



SUSTAINABLE DEVELOPMENT
ZHU DAJIAN

Director of Institute of Governance for Sustainability, Tongji University, Shanghai

In Advancing Sustainable Urbanisation, How Public-Private Partnerships Could Work



PPPs have significantly boosted infrastructure investments and accelerated economic growth in developing countries.

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Public-private partnerships (PPPs) have been key in enabling urban infrastructure building and public services delivery. Focusing on sustainable urbanisation, Tongji University's Professor Zhu Dajian proposes a three-element framework—based on finance, governance and policy—that could make PPPs work for sustainable urban development.

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Sustainable Urbanisation is a key part of the United Nations' (UN) Sustainable Development Goals (SDGs) (2016–2030). Public-private partnerships (PPPs), a hybrid governance structure, have significantly boosted infrastructure investments and accelerated economic growth in developing countries. However, private-sector monopolisation and inadequate contracts in PPPs may also create unsustainable urban development, leading to limited coverage of the population, inefficient resource use, and environmental and health damage, for example.

In my work with Dr Wei Xiong at Tongji University, we introduce an analytical framework based on the three elements of resource,

governance and policy, to understand the relationship between PPPs and urbanisation, and discuss how to make PPPs work for sustainable urban development. Our key opinions are as follows: As a resource potential, PPPs could finance urbanisation without increasing budget deficits and resource consumption. The selection of PPP governance modes should consider a trade-off between safeguarding public values and improving efficiency. Lastly, PPP policy design should shift from a finance-oriented (PPP 1.0) or an efficiency-oriented (PPP 2.0) approach, to a sustainability-oriented and people-centred (PPP 3.0) one.

Private-sector participation could significantly boost innovation in the construction, maintenance and operation of infrastructure and public services.

Resource: Financing Urbanisation in a Sustainable Way

Financing urbanisation has been a global challenge. The UN International Committee of Experts in 2014 estimated infrastructure investment financing needs were US\$2.5–3.5 trillion (S\$3.2–4.9 trillion) per year. Over the last decade, 80–85% of infrastructure investment spending in developing countries came from the public sector. We need to find new and additional resources to close such wide gaps. Three approaches could be used in financing urbanisation—debt-based, land-based and PPPs—each playing different roles. In 2002, PPPs were introduced as a promising instrument for sustainability at the World Summit on Sustainable Development in Johannesburg, South Africa.

Debt-based financing means borrowing from future generations to fulfil the needs of the present.

Money can be raised quickly, but its cost is the debt burden, compromising the ability of future generations to fund their own needs. For instance, local government financing vehicles (LGFVs) in China borrow based on local government credits to deliver public infrastructure and services. After decades of rapid urbanisation, Chinese local governments are facing high debt ratios. Another example of debt-based financing for urbanisation is US municipal bonds.

Land-based financing involves raising funds through land rent-seeking. Its benefit is that local governments could raise funds without increasing their debt burden. But such financing becomes unsustainable if land and resource consumption exceeds the carrying capacity of supporting systems. For instance, China's urbanisation relies

greatly on land rents: 40%–60% of local governments' disposable income comes from the land premium from converting farmland for urban development, according to the Ministry of Land and Resources. The consequence is twofold: the amount of farmland shrinks rapidly, and property prices surge. The urbanisation of many countries has relied on land- (or resource-) based financing, exemplified by the property taxes in Japan and oil exports in Saudi Arabia.

PPPs are long-term contractual relationships between the public and private sectors to deliver urban infrastructure and the public services traditionally undertaken by the government. In PPPs, either the government makes unitary payments to the private sector for making available quality infrastructure and services,



China's first high-speed railway project funded by a PPP connects several cities in east China's Zhejiang Province.
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Local governments favour PPPs, especially those with financial constraints.

or end-users pay tariffs to the private sector for the usage of public goods. Because major risks, including cost, demand and operation, are transferred to the private sector, PPP investments are usually off the governmental balance sheet and budgets. Hence local governments favour PPPs, especially those with financial constraints.

In the past three decades, China's urbanisation has primarily relied on land- and debt-based financing, which increasingly undermine sustainability.

Since 2014, China's national PPP programme has encouraged private investments in all public sectors, except national security. Local governments began considering PPPs as an alternative approach to develop urban infrastructure and deliver public goods. The Private Finance Initiatives (PFIs), together with concessions, as types of PPPs, were promoted throughout the country. During the period of 2014–2017, the value of such projects in China increased to US\$519 billion (S\$721 billion), exceeding the infrastructure projects delivered through in-house provision.

