate, the terms of the PPP agreement limit potential use of this preferable alternative to road transport.

Exercising its decision-making freedoms, A-Train also chose to utilize rolling stock manufactured by one of its consortium members and constructed platforms according to its specifications. Thus the new platforms are lower than Swedish standard and will complicate the integration of the Express into the existing railway network when the State resumes operation at the completion of the lease period. The issue of rolling stock is further complicated by the fact that the current train size is relatively small. Any future desire to increase capacity would necessitate the purchase of a new engine, and considering these trains are in service nowhere else in the world, the cost and subsequent business case for the upgrade becomes prohibitive (Nillson, Hultkrantz, & Karlstrom, 2008). While such decisions have proved beneficial for A-Train and GEC Alstom in the short term, and most probably also in the long term as the state becomes beholden to it for supplying trains, it does not benefit the integration and cohesion of the system as a whole, which from a sustainable development perspective should be a priority of the State.

As highlighted earlier, growth of the Arlanda Airport is directly related to the emissions that it produces. Should it desire to extend its services in any capacity it must first make sure that it does not breach the emissions cap now legally in force. If the Arlanda Express fails to reduce the road-going market share and its emissions it reduces the scope of the airport's growth options. This has obvious impacts for the economy in jobs, sector growth, tourism and potential untapped market opportunities such as freight as a driver of economic growth. Recognizing the limitations it placed upon its future growth, Arlanda Airport submitted a request in 2005 to have the emissions cap removed.

#### PPP and Sustainable Development

In the case of the Arlanda Express there is cause to argue that PPP has negatively affected sustainable development environmentally, economically and socially. Specifically, the contractual agreements reached through this PPP have reduced the ability of the State to fulfill its role and responsibility of ensuring an effective and sustainable transport system. Furthermore, the same contractual freedoms have given undue freedom to the private sector, inasmuch as they allow their actions to negatively impact the same system and impinge upon the government's ability to respond to or improve the situation.

The result is a service that performs below par in its intended impact on road traffic and therefore the environment, but also in public transport services for the community at large on issues like congestion, unequal access, health and safety etc. This has limited the potential growth of the airport and its services both in passenger flights, but also potential diversification in business such as freight services. Decisions and actions that have influenced the shape of physical infrastructure could impact and limit system-wide cohesion and integration once the State resumes complete control.

While A-Train and its companies had no previous experience in operating a train service, it is not clear whether business, construction or operational decision-making would have proceeded any differently if they did, or how that may have changed the project outcomes. It should be remembered however, that at the end of the day, private sector consortiums are in a business and undertake projects as sources of income. The actions of the consortium actions are thus primarily driven by self-interest and not determined by issues outside its project's scope or the wider context of its environment, nor necessarily should it. It is government's responsibility to ensure that a PPP aligns with existing policy and strategic plans and does not weaken the development and welfare framework in place for their jurisdiction. Consequently, PPP itself as a financing model has ramifications for sustainable development, and it is essential that strong policy and guideline mechanisms are in place to protect the government's strategic level plans.

### **3.3.4 Concluding Thoughts**

The PPP agreement has been beneficial for government from the perspective of financial arrangements, where it avoided the need to supply SEK1.7 billion to finance the infrastructure and will reap financial rewards from its concessional loan in the latter part of the lease agreement. It also avoided financial risks associated with the market downturn in the early part of the new century, and the potential failure of the Express and A-Train would not have impacted negatively on the government financially should it have returned into State hands earlier than scheduled.

The concessions made to the private consortium to secure their finance and large share of the risk have, however, had some detrimental outcomes. This is mainly because of the extent to which line capacity is not fully maximized; subsequently, road-going transport continues to grow, while system integration and cohesion is at subpar levels. This has a substantial environmental impact and threatens the growth of the airport specifically and the transportation system more generally. Negotiations between the State, A-Train and other operators could see changes that alter this imbalance and minimize this undesired consequence.

It is worth remembering the context of the Arlanda PPP and placing the lessons learned within a framework of historical understanding. As the first major PPP undertaken by Sweden, it is certain that the Arlanda case represented a learning experience in that it may have encountered issues and results not fully expected from earlier practice. Similarly, the signing of the contracts in 1994 really represents the infancy period of PPPs globally in terms of understanding and practice, and many things have been learned in the intervening years that might lead to judging the Arlanda experience more harshly than it deserves.

Having said that, the Arlanda case study clearly shows the importance of several areas of the PPP process and is a cautionary tale in that regard, specifically in the areas of:

- *Comprehensive assessment of PPP as an appropriate procurement method:* A-Train suffered significant financial loss and difficulty early in the contract term, almost to the point of bankruptcy, due to income levels significantly lower than estimated. An accurate and honest market assessment and forecast is essential to ensuring private sector viability and effective service provision, but also long-term contract stability.
- *Detailed and specific contract:* As the protector of the social good, the public sector must retain, as much as is possible and reasonable, the ability to perform its duty and mitigate the opportunity of the private sector to impede and impact negatively on this responsibility. Due to a contract that allowed A-Train vast freedoms, business decisions in both the construction and operation phases reduced the ability of the project to meet stated government emissions objectives and also influenced current and future transport system integration and cohesion. While some of the issues arising from exclusivity conditions are inherent within the PPP model, effective assessment and action at the contract stage can reduce the associated risks.
- *The difficulty associated with accurately forecasting long term contracts:* External economic factors, unrelated private sector activities, or wider government decisions all influenced the effectiveness and viability of the Arlanda project. These factors represent inherent risks in PPP, which comprehensive assessments and negotiation can mitigate but never fully remove.
- *Importance of the planning process and public sector expertise:* Influenced by political considerations and limited by lack of public sector expertise in several areas, the Arlanda project planning phase reflects some of the difficulties jurisdictions encounter when facing PPPs for the first time. Much of the results and all of the three points listed above are directly connected to the planning phase. If the groundwork has not been laid and the planning/negotiation phases are hurried or poorly handled, the PPP is in jeopardy of acting in unforeseen ways.

