



Fostering Investment in Infrastructure

Lessons learned from
OECD Investment Policy Reviews

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OECD Investment Policy Reviews (IPRs) present an analysis of investment trends and policies in the countries reviewed. The reviews are based on the Policy Framework for Investment which raises issues for policy makers in ten policy areas which are widely recognised, including in the Monterrey Consensus, as underpinning a healthy environment for all investors, from small- and medium-sized firms to multinational enterprises. One of these key areas is infrastructure.

This paper draws on 22 reviews undertaken in developing and emerging economies. It identifies actionable policy options to enhance the enabling environment for infrastructure investment, for the consideration of both host-country governments and their international partners.

In 2014 this paper was contributed to the G20 Development Working Group (DWG). As a result, it is being used by the DWG as the starting point for initiating work on policy indicators on the enabling environment for infrastructure investment.

This report has been prepared by the OECD with contributions from, among others:

- a network of high-level infrastructure practitioners gathered by the OECD and the African Development Bank (including institutional investors, infrastructure utilities, fund managers, regulators, Multilateral Development Banks and Development Finance Institutions);
- Southern African Development Community (SADC); and
- Asia-Pacific Economic Cooperation (APEC).

The opinions expressed and arguments employed within this report are those of the authors and are published to stimulate discussion on a broad range of issues on which the OECD works. Comments on the report are welcomed, and may be sent to Karim Dahou or Carole Biau of the OECD Investment Division [karim.dahou@oecd.org | carole.biau@oecd.org].

More information about our work on infrastructure investment is available online at <http://oe.cd/QF>.

TABLE OF CONTENTS

EXECUTIVE SUMMARY: OVERVIEW OF KEY FINDINGS	5
INTRODUCTION	9
1. THE INVESTMENT REGIME UNDERPINNING INFRASTRUCTURE INVESTMENT	11
1.1 National infrastructure planning	11
1.2 Access to land and protection against expropriation	12
1.3 Contract renegotiation	13
1.4 Settlement of infrastructure investment disputes.....	15
1.5 Legal and regulatory coherence, including at regional level	15
1.6 Key policy takeaways	16
2. ENSURING SUCCESSFUL AND LONG-LIVED PROJECTS: MITIGATING PROJECT RISKS AND OBTAINING VALUE-FOR-MONEY	19
2.1 Upstream contract preparation: national investment plans and feasibility studies	19
2.2 Risk allocation	20
2.3 Financing infrastructure programmes	22
2.4 Project monitoring	23
2.5 Key policy takeaways	24
3. INSTITUTIONAL ENVIRONMENT FOR SOUND PRIVATE PARTICIPATION IN INFRASTRUCTURE MARKETS	25
3.1 Role of PPP Units, procurement entities, and privatisation authorities	25
3.2 Peer-learning and training for managing private participation in infrastructure projects.....	26
3.3 Key policy takeaways	27
4. ACCESS TO MARKET: TACKLING SECTOR RESTRICTIONS AND ENSURING FAIRNESS AND TRANSPARENCY IN THE PUBLIC PROCUREMENT REGIME.....	29
4.1 Tackling FDI restrictions in infrastructure sectors	29
4.2 Transparency and predictability of the procurement regime	30
4.3 SOE governance and competition in infrastructure markets	31
4.4 Key policy takeaways	33
5. PRIVATISATION, RESTRUCTURATION, AND STRUCTURAL SEPARATION OF INFRASTRUCTURE NETWORKS	35
5.1 Privatisation and restructuration experiences	35
5.2 Experiences in structural separation	36
5.3 Key policy takeaways	37
6. REGULATION AND PRICE-SETTING IN INFRASTRUCTURE MARKETS	40
6.1 Price-setting for infrastructure markets	40
6.2 Infrastructure sector regulators	41
6.3 Key policy takeaways	43
7. INVESTING IN LOW-CARBON INFRASTRUCTURE	49
7.1 Regulatory reform in the energy sector	49
7.2 Key policy takeaways	51
ANNEX A: OECD GUIDANCE	53
REFERENCES	55

EXECUTIVE SUMMARY

Infrastructure investment needs to be substantially increased in most developing and emerging economies to meet social needs and support more rapid economic growth. According to the OECD, total global infrastructure investment requirements by 2030 for transport, electricity generation, transmission and distribution, water and telecommunications will come to USD 71tn. This figure represents about 3.5% of the annual World GDP from 2007 to 2030. There is a widespread recognition that governments cannot afford to bridge these growing infrastructure gaps through tax revenues and aid alone, and that greater private investment in infrastructure is needed. Private sector participation in infrastructure can help reduce pressure on public finances and increase the portfolio of projects in the public sector investment programme. Governments can also benefit from private sector skills and reap cost and efficiency gains by delegating the construction and oftentimes the management of infrastructure projects to private investors. From an economic growth perspective, infrastructure is not only an enabling factor for development and for facilitating private investments and competitiveness across all sectors of national and regional economies, but can also be an attractive investment opportunity in itself.

Although infrastructure investment opportunities are plentiful across developing countries, investors are not fully seizing them – often due to gaps in the enabling environment for such investment. The infrastructure sector presents specific risks to private investors, and since private participation in infrastructure delivery is a relatively recent form of procurement in many countries, governments do not necessarily have the experience and capacity needed to effectively manage these risks. Beyond case-by-case project preparation and financing, concrete, implementation-oriented guidance that can help governments identify and manage reforms is needed to make the broader infrastructure investment environment more open to private participation. Well-targeted policy reforms can increase the quality and quantity of private investment in infrastructure, a significant complement to public investment.