Governance Modes: Trade-off for Values and Innovations

Private-sector participation could significantly boost innovation in the construction, maintenance and operation of infrastructure and public services. However, private players tend to focus on their financial interests, rather than objectives associated with sustainable development. Hence, to safeguard public values, the public sector remains indispensable in the delivery of infrastructure and public services. In PPPs, private and public partners share information, resources and capabilities to achieve sustainable outcomes that could not be attained by either side alone. We have identified three PPP modes, each with its advantages for sustainable urbanisation.

Institutionalised PPPs (iPPPs) are hybrid organisations (e.g., alliance, joint venture, mixed company) where public and private partners come together to jointly manage and deliver services. iPPPs allow combining and internalising both the political advantages of the public sector and the innovative advantages of the private sector. The standard capital participation of local governments is at least 51% of shares, to ensure the company's pursuit of social objectives, even if they risk being unprofitable. Property theory suggests that when we adopt an incomplete contracting perspective (e.g., PPPs), ownership becomes quite relevant, and mixed enterprises can accomplish such mixed ownership. SDGs, which can be hard to quantify or enforce in a contract, can be implemented through the public sector taking a lead role on the board of directors. iPPPs are often seen in European countries, such as Portugal and the UK.

Contractual PPPs (cPPPs) entail a transactional relationship based on designing, monitoring and enforcing contracts in which the public sector outsources services to the private partner. In a written contract, the public sector usually specifies its payment, subsidies and safeguards to the private-sector player(s), while the latter commits to the outcomes and performance of contracted services. The SDGs are represented by key performance indicators (KPIs) in the output specification of services. cPPPs take the form of concessions, a usage-based payment arrangement, or PFIs, which cover all availability-based payment arrangements.

Concessions involve greater private-sector participation and less public control. Both concessions and PFIs are popular around the world.

Regulated PPPs (rPPPs), or public-private collaboration (PPC), is a collaborative relationship between the public and private sectors, in which the latter independently provides services under the former's regulation. No contract is involved, but the government partners the private sector to provide relevant public resources, while regulating them against the damage of public values. SDGs are mainly delivered through regulation, including approval, licensing and

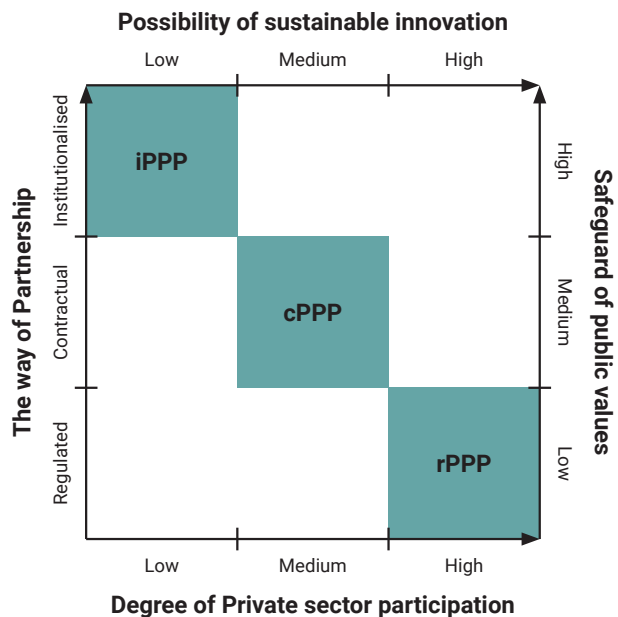


Figure 1. Governance modes of PPPs for sustainability.
Image: Wei Xiong, Bin Chen, Huanming Wang and Dajian Zhu

