

COUNTRY GUIDANCE



Public-Private Partnerships for Sustainable Development in Asia and the Pacific

Version 1.0



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The shaded areas of the map indicate ESCAP members and associate members.

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The SDG statistics in Part II of this report come mainly from the ESCAP's Statistical Yearbook 2016 - SDG Baseline Report (http://www.unescap.org/sites/default/files/ESCAP_SYB2016_SDG_baseline_report.pdf)

The paper describes research in progress by the author(s) and are published to elicit comments and debate. The views expressed in this paper are those of the author(s) and should not necessarily be considered as reflecting the views or carrying the endorsement of the United Nations.

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This paper has been issued without formal editing.

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INTRODUCTION

1. Background

The Sustainable Development Goals (SDGs) are a set of 17 goals, including 169 targets, adopted by world leaders in September 2015. The SDGs represent a vision, an ambition, a target, and a measure for countries with regard to sustainable development and a sustainable future.

Developing countries in Asia and the Pacific can work toward achieving the SDGs by strengthening the delivery of public infrastructure and services. Most of countries in the region, in line with similar global trends, are striving to involve the private sector in the provision of needed infrastructure and services. In this context, public-private partnerships (PPPs) have become a dominant model.

While the exact definition of PPPs differs between countries, in general PPPs refer to:

- long term contractual relationships between public and private parties,
- awarded through a competitive tendering process,
- in which the private party delivers over the contract duration public infrastructure and services,
- where (part of) the financing required is provided by the private partner, and
- where (sufficient) risks are transferred to the private partner and its remuneration is linked to its performance.

2. PPPs and the Delivery of Public Infrastructure and Services

PPPs are a method through which public infrastructure and services are delivered by the private sector. The PPP method is often contrasted to public delivery or 'traditional' or 'conventional' procurement.

Under public delivery, a government body or agency designs, builds, operates, and finances the infrastructure and related services. Public delivery can include traditional or conventional procurement, in which the public agency hires a firm (or firms) to undertake one part of the project, usually the construction stage, and where award is commonly made to the lowest price bidder. In this model, the public agency remains directly responsible for the infrastructure and services and accountable for all project risks.

In contrast, under a PPP arrangement, significant responsibility and risk for designing, delivering, operating, maintaining and (partly) financing the public infrastructure and services are transferred to a private company (or companies). The roles, responsibilities and risks of the company/ies are set out in a PPP contract, where also the responsibilities of the public partner are formalized. PPP procurement involves the whole project, including operation and maintenance of the infrastructure and services over many years or decades. For PPP projects, the award is mostly made to the bidder offering the best value-for-money, namely the best combination of project quality, quantity, cost and risk.

PPPs may contribute in several ways to the delivery of public infrastructure and services in a country. On the one hand, PPPs could improve the volume and pace of infrastructure delivery by mobilizing the technical, managerial, operational and financing capacity of the private sector. On the other hand, PPPs can improve the value-for-money achieved in infrastructure projects.

An opportunity exists for developing countries in Asia and the Pacific to ensure that their PPPs contribute optimally to meeting sustainable development and the SDGs. This opportunity is at least at two levels, which are covered respectively in Part I and II of this document:

- Incorporating SDGs into PPP programmes and projects to ensure that SDGs are well integrated into the whole PPP process (Part I)
- Developing PPP projects that contribute to the achievement of SDGs directly linked to social and economic infrastructure sectors (Part II)

3. Using the Country Guidance

This country guidance is intended to provide inspiration and practical actions for countries wishing to maximize the contribution that their PPP programmes and projects make in meeting the SDGs. The guidance is intended for use by leaders, managers, practitioners and experts from the public and private sectors, and wider civil society.

The guidance is not stage specific, meaning that it can be used at any point for reviewing the SDG relevance of existing PPP programmes and projects, as well as during the design of new programmes and projects.

PART I

Incorporating Sustainable Development Goals into Public-Private Partnership Programmes and Projects

A. SDGs and PPP projects/programmes

Governments should incorporate SDG into:

- **PPP programmes** - Many countries have established programmes to enable and support PPP projects. Such PPP programmes often include the development of specific policies, legislation and institutional arrangements, as well as for-purpose procedures and other support mechanisms. They also frequently involve dedicated resources and facilities for PPP project origination, pipeline development and transaction support. These policies, laws and institutional arrangements should integrate sustainable development considerations.
- **PPP projects** – PPP projects themselves should contribute as much as possible to reaching SDGs. PPP projects generally have a long contracting period (e.g. 20 years) and the life of assets created can be even longer. By failing to incorporate environmental and social implications right from the beginning, public authorities would miss a unique opportunity to significantly reduce the whole life cycle costs of an infrastructure project.

Both PPP projects and the design of PPP programmes should contribute directly or indirectly to meeting the various SDGs. A close examination of SDGs shows that all of them can be linked with the project outputs (i.e. the PPP project level). Some SDGs also relate to the wider programmatic framework within which projects are delivered – the PPP programme level.

Of course, these two levels are interrelated; for example, requirements and priorities may be set at the programme level that guide what types of projects are delivered. Similarly, some SDGs are relevant at both the programme and the project level, such as gender equality considerations that can be addressed both in how programmes are managed, and how specific projects are designed.

Among the different Goals, SDG-17 specifically deals with partnerships.



The other SDGs are discussed in the tables below together with concrete examples of PPP projects from the region. For each Goal, the table highlights whether and how a PPP project may contribute to reaching that Goal. The table also identifies whether the Goal can be addressed through the design of a country's PPP programme.

To facilitate the analysis, the Goals are split into two groups: the ones directly linked to social and economic infrastructure sectors, and the ones with indirect links with infrastructure development.

Part II of the country guidance will focus on the first group of Goals and provide details on PPP project implementation in infrastructure-related sectors.

The rest of Part I is structured as follows:

- **Section B “Incorporating SDGs in PPP Programmes”** – this section explores how SDGs may be incorporated into or addressed through PPP programmes.
- **Section C “Incorporating SDGs in PPP Projects”** – the section starts by describing the generic four-stage PPP project cycle, namely: Identification, Preparation, Transaction and Management. The section then discusses how SDGs can be incorporated during each of these four stages.

SDG	Group 1: SDGs directly linked to social and economic infrastructure sectors
	<p><i>Ensure healthy lives and promote well-being for all at all ages</i></p> <ul style="list-style-type: none"> PROJECT: A PPP project can directly address the provision of health care and social services provision, potentially improving quality, coverage and accessibility.
	<p><i>Ensure inclusive and quality education for all and promote lifelong learning</i></p> <ul style="list-style-type: none"> PROJECT: A PPP project may provide education facilities and services, as well as vocational education and training to support lifelong learning. A PPP project company can also include continued training and education of the staff involved in project operation.
	<p><i>Ensure access to water and sanitation for all</i></p> <ul style="list-style-type: none"> PROJECT: A PPP project can directly involve the delivery and management of water and sanitation infrastructure and services.
	<p><i>Ensure access to affordable, reliable, sustainable and modern energy for all</i></p> <ul style="list-style-type: none"> PROJECT: A PPP project can target energy generation, distribution and/or transmission, including the introduction of renewable energy solutions. Non-energy PPP projects dealing with other infrastructure and services can also include the use of renewable energy and energy efficiency measures.
	<p><i>Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</i></p> <ul style="list-style-type: none"> PROJECT: A PPP project can be used to develop infrastructure such as industrial parks, special economic zones and dry ports that impact industrial development. Likewise, a PPP project can be used to improve access to information and communication technology. PROGRAMME: A PPP programme can include institutional support and mechanisms to encourage innovation more widely in the infrastructure sector, such as Unsolicited Proposal (USP) processes where the private sector is invited to initiate and propose project ideas.
	<p><i>Make cities inclusive, safe, resilient and sustainable</i></p> <ul style="list-style-type: none"> PROJECT: PPP can be a central mechanism through which most of the infrastructure and services involved in urban development are provided and managed, including specific projects for public transport and solid waste management.

SDG	Group 2: SDGs indirectly linked to infrastructure projects
	<p><i>End poverty in all its forms everywhere</i></p> <ul style="list-style-type: none"> PROJECT: A PPP project can directly address poverty alleviation, for example by providing essential infrastructure services, or indirectly by creating jobs opportunities in labour intensive construction projects. EXAMPLE: PPP solutions are considered for developing social housing in Australia.
	<p><i>End hunger, achieve food security and improved nutrition and promote sustainable agriculture</i></p> <ul style="list-style-type: none"> PROJECT: A PPP project may impact agricultural production, food supply chains, and potentially even nutrition support programmes. PPP projects can also target rural infrastructure, which in turn affect agricultural productive capacity. EXAMPLE: Grain storage facilities in Punjab, India have been developed through PPP to enhance food security and reduce losses due to exposure and deterioration.
	<p><i>Achieve gender equality and empower all women and girls</i></p> <ul style="list-style-type: none"> PROJECT: A PPP project can deliver infrastructure and services targeting gender specific needs. A PPP project company can also ensure its governance and staffing improve gender equality. PROGRAMME: A PPP programme could include specific provisions for addressing gender equality in the composition of institutions established to support PPPs. This kind of provision could also be applied for the appointment of advisors and experts. Policies could also ensure that gender considerations are taken on board in stakeholder consultations. EXAMPLE: Guidelines and checklists for gender in PPPs have been drafted in Lao PDR (http://www.investlaos.gov.la/images/sampleddata/pdf_sample/Lao_PPP_Gender_Guidelines-Checklists_Ver_1_Eng.pdf).

SDG	Group 2: SDGs indirectly linked to infrastructure projects
	<p><i>Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</i></p> <ul style="list-style-type: none"> PROJECT: A PPP project can directly address infrastructure gaps while generating employment. This should positively impact the region's economic growth, which is often hampered by shortage of roads, power plants and other basic infrastructure. PROGRAMME: A PPP programme creates jobs for people with specialized skills and expertise in both the public and private sectors. Policies, laws, and contractual clauses can also be designed in such a way that they encourage more participation of Small and Medium-sized Enterprises (SMEs) in PPP projects, which should make infrastructure projects more inclusive. EXAMPLE: The outsourcing of road construction and maintenance to the local private sector in Samoa led to 2,000 new jobs while improving the quality of roads according to an ADB study (https://www.adb.org/sites/default/files/publication/190073/samoa-jobs-ppp-reform.pdf).
	<p><i>Reduce income inequality within and among countries</i></p> <ul style="list-style-type: none"> PROJECT: A PPP project can address the provision of infrastructure and services focused on the needs of lower income groups while providing employment to these groups, thereby encouraging income equality. PPP project companies can also establish community support initiatives. EXAMPLE: In the Indonesian mining sector, specific requirements for community development in mine PPP projects are being introduced.
	<p><i>Ensure sustainable consumption and production patterns</i></p> <ul style="list-style-type: none"> PROJECT: A PPP project can directly influence production factors, and indirectly address consumption and production by applying economic principles (e.g. pricing, user pays, and so on). EXAMPLE: Transport and utility projects with user charges (e.g. tolled highways) connect payment to usage of infrastructure services, leading to more accountable consumption.
	<p><i>Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy</i></p> <ul style="list-style-type: none"> PROJECT: Infrastructure projects can be designed to withstand potential impacts from future climate change-related events. PROGRAMME: A PPP programme can incorporate policies to promote resilience and deal explicitly with climate risks. For instance, a PPP policy may require the inclusion of certain type of insurance, explicit allocation of climate-related risks, and integration of climate resilience into project appraisals. EXAMPLE: PPP projects may specifically address climate change impacts, such as the Jakarta Coastal Defence project or the Manila Bay Integrated Flood Control, Coastal Defence and Expressway Project.
	<p><i>Conserve and sustainably use the oceans, seas and marine resources for sustainable development</i></p> <ul style="list-style-type: none"> PROJECT: PPP projects that interact with ocean, sea or marine resources can include provisions to improve sustainable use of these resources. EXAMPLE: PPP solutions are considered for the development of the fisheries sector and aquaculture in an environmentally and socially responsible manner in Viet Nam (http://wwf.panda.org/?252253/PPPA).
	<p><i>Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</i></p> <ul style="list-style-type: none"> PROJECT: PPP projects may include provisions to ensure that the private partner delivers the project outputs with due consideration to sustainable land use. EXAMPLE: Several countries, including Indonesia, are attempting to address forestry management via PPP.
	<p><i>Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels</i></p> <ul style="list-style-type: none"> PROJECT: PPP projects can directly deliver judicial infrastructure and services. PROGRAM: PPP programmes can ensure transparency, openness and effective rule of law in how projects are transacted, managed and monitored. EXAMPLE: Provision of a civil registry IT system in the Philippines through a PPP project.

B. Incorporating SDGs into PPP Programmes

There are several opportunities to incorporate SDGs into PPP programmes, such as:

1. Including measures in the PPP programme to ensure SDGs are considered in PPP projects, and
2. Addressing SDGs in the operation of the PPP programme (design, structure and management).

After looking at what PPP programmes usually comprise, the following sections present pragmatic measures to realize these opportunities.

1. PPP Programmes

Many countries have set up PPP programmes to facilitate and support PPP development. This is necessary as PPPs are not always adequately catered for in existing policy, legal and institutional frameworks, and require specific support measures.

While there are differences between countries, PPP programmes typically comprise:

- **PPP policy** – the PPP policy is where the overall vision, objectives, definitions, modalities, institutional arrangements, and other issues regarding PPPs are set out. A PPP policy is usually a formal policy document of the government, although in some instances it can be set out as a (informal) strategy or guidance document. The PPP policy is then often enacted through specific laws and/or regulations.
- **PPP law/s or other regulatory provisions** – specific legal provisions for PPP projects, usually translating the PPP policy into practice.
- **Procedures for implementing PPP projects** – specific procedures for identifying, preparing, tendering and managing PPP projects, usually including authorization and approval processes.
- **Institutional arrangements** – setting up of public institutional responsibilities, with often the establishment of specific public institutions for PPPs, such as a PPP Council/Committee (PPPC), PPP Unit (PPPU), Risk Management Unit (RMU), and potentially PPP units/centres/nodes or similar in ministries and public agencies.
- **Specific support instruments** – sometimes required to provide resources and capacity to undertake projects, such as Project Development Facilities (PDF), Viability Gap Funds (VGF) and transaction advisory panels.
- **Project pipelines** – often organized and supported processes to identify, prioritize and otherwise select a pipeline of PPP projects.
- **Capacity building and training support** – arrangements for capacity building and training in specialized skills and expertise required for implementing PPP projects.

2. Project-oriented SDG Measures

The way PPP programmes are designed influence the contribution of PPP projects to sustainable development:

1. **SDGs can be incorporated into the PPP policy, and in turn into the PPP law or regulations** – the commitment to attain SDGs can be included in the PPP policy, with explicit reference that PPPs are expected to contribute toward sustainable development. SDGs can be indicated as one of the direct objectives for public infrastructure and services projects to be delivered via PPPs. Similarly, commitments to gender, climate resilience, and inclusiveness may also be specified. This should in turn be reflected in an appropriate way in the legal framework (for example when determining the requirements for managing environmental and social risks).
2. **Specific requirements concerning SDGs can be included in the PPP project procedures** – Attention to SDGs can be formally introduced into PPP procedures, inter alia in the setting of project selection criteria, decision-making parameters, contents of feasibility studies, tender documents, and so on.
3. **Special instruments introduced to support PPP projects can also address SDGs** – where special instruments, such as a PDF or VGF, are established, these can directly address SDGs by including the impact of a project toward SDGs in the selection criteria for PDF and VGF support. So projects having the biggest contribution to SDGs are prioritized for support.

4. PPP project pipeline selection and prioritization can emphasize SDGs – contribution to SDGs can be considered when selecting and prioritizing projects in a PPP pipeline.

5. Specific capacity building and support for addressing SDGs through PPP projects can be integrated in the PPP programme – within the capacity building, training and support activities for PPPs, it is possible to include specific training and capacity support on SDGs. This could comprise:

- Designing and implementing focused training potentially explaining SDGs;
- Clarifying the direct and indirect contributions that PPP projects can have on SDGs; and
- Presenting specific measures that can be taken in projects to maximise their contribution to SDGs.

3. SDGs in the Operation of PPP programmes

There is also potential to address SDGs in the way the PPP programme operates. This should create demonstration effects. Possible measures include:

- 1. Communicate the importance of SDGs** – in the formal and informal communications to the stakeholders involved in the PPP programme, it is possible to always indicate the importance of achieving SDGs. This may ensure that a consistent and sustained emphasis is placed on SDGs;
- 2. Promote gender balance and inclusiveness in the composition and staff of PPP institutions, as well as advisory and transaction teams** – much like the composition of PPP institutions can address gender and inclusiveness, so can the composition of advisory and transaction teams. This may ensure equal representation and also contribute to skills transfer and lifetime learning;
- 3. Ensure effective and transparent operation of PPP institutions** – by ensuring that these institutions operate effectively and transparently, and that procedures are applied with reliability and rigor, an important contribution is made to peace, justice and institutional strength;
- 4. Mainstream SDG in PPP capacity building and training activities** – in addition to specific training

on SDGs and PPP projects, all training and capacity building activities undertaken for PPPs should include a module on SDGs.