Country-specific experiences reported in OECD Investment Policy Reviews provide examples of good practice in a number of policy areas, as well as risks to be avoided. Country cases help shed light on the complex links among regulatory and institutional frameworks that make private investment in infrastructure possible. Securing necessary resources and making infrastructure networks more attractive for private involvement is possible by improving the efficiency of service delivery, facilitating investor access to land, and establishing a more level playing field between State-owned infrastructure operators and private investors. In addition improving procurement processes can help ensure that projects are long-lived and secure the expected performance gains. Countries are also reforming their regulatory regimes in order to strike a balance between cost-recovery needs of public and private investors on the one hand, and end-user affordability on the other. More generally, developing national infrastructure plans, improving core standards of investor protection, establishing a clear and well-implemented land policy, and refining mechanisms for dispute resolution and contract renegotiation, are means through which governments can bolster investor confidence, mitigate project risks, and secure responsible investment.

Lessons learned from country experiences for enhancing private participation and end-user affordability in infrastructure sectors

Country experiences provide a variety of options for ensuring that infrastructure projects are competitive, result in value-for-money for governments, and are ultimately acceptable and affordable for end-users. A few of these policy options are highlighted below, and expanded in further detail at the end of each chapter of this paper.

- Increasing private participation in infrastructure investment requires **an investment regime that provides clarity and predictability for investors**, in particular protection against expropriation and provisions for dispute resolution and contract negotiation. A supportive institutional environment is also needed. PPP units, procurement entities, and privatisation authorities need to be provided with adequate numbers of well trained staff, and have well defined responsibilities and co-ordination mechanisms, including for managing cross-border projects.
- **Careful project preparation** is essential to ensure efficient public sector investment in infrastructure. Project appraisal should include cost-benefit analysis and environmental impact assessment; it should also analyse the suitability of projects for private sector participation, making use of the public sector comparator approach combined with a careful analysis of value-for-money and of the risks to be borne by the public and private sector partners. Project proposals which survive initial screening should be included in medium-term public investment programmes, and be coherent with long term strategic visions at national and sector level.
- **Sources of project finance** should be as varied as possible, and include innovative sources such as national and municipal bonds. Special purpose funds for infrastructure maintenance and for addressing social objectives such as universal service provision, or SME development, can also be critical to a successful infrastructure development programme.
- **Improving the public procurement regime** is of particular importance for increasing value for money in the use of public funds for infrastructure investment. This entails, *inter alia*, increasing transparency in the bidding process (including through E-Procurement). Increasing the number of bidders is important for reducing the costs of infrastructure projects. Reducing any remaining restrictions on foreign direct investment in infrastructure – or at minimum assessing the rationale for and impact of such restrictions on a regular basis – would notably help to increase the number of bidders.
- **Improving SOE governance** is of crucial importance for meeting infrastructure investment goals. SOEs in many countries have shown improved performance when they have adopted reforms that include: converting them into corporatised enterprises; separating the ownership and management functions in their governing bodies; subjecting them to the authority of auditing bodies and competition authorities; and ensuring that they follow the same financial accounting and other corporate governance standards as private enterprises.
- **Unbundling vertically integrated supply chains in network infrastructure sectors** (ICT, transport, energy, and water and sanitation) can remove public monopolies and create more space for enterprises to compete. Countries have also often reduced or eliminated restrictions on foreign direct investment. The remaining restrictions can usefully be detailed in so-called “negative lists”, together with explanations justifying their continuation and plans to gradually reduce them.
- **Changes in regulatory regimes** may be necessary to safeguard user affordability alongside cost recovery for private participants. In an increasing number of countries independent regulators are being established to reduce the advantages of incumbent enterprises and to set tariffs for infrastructure services; competition authorities can also be strengthened and mechanisms for co-ordination with sector regulators established.
- **Reforming pricing structures in infrastructure networks** remains necessary in many countries, so as to move these sectors closer to cost-recovery levels. Where this has been possible and politically acceptable (such as in several transport sub-sectors, or the ICT sector and in particular mobile telephony), private sector participation has often substantially increased. Fewer

countries have managed to reform pricing in the electricity and water sectors. Often stepped tariffs or cross-subsidisation are used as an alternative, to move to cost-recovery levels for business and higher income households while continuing to subsidise low income families.

Identifying and analysing these different responses to common policy challenges can be useful not only for developing country governments, but also for the donor community. This can support efforts to better co-ordinate and align development partner support for infrastructure development, in view of greater competitiveness and social wellbeing in developing countries.

INTRODUCTION

Infrastructure networks are likely to have a strong impact on the investment attractiveness of host countries, most evidently as key variables within the production function of firms operating in the country. The extensiveness of the road network, together with the efficacy of the port system and length of container wait times for instance have clear implications for the timely and cost-effective delivery of goods – each day in transit is estimated to cost between 0.6 and 2% of the value of traded goods (Hummels and Schaur, 2012). Likewise, access to water infrastructure has a significant impact on the capacity for agricultural production and innovation, in addition to substantial health impacts on the domestic population. As regards electricity in Nigeria, for instance, it is estimated that private generators (used to compensate for an unreliable grid electricity system) add about 40% to the cost of goods and services produced and that adequate power supplies could boost annual GDP growth by 3-4 percentage points (OBG, 2012).

In addition to being a key enabler of investment, infrastructure can also be a significant and lucrative recipient of investment inflows. Private investment in infrastructure networks, alongside or in place of state-owned operators, has been on the rise worldwide for several decades. However, since the global financial crisis, this momentum has faltered somewhat: in 2010-2012 an average of only 8% of FDI inflows received by OECD countries ended up in infrastructure sectors, as opposed to more than 10% in 2007-2009 (OECD, 2013a). The same applies to developing countries: apart from exceptional investments in energy in Morocco and South Africa, Africa has seen a regular decline in private capital for infrastructure projects, year after year, from 2008 to 2012 (ICA, 2013). The attractiveness of infrastructure as an investment recipient varies significantly among countries: within the OECD in 2012 for instance, the share of infrastructure in total inward FDI stocks for individual countries ranged from less than 1% in Israel to 20% in Spain and 28% in Turkey (OECD, 2013a).