### 3.4 The Need for Regulation and Accountability in Dedicated Units: An example from the Dublin Docklands Development Authority, Ireland

The following case study differs from the others detailed in this paper in that it does not deal directly with a PPP project. While conducting research within the Irish PPP experience, it became apparent that the burst of the property bubble and subsequent collapse of the national banking sector in early 2009 had unearthed stories of unethical behaviour relating to property deals in and around Dublin's docklands. While cronyism and under-handed behaviour are not unusual in the property development market, the revelations have brought to light and questioned the actions of public sector bodies within the development environment, and the nature of relationships between the public sector and private partners.

Consequently, we have chosen not to focus on a specific PPP case study, but rather explore and learn from the experiences of the Dublin Docklands Development Authority (DDDA) as a dedicated public sector unit operating



within the Dublin property market over the last ten years. The intention of the study is not to suggest the DDDA contributed to the collapse of the property and banking sectors in Ireland, but rather to highlight the inherent risks associated with business partnerships between the public and private sectors. It is our intention to draw a parallel between the DDDA case and use of dedicated PPP units as described in Part 2 of this paper, using lessons learned in Dublin to illuminate potential questions for this increasingly popular institutional PPP structure.

### The Background

Established in 1997, the Dublin Docklands Development Authority was the body commissioned with the rejuvenation and development of the industrial and brownfield sites that make up the Docklands area at the mouth of the River Liffey in Dublin. Under the enabling act, the DDDA was charged with both the social and economic regeneration of the area and given wide-ranging authority to function in the areas of planning; land management; infrastructure provision; investment promotion; education, training and employment promotion for area residents; and residential development (Docklands Development Act, 1997). Coming under the authority of the Minister for the Environment, Heritage and Local Government, the DDDA is not a dedicated PPP unit or a PPP in its own right, but a departmental body commissioned for a specific purpose.

With a development area of 520 hectares containing some 17,500 residents, and confronted with high unemployment figures and low education rates, the DDDA faced a significant challenge in regenerating this area in the 15 years of the development period. The first master plan, released in 2003, initiated the process by setting out the framework by which the DDDA would seek to meet all its objectives and integrate its responses into existing policy and strategies, as well as outlining key area action plans and addressing questions of design, conservation, society, and finance. Initiating a number of large, high publicity developments, the DDDA also worked at meeting its other strategic aims as the docklands underwent a major transformation, counting 11,000 new homes, a population growth of 45,000 in the first 10 years, along with the creation of 40,000 new jobs through associated works as among its achievements (DDDA website, n.d.).

### The Crisis

The onset of the global financial crisis and the subsequent burst of the property bubble in Dublin had a serious affect on DDDA projects and jeopardized the financial viability of the authority. As the crisis deepened within Ireland, and more details began to surface about some of DDDA's business partners and projects within the docklands, DDDA increasingly became an object of public and political criticism in regards to its transparency, accountability, safeguards, and decision making.

The biggest controversy, and main catalyst for a public inquiry, revolves around the purchase and intended development of the 25-acre Irish Glass Bottle factory site, in the Dublin docklands, in January 2007. At a combined freehold and leasehold value of €412m in 2006, the site was purchased from the state-owned Dublin Port Company by Becbay Limited—a company consisting of two private sector development shareholders and the state-owned DDDA, which held a 26 per cent shareholding. The finance for the purchase was raised through a €288m loan from Anglo Irish Bank, with the remaining €124m coming from Becbay members. Following the collapse of the property and finance market in Ireland, the site dropped in value by over 85 per cent, to be valued in 2009 at €50m. DDDA's total exposure arising from Becbay, including purchase contribution, site works and interest payments, was totalled at €123m at the end of 2009, although current liability is limited to around €34m (NAMA Wine Lake, 2010).

### The Concerns

Although the DDDA was involved in a business transaction that resulted in a huge devaluation of the Irish Glass Bottle site and significant exposure of the public department to debt, there is nothing to suggest that the devaluation was due to any other reason than the property bubble and market crash that engulfed much of the country. Moreover, as a 26 per cent shareholder the DDDA was neither a majority nor significant partner in Becbay Limited, and any business actions undertaken by that company did not necessarily reflect DDDA's policy or receive its approval. Therefore, we do not attribute a partial failure of its business to malpractice, but rather, through the following sections, raise the issues of conflict of interest, authority, and accountability and the interaction between DDDA and its business decisions.

A cursory look at the composition of DDDA senior management structures quickly raises doubts about a conflict of interest as related to some significant business decisions. This is particularly concerning regarding the composition of the board, where it becomes clear that the DDDA chairman was also a board member of Anglo Irish Bank at the same time that the Anglo chairman was also on the DDDA board. This is the same Anglo Irish Bank that provided the loan to Becbay for the Glass Bottle site, as well as other numerous dockland developments, including the construction of Anglo's new HQ in the docklands precinct. Other minor cases include a DDDA council member and a director separately holding senior board positions of Arup Consulting engineers and Wilson Hartnell—firms that have undertaken consulting work for DDDA (Ross, 2007). It was revealed in its 2008 annual report that DDDA had awarded contracts of almost €1 million to companies with direct links to board members. Coupled with the DDDA's authority to fast-track planning applications, there is definite temptation and opportunity for personal or alternative interests outside the scope of the DDDA's mandate to be exploited. The true extent of the board's conflict of interest and the level of Anglo Irish Bank's involvement in the docklands can be gathered in an article from *The Sunday Independent* ("Docklands dealings," 2010).

That the DDDA can act as developer of property over which it has the authority to grant planning approval also represents a serious misjudgement on the part of the government. Under Section 25 of the enabling act, the DDDA has the ability to remove some development applications from the standard planning process in order to fast-track development, effectively removing the application from some scrutineering processes. It was precisely for this type of fast-tracking that, in 2008, the High Court overturned DDDA permission for developer Liam Carroll's Zoe Group to have exemption from planning permission. A side agreement between the two parties that would see Liam Carroll give a site to the DDDA if planning was fast-tracked was deemed by the High Court a "reasonable apprehension of bias" (Leahy, 2010). The site that Liam Carroll was developing and received fast-tracking for from the DDDA was, incidentally, for the new Anglo Irish Bank headquarters.