4. Implementation and Support

In general, delivering public infrastructure and services using PPPs is already quite complex and challenging. Therefore it is important that while attempting to ensure that SDGs are being addressed, countries do not make PPP delivery even more difficult, or create unnecessary obstacles and bottlenecks. The challenge is to see how public infrastructure and services can be delivered by PPPs, while constructively maximizing the contribution to SDGs.

The approach to SDG should differ among countries as some already have well-developed PPP frameworks, while the framework is still nascent in others. Likewise, in some countries many PPP projects have already been implemented and there is an active PPP market, whereas in others PPP project delivery is still to take place. Therefore, when considering SDGs, countries could be faced with either:

- Reviewing whether existing PPP programmes sufficiently consider SDGs, potentially leading to revisions to the programme, or
- Integrating SDGs when designing new PPP programmes.

A. REVIEWING EXISTING PPP PROGRAMMES

When a country has a PPP programme in place, a review can be conducted to assess to what extent SDGs are appropriately addressed, and identify ways to increase the PPP programme contribution to SDGs. Key questions to guide the review are suggested in the table below.

The review of the PPP programme may conclude that all measures and actions for SDGs are already sufficiently included in the programme. However, more likely, further opportunities will be identified. This may lead to revisions or additions to the relevant parts of the PPP programme. Such revisions or additions could be made as a direct result of the review, or can be added to a wider list of issues to be addressed in a larger PPP reform process.

PPP Environment	Guiding Questions
<i>PPP policy</i>	<ul style="list-style-type: none"> • Are SDGs explicitly mentioned in the PPP policy (if a policy is in place)? • Does the policy indicate specific measures, mechanisms or ways in which SDGs will be applied in PPP projects or in the programme itself?
<i>PPP laws/regulations</i>	<ul style="list-style-type: none"> • Are SDGs explicitly mentioned in the PPP laws/regulations (if these exist)? • Do the laws/regulations indicate specific measures, mechanisms or ways in which SDGs will be applied in PPP projects? For instance, are the national social and environmental laws in line with international standards? Can the social and environmental bar be raised?
<i>PPP procedures</i>	<ul style="list-style-type: none"> • Are SDGs explicitly addressed in the PPP procedures (if these are in place)? • Are general and sector specific guidance issued to support implementing agencies in their sustainable efforts?
<i>Institutional arrangements for PPP</i>	<ul style="list-style-type: none"> • Are SDGs addressed in the composition and operations of institutions set up to support PPPs? • Can the composition of PPP institutions and/or their operational procedures be made to foster the achievement of SDGs?
<i>Specific support instruments for PPPs</i>	<ul style="list-style-type: none"> • If specific support instruments are in place for PPPs, are SDGs included in these instruments? • Are there further ways in which the SDGs can be addressed in these instruments?
<i>PPP pipelines</i>	<ul style="list-style-type: none"> • Do project selection and prioritization criteria include SDGs? • Can the PPP project pipeline process and requirements be improved to ensure projects make maximal contribution to SDGs?
<i>PPP capacity building and training</i>	<ul style="list-style-type: none"> • Are SDGs included in capacity building programmes or training being provided? • Are specific training programmes available on SDGs in general, and on SDGs with regard to PPP projects?

B. DESIGNING NEW OR REFORMED PPP PROGRAMMES

When a new PPP programme is being designed, or a major reform undertaken, there is an ideal opportunity to ensure that SDGs are well considered and appropriately incorporated. In this regard four specific measures are recommended:

- 1. Promote and prioritize SDGs in the process** – raise awareness of SDGs, and ensure that they are prioritised and addressed when the PPP programme is designed or reformed. Ideally senior leadership (political and managerial) should clearly indicate the importance of integrating SDGs into the programme.
- 2. Include SDG understanding and capability in the PPP programme development team** – make sure that there are members or experts in the team responsible for developing the PPP programme who understand SDGs, and recognise their importance. Conducting trainings on SDGs with the PPP programme development team can increase their understanding and ability to integrate SDGs.
- 3. Consider SDGs in all parts of the PPP programme design** – check that SDGs are considered in all parts of the PPP programme design.
- 4. Examine how SDGs translate at the project level** – most importantly, make sure that SDGs are reflected in how PPP projects are identified, prepared and implemented. Section C of this Country Guidance provides ideas and suggestions in this respect.

Incorporating SDGs into PPP projects and programmes should also help countries in accessing financing sources as banks are gradually conditioning their loans on sustainability-related standards. For example, IIFCL, a wholly-owned Government of India company set up in 2006 to provide long-term finance to viable infrastructure projects, has developed Environmental and Social Safeguards Framework to appraise projects for financing. Under the social framework, IIFCL checks various facts and information pertaining to the project. The parameters for assessment include consultation with project affected people, dissemination of project information, compensation, rehabilitation and resettlement, livelihood and so on. At a regional level, the Equator Principles have been adopted by around 90 financial institutions in 30+ countries and provide a minimum standard to determine, assess and manage environmental and social risk in infrastructure projects. rehabilitation and resettlement, livelihood and so on.

C. Incorporating SDGs in PPP Projects

This section examines the generic four-stage of a PPP project cycle to identify how SDGs can be addressed during each stage.

1. PPP Project Cycle

PPP projects are usually developed following a number of steps, commonly known as the project cycle. The specific nature, terminology and procedures differ between countries according to the specific PPP policy and legislative framework, and/or following other requirements for project development by the public sector. Notwithstanding such country specific differences, the generic project cycle for PPP projects basically involves the following four steps as described in the chart below.

2. Project Identification

Sustainability components, if built into the PPP framework at project selection or prioritization stage, would lay a solid foundation for social, environmental and economic aspects throughout the PPP project lifecycle. Selecting infrastructure projects solely on commercial viability parameters would be a short-sighted approach for government authorities.

The initial identification of PPP projects can take place through many processes, including:

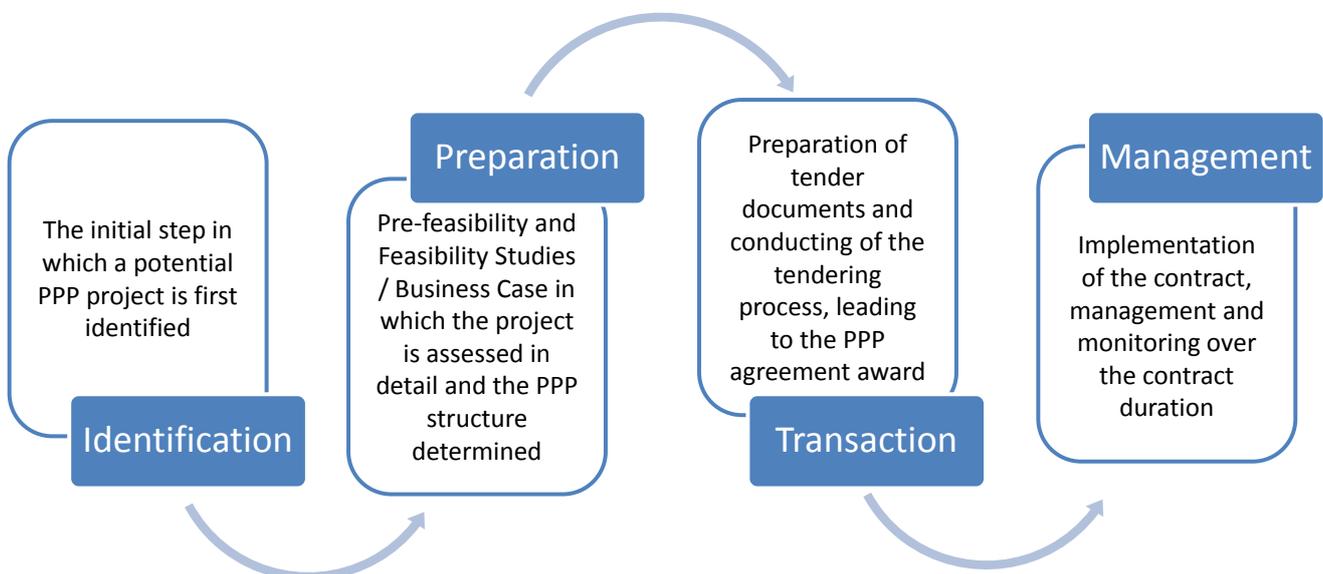
- Regular project / capital investment planning of government ministries and agencies;
- Sectoral planning;
- Ad hoc planning and project identification processes;

- Externally driven processes such as Unsolicited Proposals (where projects can be identified and proposed by private companies themselves);
- As a response to events, such as natural disasters.

While identifying PPP projects, there are several ways in which SDGs may be considered or integrated. Four practical measures are presented below.

- 1. Conducting a specific project identification process for projects that contribute directly to SDGs** – public authorities may undertake a discrete process to identify projects that contribute to meeting SDGs. This can result in identification of specific projects explicitly addressing one or more SDGs (for example, projects that contribute to fight climate change).
- 2. Including SDGs in normal sectoral and annual planning and budgeting processes** – policymakers may specifically request ministries or agencies to consider SDGs in their regular planning and budgeting processes. This would encourage public bodies to make sure that all or some of their projects being identified contribute to SDGs. For instance, in order for countries to achieve their Nationally Determined Contributions (NDCs) under the Paris Climate Change Agreement, officials could look for projects that help with mitigation and adaption to climate change.

To which of the SDGs does the project or capital investment contribute?
<ul style="list-style-type: none"> • List SDG/s and nature of direct contribution



3. Adding SDGs in project selection / prioritization criteria – some processes for identifying projects, or for prioritizing a list or portfolio of projects, use selection criteria. This can be the case for infrastructure projects in general, as well as for PPP projects in particular. It is possible to include SDGs in these criteria. For example, the criteria could include a score or rating for how the project contributes to meeting SDGs. If a more detailed system is being used, the contribution that the projects makes to each of the 17 SDGs could be scored separately. When projects are being selected, prioritized or ranked, then the contribution that each project makes to SDGs would be taken into consideration. This could lead to projects which have bigger contributions to SDGs being selected or prioritized.

Added criteria: Does the project contribute to one or more of the SDG?

- List SDG/s and nature of direct contribution
- If project selection or scoring criteria are being used, add a criteria concerning the contribution of the project to the SDG (e.g. low, medium and high impact)

Although not specifically targeting SDGs, there are tools and methodologies to prioritize projects while taking into consideration social and environmental factors, such as Social Cost Benefit Analysis (SCBA) and Economic Internal Rate of Return (EIRR). These tools could, however, be costly, time consuming and unfeasible for government authorities with limited capacity.

Simplified tools have been developed to address this issue and work with more limited data. For example, the World Bank's Infrastructure Prioritization Framework is a quantitative multi-criteria prioritization approach that synthesizes project level financial, economic, social, and environmental indicators into two indices, namely social-environment index (SEI) and financial-economic index (FEI), and compares these with the budgetary constraints in a sector. As such, prioritization is not based solely on economic factors but also social and environmental ones. The existing tools and methodologies could be further developed to better incorporate SDGs elements.

4. Considering potential indirect contributions of projects to SDGs – during project identification, public authorities may also assess the indirect impacts of PPP projects on SDGs. Such indirect contributions are project characteristics or ways in which the project is designed and implemented that also contribute to SDGs. For example, a water project that directly supplies drinkable water to communities, could also indirectly contribute to SDGs by using labour intensive techniques to promote local employment creation and income equality.

Indirect contributions of PPP projects may include:

- Strengthening inclusive and equitable education through continued training of project staff;
- Addressing gender in project governance and staffing;
- Improving resources sustainability by introducing efficient technologies;
- Promoting inclusive employment and reducing inequalities through project staffing practice;
- Creating accountable and inclusive project institutional arrangements.

Does the project comprise indirect contributions to one or more of SDGs?

- List SDG/s and nature of indirect contribution

To sum up, during the project identification stage, the intention is to identify projects that specifically and directly contribute to SDGs, to prioritize projects with the greatest direct or indirect contribution to SDGs, or at least to ensure that SDGs are considered during the project identification process.

It is worth noting that some countries have specific policy or legal requirements for identification of PPP projects. They may also have criteria or other methodologies to assess at an early stage the suitability of a project for implementation as a PPP. These assessments of PPP suitability should be followed in their own right: in other words, a project that contributes to SDGs may prove suitable to be implemented as a PPP, or it may be better implemented as a normal public project. In some situations, this assessment is conducted as part of a pre-feasibility study (which is addressed in the next sub-section).

3. Project Preparation

After identification, the preparation of a PPP project typically involves two main processes, namely:

- Pre-Feasibility Study (PFS) – an initial investigation of a project to determine whether it is viable as a project (and possibly as a PPP project) and merits investment in further project preparation
- Feasibility Study / Business Case (FS/BC) – a detailed study of a project to determine with greater certainty its business case viability for a private provider, and how the project can be structured for implementation on a PPP basis

The exact nature of these preparation studies differ somewhat between countries (both their precise composition and the procedures to be followed when preparing them and seeking approvals). In some countries only a single stage preparatory study is required (e.g. no PFS is produced, but a FS/BC is prepared directly).

Typically, these studies cover a number of topics (more lightly in a PFS, and in full detail in an FS/BC), inter alia the following:

- Demand / market / developmental analysis
- Technical assessment
- Legal assessment
- Financial and commercial assessment (including Value for Money and affordability assessment)
- PPP options appraisal and recommended PPP model

The ultimate objective is to produce the draft PPP contract.

The preparation stage is a key moment in which an opportunity exists to assess whether a project contributes to SDGs, but also to actively add focus or features to a project to ensure it does so.

There are different methods to realize this opportunity, including: incorporate SDG elements into standard project preparation activities, conduct a specific SDG assessment and include SDG in the approval process.

METHOD 1: INCORPORATE SDGs INTO STANDARD PREPARATION ACTIVITIES

1. Demand / Market / Developmental Analysis

This part of the project assessment concerns whether there is sufficient demand and potential developmental impact related to the infrastructure project.

Through this assessment, SDGs should be raised as specific considerations. In particular, attention may be given to groups prioritized in SDGs, such as lower income groups, excluded groups and communities, women and girls, and so on.

The way projects are designed has a different impact on various stakeholders. For instance, men and women may have different transport needs. Women are more likely to make shorter trips with multiples stops at shops, schools and childcare facilities while having a greater need for affordable fares, good lighting and safety. During the project preparation phase, public authorities should consider these diverse needs to make infrastructure projects inclusive.

Environment and Social Impact Assessment (ESIA) studies are the starting point to consider the impact of a PPP project and consult people potentially affected by the project. These studies can then be used as a basis to improve the project SDG impact and potentially link some key performances indicators to SDG-related elements. Overall, the objective should be to move away from simply meeting environmental and social standards to promoting projects that have a positive impact on these dimensions.

Output Specification	
List the project outputs + whether and how they contribute directly or indirectly to SDGs. How can this impact be increased?	<i>For example, design standards and specifications may include criteria such as green building design and energy efficiency requirements</i>
Participation	
Has the stakeholder consultation process included groups prioritized in SDGs?	<i>For example, a gender analysis prior to tender can be required as part of the social assessment</i>
Inclusiveness	
Are SDG groups or needs addressed in whole or part by the project? Can the output (quantity, coverage) of the project be increased or tailored to groups or needs prioritized in SDGs?	<i>For example, a project might include provisions for disabled people, such as mandatory construction of wheel chair ramp in a bus terminal</i>

2. Technical Assessment

This part of the assessment typically examines whether the project is feasible from a technical point of view (for example, using proven technologies). The sustainability component can be introduced by looking at the extent to which the technical features of the project are relevant for SDGs, whether and how this impact can be increased.

Local Benefit	
Does the technical and technological approach contribute to employment creation, involvement of SMEs or take place in disadvantaged regions?	<i>For example, a utility project could include training of local communities and businesses to take part in the project operation</i>
Resource Efficiency	
Does the technical and technological approach make efficient and sustainable use of resources? Can this be enhanced, or could better alternative technologies be considered?	<i>For example, a power generation project might use renewable resources (e.g. hydro and solar) instead of coal. Likewise, using durable materials during the construction reduces the environmental footprint of projects</i>
Innovation Scope	
Does the project involve or facilitate innovation and improvement in infrastructure and service delivery? Is the project specified on an output basis, so that private bidders can innovate in their proposed technical and technological solutions and approaches?	<i>For example, if the authority indicates how much and the quality of drinkable water that is required, the private sector could determine innovative ways to deliver this output</i>
Resilience	
Has the technical approach consider the impact of adverse natural events on the infrastructure projects? What actions can be envisaged to prevent or reduce impact of these events on the PPP project? What can be done to facilitate speedy recovery after natural disasters?	<i>For example, design and construction standards can be adjusted to take into account the upward trend in natural disasters</i>

3. Financial and Commercial Analysis

Countries can also incorporate SDG considerations into the financial and commercial analysis of a PPP project. This analysis concerns the project financial cash flows, and whether the project makes commercial sense for a private provider and does not create unsustainable fiscal risks for the public.