Addressing infrastructure constraints is a priority for the majority of developing country governments. Worldwide, consensus is growing that mobilising private investors to finance and participate in national infrastructure maintenance and development can ease the pressure on public funds and supplement resources for investment. Globally governments have found it more difficult to raise financing for infrastructure in the wake of the 2008-09 crisis and the 2011 downturn. Private sector participation in infrastructure is thus often sought to broaden the resources available for financing the portfolio of projects in the national infrastructural development programme.

By delegating the construction and oftentimes the management of infrastructure projects to private investors, governments are also likely to reap cost and efficiency gains. Evidence collected from the performance of more than 1 200 water and energy utilities in 71 developing and transition economies between 1990 and 2002 indicates that greater degrees of private participation are associated with stronger gains in productivity and service quality. These gains include a 12% increase in the average number of residential water connections, a 32% rise in electricity sold per worker, a 19% increase in the residential coverage of sanitation services, a 45% improvement in the electricity bill-collection rate, an 11% drop in electricity distribution losses, and a 41% increase in hours of daily water service (World Bank PPIAF, 2009).

Indeed besides financing issues, infrastructure development in many developing countries has traditionally been confronted with a problem of investment effectiveness, including poor management and underperforming service provision. Inefficiently-run SOEs, in particular, can adversely affect the quality of network management and subsequently deter private investment. Inefficiencies such as overemployment, poor bill collection, system losses, and irregular maintenance practices by SOEs in infrastructure markets cost about USD 12 billion annually in Africa – detracting public resources from amelioration of

infrastructure networks (Trebilcock et al, 2011). Conversely and in somewhat of a virtuous circle, if efficiency and cost gains are obtained via private participation in infrastructure, these can contribute towards reducing the amount of subsidies required to support infrastructure service provision when full cost recovery pricing cannot be achieved.

Augmenting private sector participation in infrastructure requires addressing not only constraints on the financing of infrastructure – the “push” factors – but also country specific issues – the “pull” factors – including host countries’ investment climates. Numerous work streams have been initiated by the OECD Investment Committee to partner with developing countries in improving the enabling environment for infrastructure investment. For example, the infrastructure chapters of Investment Policy Reviews draw on the Policy Framework for Investment (PFI) to analyse infrastructure investment policy, highlight funding gaps, and identify reforms that governments can take to increase the quality and quantity of both private and public investment in different infrastructure sub-sectors. 22 such Reviews have been conducted to date. These country-specific experiences have shed light on the complex and significant links among the regulatory and institutional frameworks that impact private participation in infrastructure networks, including in green infrastructure. These include frameworks for: investor protection; contract design and renegotiation; infrastructure procurement and public-private partnerships (PPPs); regulation and pricing of infrastructure markets; competition policy; and corporate governance of state-owned enterprises, which often dominate infrastructure markets in both developed and developing regions.

Drawing on the policy experience accumulated through the application of the PFI across developing and emerging economies, this paper highlights transversal policy bottlenecks and priority areas of action necessary for stimulating further private investment in infrastructure. The policy areas considered include: the investment regime underpinning infrastructure investment; mitigating project risks and obtaining value-for-money; the institutional environment for sound private participation in infrastructure markets; market structure considerations, including the regime for SOE governance and competition in infrastructure markets; fairness and transparency in the public procurement regime; and price-setting and regulation in infrastructure markets. Key policy takeaways for consideration by governments are proposed at the end of each section.

The OECD launched an update of the PFI in 2013. The country experiences in this paper will contribute to strengthening the policy relevance of the PFI’s infrastructure chapter.

1. THE INVESTMENT REGIME UNDERPINNING INFRASTRUCTURE INVESTMENT

The infrastructure sector presents specific risks to private investors. Not only do projects tend to be large-scale, capital intensive and with long development timelines, but it can also be difficult for the private party to transfer asset ownership. To a greater extent than in other sectors of the economy, investors in infrastructure are also particularly vulnerable to changes in government regulations (such as a modification in infrastructure tariffs) that can undermine their profitability. In addition as infrastructure development is a critical means of supporting economic growth and catering to essential social needs, government decisions on how much, where and what kind of infrastructure to build are politically charged. As a result governments have traditionally built, owned and managed infrastructure capital themselves.

For all these reasons, making the transition towards more private participation in national infrastructure provision carries a number of risks. Moreover, since certain forms of private participation (such as public-private partnerships or PPPs) are relatively recent in many countries, governments do not necessarily have the experience and capacity needed to effectively manage the risks entailed. Over the past two decades, 37% of PPP projects have thus been conducted in “lower middle income” countries, and 4% only in “low income” developing countries (Trebilcock et al, 2011). Yet public sector capacity for project design and implementation is indispensable in order to obtain value-for-money from infrastructure projects and to avoid unbalanced risk-sharing arrangements which can result in fiscally unsustainable contracts and costly contract renegotiations.

In such a delicate context, investors considering a country’s infrastructure investment opportunities are especially attentive to what in economic terms (in the words of Paul Collier) comes down to government “commitment technologies” – essentially all measures, be they economy-wide, sector-specific or even contract-specific, that make it more difficult for governments to renege ex-post on the commitments made within an infrastructure project.

1.1 *National infrastructure planning*

Government procedures to decide how much to spend on public infrastructure and how to allocate spending, as expressed in medium-term development plans or strategies at the national or sector level, are one such “commitment technology”. These plans are likely to receive careful scrutiny from any domestic or international investor considering investment in the country’s infrastructure networks. Investors will pay particular attention to government intentions to promote private participation, be it in specific utility markets (for instance, plans to increase the number of independent power providers connected to the national electricity grid or to embrace more forms of renewable energy) or through a particular contract structure (as embodied in a PPP Policy for instance). Political commitment is critical for assuring private investors that their investments in national infrastructure will be promoted, and that institutional and regulatory obstacles will be mitigated by government.