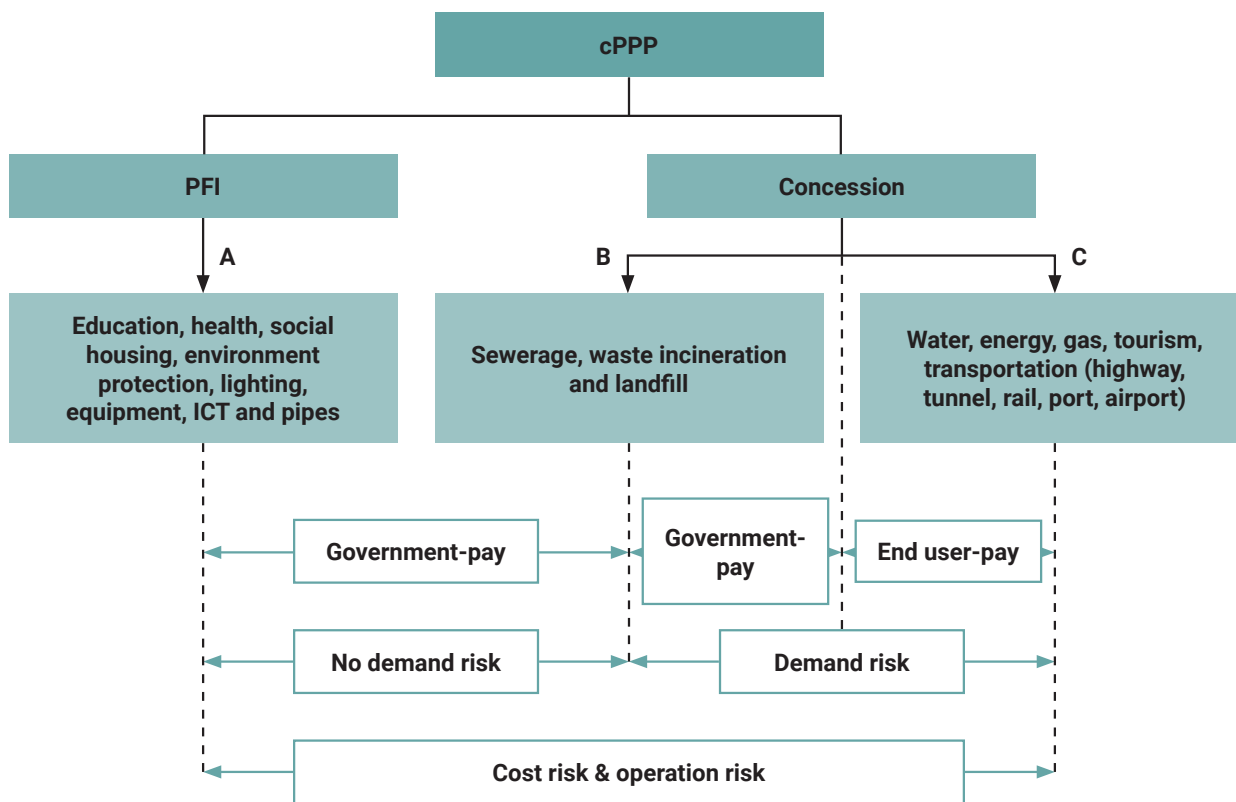


Figure 2. The governance framework of cPPPs in China.
Image: Wei Xiong, Bin Chen, Huanming Wang and Dajian Zhu

inspection. rPPPs are market-based transactions and have been increasingly popular in many countries.

As shown in fig. 1, the three PPP modes vary in the degree of private-sector participation and public-sector control. Sustainable innovation potential is positively associated with the degree of private-sector participation, while safeguarding public values is positively associated with public-sector control. Reflecting their different advantages, iPPPs are suitable in sectors where public values are vulnerable to market failure, e.g., prisons, education and health. rPPPs are preferable in sectors where innovation is critical for sustainable outcomes, such as energy, defence and

drug development. cPPPs are applicable somewhere in between. Until now, cPPPs have dominated attention in both theory and practice, frequently referencing the narrow definition of PPPs.

In China, a cPPP can be a concession or a PFI, as shown in fig. 2. Concession projects typically fall into two categories. Category A projects earn revenue by charging end-users based on usage, e.g., water, energy, gas, tourism and transportation. Category B projects charge governments (as users) based on usage of services, including in sewerage, waste and incineration projects. Both categories usually take the form of build-operate-transfer and build-own-operate-transfer, and are procured through open

bidding. They also come with high uncertainty, with the private sector bearing the demand, cost and operational risks. In many cases, local governments provide guarantees and subsidies as part of risk-sharing with the private sector, e.g., the minimum traffic guarantee in transportation projects. Category C PFI projects are government-paid and charged based on availability of facilities. Therefore, the private sector only bears the cost and operational risks, while local governments face demand risk. PFI projects usually take the form of design-build-finance-operate and design-build-finance-operate-transfer. Compared with concessions, PFIs have a lower level of private participation and competition, but offer a higher level of safeguard for public values.

Policies: From Finance-oriented to People-centred

Governments' desire to obtain off-balance-sheet financing influenced the initial strategy to adopt PPPs in many countries. To assess performance, a value-for-money (VFM) test is designed to make the best use of government budgets to maximise economy, efficiency and effectiveness. Nowadays, the VFM has been updated to "value for people" (VFP) to optimise the use of natural and social resources—budget, land and carbon credits—to achieve the UN 2030 Agenda for Sustainable Development. Therefore, we see an evolution of the three versions of PPP policies (fig. 3): from financing-oriented (PPP 1.0) to efficiency-oriented

(PPP 2.0), to one that is sustainability-oriented or people-centred (PPP 3.0).