Several SDGs can be impacted by the project financial and commercial characteristics. For example, the way a project is funded, either by user fees or availability payments from the government, affects the access to public services. Likewise, the project costs (including the expected staffing costs, resource inputs, and so on) are relevant to determine if the project is fiscally affordable and/or within the capacity of users to pay.

Subsidy Requirement	
If the project requires subsidies, is this warranted to ensure that SDGs are met?	<i>The financial analysis determines whether subsidies are required to make the project (commercially) viable. Where a project has high relevance for SDGs, such subsidies could be considered more favourably</i>
Fiscal Sustainability	
Is the project fiscally affordable? Can any budgetary impacts be managed? Does the project jeopardize public finance management in the long run?	<i>Systematic fiscal assessment should be conducted and documented as part of any PPP project (for instance, the WB-IMF PPP Fiscal Risk Assessment Model (PFRAM) could be used for this purpose). In addition, governments should properly record their financial commitments towards PPP projects</i>
Affordability	
Are any user fees, payments, charges or taxes required for the project within the affordability and willingness to pay of recipients?	<i>Fees, charges or taxes affect access to the project's infrastructure and services. To maximize SDG impacts, mechanisms such as cross-subsidization, concessional fees and tariff bands may be introduced</i>

4. Legal Assessment

This part of the assessment considers the legal context of a PPP project across several dimensions to ensure that the project is legally doable and meets all foreseeable legal requirements. This allows identifying the legal basis for the PPP contract and whether there are any significant requirements or issues that will later need to be taken into account in the PPP contract.

Regarding SDGs, countries could examine whether there are specific policies and/or legal requirements regarding SDGs in the country. For example, a country may have entered into international commitments or adopted a national policy on SDGs. SDG requirements may also have been included in sectoral policies and other laws. Likewise, specific requirements in general legislation or the PPP law may require attention to SDG issues, such as gender and equality. If SDGs are included in policy documents/ laws, countries should assess their implications for the project being assessed.

During the legal assessment, public authorities could also identify whether and how there may be possibilities to include SDG in the PPP contract (not the detailed drafting, but just at this stage identify whether and how).

5. Option Analysis

Options Analysis usually covers identification of a number of ways the PPP project could be structured (including scope, parties, responsibilities of parties, ownership of assets, risks, payment structure, contract structure, durations, etc.), with an assessment of each option (pros and cons) to eventually arrive at the recommended approach.

SDGs should be taken into account when assessing PPP options and determining the recommended PPP model (i.e. the contractual form and scope of PPP that meets the project objective while achieving value-for-money). This can be done by answering the following questions:

- How does, or can, each PPP option contribute to SDGs?
- Can features be added to a PPP option that increases its impacts for SDGs?
- Are SDG contributions of the chosen PPP option clear, convincing and incorporated in the tender documents?

METHOD 2: CONDUCT A SPECIFIC SDG ASSESSMENT

During the PFS and/or FS/BC studies, a specific assessment can be carried out to strengthen the contribution of a project to SDGs.

In addition to considering SDGs while undertaking the 'normal' activities of preparation studies, it is possible to conduct a separate and specific assessment of the project and its potential contribution to SDGs.

SDG Impact Assessment	
What is the direct/indirect contribution of the project to one or more SDGs?	<ul style="list-style-type: none"> • Identify direct contributions to SDGs, such as specific project outputs • Identify indirect contributions of the project to SDGs, such as design, technology, management, staffing or other arrangements, that indirectly contribute to SDGs
How can the direct/indirect contributions of the project to SDGs be increased?	<ul style="list-style-type: none"> • Identify whether and how the direct outputs of the project can be focused, adjusted or otherwise changed to increase the direct relevance for SDGs • Identify whether and how any features of the project can be adjusted or added so as to maximize indirect contributions to SDGs

METHOD 3: INCLUDE SDG IN THE APPROVAL PROCESS

Countries may include SDGs in the approvals process concerning preparatory studies – both PFS and FS/BC studies. This process usually leads to a decision on whether:

- to continue with the project as a PPP
- to continue the project as a public project
- to discontinue the project.

These decisions are by nature complex and typically not always straightforward.

A number of factors need to be taken into account, including the project need, political context, public interest, and the technical / financial / legal analysis. SDG consideration should feature in many of these factors, especially if recommendations from this country guidance document are followed.

It is also possible to explicitly consider the relevance of the project for SDGs while reaching a decision. Such decisions usually require balancing several elements, so the opportunity to ensure SDGs are considered should be taken.

4. Project Transaction

This stage of a PPP project concerns the preparation of tendering documents, and conducting of the procurement process to select the private partner for the project.

The stage usually comprises three main parts, namely:

1. Tender Strategy – determination of the procurement methodology and strategy that will be pursued for the project;
2. Tender Documents – the preparation of the tender documents to be use for the procurement process, including the draft PPP Agreement (PPPA);
3. Tendering – the actual process of tendering the project to arrive at the private partner to whom the contract is awarded.

While preparing and conducting the tendering, there are a number of opportunities to address SDGs.

Practical measures relevant at this stage include:

1. **Making the tender strategy serve SDGs** – this involves determining inter alia the kinds of private partners sought, how the market can be informed and built, how sufficient competition during tendering can be achieved, the basis for tendering (e.g. tender requirements, bidding criteria), evaluation approach, communication, and so on. There are practical ways in which the tender strategy can increase impacts toward SDGs.

Local Benefits (SMEs)	
Can private partners from disadvantaged positions (such as smaller firms, or even informal entrepreneurs) be encouraged to participate?	<i>Firms involving persons from disadvantaged positions can be actively targeted and encouraged. Communication can specifically be targeted to access such kind of groups</i>
Gender	
Can gender considerations be included in market development and communications?	<i>Firms involving women or other types of gender sensitive groups can be encouraged to participate. Communication can target these firms</i>
Knowledge Transfer	
Can private partners be encouraged to address income inequalities, training and lifelong education?	<i>The communication and ultimately qualification requirements can emphasis these SDG-related elements</i>
SDG Credentials	
How can the tendering strategy directly stimulate firms to consider SDGs?	<i>Emphasis can be placed on encouraging private partners with good credentials in sustainable development to take part in the tender (experience in water/energy efficient projects, respect of strict labour norms, etc.)</i>

2. Including SDG considerations in the design, contents and requirements of the tender documentation – this concerns the preparation of Request for Qualification (RfQ), Request for Proposals (RfP), Tender Rules, Terms of Reference (ToR), Project Information Memorandum (PIM), Dataroom, and importantly the draft PPP agreement. There are a number of practical methods for stimulating attention to SDGs in the tender documents.

Qualification Criteria	RfQ can encourage attention to SDGs / prioritize firms acting for SDGs
	<ul style="list-style-type: none"> Qualification requirements for firms can explicitly include SDG criteria, such as gender, staff development, income equality. Also, public authorities could decide to exclude bidders that have violated social and environmental laws in the past. Firms can be requested to demonstrate their policies, procedures and experience regarding sustainable development. For example, this could include policy to promote ethical standards and social inclusion in construction and maintenance activities, procedures to reuse and recycle resources on site, and experience with infrastructure project meeting strict resilience or energy efficiency standards.
Selection Criteria	SDG elements should be included in the selection process through RfP / ToR
	<ul style="list-style-type: none"> Firms can be requested to include in their technical proposals how the contribution to SDGs will be achieved through different management plans (e.g. how they plan to manage environmental and social impacts, involve local workforce, improve the project resilience, limit CO2 emissions, and so on). Proposals can be given additional points in the evaluation criteria for measures related to sustainability and achieving SDGs. Bidders can be encouraged to include employment creation, community initiatives, and similar SDG-oriented aspects in their proposals.
Contract Provisions	PPPA has to incorporate general and/or specific provisions for meeting SDGs
	<ul style="list-style-type: none"> Provisions for achieving SDGs can be incorporated in the PPPA, meaning parties are contractually committed to meet these requirements, such as those related to the social and environmental aspects of the project.

3. Meeting SDGs in the structure and management of the tendering process – how the tendering process itself is managed, and how the various bodies involved in the tendering process are composed can contribute to SDGs.

Good Governance	Good governance in procurement is required for sustainable outcomes
	<i>This means having a fair, transparent and competitive bidding process that reduces risk of corruption and increases public confidence in PPP projects. For instance, it is important to have a clear framework on how to disclose information on PPPs (e.g. selection criteria, draft contract, names of bidders and so on). By making tender documents as accessible as possible, public entities can also facilitate the potential participation of a wider range and type of private firms. Similarly, competitive pressure helps to achieve value-for-money for PPP projects. Too often infrastructure projects in the region have been realized through direct negotiations. The competitive pressure is, however, difficult to achieve with unsolicited proposals, which could divert public resources away from strategic priorities, such as SDGs, if not properly managed. Countries need thus clear guidelines to deal with unsolicited proposals. To spur private innovation, governments could still decide to authorize them but only if they meet predefined sustainability criteria for instance.</i>
Procurement Bodies	Gender, inclusiveness, transparency, rule of law can be achieved via the composition and management of the tendering procedure
	<i>Gender and inclusiveness can be addressed in the makeup of procurement bodies. Also, it might be useful to assign a sustainable “champion” in the project team and consider technical advisors who can identify solutions to make a PPP project more sustainable. These advisors could then assess bidders’ environmental and social claims during the procurement phase.</i>

From specific additions to the tender documentation, through how the procurement procedure is managed, there are clear opportunities in the tender stage for maximizing the contribution of PPP projects to SDGs.

Introducing SDGs in the tender stage should also stimulate firms to build sustainability-related capacities in order to strengthen their chance of winning future tenders.

5. Project Management

The project management phase deals with the implementation of the a PPP project after the contract award. Usually a construction phase is followed by the project commissioning, and thereafter the project operation and management.

Sustainability can be reinforced through effective contract management and regulation. The objective should be to ensure that SDG considerations included in the project design and tendering process are realized in practice.

Monitoring the overall impact of PPPs on SDGs over time may also highlight the most workable approaches, and reveal critical lessons for how to maximize the SDG impacts in future projects.

Overall, measures to reinforce PPP project contributions to SDGs at the management stage include:

SDG Performance Monitoring	Ensure that SDG commitments made in the tendering stage and captured in the PPPA are implemented in practice
<p><i>This concerns ensuring that the public and private partners adhere to their PPPA commitments related to SDGs. For example, environmental and social performance criteria should be monitored to the same extent as other contractual provisions. This may require disaggregated data to monitor impact on specific groups. To make the private partner accountable, it is necessary to enforce penalties if the latter does not comply with the terms agreed in the contract.</i></p>	

Monitoring bodies	The composition and procedures of contract management and regulatory bodies influence the project's SDGs outcomes
<p><i>This concerns how the makeup and functioning of compliance, management and regulatory bodies can contribute to SDGs. For instance, mechanisms (representative bodies, hot lines, etc.) could be created to institutionalize representation by communities, users, disadvantaged or marginalized groups, and improve inclusiveness. Involving all groups in consumer consultations and surveys should provide useful feedback to improve service delivery.</i></p>	

Transparency	By disclosing sufficient information to the public, accountability is strengthened
<p><i>This concerns how much information is available to the public regarding PPP projects implemented, such as the actual performance against targets, the level of government support (subsidies, land, etc.), and the allocation of risks between the partners. For example, the State of New South Wales in Australia has a well-developed disclosure framework for its PPP projects providing information and transparency on its project pipeline, tender documents and awarded contracts. Such transparency is critical as PPP contracts are typically complex and therefore hard to scrutinize for parliamentarians and the civil society. A higher level of disclosure in PPPs should also go hand in hand with more disclosure of publicly financed infrastructure projects (actual costs vs. budget) as this will support decision making between PPP and traditional procurement in the future.</i></p>	

Lessons Learning	Long-term monitoring of individual and multiple PPP projects can determine their sustained impacts for SDGs, leading to lessons for future projects and actions
<p><i>This concerns completing the project cycle, by monitoring periodically the actual impact of PPP projects on SDGs, and feeding these lessons back into project identification, design and implementation. Reviewing trends and impact studies may reveal which projects and measures are having optimal impacts on SDGs. Innovative ideas and workable approaches can be identified and fed into new projects.</i></p>	

PART II

Developing PPP Projects in Selected SDG-related Sectors

While Part I focuses on how to better align PPP programmes and projects with sustainability criteria and parameters (such as gender equality, natural disaster resilience, equitable access and affordability), Part II explores how PPPs can be structured to implement projects in selected SDG-related sectors.

The table below summarizes the goals that have a direct link with infrastructure development and highlights some of the SDG targets. As of today, PPPs are mainly prevalent in economic sectors, including transport and power. There are fewer projects in healthcare and educational services although these sectors are critical for countries to implement their sustainability agenda.

The following sections present each of these goals in detail with key lessons and learnings from PPP case studies. These lessons should be used by government authorities when replicating or implementing future projects.

SDG	Description and Selected Goal Targets with possible linkages to PPP Projects
	<p><i>Ensure healthy lives and promote well-being for all at all ages</i></p> <ul style="list-style-type: none"> Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States
	<p><i>Ensure inclusive and quality education for all and promote lifelong learning</i></p> <ul style="list-style-type: none"> By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and Goal-4 effective learning outcomes By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing states
	<p><i>Ensure access to water and sanitation for all</i></p> <ul style="list-style-type: none"> Achieve universal and equitable access to safe and affordable drinking water for all Expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies
	<p><i>Ensure access to affordable, reliable, sustainable and modern energy for all</i></p> <ul style="list-style-type: none"> By 2030, ensure universal access to affordable, reliable and modern energy services By 2030, increase substantially the share of renewable energy in the global energy mix
	<p><i>Build resilient infrastructure, promote sustainable industrialization and foster innovation</i></p> <ul style="list-style-type: none"> Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all
	<p><i>Make cities inclusive, safe, resilient and sustainable</i></p> <ul style="list-style-type: none"> By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management



PPPs in Healthcare Sector (Contributing to SDG-3)

Ensure healthy lives and promote well-being for all at all ages

SDG-3 is to ensure healthy lives and promote well-being for all at all ages. In order to achieve the goal, there is a need to achieve universal health coverage, provide quality essential health and social services, and make essential medicines and vaccines accessible to all.

Public healthcare systems across the Asia-Pacific region face numerous challenges, including the lack of latest equipment and technology, ineffective management of existing infrastructure, and inadequate number and quality of healthcare professionals. Meanwhile, private healthcare systems are not accessible and affordable to all. PPPs in healthcare may address some of these issues.

However, to maintain access and affordability to services, the revenue stream for the private sector has often to come from the public purse in PPP health projects (although copayment and private patient revenue opportunities may coexist). In light of this, the size and scope of PPP health projects have to be carefully

designed to avoid creating unaffordable solutions for governments, for example a long-term contract consuming a significant share of the health public budget for a single facility. In addition, although construction costs may be significant, they are typically limited compared to the operating costs of a hospital. Hence, sufficient funds should be reserved for operating the facilities to be built.

There are many avenues to seek PPPs as effective tool to achieve the SDG-3 targets. For instance, private sector involvement can result in efficiency gains through improved layout, and increased use of outpatient care and day surgery. This may translate in more patients treated per number of beds.

Table below provides references to common types of PPPs seen in the health sector while the next section discusses each project type in detail along with learnings from projects implemented in the region.