Public discussion of national infrastructure plans and other strategy documents is especially important when a shift towards enhanced private participation is undertaken, as this can help modify embedded ways of thinking among government officials and the general public. Indeed investors expect the consistency of the regulatory framework to transcend any given government. In Mauritius, which is a model in this regard, since 2005 the National Development Strategy provides a framework for all public sector investment programmes – including for transport, water and energy utilities; and the Mauritian “Government Programme 2012-2015 for Moving the Nation Forward” sets the objective of ensuring that at least 10% of the financing for major public infrastructure over 2012-2015 should come from Foreign Direct Investment flows.

By contrast in many countries there is a confusing multiplicity of such plans or strategies, which are seldom accompanied by a formal public sector investment programme or by a strategic approach to attract private investment to key sectors. In Colombia for instance, although the project cycle begins coherently with the elaboration of a national development programme (NDP) that determines multi-year investment plans, significant deficiencies include: the absence within the NDP of clearly set priorities as regards PPP projects; key differences between the proposal of projects by the government and the approval by Congress of NDPs (with some concessions being dropped and others appearing without adequate ex-ante evaluation); and lack of coherence between decentralisation policies and national planning policies as regards infrastructure. These shortcomings in turn affect the execution of policies, and may be partly responsible for the high levels of renegotiation of PPP contracts in Colombia relative to other Latin American economies (OECD, 2013h).

National infrastructure plans can also be an opportunity to make space for innovative forms of infrastructure expansion – for instance through shared use of infrastructure networks. Indeed especially in the extractive industries, large-scale projects undertaken in areas that are poorly serviced by existing infrastructure networks often require heavy private infrastructure investments, which have considerable spare capacity. As a result, in several African countries such as Mozambique and Tanzania, the exploitation of natural resources has coincided with a burst of accompanying infrastructure investment. It is becoming increasingly urgent for governments to carefully monitor the development of such ancillary infrastructure: these projects should not be undertaken by individual companies in isolation, but rather within a coherent national framework, which would build on joint economies of scale, tackle coverage gaps in the national network, and address the needs of the domestic population. Protocols could also usefully be established for these mining companies to open their infrastructure to wider use. Governments could also more proactively encourage shared use of infrastructure networks even outside of the extractive sector. For instance internet and telecom operators can ‘piggy-back’ on fibre optic cables pre-installed by rail, road and electricity companies – an advantage that Tunisia is beginning to exploit in the rail sector.

The formulation of reliable national infrastructure plans, or more specifically PPP or privatisation policies, is also especially necessary to reassure investors in contexts where initially divested enterprises have been subsequently re-possessed. Indeed in several countries the strength of the political commitment to private participation in infrastructure has sometimes been ambiguous. In such cases, countries have at times cancelled contracts and retaken possession of facilities (Tanzania, Zambia). In Tanzania, although five major utilities (in electricity, harbours, water, ICT and air travel) involved some private participation by 2003, most of these companies were re-possessed by Government in 2010-2011 for pricing considerations.

Whether politically or socially motivated, such changes in government positions (within a single administration but also across election periods and beyond party lines) send conflicting and deterrent messages to private investors potentially interested in infrastructure investment. Such evolutions confirm that to back national plans and policies, it is paramount that laws, regulations and agreements governing infrastructure sectors are clearly defined and transparent, as well as adequately enforced. These elements are addressed in the following section.

1.2 Access to land and protection against expropriation

Land acquisition is often a major obstacle in infrastructure projects and countries have initiated reforms accordingly. A peculiarity of Indonesian PPP regulations in the past was that projects could be tendered before the necessary land had been acquired, leading to costly delays as landowners held out for higher prices. Following incremental improvements to land procurement regulations, a 2010 regulation ensures that land is procured before the tender process commences. In 2012, a new law on Land Provision

for the Public Interest was also enacted, which facilitates the adoption of a court-led land consignment scheme and reduces by half the time spent negotiating such schemes.

In Myanmar land leasing, from either a public or private owner, remains subject to prior approval by the Myanmar Investment Commission (MIC). When foreign investors lease land directly from the government, it is most often done through a Build-Operate-Transfer agreement, which also requires MIC approval. Most frequently, foreign investors use land through joint ventures with Myanmar nationals who have already leased land from the state. Beginning in 2013, the MIC can also issue permits for sub-leases of land, provided that the land is used for the same investment project as initially planned (OECD, 2014d). However, the difficulties in the achieving the full completion of special economic zones illustrate the challenges in improving land policy and its implementation.

In Zambia strides have been taken to improve access to land for investment purposes, involving close collaboration with traditional local rulers. Improvements in the systems of processing land acquisition applications and registration of titles are being implemented, including through the decentralisation of the Lands Department (OECD, 2012d). Like in Mozambique however, the award and administration of land use rights at the local government level remains a challenge.

The question of access to land is intimately tied to that of protection of property rights – and by extension, expropriation procedures. In the interest of attracting more long-term investment, including in infrastructure, domestic legal frameworks must contain a sound, clear and detailed provision that lays down the obligation for compensation in the event of an expropriation and that clearly sets out the public benefit purposes for which an expropriation can lawfully occur. In Indonesia, the 2012 law on Land Provision for the Public Interest introduces safeguards for more transparent and fair expropriation procedures, including in cases where the government exercises the right of eminent domain. The 2012 provisions: provide a clear definition of public interest; require public and stakeholder consultation from the time when the location is initially designated; secure just and fair compensation through independent appraisal; and establish a single institution responsible for land acquisition, together with a dedicated fund.