### The Inquiry

As questions about improper behaviour continued to surface, the Minister for the Environment requested a corporate governance review into DDDA in August 2009, which was carried out by independent companies into the two areas of planning and financial practices. In the face of a perceived lack of political will to make the report public, the DDDA report was leaked to the media in March 2010, and later officially published in full in May 2010, revealing several key areas of concern and seemingly systematic breaches of policy and protocol by senior executives.

The review points to what it defines as a "loose culture" in relation to internal systems of financial control, where senior management ignored or overrode internal controls. It was found that the CEO failed to include the Board

in some decisions, notably salary increases and renewal of staff contracts, and that project costs were often not subject to internal control mechanisms. Of specific interest in light of the Irish Glass Bottle site, the report also found that value for money considerations were largely absent in the work of the Authority prior to 2007. Similarly, the planning review found serious weaknesses when examining DDDA's planning function. Although it has a remit for both development and planning, it was revealed that the Authority's development functions generally dominated the planning ones, and that planning was used as a tool with which to promote development. As in the case of financial controls, key information was withheld from the Executive Board on some planning issues and agreements entered into by senior executives without the Board's knowledge or authority, including the private deal for the Anglo Irish Bank HQ which was later ruled illegal by the High Court.<sup>10</sup>

Needless to say, both reviews and the Glass Bottle scandal have made a significant impact on the DDDA's reputation and the way it does business, leading to widespread internal changes as the Executive Board accepted all but two of the 140 total recommendations arising from the review. The DDDA was also (in May 2010) brought under the authority of the Comptroller and Auditor General, allowing for greater accountability and transparency in regards to the use of resources and value for money.

#### The Fallout

The financial crisis and subsequent property crash have taken their toll on many of the players in this drama, although the wash-up from the Irish Glass Bottle site is still yet to be fully realized. Suffering crippling losses due to its heavy exposure to lending in the property market, and touted as the catalyst for the collapse of the entire Irish banking sector, the Anglo Irish Bank was taken into State ownership in January 2009. Estimating that the total government bailout for Anglo could top €34 billion, Anglo has transferred a large percentage of its debt to the newly formed bank of bad debts, the National Asset Management Agency (NAMA). One such title now coming under the administration of NAMA is the Irish Glass Bottle site.

Although of a totally different proportion to the scale of Anglo Irish debt, the DDDA faced insolvency after posting a €27 million loss in 2008, and suffered a total deficit of €213 million. Although operating within its €127 million borrowing limits, the 2010 financial outturn is reliant on a €20 million payment due to the Authority and the collection of other debts it has begun legal proceedings to collect. It also continues to be exposed to €5 million per annum in relation to interest repayments from the Becbay loan, something the executive identifies as prohibiting operation on a break-even basis (Dublin Docklands Development Authority, 2010).

Both Bernard McNamara and Derek Quinlan, the wealthy property tycoons who owned the two developing companies within the Becbay consortium, have personal debts in the hundreds of millions of Euros and are being pursued by NAMA, which has appointed receivers for assets owned by both men as it seeks to recoup large debts connected to Anglo Irish Bank. Bernard McNamara is currently suing DDDA for his exposure to private investors over the Irish Glass Bottle plant deal, claiming he had an agreement guaranteeing fast-tracking of the planning permission. Damages to the DDDA would be in the region of €100 million if the suit proves successful.

In the end, the Glass Bottle site was bought from one State company by another partly owned State company, and the bank that financed the deal has since become the property of the State, while the property in question has since been transferred to the State debt agency. That the majority cost will also be borne by the State is something that will not be lost on the taxpayer.

<sup>10</sup> Both reports can be accessed from the website of the Department of the Environment, Community and Local Government <http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/>

### Lessons Learned

There is no doubt that unique circumstances contributed to some of the outcomes connected to DDDA in this case study. A booming property sector, a general carefree and high-risk attitude within the Irish banking sector, and buoyed by recent success in the docks redevelopment, DDDA extended itself and was caught out when the financial crisis hit. Nevertheless, a maverick culture in which senior management acted outside internal structures and controls, coupled with distinct conflict of interest issues, suggests that much of the exposure could have been avoided, at least in theory. There is perhaps no way of knowing whether contracts were carried out in full adherence to policy and guidelines or whether any “under the table” dealing took place, but it is important that public sector bodies responsible for taxpayer money and social infrastructures be above reproach and be seen to be doing the right thing.

While it is reasonable to expect conflicts of interest will exist on most boards of this level and type, it is not necessarily a problem if it is happening in small, individual and infrequent instances. It is when the conflict becomes systematic and widespread, as is evident in the DDDA, that issue needs to be taken. Responsibility for this ultimately falls back on the government, as it is its responsibility to ensure that adequate structures and measures are in place and enforced both in the creation and operation of dedicated public sector units. That the activities of DDDA senior management were able to occur without being noticed or challenged is testament to a breakdown in several important internal controls. The fact that the eight DDDA board members were government-appointed and that major financial deals, including the Becbay/Irish Glass Bottle deal, received Ministerial permission perhaps highlights concerns that are deeper still.

As stated at the beginning of this case study, the DDDA example is included purely as an illustration of the kinds of pitfalls that dedicated public sector authorities encounter. As such, it is a cautionary tale for governments who either have or are looking to create dedicated PPP units. **It is essential that due process is taken in the construction of the unit’s framework, with particular reference to powers, authority, accountability, transparency and operational guidelines** as a means of mitigating any associated risks, such as conflict of interest. If PPPs are to make the shift to sustainability and whole of life approaches incorporated into each stage of the agreement, it is first necessary that the public sector bodies administering agreements are sufficiently equipped and structured.