Category	Private sector responsibility	Public sector responsibility
Non-medical services	<ul style="list-style-type: none"> Provides nonclinical services (admissions, security, parking, laundry, canteen, etc.) May also be responsible for new capital investment, depending on contract 	<ul style="list-style-type: none"> Pays the private operator for the services provided, monitors and regulates services, ensures contract compliance
Medical services	<ul style="list-style-type: none"> Provides clinical services May also be responsible for new capital investment, depending on contract 	
Infrastructure (hospitals)	<ul style="list-style-type: none"> Designs, builds, finances and maintains new public hospital (also work with renovation and extension of existing hospitals) 	<ul style="list-style-type: none"> Operates hospital and makes phased payments to the private developer in accordance with the contract terms and conditions
Combined Facilities and Services	<ul style="list-style-type: none"> Finances, constructs, and operates new public hospital and provides nonclinical or clinical services, or both 	<ul style="list-style-type: none"> Reimburses operator for capital and recurrent costs for services provided Provides relevant public premises (e.g. land; building)

1. Non-medical and Medical Services

Public health institutions comprise of all the health care institutions (primary, secondary and tertiary) that are owned by the public sector (or the government). These institutes provide two types of services – clinical and non-clinical services. To increase the focus on provision of quality healthcare services to its citizens, the government may consider outsourcing some, or all, clinical and/or non-clinical services to the private sector through appropriate PPP mechanisms. For these projects, it is highly desirable to have a PPP contract with clear outcomes as well as regulatory mechanisms that evaluate the performance of the private sector and enforce penalties when required. Case Studies 1 and 2 illustrate respectively outsourcing of non-medical and medical services.

Case Study 1: Hospital Support Services (HSS), Malaysia

In 1996, the Government in Malaysia, as a part of its privatization program, signed a 15-year concession agreement with three private players to provide comprehensive support services in all the existing government hospitals. The services covered about 148 government hospitals and non-bedded institutions and involved the bundling of five main hospital support services, namely:

- Facility Engineering Management Services;
- Biomedical Engineering Maintenance Services;
- Cleansing Services;
- Linen and Laundry Services; and
- Clinical Waste Management Services.

To ensure the service quality, the concessionaires had to adhere with the Technical Requirements and Performance Standards as well as Standard Operating Procedures, which were provided in the concession agreement. Government was responsible for paying pre-agreed fees to the concessionaires based on the number of assets/hospitals.

However, despite efforts to maintain and manage service levels, deficiencies in institutional arrangements hindered the government from fully harnessing the benefits of this arrangement. The initial institutional structure was not adequate to supervise the activities of the concessionaires and ensure that their services were in accordance with the requirements stipulated in the concession agreement. Two regulatory units were later created to fill the gap although it also created overlap in functions as well as frictions.

Contract renegotiation was a challenging task as it involved the revision of fees and introduction of new Key Performance Indicators (KPI) and associated penalties. Under the agreement, concessionaires were entitled to apply for fee review every 3 year. However, fee revisions rarely happened during the concession period which led to disputes.

Source: A 2014 report on "Infrastructure Public-Private Partnership Case Studies of APEC Member Economies" submitted during 21st Finance Ministers' meeting held in Beijing by Asia Pacific Economic Cooperation (APEC)

Case Study 2: Dialysis Centres, Bangladesh

Bangladesh suffers from a lack of dialysis capacity to treat kidney disease, which are causing the deaths of estimated 40,000 patients each year in the country. Before 2015, the capacity was only covering 10% of patients, who need frequent access to dialysis services (2 to 3 times a week) for the rest of their life. To address this shortage, the government decided to enter into a PPP arrangement to place and operate dialysis centres within the existing hospitals in Dhaka and Chittagong with the objectives of installing 110 dialysis stations at the two hospitals. The responsibility of the private sector was to design, refurbish, procure and install equipment, and finance and maintain the operation of the dialysis centers for a period of 10 years. The private operator also had to provide all staff other than nephrologists. The project included two sets of tariffs: a highly subsidized rate for poor people and a higher fee for private patients. To select the private partner, the bidding parameter was the least tariff for private patients (while the tariff for poor patients was fixed by the Government). As a result of the competitive bidding, the cost per patients offered by the private partner was less than half of that in private hospitals in the country.

Source: IFC: Public-Private Partnership Stories, Bangladesh: Bangladesh Dialysis Centers

2. Infrastructure (Hospitals)

A wide variety of PPP models could be deployed for infrastructure creation in the healthcare sector, such as concessions, joint ventures, or Private Finance Initiatives (PFIs). However, hospital infrastructure PPPs are generally complex to deliver due to the public good nature of the sector.

For instance, the complexity of hospital facilities make PPP challenging, especially if medical services are added. The rapid changes in medical technologies and practices also require flexibility that are difficult to accommodate in a 25-year PPP contract with detailed output specifications. For example, the shift in orthopedic hospitals from requiring considerable in-patient time, to newer approaches which focus more on out-patient support, necessitates a different type of facility.

In the Asia-Pacific region, Australia has witnessed a large number of PPP hospital projects. The country has been undertaking hospital privatization projects since 1996, but there have been mixed results in the country. To award PPP projects in the health sector, Government authorities have developed specific guidelines to increase the chances of success for these projects.

Generally, authorities prefer infrastructure PPPs and retain the provision of medical or clinical services. However, there are a few cases where the private sector is also responsible for provision of clinical services. For

example, the Latrobe Regional Hospital in the State of Victoria, Australia signed in 1997 followed such model but was terminated after two years of operation and transferred back to the Victorian Government. The private operator underestimated operational costs and incurred significant losses that could ultimately threaten the standard of care. Case study 3 presents another example of infrastructure PPP project in Turkey.

Case Study 3: Health Campus, Turkey

Health infrastructure in Turkey were out of date with insufficient capacity to cover the country needs. Realizing this challenge, the Government launched its PPP health program in 2010 to improve service delivery and realign its network of public hospitals. In this program, one of the first project to achieve financial closing in 2014 was the 1550-bed integrated health campus in Adana, comprising of 6 hospitals. Under a 25-year concession contract, the private sector has to finance, build, maintain and manage the facilities and provide support services while the government is responsible for core medical services. To remunerate the private sector, the government pays to use the facilities (“Availability Payments”) and for services provided (“Service Payments”). The project value is about \$500 million.

Source: <https://www.ifc.org/wps/wcm/connect/90df2d804a5fb6b19cefdd9c54e94b00/IFC+PPP+Stories+Turkey+Adana.pdf?MOD=AJPERES>

3. Other Private Involvement in Healthcare

3.1 Health Insurance Schemes

Government in its endeavour to attain universal healthcare coverage and provide affordable medical services to wide range of population may implement universal health insurance schemes. For instance, community-based health insurance schemes is often considered as effective ways to pool risk and provide affordable medical services to unprivileged sections of the society, who have no access to worker insurance schemes.

In this context, private participation normally occurs in the form of an insurer, who implements the scheme on behalf of the government with a network of private hospitals. Generally, network hospitals provide medical services to the insured personnel either free of cost or at nominal charges. Network hospitals are allowed to claim for reimbursements from the selected insurance agency. The insurance agency is then compensated by the government based on the number of enrolment and as per the agreed terms and conditions between the insurance agency and the government. This kind of arrangement falls outside the typical definition of PPP projects but illustrate possible private involvement in the sector (Case study 4 outlines how such arrangement can work).

Case Study 4: Aarogyasri Community Health Insurance Scheme, India

In India, an innovative healthcare scheme has been put in place with the objective of achieving “Health for All”. Through a competitive bidding process, a private insurer was selected to implement a scheme that provides financial protection to families living below the poverty line for treatments requiring hospitalization and surgery.

All transactions under the scheme are cashless for the covered procedures. In other words, poor people can go to any hospital in the network and come out without making any payment. Help desks have also been established to help illiterate patients. For the services provided, the State government pays a fixed insurance premium per household per annum to the insurance company.

Key takeaways of the scheme are discussed below:

- **Transparent procedures:** The adoption of a competitive bidding process to select the insurance agency ensured value-for-money. Moreover, the entire system of claim reimbursements is enabled through a robust IT and valid ID card system. This has been instrumental in minimizing the chances of any duplication in availing benefits by the insured family and of any false claims by the network hospitals. IT system has also resulted in lesser time for claims settlement, thereby enabling timely payments to the network hospitals.
- **Accessibility and inclusiveness:** Beneficiaries of the scheme are identified through ration cards already issued to many poor families. The scheme is inclusive in terms of the number people covered without age limit as well as covering pre-existing illness.
- **Institutional arrangement:** The involvement of an insurance agency together with a large number of network hospitals makes the project institutionally complex. Hence, the project requires a strong institutional structure with well-defined roles and responsibilities.

However, the scheme has also disadvantages. It is skewed towards tertiary treatments and does not seek to improve primary and secondary healthcare services. Moreover, private hospitals have larger share of treatment under the scheme and thus payments, resulting in state-sponsored private health systems and underutilization of the public healthcare systems. Furthermore, increasing insurance premium per family may adversely affect the financial sustainability of the scheme as the government bears the entire cost of it.

Source: <http://www.aarogyasri.telangana.gov.in/aarogyasri-scheme>

3.2 Other innovative partnerships

There are other areas in the healthcare sector where the public and private sectors can collaborate, including emergency medical services, telemedicine and mobile clinic/hospital. Case study 5 provides two examples from India.

Case Study 5: PPPs in telemedicine, mobile hospital and emergency ambulance services

A. Telemedicine initiative in Karnataka, India

'Karnataka Integrated Tele-medicine and Tele-health Project' (KITTH) is an on-line health-care initiative in Karnataka, India. The project connects through telecommunication systems Coronary Care Units of selected public hospitals with the private "Narayana Hrudayalaya" hospital in Bangalore. This provides access to specialists in underserved or unserved areas. Telemedicine also improves the quality of health care through timely diagnosis and treatment of patients.

B. Emergency Ambulance Services in Tamil Nadu, India

The objective of this project is to reduce the maternal mortality rate in rural areas of Tamil Nadu by providing adequate transport facilities to carry pregnant women to health institutions for childbirth. The Government of Tamil Nadu selected Seva Nilayam (a NGO partner) for implementation of the Emergency Ambulance Services scheme in Theni district of Tamil Nadu. The Government supports the scheme by supplying the vehicles while the NGO recruits the staff, operates the programme and maintains the vehicles. This scheme was envisaged to be self-supporting through the collection of user charges, however revenues have been lower than anticipated.

Source: A study paper titled "Application of PPP in Health Care Sector in India", published in NICMAR – Journal of Construction Management, Vol. XXVII, Oct-Dec 2012

- **Establish and strengthen regulatory regime governing health infrastructure**

Service quality in health institutions depends on the adequacy of facilities, equipment and machineries and qualification, and experience of manpower involved in delivery of clinical services. In the absence of minimum standard requirements for a particular health institution type (hospital, medical college etc.), it would be almost impossible to ensure consistency in the private player's performance across projects. Further, regulatory bodies or agencies are needed to ensure that minimum standards are maintained throughout the contract period. Thus, there is a need for a robust system comprising of regulations and regulatory institutions that govern development and operation of healthcare infrastructure. An accreditation mechanism, where only accredited providers are eligible for contracts, may also help to ensure the quality of services.

4. Learnings from Healthcare PPP Projects

Each PPP project is unique in nature, requires different enabling factors and meets sustainable development objectives in its own way. Governments across the Asia-Pacific region intending to improve their healthcare systems through private participation may consider following recommendations:

- **Integrate health sector into main PPP frameworks**

Many countries have endorsed PPPs as innovative way to create infrastructure and deliver services through specific policies or legislations. However, in most cases, these policies and legislations are generic in nature, covering all sectors, and do not distinguish between social and economic sectors. Hence, there is a need to either strengthen the existing PPP frameworks or bring in the health sector specific PPP policy or legislation in order to detail out the delivery models that can be adopted in this sector. Such efforts would create awareness among government officials to undertake healthcare projects on a PPP mode and boost investors' confidence in undertaking these projects.



PPPs in Education Sector (Contributing to SDG-4)

Ensure inclusive and quality education for all and promote lifelong learning

Although the Asia-Pacific region has made significant progress in the field of education (SDG-4) with primary net enrolment over 90%, 136 million children were still out of school in 2014, the majority of them in South and West Asia. The region not only needs to improve enrolment rates but also the quality of education as many children do not possess minimum proficiency in reading, mathematical and scientific literacy.

Governments, particularly those in developing countries, face numerous challenges in strengthening their education systems. Inadequate infrastructure facilities, poor quality of staff, and outdated curriculum are major issues in public sector education systems. Governments

face almost similar issues with technical and vocational education. While private schooling addresses most of these issues, it is costly and unaffordable to many.

Some countries have responded to these challenges by promoting PPPs as a means to improve delivery and financing of education facilities and services. However, PPPs in this sector are quite different from the ones in economic infrastructure sectors. PPP projects in education focus on providing quality educational facilities and services without being able to rely on user fees as the main source of revenue. The table below provides references to various types of private involvement in this sector.

Models	Features	Expected Benefits
Infrastructure Provision	<ul style="list-style-type: none"> Private sector is responsible for financing, construction, and operation and management of school facilities in accordance with strict performance criteria (a single school is usually too small as an asset to warrant a PPP so school infrastructure projects are often structured as bundles of schools) Government generally invests in the form of land and pays for the entire cost distributed over the contract period (typically 20-30 years) in terms of capacity and performance payments 	<ul style="list-style-type: none"> Reduced or deferred financial burden on the government Creation of quality infrastructure in timely manner Transfer to the private sector of risks related design, finance, construction and Operation and Maintenance (O&M) Better operation and management of schools (improved lifecycle cost) More time for teaching staff to focus on core activities
Private Management of Public Schools	<ul style="list-style-type: none"> Private sector is contracted to manage public schools and/or provide capacity building assistance, such as curriculum and pedagogical support The school remains publicly funded and teachers public sector employees although the private sector may partly finance the initiative 	<ul style="list-style-type: none"> Innovation in curriculum development Better staff management Increase in students learning outcomes Increased skill sets and competencies of teachers
Voucher System	<ul style="list-style-type: none"> Private school provides free education to those students having a voucher Government directly pays voucher to the parents or the school Students may chose the school of their choice 	<ul style="list-style-type: none"> Reduced investment on creation of new school infrastructure and facilities Reduction in O&M costs of existing schools High quality education for poor students
Charter Schools	<ul style="list-style-type: none"> Private sector operates and manages a school that is publicly funded 	<ul style="list-style-type: none"> Improved school outcomes through greater autonomy in the management

Governments can, for instance, explore infrastructure creation through PPP arrangements when they envisage adding capacities. Likewise, private management and capacity building initiatives may be used to increase accessibility of quality education in public schools.

Other initiatives include voucher-based systems and charter schools although there are not considered as typical PPP projects as per the usual definition. Voucher systems aim to leverage infrastructure and services of already existing private schools for the provision of high quality education to government sponsored students. This system relieves the government of the responsibility associated with the creation of new school facilities.

Charter schools is another way of tapping private sector resources to provide education services. These schools are privately operated but publicly financed.

The next sections discuss the different type of private sector involvement in detail along with learning and takeaways from few case studies.

1. Infrastructure Provision

While the government typically remains responsible for operating and managing schools, it may decide to transfer to the private sector the responsibility of building and maintaining infrastructure facilities against the payment of a regular fee over the contract duration (from 10 to 30 years). This is the Built-Lease-Transfer (BLT) model followed by the Philippines (Case study 1) and the Republic of Korea (Case study 2). The model provides strong incentives to complete the project on time as no payment is made before completion. This also protects the government against construction cost overruns.

Case Study 1: School Infrastructure Project / Phase I, The Philippines

In the Philippines, from 2012 to 2016, about 30,000 new classrooms were needed every year to bridge the demand-supply gap. The Philippines' Department of Education (DepED) could not address classroom shortages due to budgetary and capacity constraints. Hence, DepED launched in 2012 the PPP School Infrastructure Project (PSIP) Phase-I. The rationale for choosing a PPP scheme was the following: innovative design and construction from the private sector; deferred financial burden on the government; and fast track construction and delivery of classrooms.

The PSIP Phase-I involved the construction of 9,303 classrooms in about 2,300 elementary and secondary schools located in three regions. The contract was divided into three packages (Package-A, B and C), which were designed so as to ensure bankability while providing sufficient economies of scale to attract private sector participation.

DepED used the Build-Lease-Transfer (BLT) contractual arrangement to implement the project. In this model, the private sector is responsible for the financing, design, construction and periodic maintenance of the classrooms whereas the DepED is responsible for the daily operation and management. DepED pays the private partner quarterly lease payments during a 10-year lease period.

The project bidding started in January 2012. Pre-qualified bidders were provided with the Project's Minimum Performance Standards and Specifications (MPSS). Each bidder was allowed to submit its own design-construct technology provided it meets the MPSS. Contracts were awarded on the basis of lowest present value of payments over the contract duration. As of 4 December 2015, 100% of the classrooms were completed and delivered. The project met its objectives of adding more than 9,000 classrooms to the public school system within the prescribed timelines. Inspired by the success of the PSIP Phase-I, DepED has launched PSIP Phase-II.

Key lessons to be learnt from the PSIP Phase-I project in Philippines are:

- **Procurement of ancillary equipment and facilities**

Ancillary equipment and facilities, such as chairs, desks and computers, are as critical as the school building for starting the operation of a school. Procurement of these ancillary equipment and facilities may be clubbed with the original contract in order to avoid delays in the school operation. PSIP Phase-I project model allowed for a single contract.