In many countries, the protection against expropriation is laid out not only within the national law, but also within international investment agreements (IIAs) signed between the host and home countries. For several decades, IIAs have been designed with a view to nurture investor-state relationships, to attract new investors and reduce perceived risks that can deter investment. They therefore often provide an additional layer of “commitment”, beyond domestic regulations pertaining to investment. However, in order for governments to fully reinforce the credibility of these commitments vis-à-vis all kinds of investors, be they foreign or domestic, they should address potential inconsistencies between levels of protection provided by domestic laws and regulations and within IIAs. Otherwise, discrepancies regarding investment protection can impede legal predictability and transparency for investors. Moreover and as IIAs mostly grant investor protection on a bilateral basis, such disparity risks creating an uneven playing field between investors based on whether or not their home countries have signed IIAs with the host country. This also raises the importance of building domestic capacity for IIA negotiation in developing countries, and raising internal awareness of the commitments to which these countries are agreeing.

1.3 Contract renegotiation

Given the long time-lines of infrastructure projects and the unpredictable nature and variability of many of the risks involved (such as commercial or demand risk), it is highly likely that most infrastructure contracts will have to be renegotiated at least once during their lifetime. Out of 1 000 Latin American concession contracts awarded between the mid-1980s and 2000, 30% were renegotiated. This proportion reaches 54.4% in transport contracts and 74.4% in water contracts. Interestingly, renegotiations often favour the concessionaire: in Latin America, 62% of renegotiation cases studied led to tariff increases, 38%

to extensions of the concession term and 62% to reductions in investment obligations (Guasch, 2004). Such high renegotiation rates point to the importance of adequately addressing the need for contract renegotiation in long-term contractual arrangements – through flexible contracts and renegotiation structures on the one hand, and appropriate mechanisms for dispute settlement in case of disagreement between public and private parties on the other hand.

Most often and provided that the contract structure is flexible enough, these renegotiations take place smoothly and do not lead to disputes between the investor and the state. When disputes do arise, they are in majority settled privately or dealt with by the national courts. The legal framework for concessions and PPPs currently under preparation in Tunisia provides an example of how a degree of contract flexibility can help address demand and revenue risks so as to ensure that projects are resilient to changing economic conditions. Both the forthcoming regulations for Tunisia’s PPP law (currently in draft form) and the November 2013 decree relative to concessions require that project contracts contain clauses specifying in which cases their terms can be revised (for instance in response to unforeseen changes in the needs of the public party or in the financing conditions). Meanwhile in Peru, a single state agency, *ProInversión*, handles all nationwide public infrastructure and utilities, as well as concession and public tender processes. All concession agreements must include a clause on the projects’ economic balance, which means that if – due to the legislative changes – the concessionaire’s profit decreases or its costs increase, economic balance should be re-established. The private investor has a guarantee that if the State executes the redemption clause, which allows it to terminate the concession unilaterally, the State shall pay to the concessionaire the total invested amount and the loss of potential profit (OECD, 2008a).

The Peruvian case provides an interesting example of mitigating political risk and enabling more flexible contract renegotiation. Nevertheless excessive flexibility on renegotiation can also be dangerous, as it can encourage private bidders to deliberately underestimate costs in their offers so as to win the bid, while expecting to break even through subsequent renegotiation. A 2009 econometric evaluation of PPP renegotiations suggests that this is a common tendency. Out of 50 concessions awarded in Chile between 1993 and 2006, total investment increased by nearly one-third via renegotiation – from USD 8.4 billion to USD 11.3 billion (Engel et al, 2009). This in part resulted from weaknesses in the regulatory framework which: allowed for unlimited addition of complementary works under direct negotiation and agreement by both parties; and established an excessively general clause allowing the concessionaire to request compensations when adverse contingencies affected the contract, thus transferring too much commercial risk back to the government (OECD, 2013g). Alongside and as experienced in several other countries, renegotiation was in some cases used to increase spending while shifting the burden of payments to future administrations. Thus the majority of renegotiation costs in Chile were not borne by the administration that renegotiated (Engel et al, 2009). The *OECD Principles for Public Governance of Public-Private Partnerships* seek to help avoid such fiscal mismanagement, by providing concrete guidance to policy makers on how to ensure that PPPs represent value-for-money (VFM) for the public sector.

In view of such risks, Tunisia’s decrees relative to concessions and PPPs (forthcoming) also define in which cases contract modifications are considered to be “substantial” and therefore require launching a new bidding procedure (substantial modifications for instance include: the introduction of contract conditions that would have enabled alternative bidders to be selected initially; a modification of the contract’s economic balance in favour of either public or private party; or a change in the scope of the contract which results in the coverage of services or works not originally included in the contract). Likewise Chile improved the transparency of its concession framework in 2007, with new administrative regulations requiring that any substantive construction work derived from contract renegotiation be subjected to auction. In addition the new concessions law enacted in 2010 established more transparent rules for renegotiation that levelled the field between concessionaires and other potential contractors of complementary works (OECD, 2013g).

Such efforts can help strike a balance between contract resilience and excess flexibility in the contractual terms, so as to ensure that VFM and competitiveness are retained as priorities throughout the lifetime of the infrastructure project. Specifying limits to the financial amounts that can be renegotiated within concessions laws is another frequent approach, although in several countries insufficient enforcement and budgetary oversight has allowed these limits to be frequently exceeded. Indeed as Section 3.2 details further, even in the best of cases well-written contracts cannot overcome institutional weaknesses (Trebilcock et al, 2013).

1.4 Settlement of infrastructure investment disputes

Alongside a balanced approach to contract renegotiation, a reliable structure for domestic arbitration can help settle public-private disputes. In the Chilean case above, while 83% of the renegotiation volume was settled bilaterally between the contracting parties, the rest resulted from decisions from arbitral panels. However domestic arbitration is not always a sufficient or satisfactory recourse, and in some cases infrastructure investment cases are taken to international arbitration fora. Whether a dispute can be taken to international arbitration or not is dependent on the parties' consent to arbitral jurisdiction, which is often contained within an IIA (although consent to arbitration may also be included in an investment contract or within domestic legislation). For these reasons, alongside addressing expropriation risks, domestic legal frameworks can also include as another core standard of treatment the right to resolve through arbitration any disputes that may arise in the course of project operation.