## 3.5 Innovative Private Sector Solutions to Waste and Power Generation: The story of the Vancouver Landfill, Canada

### Background:

The City of Vancouver in British Columbia, Canada, owns and operates a large landfill site approximately 20 kilometres south of the city for the purposes of collecting municipal solid waste as part of its greater waste disposal system. The landfill serves a population of 1 million people and received approximately 640,000 tonnes of waste in 2007 (Comparison of Greenhouse Gas Emissions, 2009). The decomposition processes taking place in such landfills produce large levels of both methane and carbon dioxide (CO<sub>2</sub>) gas, causing foul odours but also significant emissions, with this site contributing 5 per cent of Vancouver’s total greenhouse gas emissions in 1990. In 1991, the City installed a landfill gas collection system, whereby the gas was collected and burned off, reducing both odour and environmental impact by converting the methane to CO<sub>2</sub> (City of Vancouver, n.d.).

In 2000 the City began to consider additional ways it could utilize the landfill gases and heat energy they produced. As a mechanism for accessing a greater range of concepts and financing options, the City decided on a PPP-type structure, and released requests for tender in January 2001. Not only was the private partner responsible for the design, build, operation and finance components of the projects, but the City granted creative carte blanche, allowing the private sector to propose its own solutions for the use of the landfill gases. After receiving five proposals and following evaluation and negotiation periods, Maxim Power Corporation was chosen as the successful bidder in February 2002 for its co-generation power plant proposal. Construction was completed and the plant operating at full power by November of 2003 (United Nations Economic Commission for Europe, 2007).

### The Project

Under the Build-Operate-Finance terms of the agreement Maxim Power proceeded to build a 2.9 kilometre pipeline to transport the gas to a co-generation plant it also constructed on a nearby agricultural complex. Here the gas is used as fuel to generate approximately 7.4 megawatts of electricity, which is then sold to provincial energy provider BC Hydro. Any waste heat is recovered and used by Village Farms Greenhouses to produce vegetables, and further excess heat is also utilized directly in the provision of heating to the landfill's administrative and maintenance buildings.

Consisting of a 20-year contract term, the City continues to maintain and operate the landfill site, which includes the management and operation of the gas collection facility. In this way the government assumes the risk associated with gas supply, but avoided any initial financial investment in the project or ongoing payments to the consortium. The private partner had investment totalling approximately CAD\$10 million, and has signed a purchase agreement with BC Hydro and also a 20-year agreement with the greenhouse owners. All proceeds from the sale of the power and thermal energy are retained by Maxim Power, with the exception of a 10 per cent royalty fee that is paid to the City of Vancouver. Costs for the city associated with the capture and provision of the landfill gases are approximately CAD\$250,000 per year, while royalties it receives amounts to approximately CAD\$400,000 per year (United Nations Economic Commission for Europe, 2007).

### Results

All this equates to good business sense in addition to providing significant environmental savings. Rather than paying for the burning of the emissions from its waste collection, the city now receives net revenue in the area of CAD\$150,000 per year. The electricity produced from the landfill gases is sufficient to power 7,000 homes and reduces Vancouver's combined emissions by over 5 per cent, the equivalent of taking over 7,000 vehicles off the road. Not only does the project reduce greenhouse gases directly, but it also reduces potential emissions that would have been the by-product of conventional power and heat generation that is now no longer necessary (City of Vancouver, n.d.).

### Further Implications

This project is an encouraging example of the opportunities that exist for PPPs to contribute to the sustainable development of public infrastructure. The City of Vancouver recognized the abilities of the private sector to create innovative and cost effective solutions, and, after initially considering its own ideas, accessed the full potential of the private sector through a PPP.

What it also demonstrates, however, is the responsibility that lies with the public authority when it comes to choosing and designing "green" PPPs. The power to prioritize environmental outcomes and specify environmental criteria rested entirely with the City of Vancouver's authority, and it was only after making such direction that the

private sector was able to respond with all its ingenuity and resources. PPPs are not of themselves environmentally friendly, and while the private sector would be the actual “feet on the ground” creator of environmentally sensitive infrastructure and practices, it is the public authority that remains the facilitator, and on whom much of the sustainable and environmental success of a PPP rests.

Just as in the Arlanda case study, the long-term and rigid nature of PPP agreements can affect the government’s ability to act strategically and change policy as circumstances and trends change over time. For the City of Vancouver this may present itself in the form of its guarantee to Maxim Power of the landfill gasses for the 20-year length of the contract term. In 2008, Metro Vancouver released a *Strategy for Updating the Solid Waste Management Plan*, that includes moving towards a “zero waste” plan. It aims to do this through increasing its waste diversion rate through improved recycling and composting (Metro Vancouver, 2008). An admirable priority in itself, the plan may have ramifications for its PPP contract if its actions reduce the quantity of landfill gas the City is able to collect and therefore provide to Maxim Power.

Anything that impinges on Maxim’s income stream or ability to operate a viable business according to the PPP contract conditions will jeopardize the stability of the agreement. The implications of such potential changes may require public authorities to either compensate the consortium according to specified contractual obligations, or provide further incentives for a consortium to remain in the project, increasing the financial load for the public sector. Alternatively, using this hypothetical example, the City of Vancouver could choose to limit the extent of its recycling program in order to mitigate adverse effects on its PPP agreements.

Either way there are implications for the ability of the public authority to control its strategic objectives when it has contractual obligations to third parties through a PPP agreement. Consequently there are many important and strategic factors that must be considered when undertaking a PPP, especially in the areas of strategic integration and considering the long term nature of the agreements. This update of government policy in Vancouver occurred after only five years of a 20-year agreement: how many more times might renegotiation be necessary over the life of the contract? The contract between the City of Vancouver and Maxim Power Corporation may well make provisions for such scenarios; however, we have not found sufficient details of the project terms to analyze how the agreement has dealt with this issue and provide further comment. The above is purely a hypothetical discussion to illuminate some of the considerations that are necessary when undertaking PPPs.