- **Presence of regulatory frameworks**

Presence of guidelines and legal instruments provided clarity to the government department or agency on aspects including land, funding arrangement, management framework, bidding process, and monitoring criteria. Such regulatory frameworks instil confidence among the private sector to undertake school projects.

- **Funding support from the government**

Since the objective of most of the school projects is to provide quality education to underprivileged students free of cost, financial support from public authorities is a must for the project financial viability. Funding support may come in form of capital grants (bulk or capacity payments), operational support (performance based) or a combination of both. Therefore, budgetary provisions, backed by the relevant legislation, are essential to guarantee a continuous flow of funds to the public authority in charge of the project.

The BLT model also allows the private sector to exploit synergies between design, build and maintenance obligations with the objective of reducing the project lifecycle cost. The contract with the private sector may include, or not, soft services, such as cleaning and catering. In the UK, they decided to remove soft services from the contract in the second phase of the Private Finance Initiative (PFI2) as these services were not considered as long-term in nature.

It is worth noting that the public sector commits to long-term payment obligations in these contracts that cannot be easily relaxed. This limits the budget flexibility of government agencies. For instance, they may not be able to decide to pay less on school maintenance and more on teachers. Government should therefore make sure that they do not commit a too large portion of their budget through these contracts (for example, introducing a budget cap on PPP contracts could be desirable).

Case Study 2: BLT Projects for Educational Facilities, Republic of Korea

To meet the growing demand for educational investments, the government introduced BTL projects for educational facilities in 2005. Less than 3 years after this introduction, already 137 BTL projects for elementary, middle, and high school facilities were ongoing, with an aggregate investment of around \$ 4.7 billion (W5.31 trillion). The analysis of initial projects demonstrated that actual costs for these projects did not exceed the project estimated costs and that the construction period was shorter by 8.45% compared to the initial forecast. In addition, surveys of both facility users and school administrators showed that the satisfaction level was higher for BLT built schools than government-financed ones.

Source: <https://www.adb.org/sites/default/files/publication/29032/ppp-kor-v1.pdf>

2. Private Management of Public Schools

Continuous decline in enrolment in public schools is a major area of concerns for governments and policymakers. Major reasons for such decline include the poor condition of existing buildings and old teaching pedagogy. Private management of existing public schools, with autonomy to introduce innovation and accountability based on clear performance standards, can help to address this issue.

In this model, the government provides the school infrastructure and facilities, as well as the teaching staff, whereas the private sector is responsible for the management of the school and has the requisite operational autonomy to do so. The private sector is paid for providing these services. The Malaysia Trust Schools provide an example of this model (Case study 3).

Case Study 3: Trust School Model. Malaysia

In 2010, the Ministry of Education launched the Trust School Programme together with Yayasan AMIR, which is a not-for-profit organization established to improve accessibility of quality education in Malaysian Government schools and funded through donations from the business community. By providing technical and financial assistance over a 5-year programme, Yayasan AMIR aims to improve the curriculum and delivery of education as well as the management of schools. The programme started with 10 pilot schools but there were already 62 trust schools in nine states as of 2016. The objective is to raise this number to 700 by 2025.

Source: <http://ideas.org.my/wp-content/uploads/2017/03/PI-11-Trust-Schools.pdf> and <http://www.theborneopost.com/2016/08/03/govt-to-expand-trust-school-programme-targets-to-transform-700-schools-by-2025/>

The private sector can also provide capacity building support through the provision of specific inputs, such as teacher training and curriculum support. The responsibilities and obligations related to operation and management of the public schools remain though with the government.

By introducing innovative approach in curriculum and pedagogical development, and enhancing skills sets and competencies of teachers, the government would increase the overall performance of public schools. Either the government would pay for the services or the private sector would choose to provide the services free of cost towards meeting its philanthropic causes.

Case study 4 provides a concrete example of this model in India.

Case Study 4: Quality Support Model with Government of Haryana and Punjab, India

Bharti Foundation, a philanthropic arm of Bharti Enterprises, has partnered with various state governments in India to improve the quality of education for poor and underprivileged sections of the society by strengthening and improving the quality of education in government schools. While the government continues to own the school with its existing teachers, funds and resources, Bharti Foundation offers technical expertise and guidance on mutually agreed need-based interventions.

These interventions can contribute towards: a) Improvement in academic and non-academic processes; b) Infrastructure development / enhanced utilization of existing infrastructure / resources; c) Capacity development of school leadership and teachers; and d) Student academic and skill development support. Currently, four public schools in Haryana, India are covered under the program.

Source: Information available through website of the Bharti Foundation, as accessed on December 7, 2016

3. Voucher Systems

Voucher systems utilize infrastructure and services of private schools to provide free or subsidized education to children as per their choice of school. Government either pays the parents or the private schools through vouchers or similar certificates.

Voucher or voucher-like systems have been implemented in many countries. In India, the Right to Education Act, 2009, mandates the reservation of 25% of the seats in the private school from economically weaker section of the society for whom the government would reimburse the private schools on a per student basis. However, many private schools have opposed the programme in view of the large difference between prevailing market based fees and government determined fees.

In a variant model, the voucher system can be clubbed with a school infrastructure and services PPP project. For example, the Rajasthan State Government in India has recently launched a scheme to build and operate a school through Design, Build, Finance, Operate, Transfer (DBFOT) model. The school is partly funded by a capital grant from the government and through voucher-funded students and fee paying students.

Few more examples of voucher or voucher-like system are in Pakistan and USA. For instance, the Punjab Government in Pakistan has an education voucher scheme, which is a cash transfer programme to provide education to children of marginalized and less affluent areas in urban slums and backward towns. Similarly, the Milwaukee's parental choice program in USA was launched in 1990. It offers private school vouchers to low-income Milwaukee students. At present, around 28,000 students and 121 private schools are participating under the programme. Average voucher value was approximately USD 7,384 in 2015-16, which is estimated to be 66% of per student spending in public schools in the region. It took almost 8 years from its inception in 1990 for the programme to become popular.

Key lessons to be learnt from the voucher or voucher like program across globe are:

- **Determination of voucher value**

The voucher value is critical for the project's viability. Average voucher value in Milwaukee, USA was approximately USD 7,384 which was just more than half the government spending on per student in public schools. Increasing voucher value can result in more

participation from private schools. In India, the Rajasthan State Government has fixed voucher value at INR 8,000 (around USD 116) per student to partly fund the DBFOT schools. Since expenses and fees vary from region to region, government may adopt a flexible voucher value for different regions. In any case, voucher or voucher-like systems require a well-thought-out mechanism for the determination of the voucher value.

- **Ensuring standards of education**

Merely granting vouchers to needy students might not serve the government in meeting its objectives of providing quality education to students. Clear-cut guidelines and requirements are vital. Likewise, it is necessary to evaluate the performance of a student pre and post admission in a private school to ensure that government funds are being invested in the right direction.

4. Charter School

The charter school model in the USA is another example of private schooling combined with public funding.

Charter schools are required to meet the quality and performance requirements specified in the contract or the 'charter' granted by the authorizing agency. In return for the services, the private operators receive operational funding from the government on a per student basis. Generally, the charter schools receive between 60% and 100% of the operational funding granted to the public schools.

Similarly, there are public schools privately managed in Hong-Kong, China. These "aided" schools are funded by the government and have the autonomy regarding staff and fund management.

Since private management may involve huge financial liability, it is of foremost importance that the government comes up with a robust plan that considers the scalability and budgetary implications of such kind of initiative.

Another important aspect is to create sufficient accountability on the part of the private partner with clear performance indicators that include measurable improvement in students' achievements. Without objective performance indicators, it would be difficult for the government to measure the outcomes and value of private involvement. In this context, clear guidelines as well as an oversight monitoring agency are necessary to build trust among stakeholders.

5. Learnings from PPPs in Education

PPPs in the education sector face many challenges. These include insufficient or delayed payments by public authorities, capacity bottlenecks of the private sector in hiring and training teachers and principals, shortage of quality operators in the market, risks of opposition from teacher unions, limited autonomy in management, and absence of conducive policies, legislations and guidelines.

Against this backdrop, governments intending to improve their education system through private participation may consider the following aspects:

- **Robust selection process**

An experienced private operator is necessary to improve the quality of education. Hence, it is advisable to adopt a multi-stage selection process and clarify the requirements, expected services and outcomes in the bidding documents. Selection criteria should be objective and may include evaluation on basis of applicant's quality of experience, financial capability, strength of leadership and managerial team, proposed vision for the school and education model, and teaching pedagogy and curriculum improvement plan. The lack of high quality private operators might be a bottleneck for PPP in education in developing countries.

- **Well-defined contract terms and provisions**

Clear and enforceable PPP contract with well-defined roles and responsibilities of the government and the private partner are crucial for the success of PPP projects. The PPP contract should clearly spell out the level of autonomy for the private partner in terms of pedagogy, staffing and budgeting. Similarly, the contract should lay out the financial terms in a transparent manner to the private partner. Termination provisions are also important as they specify the events leading to the termination as well as the associated payments.

- **Strong monitoring and evaluation framework**

In most education PPP projects, the government provides funding support through capital grants, operational support or both. To ensure value-for-money, the public authorities have to monitor the performance of the funded schools. PPP contract should outline clear, measurable and attainable performance standards with associated penalties to minimize non-performance risks. Performance indicators for infrastructure provisions can be more easily defined as they relate to the capacity

of the private operator to maintain the facilities in good condition. However, performance indicators may be more challenging to define for the delivery of educational services. They could, for instance, include students' enrolment, teacher attendance, student attendance, training conducted, dropout rate, and student learning outcomes. The latter require collecting reliable data in a consistent manner. The government may mandate a third party inspection to assess inputs, processes, and outcomes indicators.

- **Remuneration linked to performance**

Linking performance to remuneration is crucial to align interests but the payment mechanism, typically on a per student basis, should be carefully designed with a balance between fixed and variable components. The fixed component ensures that underperforming schools are not immediately cut off and have sufficient time to turnaround performance. However, continuous underperformance should result in termination. The variable component incentivizes the private partner to meet performance targets.

- **Fiscal sustainability**

The financial viability of PPP projects in education depends mainly on well-defined regular payments from the public authorities. The affordability of such financial commitment needs to be carefully assessed from the beginning to ensure the long-term success of these projects without creating unsustainable financial burden for public authorities. The private sector will also need to be convinced of the public agency's capacity to honour its long-term commitment.



PPPs in Water & Sanitation (Contributing to SDG-6)

Ensure access to water and sanitation for all

The United Nations Sustainable Development Goals on water and sanitation (i.e. SDG-6) aims to ensure access to water and sanitation for all.

In Asia and the Pacific, considerable progress has been achieved in this area with the proportion of people without access to safe drinking water declining from 17.8 per cent to 6.3 per cent between 2000 and 2015. This still leaves behind hundreds of million people. For instance, progress has stalled in the North and Central Asia and the Pacific sub-regions.

Also, wastewater often remains discharged without proper treatment and 1.5 billion people yet need to gain access to improved sanitation facilities in the region.

There is sufficient fresh water on the planet to achieve SDG-6. However, poor infrastructure, complex policies and inadequate institutional frameworks constrain advancement in the sector. While massive investments in infrastructure are required to improve access and service quality to meet the SDG-6 targets, the sector appears chronically underfunded and relatively inefficient.

In this context, PPP arrangements should provide additional options to governments for improving the sector performance. However, PPP projects must be attempted carefully as water is a sensitive issue and improper implementation may lead to social unrest. The presence of a strong legal and regulatory framework is thus important, particularly to deal with tariff revisions and performance standards.

Private investment may also have to be preceded by sector reforms. In most developing countries, water and sanitation utilities are in bad shape due to the lack of operational autonomy, absence of accountability, and limited access to reliable funding sources. These shortfalls pose major hindrances for the private sector to invest in the sector. Hence, government intending to involve the private sector must devote significant efforts to reform the sector as a first step.

1. Water Sector Regulation

To regulate the sector, countries, such as Australia, UK and USA, have established a separate body, which has to be autonomous from national or local governments to distance itself from political interference.

There are variations though in the model adopted across countries. For example, price capping for tariff setting is prevalent in UK whereas USA adopts a rate of return methodology to determine tariff. Regulation by contract, rather than through the creation of a centralized regulatory agency, is another possible approach, which is used in France and Germany for instance.

A strong regulatory framework is useful to rationalize user charges setting. In many countries, tariffs have remained unchanged for many years, thereby making the sector unsustainable for both the government and private sector. Moreover, regulators are important to ensure compliance with quality standards and push for better performance of utilities and service providers.

2. PPPs in the Water & Sanitation Sector

There are many PPP variants that may be used in the water and sanitation sector. PPPs can be used for bulk water supply, provision of Operation and Maintenance (O&M) or management services (e.g. fecal sludge management), refurbishment of existing networks, creation of treatment capacities, and performance improvement of existing utilities. In other words, PPPs can be deployed across the entire value chain (bulk water, treatment, distribution and rehabilitation) and across functions (investment, design, construction, O&M, metering, and collection).

The following table provides references to most types of PPPs in the sector. Overall, projects under management, O&M or service contracts are easier to implement when compared to projects under concession or lease or affermage contracts.

PPP Type	Features
Management, Operation and Maintenance (O&M), or Service Models	<p>Possible private sector responsibilities (they would vary based on the type of PPP contract):</p> <ul style="list-style-type: none"> • Operate and maintain the facilities • Install meters, take meter readings, invoice customers and/or collect revenues • Provide management expertise and work along with government employees • Introduce efficiency measures to reduce non-revenue water and improve collection • Implement capital investment program funded by the government <p>Government (or regulator) responsibilities:</p> <ul style="list-style-type: none"> • Make substantial capital investment to improve the existing assets (if any required) • Determine tariff and retain revenue rights • Pay fixed/performance-based fee to the private sector (the contract should define O&M and service standards as well as performance indicators along with associated penalties) • Bear risks related to O&M costs and financing <p>Other features:</p> <ul style="list-style-type: none"> • Contract duration may vary from 5 to 15 years (service contracts are of lesser duration)
Concession Models (+ availability payment-based variants)	<p>Responsibilities:</p> <ul style="list-style-type: none"> • Government to grant concession rights to a concessionaire • Concessionaire to design, procure, construct, operate, manage, own and maintain the project <p>Revenue stream:</p> <ul style="list-style-type: none"> • Concessionaire to finance the project, charge consumers, and retain tariff revenues (except for amount payable to the government under the agreement) • Tariff to be determined by a regulatory agency based on predetermined criteria • Concession Agreement to provide adequate safeguard for the concessionaire against tariff risks • Alternate sources of revenue may also be explored (e.g. sale of treated sludge or effluent) • Funding in the form of Viability Gap Funding or availability payment support may also be sought to increase project's viability <p>Project structure:</p> <ul style="list-style-type: none"> • Project to be implemented through a Special Purpose Vehicle (SPV), which is responsible for raising debt and equity for the project • Concession period may vary from 25 to 35 years including a 3-5 years of construction or revamp period • Clarity is required on aspects such as termination events and payments, exit clauses, technical specifications, performance and service standards, tariff determination, hand back provisions, and financial arrangements. Such clarity is necessary to increase private sector confidence as well as enhance monitoring and oversight by the government • Demand risks to be borne by the concessionaire. Long term off-take agreements in case of bulk water or waste water supply projects can also be considered to minimize demand risks for the concessionaire
Lease or Affermage Models	<ul style="list-style-type: none"> • Government to transfer day to day operations of the existing networks or system to the private sector for a period that may vary from 8 to 15 years but retains the responsibility for financing any capital investments in the project • Private sector to operate and maintain the entire project, expand and improve the services, and invoice customers directly • Agreement may allow for an initial inspection period for the private sector to review the asset condition and conduct due diligence of the existing systems and network • Government is paid a fixed lease fee (in case of lease agreement) or it receives net receipts from customers less affermage fee (in case of affermage contract) • Government employees may or may not be retained by the private sector depending on the terms of the agreement • Contracts typical include minimum maintenance or replacement provisions towards the end of the contract, so that facilities are handed back in an operational state

3. Learnings from PPPs in Water & Sanitation

Many reasons may justify PPPs in this sector, including institutional strengthening, efficiency improvement, environmental and financial sustainability. However, any effort towards private sector involvement has to be undertaken with caution and close stakeholder engagement. The latter is crucial to build trust and credibility. In this respect, citizens' interest should be monitored and tariff revisions linked to improvement in service provisions.

To better understand the potential of PPPs in the water and sanitation sector, four case studies are presented, the lessons of which are summarized below.

Case study 1 is a classical example of a urban water concession and illustrates the need for:

- **Holistic planning**

City water supply project would be incomplete without adequate raw water supply and associated treatment capacity. These backward and forward linkages need to be considered before implementing a project.