Overall prior to 2003 at least 28 cases relative to arbitrations and settlement agreements in infrastructure projects (involving telecommunications, transportation, water and sanitation, and energy) have been taken to the ICSID tribunal. Out of these, five disputes pertained to concession contracts, six to construction contracts, and seven involved infrastructure privatisation agreements. In a significant number of these cases the disputes have related to tariff adjustments, often triggered by public resistance to cost-reflective pricing (see section 6.1 below). In construction contracts, disputes most frequently relate to allegations of breach of contractual stipulations, or to the final payments due under the contract (OECD, 2006). More rarely the case may relate to repossessions of divested infrastructure services – Tanzania has been involved in four such ICSID cases to date. Most recently the ongoing case between Standard Chartered Bank (Hong Kong) Limited and the state-owned electricity utility TANESCO sheds light on inconsistencies remaining between Tanzania's national framework and its international commitments.¹

These court and arbitration procedures are extremely lengthy and costly, including for the host country concerned, and also send out negative signals to potential future investors. This highlights the necessity of providing sufficiently protective domestic frameworks, consistent with host countries' international commitments, so as to anticipate and manage potential investment disputes in infrastructure projects without necessarily having to refer them to international arbitration.

1.5 Legal and regulatory coherence, including at regional level

More generally and beyond these core standards of investor protection, the clarity and predictability of the infrastructure investment regime may require legal and regulatory harmonisation. Introducing a PPP law is an option, not a requirement, for developing a PPP programme: Indonesia, Thailand, and Brazil have

¹ ICSID proceedings between Standard Chartered Bank (Hong Kong) Limited (SCB HK) and the Tanzania Electric Supply Company (TANESCO, the state-owned operator) were commenced in 2010. In the PPA Tanzania consented to ICSID arbitration. On 12 February 2014 the Tribunal concluded that it had jurisdiction over the dispute and ordered the parties in the light of its findings to renegotiate the disputed tariff. However on 23 April 2014, the Tanzanian High Court ordered both parties (TANESCO and SCB HK) to refrain from “enforcing, complying with or operationalising” the Tribunal's decision.

such laws, while for example Botswana, the UK, Australia, South Africa, and Mexico do not. Nevertheless, dedicated PPP laws can help regulate more specific elements necessary to ensure the success of PPP contracts, as long as they are made ‘user-friendly’ so as to avoid excessive complexity which can otherwise deter public entities from adopting the PPP route. In countries newly seeking to attract investors to PPP projects, the elaboration of a PPP Policy and PPP Law can also be a useful mechanism for guiding procurement agencies, raising awareness, and reflecting the government’s policy stance with respect to private participation in infrastructure (as an additional form of “commitment technology”).

Yet as PPPs are a nascent form of procurement in many countries, pre-existing legislation on investment, procurement and concessions is not always entirely consistent with the new laws. The definition of PPPs, relative to other forms of infrastructure procurement, can especially be subject to confusion for both public and private actors. The conditions for undertaking a PPP may also be too restrictive and give excessive preference to less innovative forms of procurement. For instance Article 14 of Tunisia’s draft PPP law sets the condition that PPPs are to be undertaken only under three conditions: if the contract is too complex (financially or technically) for the public authority to shoulder it; under matters of urgency; or in case of failure or underperformance of similar projects having espoused different contractual forms in the past.

Regulations at sector level may likewise come into conflict with the new PPP or procurement regime. Alongside, some institutional overlap may also occur regarding which authorities are responsible along the different steps of the infrastructure project’s life cycle. Mauritius has for instance sought to overcome this risk by establishing Memoranda of Understanding among the different agencies tasked with the oversight of concession procedures and of infrastructure sectors: MoUs thus exist among the Competition Commission, the Public Procurement Office, and various sector regulators.

Legal and regulatory harmonisation also has implications for projects undertaken at the regional level. Countries can for instance make progress towards common criteria for bid selection and for evaluation of value-for-money and PPP viability. Joint projects could also be facilitated via shared standards for transparency of the procurement process, as well as shared rules on project cancellation and compensation. To avoid ‘free-rider’ risks during project implementation, it is moreover crucial for the governments of all countries involved to commit ex-ante to a sufficient allocation of budgetary resources, and to agree on shared development priorities that should be upheld throughout the course of the project. Country collaboration could be further supported by inter-country Memoranda of Agreement, as well as by mechanisms for regular dialogue between the public parties involved.

1.6 Key policy takeaways

- Changes in government positions on private sector participation in infrastructure (within a single administration but also across election periods and beyond party lines) can severely shake investor confidence. Where they take place, they should be clearly explained and delineated in the interest of preserving future policy predictability. Moreover clear and holistic long-term infrastructure and development plans (which firmly emphasise the role of private sector participation) can help regain investor confidence.
- Governments could take more proactive measures to encourage shared-use of infrastructure networks, through protocols established with private companies and with existing rail, road and electricity operators to open their infrastructure to wider use on appropriate terms. This will be particularly important for countries experiencing a boom in extractive industry investments.
- The legal framework for investment (including such as is established through international agreements, IIAs) must contain a sound, clear and detailed provision that lays down the

obligation for compensation in the event of an expropriation. Other core standards of treatment include a well-defined fair and equitable treatment provision, and a right to resolve through arbitration any disputes that may arise in the course of the project operation. Parties to cross-border projects should agree on a framework for dispute resolution and contract re-negotiation.