### 3.6 How Renewable Energy Can Contribute to Rural Development: The Global Rural Electrification Program, Morocco

#### The Context

Desiring to improve the living conditions of its rural population, the Moroccan government set itself the target of improving access to electricity from its level of 12 per cent in 1994 to targets of 97 per cent by 2007/2008 (UNDP, 2011).<sup>11</sup> The low percentage of rural homes with access to electricity was attributed to the high costs of connecting geographically scattered houses to the existing hardline power grid utilized in urban areas. Considering the high number of sunlight hours the country enjoys and the flexibility offered by individual power systems for remote locations, the National Electricity Office (ONE) decided to utilize renewable energy options for power generation, and more specifically photovoltaic (PV) solar power, for the more remote households physically beyond connection to the grid—approximately 9 per cent of the rural population.

<sup>11</sup> All data and information for this case study was retrieved from the UNDP Growing Inclusive Markets database and can be found in the report TEMASOL: Providing Energy Access to Remote Rural Households in Morocco (UNDP, 2011).

### The Details:

Responding to a call for tenders, TEMASOL, a joint venture between the French oil and electricity companies TOTAL and Electricite de France (EDF), signed a service contract with ONE in May 2002 to supply solar power to 16,000 homes across four provinces. The consortium was again successful at a subsequent call in 2004 and added a further 42,500 homes across 25 provinces to its target lists. The contract included not only the supply and installation of the PV kits but also their operation and maintenance over the 10-year life of the customer contracts.

Finance for the project was provided through a mixture of public and donor finance, coupled with a small contribution of user fees. The German Development Bank KfW provided initial financial support for the rural electrification program, and the French Fund for the World Environment financed the program's technical assistance. In light of the high cost of PV kits, the Moroccan government subsidizes the initial purchase through ONE, paying TEMASOL 90 per cent of the equipment cost, therefore effectively becoming the equipment owner. The remaining 10 per cent of the cost is retrieved through a connection fee charged to users and ongoing monthly fees from the customer for maintenance. A number of power level supply options exist and customers are charged on a monthly basis over a 10-year contract. Costs for the base 50 Watt-peak (Wp) plan start at US\$82 for connection and a US\$8 monthly fee and go up to US\$470 connection and US\$18 monthly fees for the largest 200 Wp kit.

### The Challenges

Initial financial constraints were a point of concern for TEMASOL and required specific and contextual responses. Due to the fact that the vast majority of customers were low-income users with variable levels of income, TEMASOL experienced some problems with late payment of monthly fees. This was exacerbated by the fact that monthly fees account for approximately 50 per cent of income during the installation phase, as it must first pay for and install PV kits before applying for reimbursement from ONE, and following the completion of the installation phase, fees would represent almost the entire company income.

A knowledge and skills shortage around solar energy in Morocco was not an unexpected obstacle, but one that nevertheless had to be overcome. This capacity gap had the potential to affect the project and company viability in its three main areas of operation—sales, installation, and service. Local expertise was hard to find and it was necessary to change perceptions regarding the use of solar energy.

The issue of how to effectively and efficiently service such a wide and remote territory is a major challenge facing the private sector in the developing world. Physical infrastructure is scattered at individual households and villages that may be difficult to access or communicate with. As a result, servicing these customers does not always present a proportional financial return for investment.

A failure on the part of the private consortium to build certain provisions into the contract during initial negotiations is restricting TEMASOL's income levels. There is currently no flexibility for TEMASOL to adjust its pricing structure according to real costs, or any mechanisms for compensation if the number of customers drops below pre-estimated levels established at the tender release. These factors should have been taken into consideration by the original contract and TEMASOL has so far been unsuccessful in its attempts to re-negotiate such provisions into the contract. The private company is consequently bearing a disproportionate level of risk.

### The Solutions

TEMASOL essentially met the three challenges identified above through one simple approach: the use of local staff. To do so, it has 16 regional branches employing between three and seven people who are responsible for the installation, service and repairs, sales, as well as the collection of monthly fees.

Although to begin with it was necessary to rely upon parent companies for financial funding in relation to the installation period, TEMASOL used indigenous staff and contextually specific knowledge to ensure on-time payment of use fees. A local agent attends a stand at the weekly market to directly collect fees from customers—avoiding the complication of using a third party, providing regular opportunities and reminders, but also using local community members who know the language, culture and circumstances and can be an unthreatening face of the company.

The same strategy was used to deal with the capacity and knowledge gap, where TEMASOL relied on its parent companies in respects to research and development and technical know-how before turning to local staff. Local staff were specifically chosen and trained to bridge the trust gap that inevitably exists between international private sector service providers and rural populations, and introduction of new technology. Knowing the language, culture and customs enabled local staff to effectively sell PV kits, which they did through stands and demonstrations at weekly markets. This also helps greatly when training customers how to use their kits and in accelerating the take up and acceptance of the solar technology.

Again, when the employees who are responsible for the collection of monthly fees or the service of PV equipment live in the service areas, there is less to overcome in terms of geography and access. Although head office was located some distance away, local staff were able to overcome the issue by providing proximity service.

### The Result and Potential Social Benefits:

As of June 2007, access to solar electricity had been provided for 24,800 rural households totalling 170,000 people. Although peaking as high as 130 during the installation period, in 2009 TEMASOL employed 84 people, of which 71 were locally hired employees from low-income communities. Although it took TEMASOL three years to make its first profit, it is now regularly doing so, and it posted a US\$419,000 profit in 2008.

In terms of the less quantifiable social benefits from increased access to power, there is much to expect from this project. Education is thought to be a major winner, as better lighting allows children to complete homework and extra studies after dark. Similarly, the access to TV or radio provides a new dimension to their studies through increased visual exposure to the things they are learning in their textbooks. The educational benefit is still more widely felt throughout society, as remote sections of the population are connected as a whole through more comprehensive and frequent access to news and information. This is also true in a more direct sense where local workers are trained in the installation, service or sales of the new PV kits, exposing them to new skills and technology, and, by default, greater access to employment markets and opportunities.