- **Institutional and structural reforms**

In countries such as India, one of the major functions of the Urban Local Bodies (ULB) is to provide water supply and sanitation services to citizens. However, most of these bodies suffer from low financial sustainability and overlapping responsibilities. Therefore, there is a need to ring fence the water-related assets (infrastructure, manpower, fund, etc.) to provide transparency and clarity to the private sector who is willing to invest in the sector.

- **Rationalization of tariffs and user charges**

The level of tariffs and user charges in many developing countries are not sufficient to recover operational costs. Efforts to increase the tariffs generally result in protests from citizens, who often doubt about the government intention to improve services.

However, rationalization of tariff and user charges is vital to increase the project viability and improve clarity on future revenue flows. Procedures for tariff adjustment are usually defined in the concession contract, including annual adjustment for inflation as well as the possibility of extraordinary price increases in case of force majeure. A rebasing system, for instance every five-year, can also be introduced to guarantee a certain rate of return to private concessionaires.

Case Study 1: Nagpur Citywide Water Supply Project, India

Nagpur Municipal Corporation (NMC) took a decision to implement 24x7 water supply city-wide and floated for this purpose a Request for Qualification (RFQ) in 2008.

Prior to that decision, the initial focus of the authorities was to invest in bulk water supply augmentation projects, thereby strengthening the backward linkages of the water supply chain. An early water audit was also undertaken to identify the main issues, such as the scale of "non-revenue water" (NRW). Subsequently, a pilot project was undertaken to test the effectiveness of private sector involvement. Municipal bylaws were also amended in 2009 to simplify tariff revision for up to 5 per cent while enabling raw water charges and electricity charges to be passed to customers separately. These reforms were critical to the project success and prepared the ground for the citywide project.

Following extensive stakeholder consultations, the Request for Proposal (RFP) was then issued in 2010 to three short-listed bidders. The bidding parameter was the lowest bid (which is the operator rate in INR per cubic meter of water billed and collected). The project was awarded in 2011 and started in 2012. Prior to the execution of the PPP contract, the public authority ring-fenced its water assets into a wholly owned subsidiary. This facilitates the later transfer to the private sector.

The 25-year Concession Agreement for this project includes a 5-year transition period. During the transition period, the private consortium is responsible for operating and maintaining the existing network. It also has to undertake network rehabilitation, including replacement of consumer connections and meters. Capital investments during the transition period are funded by both NMC and the private consortium on a 70/30 ratio.

The transition period also includes a minimum guarantee offtake of 250 million litre per day (MLD) by NMC. However, after the transition period, the private consortium bears the revenue risk. During the transition period, the private consortium is also relieved of obligations related to performance standards and services, post which the operator is required to adhere to key performance indicators to avoid any penalties or liquidated damages.

To give comfort to the private sector regarding the tariff setting, the agreement provides for annual indexation of the operator rate and rate rebasing in case of extraordinary events.

Source: Compendium of Good Practices in Urban Water Supply and Sanitation in Indian Cities by National Institute of Urban Affairs, India

- **Availability of baseline information**

Water supply systems in many cities are quite old and in dilapidated conditions. Further, there is limited information regarding the adequacy and conditions of the existing network. This lack of baseline information affects the confidence of the private sector and might result in disputes related to the scale of capital investment required to achieve the desired service levels. Public authorities should either take technical

audits to assess the real condition of the network or provide certain relaxation to the private sector, probably in terms of less stringent obligations and liabilities during a transition or inspection period, which gives sufficient time to the private partner to evaluate the system inadequacies and inefficiencies in greater detail.

Case study 2 is also an integrated water and wastewater project that showcases similar issues and sheds further lights on:

- **Efficiency gains**

The case study illustrates considerable achievements realized through the introduction of a private concessionaire. At the same time, staff efficiency improved significantly from an overstuffed situation prior to the project to a more financially sustainable one afterwards (the number of employee per 1000 connections evolves from 13 in 1997 to 1.4 in 2010).

- **Risk of renegotiation**

In the Manila case, average base tariff quoted by the private sector at the time of bidding were significantly lower than the prevailing tariff. However, these very low bids raised the question of whether a “loss-leader” strategy was applied (i.e. a private consortium offers highly competitive bids with the objective of securing a concession and recouping short-term losses by renegotiating tariff increase at the first possible opportunity). An empirical study in Latin America shown that contract renegotiations were actually very common and occur rapidly after the contract award. Governments need to be aware of such risk and possibly exclude unrealistic bids.

- **Local currency borrowing**

Financial difficulties quickly emerged after the award of the concessions in the Manila case. This was notably due to the Asian financial crisis. The Philippine peso devaluation almost doubled the dollar-denominated debt service burden for the concessionaires. Local currency borrowing avoids this risk but is not available in all countries.

Case study 3 illustrates the advantages of taking a regional approach in wastewater treatment where components with better cash-flow, such as urban wastewater treatment, can be mixed with projects with low or no cash flow, such as township wastewater treatment and lake management. Such approach raises the attractiveness of the “package” and provides a comprehensive solution to long-standing issues.

Case Study 2: Manial Water, The Philippines

In the early 1990s, Metropolitan Manila suffered from an old and inefficient water system. Three-quarters of the homes in the eastern half of Manila lacked 24-hour service and only 8 percent had sewerage connection. Almost two-thirds of the water produced was being lost to leaks, poor metering and illegal connections. In addition, Metropolitan Waterworks and Sewerage System (MWSS), the government agency responsible for delivering water and sewerage services to residents, was heavily indebted.

In 1995, this situation prompted the Philippine government to enact the National Water Crisis Act, which set the framework for fundamental changes in the sector. The centerpiece of the Government’s strategy was the decision to privatize the operation of MWSS to improve the quality and coverage of water and sanitation services, increase operating efficiencies, and dispel the financial burden of capital expenditures. The proposed concession of Metro Manila’s waterworks and sewerage system was one of the largest around the world, affecting a population of 11 million individuals.

The Government decided to divide the MWSS system into two geographically separate concession zones. Under the terms of the concession contract, the two private operators were vertically integrated utility responsible for both water and sewerage services within the respective area. They were authorized to collect and own revenues from water tariffs but had to cover operating costs and investments plus a concession fee to the government (mainly to service the historical debt of MWSS). At the same time, they were responsible for expanding the network to meet ambitious performance targets, including: elevating water pressure; providing uninterrupted 24-hour service within five years; immediately complying with national drinking water safety and water effluent standards; and providing universal water coverage within 10 years and 83 percent sewerage and sanitation coverage within 25 years. To achieve these targets, it was estimated that \$7 billion of investment would be needed over the contract period.

Under the concession agreement, the ownership of the asset base was retained by MWSS, and all additional assets invested by the concessionaires had to be turned over to MWSS at the end of the concession period.

The service coverage improved considerably as both concessionaires increased dramatically the number of water service connections (the number of connections almost tripled between 1997 and 2013). 24/7 water services are now provided to almost all customers and the level of water losses has decreased significantly. However, after an initial decline, the tariffs, in real terms, started to exceed pre-concession levels. In 2012, tariffs were around 50% and 100% respectively higher compared to the pre-concession period. However, it is argued that MWSS would most likely not have been able to achieve the level of service provided by the two concessionaires without at least increasing the tariff to the same level (or receiving public subsidies).

Source: ESCAP <http://www.unescap.org/resources/ppp-case-studies>

Case Study 3: Comprehensive Treatment Control In Guang'an, Sichuan Province, China

This 30-year project comprehensively addresses water treatment in the Guang'an urban area, 1 county level city, 2 national development parks, 3 counties and 108 towns. The value of the project exceeds \$400 million (RMB 2.95 billion).

The project includes urban wastewater treatment plants, township wastewater treatment stations, advanced sludge treatment, construction of sewage pipe network. It also entrusts to the project partner the operation of wastewater treatment plants and stations in all districts and counties.

By taking a regional approach, the project breaks the barriers between different regions and enable a regional planning.

Source: China PPP Center Booklet

Case Study 4: Community Managed Toilets in Trichy, India

Countries, such as India and Bangladesh, face the vast challenge of making cities and villages open defecation free. Community managed toilets may serve as one of the solutions to address the challenge.

In a town of India, the municipality has made efforts to strengthen the O&M sustainability of public toilets by leveraging the capacities of community based organizations, such as local self-help groups (SHGs). Through awareness campaign, a momentum was created among a number of SHGs to operate and maintain community toilets on "pay and use" basis.

In this model, SHG members in a community forms a Sanitation and Hygiene Education Team (SHE team), which is responsible for O&M of the community toilets as well as for the awareness raising program. Separate manpower is earmarked for cleaning, security and maintenance of toilets and SHG members are required to provide sanitary products, such as soaps.

SHE team is responsible for setting the user charge on per-use and monthly card basis. Generally, user charges range between INR 1 to INR 2 per use for adults and INR 15 to INR 30 per month per user. The municipality is responsible for provision of water supply, sanitation infrastructure and electricity expenses. Caretakers collect the fund generated from the community toilet and deposit the money in the bank account created for the purpose. Financial statements are presented during monthly SHE team meetings. Profits from the project are deposited in a common fund and used for awareness generation activities and execution of other works of the community.

As per an estimate, total savings of INR 161,000 were made in 2012-13 from five community toilets and financial performance of community managed toilets has been better than the publicly managed toilets. Sanitation conditions have continuously improved since 2002. By 2012 end, 213 of 285 slums were made open defecation free. Program has started to attract financial support from development partners.

Source: Compendium of Good Practices in Urban Water Supply and Sanitation in Indian Cities by National Institute of Urban Affairs, India

Case study 4 provides an example of a sanitation project realized through community involvement. Main lessons from this project are the following:

- **Role of NGOs and community involvement**

NGOs play a critical role in mobilizing the community towards disadvantages of open defecation and promoting the use community toilets. Self-help groups formed during the awareness campaign have representation from every section of the community, especially women. Empowering the community has resulted in better operation and management of the toilets and introduced a sense of ownership of the project. Furthermore, this sense of ownership has increased willingness to pay.

- **Standardization of process for scalability**

The municipality, with the support from NGOs, played a key role in successful implementation of the project and replicated the successful initiative in 8 slums to scale up the program at a larger scale. Standardized terms and conditions in the tender documents were produced for the engagement with community based organizations. Some of these terms include O&M requirements (cleaning, washing, maintenance of consumable, registers, account book, etc.) and provide security arrangements of the premises.

- **Financial sustainability**

Since financial sustainability of the project depends upon the number of users of a particular toilet, the municipality may need to fund toilets where demand is more limited. Additional revenues could also be generated through advertisement.



PPPs in Energy Sector (Contributing to SDG-7)

Ensure access to affordable, reliable, sustainable and modern energy for all

SDG-7 notably targets to: achieve universal access to affordable, reliable and modern energy services; and increase substantially the share of renewable energy in the global energy mix by 2030.

Although the proportion of the Asia-Pacific population with access to electricity rose from 79% to 90% between 2000 and 2014, over 400 million people in the region still have no access to electricity. For those people with access, supplies may be erratic or expensive.

Also, energy is one of the main contributors to climate change, accounting for a significant share of total global greenhouse gas emissions. Reducing the carbon intensity of the sector is a necessity. In this regard, the region has accumulated valuable experience with China, Japan and India among the world's top five in terms of solar and wind electricity generating capacity. Efforts to promote renewable energy must be pursued and scaled up.

With the growing demand for electricity, SDG-7 targets can only be achieved through massive investments in energy infrastructure and clean energy technology. This necessitates mobilizing private technical and financial resources. As a matter of fact, the power sector has attracted more private investments than other infrastructure sectors, such as transport and water. This has been possible following the sector gradual liberalization although state-owned (or partially owned) entities continue to dominate the sector in Asia and the Pacific.

The extent of private involvement depends largely on each country's regulatory framework, including its licensing regime. The latter defines technical specifications, financial requirements, rights and obligations of the licensee, environmental norms, customer service standards and so on. Such regulatory framework needs to be transparent, fair and credible to enable private investments.

While private sector involvement has been more common in power generation, it may also occur in

the other parts of the electricity supply chain, namely transmission and distribution. The following sections outline the types of PPP projects in the different sub-sectors.

1. Generation and Renewable Energy

PPPs have been used to increase generation capacities through Independent Power Producer (IPP). The latter typically builds, operates and maintains a power plant, and sells the electricity generated to a an offtaker, generally a state-owned utility, via a Power Purchase Agreement (PPA). PPA intends to provide certainty regarding the project revenues and make the project financially viable.

This model allows to:

- Mobilize private capital to rapidly increase generation capacities;
- Leverage private companies' expertise in construction and operation to avoid delays, protect against cost overruns and ensure plant efficiency;
- Enhance competition to drive electricity prices down.

IPP projects can be easily replicated once the country has successfully tested the model with acceptable risk allocation for both the public and private partners.

To achieve SDG-7, private investments should primarily target renewable sources of energy, including: biomass, hydropower, solar, wind and geothermal. Two case studies are presented to illustrate private sector involvement in these areas.

Case study 1 presents an example of 5-MW solar rooftop project in India that combines rooftop lease from private landowners with gross metering (i.e. all the energy produced is exported to the grid and not consumed locally).

Case study 2 illustrates a hydro project that tackles both mitigation and adaptation issues while using climate funds to enable private investments. The project also facilitates the future transition to solar energy.

Projects in the renewable energy sector have yet their own challenges. Hydropower, the world's largest renewable source, has considerable social and environmental impacts. Other renewable energy projects, such as solar and wind, have experienced rapidly declining price due to technology improvements but their pricing depend on many factors to make them competitive with fossil fuels.

To foster the transition to more sustainable energy sources, governments have to design a clear strategy for their energy transition and align sector master plans.

They may also have to intervene through: tax incentives, such as accelerated depreciation of capital investments; feed-in tariff guaranteeing a fixed price for projects of a certain technology; targets requiring a percentage of power generated from renewables; and/or auctions tendering a fixed amount of generation capacity from renewable.

Governments could also take steps to reduce development risks for renewable projects, for instance by securing upfront land, preliminary permits and grid access. This should result in attractive projects and thus competitive prices.

2. Transmission

The increase in power generation capacities means that the transmission network needs to be upgraded in many countries. While the network planning and operation has to be centralized, individual transmission lines may be built, financed and maintained by private companies against the payment of transmission fees.

Although this type of PPP is relatively uncommon compared to power generation PPP projects, there are examples in the region, such as the 370-km high voltage electricity interconnector between the electricity grids of the States of Victoria and Tasmania in Australia. Major grid extensions and cross-border interconnections are more likely to attract private interest.

These projects may, however, face challenges regarding land acquisition as they extend over long distances and have significant social and environmental impacts. Since the government is generally in a better position to manage land acquisition risk, it often has to retain it.

Case Study 1: Solar Rooftop Project in Gandhinagar, India

The State of Gujarat, in its bid to achieve the long-term goal of making Gandhinagar a solar-powered city, decided to implement a 5 MW solar rooftop project. The project was implemented through two 25-year concession agreements for 2.5 MW each. The agreements signed in 2012 attracted around \$15 million of investment and provided increased access to power to about 10,000 people.

Under the concession agreement, each developer is required to install solar panels on the rooftop of public and private buildings and connect them to the grid. The government provides to the developers public buildings in the area and incentivizes citizens to participate in the program through "green incentive" set as INR 3/ kWh of electricity generated by the system installed on their property. The electricity produced is sold through PPAs at tariff/rate quoted by the developer during the competitive bidding process.

The project success can be explained by the innovative structure, citizen participation and strong political support. However, a challenge for this kind of project is to make land owners comfortable to enter into long-term binding contracts for leasing their roof. In this regard, the incentives should be proportionate to the commitment made and linked to the rental rates prevalent in the area. In the same vein, the terms and conditions of contract with land owners need to be carefully drafted to avoid future disputes.

Source: Information available on website of the International Finance Corporation: <http://www.ifc.org/>

Case Study 2: Tina River Hydropower Development Project, Solomon Islands

The Tina River Hydro Development Project is a national project of Solomon Islands, managed by a dedicated Project Office under the Ministry of Mines, Energy and Rural Electrification. This 15-MW project should provide 65% of the capital electricity demand by 2022 and diversify power generation capacity in favour of clean, renewable sources (the current generation capacity entirely depends upon diesel generators). In addition, the project should facilitate the penetration of photovoltaics as it will give the country a reservoir capacity that reduce the need for energy storage.

The project also intends to regulate the natural flow of the Tina River behind its dam for enhanced management of downstream flows during times of droughts and floods. As such, the project tackles both climate mitigation and adaptation.