- By clearly delineating investment protection principles, countries can also better protect themselves from costly cases of international arbitration. Large discrepancies between what is provided for in the domestic regime and the country's international commitments should be avoided in the interest of clarity and reliability for investors and host governments alike.
- PPP laws can help manage the transition towards greater private participation in infrastructure. PPP laws should usefully include: the definition and scope of a PPP (contractual attributes, size and duration of PPP contracts); the principles by which PPP contracts will be structured, procured, managed, and reported; the modalities by which projects risks will be allocated; and the institutional structure and processes established for managing and overseeing PPPs.
- To give optimal results, PPP legislations must also be consistent with pre-existing and broader-spectrum legislations on investment. They should also be 'user-friendly' for procuring entities; procurement manuals, tailored to country context, can provide valuable help in this regard.

2. ENSURING SUCCESSFUL AND LONG-LIVED PROJECTS: MITIGATING PROJECT RISKS AND OBTAINING VALUE-FOR-MONEY

2.1. *Upstream contract preparation: national investment plans and feasibility studies*

Once national infrastructure development strategies are in place, the next stage is infrastructure investment programming, whereby a preliminary list of priority projects is developed. Colombia and Mauritius provide useful examples of how to embed infrastructure projects within broader public sector investment plans. Colombia's National Development Plan (NDP) includes a multi-year Investment Plan, the main tool for determining the country's investment needs in infrastructure. To monitor the NDP's objectives, a dedicated information system keeps track of the life cycle of the country's public investment projects, from their formulation to budget programming, execution and monitoring (OECD, 2012a). Similarly, the Mauritius Public Sector Investment Programme (PSIP) serves as a basis for Performance Based Budgeting (PBB) by government agencies, identifies possible areas for private domestic and international investment, and highlights policy changes required for encouraging inflows into these areas (OECD, 2014c). Beyond keeping track of public spending, well-organised infrastructure investment programming ensures the coherence of long-term infrastructure development plans, and helps delineate the respective roles of public procurement and private participation in this regard.

Before they are included in finalised public sector investment plan however, and regardless of the degree of private investment, priority projects must be evaluated using such tools as cost-benefit analysis, to ensure that the social, environmental and economic benefits justify the use of public funds, and that the annual costs fit within the budgetary envelope. The evaluation process for each project begins with a pre-feasibility study, followed by full appraisal for projects that survive an initial screening. The latter should consider all relevant aspects of sustainable development, including the environmental and social repercussions of large-scale infrastructure projects. In China, Environmental Impact Assessment (EIA) is a requirement for all development projects under the EIA Law 2002. This law also provides for a strategic environmental assessment to complement the project-oriented EIA process in regional and sector plans and programmes (OECD, 2008c). Finally these evaluation procedures need to be complemented by financial sustainability analysis.

Feasibility studies are particularly useful tools to determine the extent and desirability of public participation in a given infrastructure project – that is, whether the project is amenable to private sector involvement or whether it would be better suited to traditional infrastructure procurement (based on the “design-bid-build” approach). The feasibility study should therefore include a complete risk analysis. Indeed the greater the degree of private sector involvement, the larger the transfer of risks from the public to the private actor (see Figure 2.1). As further detailed in the next section, this large spectrum of risks (from design and construction risk, through demand risk, and to early termination risk²) must be appropriately allocated among public and private parties. The *OECD Principles for the Governance of PPPs* provide guidance on how governments can help secure value-for-money (VFM) when making these infrastructure investment decisions, from the project prioritisation and pre-feasibility stages through to the operational phase.

As noted by the Collaborative Africa Budget Reform Initiative (CABRI), infrastructure project appraisal represents both a useful toolkit and a challenge for decision makers due to the profusion of

² Key project risks include: design and construction risk; operation risk; demand risk; maintenance risk; residual value risk; exchange rate risk; interest rate risk; contractor failure risk; renegotiation risk; early termination risk; force majeure (civil disturbance/ war/ security); technology risk; expropriation risk; breach of contract / non-honouring of sovereign financial obligations.

information needed to conduct a rigorous approach (OECD/CABRI, 2014). Careful upstream project preparation is indeed resource-intensive, and dedicated sources of finance can be a useful way of meeting these costs. India, for example, has established the India Infrastructure Project Development Fund (IIPDF), a revolving fund with an initial budgetary outlay of 1 billion rupees, replenished through fees earned from successful bidders. The IIPDF ordinarily assists up to 75% of project development expenses in the form of interest-free loans (OECD, 2009b).

Figure 2.1. Spectrum of private participation and risk transfer in infrastructure provision

	Low → Extent of private sector participation → High				
	→ Increasing share of risk shouldered by private partner →				
Form of procurement	Traditional public procurement (TIP) & SOE provision		Private Participation in Infrastructure : Concessions & PPPs		Open competition by private operators
Type of contract	Work and service contract (often 1-3 years)	Management and maintenance contracts (3-8 years)	Concessions & PPPs (Operation and maintenance / Build operate transfer / others) where the <u>main source of revenue for the private partners is government</u> (10-30 years)	Concessions & PPPs (Operation and maintenance / Build operate transfer / others) where the <u>main source of revenue for the private partners are user charges</u> (10-30 years)	Full privatisation

Source: OECD Investment Division, adapted from: Straub, S. (2009). Governance in Water Supply. Thematic paper for the Global Development Network project.

Project preparation should also involve adequate consultations with end-users and other stakeholders prior to the initiation of the project, preferably at the planning stage. Indeed private participation in infrastructure is unlikely to be successful unless authorities have assured themselves beforehand that the envisaged undertakings are in the public interest and are acceptable to consumers and other stakeholders. Among the countries considered in this report, Colombia, Indonesia, Malaysia, Mozambique, Nigeria, and Zambia have all made use of BOT modalities to encourage private sector investment in highways financed by tolls. Not all of these projects have met expectations, in part due to weak communication ex-ante which resulted in public resistance once the roads and their tolls became operational. Particularly where newcomers are expected to address long-standing problems of inefficiency or mismanagement, or if the transfer of infrastructure services to the private domain is linked with the introduction of user fees or reduction of subsidies, public consultations can help establish a realistic expectation of what the private sector can achieve.