Both economic and social productivity receive a boost from increased access to electricity, as households are able to perform economic activities after sunset, or free up time for work during the day by completing household chores in the evening. It is historically the women who take advantage of such opportunities in small enterprises, such as hand knotting carpets, weaving, spinning wool, making cheese etc.

The use of candles or gas lanterns in the absence of electricity not only creates serious fire hazards but contributes to poor eyesight and related health problems. Greater lighting can also contribute to increased social and family ties as it encourages and facilitates social visits after dark. In addition, social communication is improved through the use of



cell phones, where the inability to recharge cell phones was a previous disincentive for rural populations to purchase them. The access to other appliances in the home such as refrigerators or cooling fans/heaters, or even water pumps, increases both the health and quality of life of rural and remote populations.

### The Lessons Learned

This project demonstrates the potential for private sector contributions to development through PPP mechanisms, and the ability of Official Development Assistance (ODA) to play a key role in its facilitation. Increased access to electricity has the ability to vastly improve both people's quality of life, but is also hugely helpful in achieving goals for development. That the delivery in this instance was achieved through the provision of renewable energy is a positive and intelligent decision in a time of resource scarcity and high energy costs.

Several points can be highlighted from this case study:

- *Official Development Assistance and the not-for-profit sector at large can participate in and utilise the PPP structure as a means of securing development.* As demonstrated in the Moroccan example, ODA can be useful in meeting the initial setup costs that governments may not be able to afford. Although the not-for-profits may not be able to contribute funds or are unwilling to partner directly with the private sector, they can be instrumental in driving the debate and conversation that causes government to act on ensuring a socially and environmentally sensitive PPP.
- *Contextual understanding must be built into the PPP approach and structure.* It is necessary to carefully examine the local context and adapt specifications and incentives accordingly. ONE subsidized a significant portion of the equipment cost to incentivize TEMASOL and make the project viable, and governments will need to consider how to both generate and maintain private sector interest. This is relevant for the private sector partner also, which must be aware of the varying challenges and risks associated with operating in development contexts. TEMASOL was able to generate business and profits and overcome issues of remoteness and poverty through local contextual understanding.
- *PPPs in a developing jurisdiction will face obstacles not present in the traditional experiences of the PPP practitioner.* A main issue with using a PPP mechanism to provide public services in developing nations is the concern for equity and affordability. Disadvantaged communities and households often cannot afford to pay for services, and some governments heavily subsidize access to essential services such as water or electricity. When supply is swapped to a private, market-based system, real prices can rise dramatically for the end user, who may not be able to pay the fee demanded or who may strongly resist unprecedented price increases. This can affect the viability of the project and the private sector's desire to continue its partnership, while also creating unrest in the community and distress for the government.
- *Public education is fundamentally important when seeking to implement PPPs in development contexts.* TEMASOL used locally hired staff to front the company and communicate the essential messages of the project to the local population. In some cases, such as road tolls or electricity fees, a strong public awareness campaign will be needed to explain the PPP decision and structure, as a means of minimizing population anger and to optimize service take up.

## *PART 4: Moving Forward: The integration of sustainability into PPP*

If PPPs are to serve as a viable strategy for sustainable development, they need to deliver on value for money across the life cycle: ensuring economic and financial viability, providing for social progress and environmental stewardship across the life of the partnership, from design and financing through to the construction and operation of the asset/service.

This signifies calibrating acceptable revenues for governments, the taxpayer and the investor while ensuring that environmental externalities and social priorities are accounted for throughout the lifetime of the PPP contract. In addition, some of the concerns identified throughout the paper, like inflexible contracting, costly and lengthy tendering or the higher cost of private finance, become pertinent issues only when a whole life value perspective is adopted.

Incorporating whole life value into PPP is no easy task, however, and an in-depth examination of this multi-faceted debate is outside the scope of this chapter. Nevertheless, this section identifies some preliminary levers for change that stem from best practice in the implementation of green and sustainable public procurement policies across the world.

### **Integrating Sustainable Procurement Principles and Tools into PPP**

Governments around the world have been converging on laws, policies and programs for sustainable public procurement, to provide both an impetus for green industrial growth and also to demonstrate visible leadership in sustainable development. For what better incentive can the private sector have than guaranteed, longer-term demand in order to innovate, invest in, manufacture and commercialize sustainable goods, technologies and services? While some of the thinking around sustainable public procurement has trickled into the PPP sphere, IISD is of the view that the **principles of transparency, accountability, whole life costing, value for money and the importance of triggering positive economic externalities across the domestic economy, have not been prioritized in the design of PPP to date.**

Among the tools specific to PPP there needs to be a more balanced set of motivators that consider more than just value for money on purely financial terms. This is something that was highlighted in the case study of the Victorian desalination plant when referring to the public sector comparator (PSC)<sup>12</sup> public interest test and value for money analysis equation. In that case, the public interest test did not regard environmental factors as an individual criterion for consideration in connection with the public good. Similarly, within the business case and pre-project assessments, including the PSC, **policy guidelines do not include explicit tests to measure environmental or sustainable risks or benefits as standalone features.** The result is a project assessment mechanism that risks being skewed towards a purely financial equation with little direct consideration of environmental factors that may determine a projects feasibility or outcome.

At a minimum, the PSC and any related value for money equations should be broadened to consider environmental and social externalities and cost savings, thereby contributing to a more comprehensive assessment of the net gains of PPPs. This follows the principle of the “most economically advantageous tender,” rather than the “lowest price at the time of purchase.”

<sup>12</sup> A PSC is a project assessment tool that takes a risk adjusted, whole of life cost of the project if it were to be delivered by the State and compares it against submitted tenders.