With concession funds from the Green Climate Fund (GCF), the project can meet the private investor's return expectations while keeping the PPA tariff at an attractive level for the off-taker (i.e. Solomon Islands Electricity Authority). GCF supports the project by providing a USD 70 million loan over 40 years to finance a portion of the project company's debt. GCF also provides a grant of USD 16 million to co-finance the construction of an access road to the site.

Source: http://www.greenclimate.fund/documents/20182/584114/GCF_B.16_07_Add.07_-_Funding_proposal_package_for_FP044.pdf/ce4435a9-b47e-4004-b4bf-7e9aba29eb27

3. Distribution

Public authorities may also want to involve the private sector in the distribution systems that connect final consumers to the transmission network with the objective of reducing power outages and cutting system losses.

Such private involvement could be arranged through a concession agreement where the private sector is responsible for the upgrade, operation and maintenance of the distribution network in a designated area. To recoup its investments, and allow for a fair profit, the private sector has to collect user fees. These fees have to be set at a level that makes the project attractive and sustainable. This often means raising electricity tariffs in developing countries. In addition, to enforce electricity bill payments, the private sector might have to disconnect customers not paying their bills. Given the sensitivity of these issues, private involvement in power distribution has been difficult in developing countries. These projects also imply significant changes for people previously employed in public utilities generating resistance from labour unions.

4. Learning from Power PPP Projects

Lessons from PPP power projects, mainly the generation ones, include:

- **Revenue certainty is critical in attracting investors**

Revenues usually come from sale of the electricity and investors would not be willing to invest in a project in absence of some revenue certainty. PPA can enhance private sector confidence by ensuring long-term sale commitments from an offtaker. However, they may need to include “Take or Pay” provisions, especially in countries where breakdowns of the transmission or distribution grid may prevent the offtaker to take the power generated. The creditworthiness of the offtaker might also be an issue. For instance, state-owned utilities in developing countries might be selling electricity at loss for political and social reasons, and therefore rely on central government transfers. This obviously undermines the PPA value for private investors. To address this issue, government guarantees are currently requested in countries like Viet Nam and the Philippines. Thailand is though an example where state guarantee is no longer required since the state-owned company (i.e. EGAT) has reached an investment grade rating. Likewise, recent projects in India were developed and financed by domestic companies without government guarantees.

- **Energy evacuation infrastructure is equally crucial**

Among different factors, project’s financial viability depends on how early the commercial operation date can be achieved. Commercial operation is as much dependent on the creation of generation infrastructure as it is on the creation of the evacuation one, which connects the energy generated to the grid system. Hence, it is recommended that either the evacuation infrastructure be made available before commissioning of the project or the responsibility of construction of evacuation infrastructure be given to the same developer.

- **Multilateral banks may be instrumental in achieving financial closure in developing countries**

Notwithstanding the possible lower funding cost, multilateral banks can play an instrumental role in the achievement of financial closure of projects in less mature markets. Multilateral guarantee instruments related to debt, equity, or both can bring additional funding into the project. Accessing climate funds can also significantly reduce the financial burden of a project while enabling sustainable solutions.

- **PPP contracts have to be enforceable**

Private investors need to be reassured that the government will comply with its responsibilities under the contract and that measures are in place to protect investments should public authorities fail to deliver on their obligations. This calls for fair and efficient dispute resolution mechanisms and enforceable contracts.



PPPs in Industry and Trans-border Infrastructure (Contributing to SDG-9) - *Build resilient infrastructure, promote sustainable industrialization and foster innovation*

The United Nations Sustainable Development Goals on industry, innovation and infrastructure (i.e. SDG-9) aims to build resilient infrastructure, promote sustainable industrialization and foster innovation.

One of the targets for this goal is to develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all. While Part I of this document provides guidance on how to streamline affordability, sustainability and resilience in PPP projects, this section focuses on PPP for regional and trans-border infrastructure projects.

Another major target of SDG-9 is to promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries. In that context, this section highlights how the PPP model can be used to specifically foster industrial-related infrastructure development.

1. PPPs in Trans-border Infrastructure

Regional connectivity is paramount to sustainable development as it enhances the potential of interlinked production networks and facilitates international trade while allowing investments and ideas to travel. Such connectivity necessitates, however, to build regional networks in the energy, transport and telecommunication sectors. To finance cross-border projects, countries may consider how to tap the potential of PPP arrangements.

The energy sector is a good candidate for cross-border PPP projects. On one hand, private companies have invested heavily in energy-related infrastructure development and have acquired a large experience with this sort of projects. On the other hand, there is a clear economic case for regional energy markets as they can reduce the gap in supply and demand by transferring power from energy-rich countries to energy-deficient

countries. Indeed, more than half of the countries in Asia and the Pacific are not energy self-sufficient and depend on imports to meet domestic demand. In addition, transnational networks can reduce reserve capacity needs for peak demand periods by linking countries with different seasonal consumption patterns. Case study 1 provides an example of a cross-border energy PPP project between Lao People's Democratic Republic (Lao PDR) and Thailand. International oil and gas pipelines have also been developed in the region through private investments.

Case Study 1: Nam Ngiep 1 Hydropower Project, Lao PDR

The energy sector is a vital source of export earnings in Lao PDR and the government targets to install an additional 9,300 MW of capacity by 2022.

To achieve this objective, it has to mobilize capital and technical capacity through partnerships with the private sector.

An example of such partnership is the Nam Ngiep 1 Hydropower project, which involves the construction and operation, on a build–operate–transfer (BOT) basis, of a 290 MW hydroelectric power generation facility.

Power purchase agreements were signed with EGAT (Thailand) and EDL (Lao PDR) in 2011 and the project is expected to become operational in 2019.

Nam Ngiep 1 Hydropower project should have long-lasting social and economic impacts on the country:

- **Enhanced regional cooperation**

The project contributes to increased regional cooperation between Lao PDR and Thailand through the trade of clean energy. On the one hand, Lao PDR has limited opportunities for trade and economic growth but has a very large hydropower potential that can be harnessed to generate foreign exchange revenues. Thailand, on the other hand, has a strong and growing economy that can benefit from increased access to clean electricity.

- **Increased electrification rate**

The project will provide 18 MW of capacity for domestic supply and help the Lao PDR reach its target of increasing the electrification rate from 82% to 92% by 2024. While electrification of 82% is not low among its peers, provincial rates in the country range as low 33%.

Source: Asian Development Bank

Similar to energy, the transport sector in many economies has also benefited from significant private investments. The question is whether the private sector could also contribute to bridge cross-border transport infrastructure gaps. This is critical as improved transport connectivity has the potential to contribute to further economic integration, more optimal resource allocations and increased trade prospects. However, infrastructure bottlenecks, particularly at border areas, still prevent transport networks from delivering their full potential. Case study 2 illustrates how PPPs can help addressing these bottlenecks. PPPs can also be used to build transnational transport infrastructure. For instance, Malaysia and Singapore intend to issue a joint tender for a privately-financed asset management company in charge of providing and maintaining the trains and rail systems for the \$15-billion high-speed Kuala Lumpur-Singapore rail project.

Case Study 2: Modernization of Border Crossing Points, Turkey

In Turkey, six border gates have been modernized through a BOT agreement whereby the private company makes all the capital expenditures (initially \$190 million) and then operates only the commercial facilities built (the public authorities remain responsible of the custom-related ones). At the end of the contract, the facilities are transferred free of charge to the public authorities.

The private company established in 2005 for this project is owned by the Turkish Chambers and their federation, which have an interest in having modern border crossing facilities.

Source: Presentation by Ahmet Gürlek on "Modernization of Border Crossing Points in Turkey" is available at <https://www.unece.org/fileadmin/DAM/trans/doc/2009/wp5/ECE-TRANS-WP5-GE2-03-pres18e.pdf> accessed on 20 October 2016

With regard telecommunications, the demand for capacity on international fibre-optic cable networks is growing rapidly. Unfortunately, the Asia-Pacific region is still very much divided regarding access to these international networks. Expanding fibre cable networks can improve broadband access on a regional basis and reduce these inequalities while providing cost-effective solutions to more people. This could have a significant impact as ICT increasingly plays a key role in terms of productivity gains and public services modernization. To finance international networks, telecom operators from different countries have traditionally partnered in consortium, the objective for each operator being to secure an allocation of bandwidth capacity (proportional to its investment) to serve its home market. This "consortium" approach also enables risk and cost sharing.

Given the complexity of multi-country projects, governments need to acknowledge that a strong high-level political backing is required. Likewise, countries should recognize the importance of supporting intergovernmental platforms where these regional networks can be planned, regulatory hurdles tackled and financing arrangements structured.

2. PPPs in Industrial Infrastructure

Another focus of SDG-9 is the industrial sector. Related infrastructure includes industrial parks (IT, biotech, floriculture, etc.), special economic / free trade zones (SEZ), dry ports, and industrial estates. PPP arrangements have been used to develop this kind of projects.

These arrangements can take different forms. Governments may either grant O&M contract to the private sector to operate and maintain utilities and common facilities in an existing industrial park or it may award a concession to a private partner to design, finance, develop and operate a new industrial infrastructure.

With regard to risk allocation, government may look to pass on the demand risks associated with sale or lease of industrial plots to the private sector for better marketability of the project and in return can expect compensation (revenue share, up-front premium, etc.) from the private partner as per the provisions of the concession agreement. Alternatively, the government could decide to retain the marketing and demand risks and pay the private partner an annuity amount over the contract period. Governments may also explore a combination of capacity and service payments to attract a large number of investors into the project.

For projects not financially viable, public authorities may introduce a real estate component as a sweetener for the private sector. In many countries and regions, governments have also come up with industry specific policy and schemes to provide technical and financial support for the development of industrial infrastructure.

Learning and findings from PPPs in industrial infrastructure can be summarized as follows:

- **Availability of financial incentives to industries**

Many governments provide incentives to the industrial sector including capital subsidy, tax holidays, subsidized electricity, and reimbursement of stamp duty and registration charges. These incentives are normally guided by industrial policy and can improve the viability

of PPP projects. They need yet to be balanced with their cost to the public purse, and carefully monitored to ensure fiscal sustainability.

- ***Emphasis on environment protection***

Governments may explore linking incentives to the private sector with minimum obligations regarding environment protection and adherence to prescribed environment standards. For example, industrial park or estate should be equipped with sufficient capacity of sewerage and effluent treatment.

- ***Social protection and employment generation***

Public authorities should monitor the compliance with the existing laws related to employment and minimum wages by the private partner. In addition, PPP contracts may have mandatory provisions regarding the hiring of local people during the different project stages.



PPPs in Urban Sector (Contributing to SDG-11)

Make cities inclusive, safe, resilient and sustainable

The United Nations Sustainable Development Goals on sustainable cities (i.e. SDG-11) aims to make cities inclusive, safe, resilient and sustainable. To achieve the goal, countries have notably targeted by 2030:

- to ensure access to adequate, safe and affordable housing and basic services and upgrade slums for all;
- to provide access to safe, affordable, accessible and sustainable transport systems for all; and
- to reduce the adverse per capita environmental impact of cities.

The challenges are particularly acute in the region as half the world's 4 billion urban dwellers live in Asia and the Pacific and an increasing number of people are moving to cities. Between 2016 and 2030, the urban share of the Asia-Pacific population is expected to rise from 49% to 56% with the number of urban dwellers rising from 2.1 billion to 2.7 billion. Such rise will create pressure on public infrastructure and services. Common urban challenges include road congestion, air pollution, shortage of adequate housing, and the lack of funds to provide basic public services, such as waste management. However, the high density of cities also brings opportunities to achieve efficiency gains while reducing resource and energy consumption. Technology is also opening the door to more sustainable options for meeting urban needs.

To achieve SDG-11, municipalities should leverage the private sector's technical and financial resources to build infrastructure assets and provide related services, including the provision of water supply, solid waste management collection and treatment, intelligent street lighting, social housing, city bridges and tunnels, and public transport systems.

Each urban PPP project is though unique in nature and requires a different approach, which depends on factors such as the project size, location and user types. Hence, there are a wide variety of PPP projects in the urban sector, ranging from simple outsourcing contracts to complex BOT concessions. The next section discusses various PPP projects in urban sector, particularly in transport, waste management and housing.

1. Public Transport

Cities in Asia and the Pacific are becoming increasingly congested. The rapidly rising number of cars creates an unsustainable path for urban mobility. A shift towards more efficient public transport solutions is required.

a. Mass Rapid Transit Systems

Given their high capacity and relatively low land requirements, urban rail transit systems are particularly suitable for tackling urban's mobility challenges. Unfortunately, these projects suffer from limited financial viability.

Although some projects, such as the Bangkok's Skytrain, have been developed on the basis of collected fares, the expensive capital investment costs can rarely be recouped solely by charging users. In the vast majority of cases, direct public support is needed in the form of:

- **Co-investment:** For instance, the public authorities may be in charge of the civil works while the private sector invests in electrical and mechanical works (E&M) and covers O&M costs. This considerably reduces the required investment for the private sector. Case study 1 in the Republic of Korea provides an example where 80% of the total project cost were borne by the Seoul Metropolitan Government.
- **Subsidy:** Instead of splitting the work, the government may offer to cover part of the private sector costs, for instance through a Viability Gap Funding mechanism, such as in the Hyderabad Metro project in India.
- **Real-estate development right:** Enhanced accessibility to efficient transport systems increases the value of real estate. By capturing this added value, government may finance part of their metro systems. This is the model followed for the development of the metro systems in Hong-Kong, China.

Another challenges with metro PPP projects is the difficulty to predict demand accurately (overestimation of traffic is common). The reported drivers for these inaccuracies include the complexity of the project, the underestimation of the severity and duration of ramp-up, the overestimation of the value of time and the dependence on macro-economic projections.

If the demand risk is perceived as too high, private companies are unlikely to bear it. The government might then have to retain fare and other revenues, and pay the concessionaire a predefined amount for covering its costs and profit, provided performance standards are met.

An alternative is to provide a Minimum Revenue Guarantee (MRG) as in the Seoul Metro Line project where the public authorities provide revenue support in case the actual revenue falls below 50 per cent of the forecasted value. This might, however, create significant long-term burden for the public authority as experienced in the Republic of Korea.

The metro project examples from the region confirm that PPP is not a panacea and that public financial support is still required. However, the PPP mechanism allows the public sector to benefit from the private sector's technical expertise while transferring construction and operation risks.

b. Bus Rapid Transport Systems

A Bus Rapid Transit (BRT) system is a cheaper alternative to Mass Rapid Transit (MRT) projects. The basic criteria for this advanced tire-based public transport system are a dedicated right-of-way, an off-board fare collection and a platform level boarding.

The BRT system is perceived as flexible, quick to implement and cost-effective. A comparison study estimates that the capital cost of BRT per kilometre is approximately a 10th of the cost for building a MRT, while the ridership capacity can be significant. Building on these advantages, the use of BRT has been rapidly expanding around the world despite opposition from automobilists who see it as a driver for traffic congestion (they are losing road space with these systems).

To develop BRT systems, many countries in the region have used a PPP structure to benefit from private sector efficiency and avoid creating additional liabilities for public budgets. For example, PPP structures have been used in India (e.g. Ahmedabad, Indore and Bhopal), China (e.g. Guangzhou) and Indonesia (e.g. Jakarta - see Case study 2).

Case Study 1: Seoul Metro Line 9 Project, Republic of Korea

Seoul Metro Line 9, officially opened in July 2009, operates express routes along the Han River to transport travelers from Gimpo International Airport to Gangnam within 30 minutes. It is the first BTO project in the metro sector for which the Seoul Metropolitan Government (SMG) entered into a 30-year operation and maintenance concession contract. The concession agreement was signed in 2005 between SMG and the Special Purpose Company (SPC), named Seoul Metro Line 9 (SML9), which comprises of 14 private investors.

Total project cost was around KRW 2,416 billion (around USD 2.2 billion), including both lower and upper structures. SMG funded 100% of the total cost of the lower structure (~KRW 1,566 billion) as well as 31.7% of the total cost of the upper structure (~KRW 850 billion). Effectively, SMG was responsible for 80% of the total project cost.

The upper structure includes components such as rolling stock, system, station construction work, track work, depot, and traffic control center.

SML9 awarded the O&M contract to Seoul Line 9 (SL9) in June 2007. SML9 is responsible for revenue and facility management whereas SL9 is in charge of the operation & maintenance. Maintenance of cars and cleaning services are being sub-contracted.

The metro line 9 is also supported by the Minimum Revenue Guarantee (MRG) provided by the SMG for the first 15 years of operation. Under the terms of the MRG, and subjected to actual revenues being no less than 50% of the concession agreement forecasts, SMG will provide revenue support to the SML9 up to – i) 90% of inflation-adjusted fare revenue forecasts for the first 5 years, ii) 80% for the 6th to 10th years, and iii) 70% for the 11th to 15th years of the concession period.