PPP 1.0 attracts private investment to reduce the gap between the need for public goods and the availability of public budgets. The government seeks the accessibility of private funds whereas the private sector focuses on project profitability. The core mission is to design an operational framework, considering financial viability, capital structure, concession period, government guarantees, pricing mechanisms, concessionaire selection, risk management and performance management.

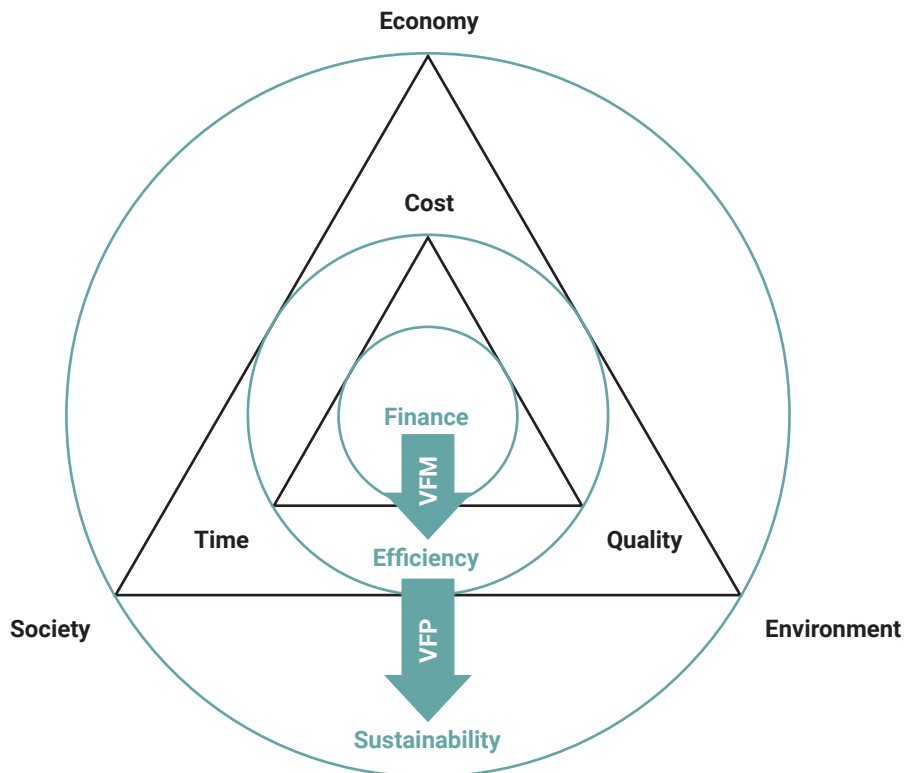


Figure 3. Evolving models of PPP policies.
Image: Wei Xiong, Bin Chen, Huanming Wang and Dajian Zhu

|| We can see an evolution of PPP policies: from financing-oriented, to efficiency-oriented, to one that is sustainability-oriented.



PPP 2.0 uses the skills, innovations and management of the private sector to increase the efficiency of delivering public goods. The private sector is incentivised to reduce costs and increase quality. Thus such PPPs achieve higher cost and time efficiencies, as well as quality, than traditional approaches, assuming the governance framework is appropriately designed. At this stage, the issue is how best to incentivise contracting parties to achieve high efficiency in PPPs.

PPP 3.0 aims to promote infrastructure and public goods for sustainable development. Private-sector participation eases the problem of public funds shortage and the inefficiencies of bureaucracy, but the private sector, being profit-driven, is likely to ignore social and environmental sustainability. Under the SDGs, PPPs should incorporate all debt, social and environmental sustainability.

Debt sustainability refers to the financial capability of governments to meet their financial obligations in PPP projects; social sustainability refers to equity of public service delivery for lower-income groups; while environmental sustainability refers to the environmental impact, resource conservation and pollution control in the construction and operation of infrastructure.

Sustainability-oriented PPPs are frequently referred to as “people-first PPPs”, according to the United Nations Economic Commission for Europe in 2017. To deliver the infrastructure and public services that people really want, PPP 3.0 emphasises the role of public participation in building communities, engaging citizens and increasing the effectiveness of public services. We should put public participation arrangements into the contracts and design indicators to measure the effectiveness of PPPs. 🗨️