There is a case for using procurement tools more astutely to increase project effectiveness and stimulate markets or sectoral growth. Lifting the profile of environmental and social criteria in the bidding and evaluation of PPP consortiums will serve as an important first step in this direction. It will also signal to business and investors alike the increased need to embed environmental and social safeguards if they are to be successful in obtaining PPP contracts. Moreover, **safeguards need to be integrated into pre-project approval requirements and ongoing performance evaluation criteria.** Environmental and social impact assessments that are necessary to receive project permits or green lights should be an active component of ongoing project evaluation and, alongside economic data.

### Costs of financing PPP

Rising financial costs following the global financial crisis have also impacted upon PPP practice, where Britain's National Audit Office (NAO) has recently stated that the government should consider scaling back its involvement in PFI because it has become more expensive since the crisis, and no longer represents the best method to invest in public infrastructure from a value for money perspective. Costs associated with U.K. PFI agreements rose following the financial crisis, with the cost of debt financing increasing 20-33 per cent, leading to an increase in the price of a typical building project by 6-7 per cent. The M25 widening was an exceptional case in point where costs rose by 24 per cent following the financial crisis (Comptroller & Auditor General, 2011).

### Institutional Frameworks

Intrinsic to the accomplishment of value for money is a strong and supporting regulatory framework that seeks to establish, protect and incentivize partnership between the public and private sectors for the benefit of society as a whole. As a starting point, below are some thoughts regarding institutional arrangements as they pertain to PPP and sustainability.

#### Legal and Regulatory Frameworks:

- A framework that provides access and certainty to the private sector regarding the right to enter and be active in partnerships with the public sector;
- Regulations concerning the respective roles of actors in public and private sector. The public sector's role can move from being a regulator to coordinator, and from service provider to regulator depending on the PPP at hand;
- Regulations on the role of central and local government including the transfer of authority, decentralization of budgets and decision making etc.;
- Rules concerning the regulation of the sector or activity;
- Compliance with existing environmental and social sustainability laws and policies;
- Government guarantees on the long-term stability for PPPs—guarantees of institutional stability, guarantees against expropriation, arrangements for system change etc.; and
- Pricing policies and loan guarantees.

#### Operating Regulations:

- Regulations on the conditions and criteria for entry of a private sector entity into PPP;
- Regulations on a competitive bidding system for PPP contracts;
- Regulations to provide for autonomy and whole life costing at the level of public service (before entering into PPP arrangements);
- Regulations on the supervision and regulation of private sector partners; and
- Regulations on EIA and SIA.

Furthermore, beyond the realm of the individual project, the manner in which a PPP is integrated into the wider strategic plans of a government or jurisdiction, including fiscal health, procurement frameworks, and community participation is an equally significant consideration.

Then there is the question of how public authorities make contingencies for projects or services reverting into their hands before the PPP contract term is complete, due to issues such as a failure to deliver service provision or substantial financial failure of the private partner. Similarly, **governments must consider the future costs associated with transfer of assets and services back into the public sector**—costs that have not existed for years must again be accounted for and might therefore upset public spending trajectories.

Questions also arise if the public sector might lose capacity and manoeuvrability over time as the private sector steps into providing public goods and services. Ideally, the public sector may wish to re-tender the service provision, but given the desire not to renew, it may be in a weaker negotiation position because, realistically, it lacks the internal capacity to resume service provision.

Public authorities may also inadvertently trade strategic control in favour of a comparatively short-term, financially advantageous decision, as governments seek to balance the books and public authorities are increasingly influenced by profit-orientated thinking in regards to planning aims and priorities (Heinz, 2008). It is also the case that the public sector is often motivated to utilize PPPs because these projects may not impact public sector balance sheets or be included in calculations of national debt due to the participation of private investors. **The risk here is that governments are induced to utilize PPP in inappropriate circumstances**, or perhaps become one-dimensional in their procurement mentality and become overly reliant on the private sector for the deployment of essential public goods and services.

There are also a number of difficulties attached to amending or ending poorly performing PPP contracts, which are typically rigid, as private investors request guarantees on the return for investment. While understandable, this concession also makes it **difficult for governments to amend contracts to reflect evolving sustainable development priorities and environmental and social laws**, as well as changing market dynamics, capitals flows and trade profiles. Moreover, any renegotiation that is necessary under the PPP is often removed from the competitive nature of the original tender negotiations and limits the decision-making abilities of the public sector, while the balance of power is also likely to have shifted to the private sector. In this sense, pre-project due diligence that leads to appropriate and effective contracting in terms of the transfer of risk, payment mechanism, incentives, performance evaluation etc. is identified as a value multiplier.

## Capacity

In order to undertake strategic and sustainable actions, public authorities must have access to accurate data to inform the decision making process. PPPs currently lack the accounting reporting requirements to provide for such analysis. The NAO 2011 report demonstrates that the U.K., possibly the world's most advanced PPP nation, struggles with this issue. It cites the fact that **the lack of ongoing value for money evaluation by departments leaves a shortage of accurate data**, and makes it difficult to assess PFI as an appropriate procurement method for potential projects, including value for money considerations and the extent to which investors' returns and profits were proportional to the service and risk they undertook (Comptroller & Auditor General, 2011).

Successfully executing value for money judgements requires an experienced and appropriately skilled public service, something that is not easy to achieve in the case of PPPs. Again referring to the U.K. experience, the NAO paper cites the government's lack of capacity on PFI in terms of management, which contributes to a culture of dependency

on consultants to procure and administer deals (Comptroller & Auditor General, 2011). In complex PFI contracts it is sometimes only a small number of people who have the necessary expertise to master the situation. This leaves decision making in the hands of a small minority and also jeopardises future decision-making stability if these people move or leave, almost inevitable when you consider the length of project terms. Already discussed at some length earlier in Part 2, central PPP units are designed to increase the capacity of the public sector to administer PPP agreements, but this can have the unforeseen consequence of draining capacity at the local level, again leading to overreliance on advice from those not aware of and not representing the priorities of the tendering authority.