It is estimated that the metro line 9 services are customer oriented and resulted in increase in staff productivity when compared to the other operators. Staff productivity for the new metro line 9 was approximately 30 staff/km as against the average staff productivity of over 50 staff/km for other operators.

Source: Presentation by Hojun Lee of Public and Private Infrastructure Investment Management Center (PIMAC), Korea Development Institute (KDI) accessed from <http://www.siudmysore.gov.in/UTdetails/Day4.pdf>

The private sector is expected to provide high quality services and address customer needs in a more efficient manner, thereby attracting more ridership and improving the sustainability of the system.

In a BRT PPP project, the transfer of responsibilities to the private sector mainly relates to operation and maintenance of the system through route/area concessions while the public authority plays a regulatory and monitoring role, for instance by scrutinizing performance indicators.

Unlike toll roads and to some extent urban rail projects, the private partner in a BRT PPP project is usually not financing capital investments, such as bus-ways and depots. The required adjustment of city streets for BRT systems impacts mixed traffic lanes and sidewalks as well as drainage structure. For these interrelated assets, it is difficult to separate the management of the BRT corridor infrastructure with the rest of the road management.

However, private investments can include the buses. Such investment creates a strong anchor from the private operator to the project and incentives to properly maintain the assets. This could result in better service quality. Public ownership of buses remains though a possibility, as seen in several countries where only the operation responsibility is transferred to the private sector. Depending on the size and potential demand for the system, the public authorities also have to decide whether to have one or several public operators.

Although there are successful BRT PPP projects, the private sector has not always been able to deliver the expected results. Different factors can contribute to the success BRT project (whether being developed as PPP or publicly funded), such as:

- **Adequate planning and feeding services:** Route selection is key to avoid having buses running empty because of inaccurate planning. The success of BRT systems also relies on feeding services (e.g. other buses dropping passengers along BRT stations, park-and-ride facilities). For example, feeding service was an issue in the Jakarta case, which only attracts part of the potential demand for this reason.
- **Integrated fare collection system:** the modal integration does not only rely on feeder services and interchange facilities, but also on the integration of fare collection systems among the different transport modes (e.g. smart cards and electronic devices). This part can be tricky as it involves different operators. Specific PPP contracts can be designed for this purpose (e.g. the automated fare collection system in Manila).
- **Time savings:** To operate at design speed, right of way should be acquired for dedicated bus lanes and these bus lanes should be correctly enforced. For instance, the BRT corridor can be physically separated from the rest of the road to prevent other cars driving on the reserved lanes as in Bangkok for instance. Time saving also depends on BRT station design, which should reduce boarding time to the minimum.

PPP structures cannot solve all the potential issues related to BRT systems. For instance, an ill-designed system will not become successful simply by introducing private operators. PPP structures might, however, introduce stronger discipline in the preparation. The private sector will perform thorough due diligence before committing financial resources, which could result in an improved design of the system. Performance-based fee structures should also incentivize the private partner to enhance operational efficiencies.

Case Study 2: TransJakarta Bus Rapid Transit (BRT) Project, Indonesia

With a population of over 10 million people, Jakarta has faced growing challenges in traffic congestion and harmful pollution that result from the increasing use of cars and motorcycles. The TransJakarta BRT was launched in order to provide a way for Jakarta's citizens to get through the city's notorious congestion and reduce greenhouse gas (GHG) emissions.

The TransJakarta BRT project began revenue operations along a 12.9 km corridor from South Jakarta to North Jakarta in 2004. The corridor passes through Jakarta's city centre and along two of Jakarta's most congested roads. The BRT corridor-1 was constructed in an unprecedented 9 months, at a cost of some USD 2 million. Buoyed by the success of the first corridor, 10 more corridors covering 172 km were launched and made operational by 2012. In 2012, TransJakarta had a total of 545 buses in its fleet, serving more than eight million passengers every month.

The BRT stations provide elevated platforms to ensure quick boarding and disembarking. Fare collection happens at enclosed stations rather than on the bus. The private operators purchase and own buses. They are paid per bus kilometre travelled throughout their seven year operating contract period, thus passing the financial and revenue risks to the municipality.

The Governor of Jakarta has control over the budget allocation required for the project. In 2004, approximately USD 14 million were allocated for the project in the budget. Since its first year of operation until 2012, it is estimated that the city has invested over USD 450 million for the BRT infrastructure and to cover the TransJakarta operation costs. BLU TransJakarta, a public authority under the Jakarta Municipal Corporation, manages the whole operation of the TransJakarta system, including overseeing the bus operation, which is run by nine different bus companies.

In 2011, the TransJakarta BRT was used by some 360,000 people per day, a 32% increase from the previous year. This resulted in a saving of more than 54,000 tonnes of CO₂ emissions, the equivalent of taking 10,000 cars off the road. The estimated fuel savings by BRT users amounts to about USD 120 million.

Source: <http://www.uncrd.or.jp/content/documents/SEST-B2B4.pdf>

c. Vehicle Sharing Systems

To meet the growing mobility requirements in Asian cities, policy makers have to capitalize on the advantages brought by vehicle sharing systems. Building more roads cannot cope with the rising level of motorization. Although the private sector might decide to develop transport sharing solutions on its own, it often has to partner with the public sector for large scale initiatives. For example, public authorities might have to free public areas to make room for parking facilities, charging stations and depots while the private sector invests in and manages a fleet of vehicles. The public authorities can also steer users towards more sustainable transport systems via subsidies that allow these systems to reach financial sustainability. In that context, bike, motorbike and car sharing systems have been developed across the region.

2. Urban Amenities

Urban amenities, such as bus terminal, parking and street lighting, are important elements to create sustainable cities. Public authorities could mobilize the private sector to develop these facilities. For example, a PPP project can be implemented to increase the capacity of a bus terminal. Sources of revenue for the private sector include fees from bus operators as well as commercial rentals from shops in the terminal and the sale of advertising rights. Regarding parking facilities, the Case study 3 in Bhutan illustrates how the municipality implements its vision for the city with the help of the private sector in order to promote a pedestrian solution.

The PPP mechanism may also be used to upgrade public street lighting, which is often outdated and inefficient in the region. This should result in enhanced security in cities and improved road safety. In a PPP solution, the private sector is typically responsible for providing the light and managing the related assets. This is often combined with the introduction of energy efficient solutions that generate cost savings, which could serve to pay back for the investment.

3. Waste Management

The rising urban population in Asia and the Pacific is bound to put pressure on urban waste management. In 2012, the region's cities and municipalities already produced 1.4 million tonnes of solid waste per day – 0.9 kilogram per person. If not properly managed, waste generation can have major impacts on the environment and public health, for instance via water contamination.

In most countries, the responsibility of solid waste management is decentralized to municipalities, which have limited financial and human resources. Through well-structured PPPs, municipalities may improve the situation by mobilizing private finance for modern solid waste management services while benefiting from the flexibility and technical expertise of private companies.

Such private engagement is generally made for specific services, such as waste collection or treatment, rather than through a single contract for the whole waste management cycle.

Case Study 3: Multi-level Car Parking (MLCP) Project, Bhutan

The Thimphu Municipal Corporation in Bhutan intends to transform Norzin Lam, the most important shopping street in the city, into a pedestrian-only thoroughfare. To achieve this vision, public authorities envisioned the creation of multi-level off-street parking facilities in the city centre via a PPP project.

The project entails developing 550 parking spaces on two sites within the city centre. In addition, an inventory of almost 1,000 public parking spaces will be managed by the private concessionaire.

The project is being implemented through a 22-year design, build, finance, operate, and transfer (DBFOT) concession that covers the two MLCP facilities.

The winning bidder was selected on basis of the higher “per parking space annual concession fee” offered to the municipality. The concession for the project was signed in September 2014 and the project mobilizes about USD 8 million of private investments and has a positive fiscal impact for the City through an annual revenue share of USD 230,000. The winning consortium offered a concession which is approximately 70% higher than what the municipality was receiving from the previous operator.

The project would not only result in generating additional revenues but also help public authorities in improving traffic conditions, thereby facilitating the development of mass public transportation vital for the growing city.

A consumer survey was conducted to assess the paying capacity of the car users in the city. According to the survey, 88% of car users were willing to pay current parking fees (Nu.15 for 30 minutes – approx. \$0.20) and 36% of car users were ready to pay 25% more than the current price due to inadequate spaces and safety issues. The Consumer survey was critical in evaluating the revenue risks for the private partner.

Source: : http://www.ifc.org/wps/wcm/connect/35283f80467153999a9abb9916182e35/PPP+Stories_Bhutan_Thimphu+Parking.pdf?MOD=AJPERES

It is also contingent to the presence of private companies with capacity in this field to create sufficient competitive pressure.

The financing burden remains though with the public sector, with payments to the private sector based on volume of waste treated/collected. Therefore, the private sector needs to be convinced that public authorities, often municipalities, are capable of honouring their financial commitment throughout the contract period. The fact that municipalities cannot recover their costs through user fees, which tend to be extremely low., increases the perceived level of risk.

To provide reassurance regarding their financial capacity, municipalities should strive to improve fees collection, for instance by combining waste bills with water and/or electricity bills, although other revenue sources will be needed, such as transfers from the central government and/or revenues raised through waste collection tax (public authorities could also shift tax to large waste producers).

Municipalities can also involve the private sector to introduce modern technologies, such as energy from waste (EFW) projects. From an environmental perspective, EFW solutions are superior to landfill although more expensive given the large initial capital investment.

The case study in Singapore provides a concrete example. This kind of project works well when energy costs are high and land scarce thereby making landfill an expensive option (e.g. small island countries). However, to operate, EFW projects require a constant supply of waste that can be challenging to guarantee in some developing countries.

Overall, private sector involvement in the waste sector does not mean a limited role for the public authorities. On the contrary, there remain a critical role for them in terms of regulation setting and enforcement, user education, and monitoring of private performance. Municipalities also have to coordinate the multiple stakeholders, including the informal sector (e.g. waste pickers and scrap buyers) that often accounts for a significant share of waste collection in developing countries. Likewise, public authorities have to engage with local communities, which can be reluctant to waste project development in their vicinities.

4. Social Housing

Many countries, including India and Singapore, have used PPPs to provide affordable housing solutions to their citizens. The major potential advantages they see in PPPs are a lower cost of construction, timely project completion, and better operation and maintenance of the project facilities.

Case Study 4: Waste to Energy (WTE) Project, Singapore

The Government of Singapore was exploring ways to reduce the volume of solid waste generated in the land-scarce country. In this context, Waste-to-Energy (WTE) incineration solutions are particularly suitable as they have the potential to reduce the volume of the solid waste by 90%. Singapore started its first WTE plant in 1979 and subsequently developed three more WTE plants by the year 2000. All these WTE plants were run by the National Environment Agency (NEA) on behalf of the government. Encouraged by the success of privatization in other sectors, the government decided to build its fifth WTE plant on a PPP model (Design-Build-Own-Operate or DBOO). The initial tender, which was floated in 2001, was unsuccessful. The private sector was not willing to undertake the demand and revenue risks associated with the project. Later on, the government decided to adopt a pay or take approach to make the project bankable.

In 2004, National Environment Agency (NEA) invited the private sector participants to apply for pre-qualification to design, finance, construct, commission, own, operate and maintain a Waste to Energy Incineration Plant (WTE IP) project with a capacity of 800 tons per day. The contract was signed in 2005. The private company was required to: provide incineration services exclusively to NEA for a period of 25 years; recover ferrous scrap metal; and use the heat energy to generate electricity for its consumption and sale to the National Electricity Market.

To remunerate the private company, NEA makes payments split into three categories: capacity, service and electricity generation. The capacity-based payment is meant to recover fixed capital and O&M costs whereas the service payment based on outputs is meant to recover variable costs. The electricity generation component is paid by NEA, which can use the electricity sale proceeds to cover this cost.

The total project cost of \$200 million was financed through a mix of debt and equity. The project was successfully completed in 2009 and is operational. The plant ownership was transferred in 2010 to an Infrastructure Trust listed on the Singapore Stock Exchange. Recognizing the benefits of this PPP approach, NEA plans the use the same model for its 6th WTE plant.

Source: A 2014 report on "Infrastructure Public-Private Partnership Case Studies of APEC Member Economies" submitted during 21st Finance Ministers' meeting held at Beijing, China by Asia Pacific Economic Cooperation (APEC)

There are many variants of PPP models in affordable housing. One such variant is the availability-based payment model where the private sector designs, builds, finances and operates and maintains the houses for a certain number of years against fixed regular payments from the government on a per-unit basis at predetermined rates. The government owns the project and takes the responsibility of allocating housing units to its citizens based on pre-approved mechanisms and processes.

Another variant is a model in which the government does not make any payments to the private developer but reserves a certain share of units for sales or lease rights by the developer. Mixed-use development models can also be explored where private developers would be allowed to commercially exploit a certain portion of the land in return for developing housing units for poor people.

The government may provide various incentives in the form of waiver of development charges, registration and/or stamp duty. Fast approval processes may also be granted to facilitate project development.

5. Learnings from PPPs in Urban Sector

Learning and findings from PPPs in the urban sector are summarized below:

- ***Availability of land for the project***

As cities grow in size and population, finding suitable land for projects becomes challenging and is often considered a major risk for urban projects. To address this issue, urban local bodies or development authorities could create a land bank and identify potential land for acquisition. The private sector would be more comfortable in bidding for projects which offer more certainty regarding the availability of land.

- ***Commercial exploitation***

Authorities may look to provide commercial exploitation rights to private developers so as to make the project financially viable. Commercial exploitation could be in the form of advertisement rights, sale or lease rights for commercial space, parking rights, etc. Private developers can use the revenues generated from such commercial exploitation to recover their investments. However, exploitation rights should be carefully granted with proper due diligence and contractual framework to restrict any windfall gains by private developers.

- ***Institutional capacity and scale***

Municipalities have typically limited experience and capacity to deal with PPP projects. Therefore, the central government should consider ways to support local authorities to implement projects either through external support from consultants or via assistance from the country PPP unit. The scale of municipal projects may also be relatively small, thereby generating limited interest from the private sector. Pooling projects should be considered to address this issue. Similarly, the government could develop standard PPP documents that could make smaller projects easier and cheaper to develop for municipalities. Smaller projects may also benefit from simplified approval procedures to reduce transaction costs.

CONCLUSION

Infrastructure is critical for achieving the region's sustainable objectives. This is well reflected, explicitly and implicitly, in the sustainable development goals.

Sustainable infrastructure development in the region calls for the following principles:

- First, infrastructure plans should be inclusive to ensure no one is left behind - enhancing access, among others, to energy, water and sanitation, transportation and ICT, including in remote areas and for disadvantaged communities.
- Second, infrastructure projects need to be climate-friendly - greenhouse gas emissions can be only reduced if the region moves away from energy and pollution intensive infrastructure solutions.
- Third, infrastructure must be resilient - Asia and the Pacific is the most disaster-prone region in the world and infrastructure, through its design and construction, should be resilient to the predictable impacts of climate change.
- Fourth, infrastructure should nurture seamless connectivity to promote better economic and social integration – key to optimal resource allocation and providing the much needed impetus to investment and trade flows.

This country guidance document provides practical suggestions on how to integrate these principles into PPP programmes and projects.

Achieving sustainable development requires not only attracting private finance to develop infrastructure but also ensuring better access to infrastructure services that put people and planet first. Thus, the private sector role should not only be to provide financial resources but also to contribute towards improving the quality of

infrastructure assets and services. This document should support countries in achieving this objective.

With regard to the “quality” element of infrastructure, Part I of the document stresses the importance of ensuring that social inclusiveness and environment sustainability criteria are incorporated into the PPP cycle. The manner in which a project gets selected and thereafter prepared, procured and managed influences its quality and impact on sustainable development. For example, parameters such as natural disaster resilience, equitable access and affordability have to be fully integrated. This should be translated into each of the four infrastructure project phases.

Each infrastructure sector has, however, its own specificities. Part II of the document presents how PPPs can be realized in each of them while contributing to the achievements of specific SDGs. This document introduces different PPP models and structures that countries may envisage. Case studies also illustrate practical solutions and are used to share lessons learnt from the region.

Governments may find further resources for developing their PPP programmes and projects into the PPP Knowledge Lab. The lab is an initiative where 15 multilateral development banks and international organizations, including ESCAP, collaborate to provide a comprehensive online resource on PPPs with easy access to data and latest knowledge products.

To conclude, this document is the first attempt in the region to provide guidance to countries with regard to the use of PPPs for achieving sustainable development. As such, it builds a knowledge base for governments to enhance the contribution of PPP projects towards the realization of SDGs. The document should be revised from time to time to reflect feedback and inputs collected through regional and global forums.

COUNTRY GUIDANCE



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