The authors also observe that **existing toolkits on PPP from development banks, UN organizations and a range of other development partners do not integrate sustainable development considerations to any great extent.** This is not to say that there has been no focus at all on sustainable PPPs. The British Office of Government Commerce has, for example, released a guidance paper on “green” PPPs in 2002. The UN Economic Commission for Europe (UNECE) has consistently discussed sustainable development issues (including case studies) through its PPP guideline materials, and even development banks have increased the rhetoric of PPPs’ potential impact on health and the environment over recent years. However, there is little evidence to suggest that these practices are being implemented in the design of PPPs at the present time.

### Calculating the Value of Sustainability

Sustainability relies on a long-term approach to investment, yet governments and the private sector are both motivated by short-term return on investment. Hence, investment incentives in relation to PPP projects must be structured in such a way as to encourage long-term financial planning and longer term profitability thinking. Investments such as “value capturing”—adding real estate or associated development opportunities to the tender package—is an example of incentivizing a sustainable road or railway that does not contain sufficient appeal to attract private investment on its own merit. However, **over-incentivizing through tax breaks, guarantees or subsidies to attract local or international investment can have the detrimental effect** of eliminating competition, increasing liabilities and reducing the value for money equation of a project.

Sustainable infrastructure often has the disadvantage of being caught between the short-term versus long-term investment dilemma. What may appear to be more expensive at the outset becomes cheaper when accounting for efficiency savings and measuring costs across the whole life cycle. Not only is this at odds with the political cycle that thinks in four year terms, making projects a hard political sell, but it complicates the private sector investment paradigm. For example, **it may be difficult for operators to package cash flow from things such as energy savings into an attractive form of income or match it with traditional forms of collateral demanded by investors.**

### Value for Money

While value for money is an underlying motivator behind the use of PPP, the debate needs to move beyond purely financial considerations to also assess projects on their ability to contribute to environmental and social progress. Can a project that achieves significant environmental or social outcomes, but fails on the PSC test, still be considered “value for money”? Although fiscal prudence is obviously an essential consideration, the efficiency of public goods and services should not be evaluated purely on financial terms, but there must be a move to consider qualitative assessment methodology that values sustainability.

Public authorities also need to be aware that a PPP does not automatically achieve project efficiencies, and it is necessary to track the extent to which PPPs are being delivered in accordance with the contracted timeframe

and budget. For example, a study of PFI projects in the U.K. between 2003 and 2008 showed that 31 per cent of projects were delivered late and 35 per cent over budget (Lords Economic Affairs Committee, 2008). Additionally, longer tendering periods can be expected from PPP agreements, where the NAO report indicates that, in the U.K. in 2007, the overall tendering process took an average of two years for schools and over three years for hospitals (Comptroller & Auditor General's report, 2007). Similarly, risk premiums are known to be built into PPP agreements to provide incentives for completion on time and budget and provide a safety net for private consortium revenues: the British Medical Association estimates a 30 per cent premium for hospital construction costs, and the European Investment Bank estimate a price 24 per cent higher for PPP roads over traditionally procured projects (Treasury Committee, 2011). While only a sample, these examples are sufficient to highlight the need for thorough pre-project assessment to accurately weigh the costs of PPP projects, financial or otherwise, and determine if whole of life value can realistically be achieved.

In reporting an investigation into the ongoing status of PFI agreements in the U.K., the Financial Times (Timmins, 2011, p.8) expressed that **"it is a poor decision to assume heavier future liabilities purely for the sake of present balance sheet optics."** For its part, the U.K. Treasury department is concerned that a lack of alternative procurement options may lead to that very scenario, where PFI may be used regardless of the value for money equation. Faced with shrinking capital budgets and an ongoing need to provide infrastructure and revitalize industry, public authorities may feel that private investment through PPP agreements is the only option open to them. The popularity and favour also garnered by PFI can provide a "perverse incentive" for governments to sign up projects despite reduced value for money benefits. In this case, Treasury felt that **financial models used in project assessment, such as value for money, are subject to manipulation and should never be used alone as a pass or fail test** for PFIs, demanding a more robust criteria governing the use of PFI within the U.K. to mitigate risk of future liabilities (Treasury Committee, 2011).

### Green Growth

The scale and value of PPP projects around the globe point to the potential for stimulating green industrial growth, due to the significant profile, responsibility, value and impact often involved in large PPPs. Securing PPPs for the greening of industries or the delivery of environmental goods and services will inject finances and provide incentives for companies to invest, innovate and scale up the commercialisation of sustainable goods and services. Similarly, the use of sustainable goods and technologies in large-scale projects and public services will influence its take up into smaller projects and spur their wider commercialization. The involvement of a stronger green private sector with more jobs, better products and the opportunity to contribute its specialist knowledge on major public interest projects is a welcome and positive scenario. PPP may only contribute to this in a meaningful way, however, if government makes environment, social and economic sustainability a key requirement of its PPP policy, guidelines, and desired outcomes.

### Conclusion

As we have seen from the earlier examination of case studies and theory, sustainability practices are present within PPP experience, but sustainable development principles are largely absent from the theory and frameworks that underpin and direct PPP action. Given that PPPs will continue to grow in popularity and diversify in practice over the short to medium term, this paper makes the assertion that the PPP must become a more sustainable apparatus by embedding value for money consideration across the project life cycle.

What is equally evident is that the current emphasis on financial value for money assessment within PPP is driving short-term thinking that risks burdening future generations with unnecessary financial liabilities and unsustainable infrastructure practices. Viewing PPPs in the framework of whole of life value indicates that they can serve as a unique model for public-private capital and skills collaboration and, as such, have the potential to spur sustainable development across infrastructure, industry and society in general. Achieving this requires integrating PPP into the procurement discourse with strategic intelligence. Nothing more than one tool in a toolbox for public sectors looking to invest in public works and services, **PPP projects should be judged on their individual merits and only selected when considered the most appropriate and viable solution.** Similarly, jurisdictions need an integrated approach to policy and regulation that demands a more balanced assessment and evaluation methodology, that, while ensuring financial value for money, also evaluates other important environmental, social and economic considerations inherent in society.

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Published by the International Institute for Sustainable Development.

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