2.2 Risk allocation

According to the OECD *Principles for Private Participation in Infrastructure*, infrastructure project risks should be allocated to the party who can best control it or bear it at least cost. The private partner is best suited to assume the commercial risk (linked to variations in demand and revenue from users), while the public partner is better able to assume the legal, regulatory and political risks. The balance of risks differs across infrastructure sectors. When a sector is politically sensitive, as the case with water and sanitation for instance, the revenue risk (due to variability in user fees and government subsidies) and sub-

sovereign risks (due to management at local level where capacity may be weak) are greater. When the quality of the existing infrastructure cannot be adequately assessed (e.g. water mains), the possible hidden costs of maintenance and rehabilitation can represent significant contractual risks.

There are four broad types of PPP modalities: management contracts, lease contract, concessions, and build-operate-transfer (BOT) schemes and its many variants. Figure 2.2, adapted from the website of Nigeria’s Infrastructure Concessions Regulatory Commission, illustrates how these different forms of project delivery vary in terms of asset ownership, risk transfer, contract duration, and the share of responsibilities among public and private parties. The Government of India likewise provides a good explanation of these modalities in its on-line toolkit for solid waste management. As these different project types consist in various risk-sharing arrangements that all have their own costs and benefits, it is crucial to ensure that the choice among them will arrive at the most cost-effective option of infrastructure provision that provides the most value for money for end-users.

Figure 2.2. Forms of PPP Delivery: differences in asset ownership, risks, and contract duration

Contract type & duration	Asset ownership	Capital investment	Commercial risk	Responsibility for O&M	Service & payment to private provider
Service contract (1-3 yrs)	Public	Public	Public	Public & private	Definitive fee paid for technical service by Gvt to private provider
Management contract (3-8 yrs)	Public	Public	Public	Private	Private sector manages operation of Gvt service & receives direct fees from Gvt
Lease contract (5-10 yrs)	Public	Public	Private	Private	Private actor manages, operates and/ or maintains a public service to specified stds; user fees charged & rent paid to Gvt. for use of facility
Concessions & PPPs (BOTs, BOOs etc) (10-30 yrs)	Public & private	Private	Private	Private	Private actor manages, operates, maintains and/or invests in infrastructure to specific outputs & stds; fees charged to users; may also pay concession fee to Gvt.

Source: OECD Investment Division, adapted from: Nigeria Public-Private Partnerships Manual, “Overview of PPP Delivery Models”. Nigeria Infrastructure Concessions Regulatory Commission (ICRC, 2012).

This choice on the extent of private participation in infrastructure can be facilitated by transparent public procurement and PPP frameworks, and should be based on assessing the comparative advantage of each potential actor in providing the service. This can include calculating a Public Sector Comparator (PSC), which estimates the hypothetical risk-adjusted cost of a project if it were to be wholly financed, owned and implemented by government and any relevant SOE. *ProInversión* has also developed risk matrices to identify, assign and mitigate possible risks related to concession agreements based on the principle that risk should be assumed by the party that can manage it better (OECD, 2008a). The public sector’s participation in infrastructure project finance should also be fully reflected in the government budget.

In most countries, bid evaluation procedures as well as value-for-money and fiscal viability assessments are explained in guidance manuals provided by a central body, while the actual procurement is usually decentralized to the relevant ministry or local authority. These guidance manuals cover every step of the contract preparation and bidding process, and can easily draw on those developed by international financial institutions. The 2008 ‘Manual on Standard Operating Policies and Procedures’ of Botswana’s Public Procurement and Asset Disposal Board (PPADB), and the 2006 PPP Guidance Manual released by the Mauritian PPP Unit, are two useful – if somewhat dated – examples of such manuals.

In the interest of legibility and relevance for public authorities, this guidance must carefully be tailored to individual country specificities. For instance Nigeria’s Infrastructure Concession Regulatory Commission (ICRC) makes a very user-friendly website available to public authorities, adapted to both federal and state-level infrastructure procurement needs in Nigeria. In addition the Lagos State Office of PPPs details the conditions under which various forms of tendering can take place – from international and national competitive bidding, to two-stage bidding, restricted or selective bidding, single source procurement or framework contracting – together with the recommended timeframe for each method.

2.3. *Financing infrastructure programmes*

According to the World Economic Forum, an estimated USD 60 trillion needs to be invested in global infrastructure between 2013 and 2030 to support growing population needs. Of this amount, only about USD 24 trillion is currently earmarked for the infrastructure sector (WEF, 2013). In developing countries, filling coverage gaps and sustaining growth will imply a doubling of current infrastructure investment levels (EIB, 2010). Although private participation in infrastructure has fallen in recent years due to the global financial crisis, with appropriate incentives it could be returned at least to the previous levels. Alongside these private inflows, public sector investment itself should be increased and better allocated.

On the private sector side, bank financing is difficult in many developing countries due to the narrow, concentrated and illiquid nature of the domestic banking sector. The tightening of banking regulations in the aftermath of the financial crisis could also impede international financing of infrastructure projects. In addition, large banks might also prefer to come in as “brown-field investors”, that is after the field has been tested by other investors. Examples from India show that involving local banks in the early phases of the investment was useful as their knowledge proved critical in assessing the risks. Once the projects proved to be viable, large international players were more likely to come in. Besides, some countries have successfully made use of bank lending secured by companies’ balance sheets: such ‘asset finance’ has been the second biggest contributor to renewable energy financing in Malaysia.

Provided that a stream of revenues from the project can be estimated within a reasonable degree of accuracy, project financing is another option. Since the underlying assets of infrastructure projects are long-lived, these projects lend themselves to long-term financing which usually takes the form of bonds or long-term institutional investment (on behalf of pension funds and insurance companies, or by establishing Special Purpose Vehicles for instance). Malaysia’s Employees Provident Fund (EPF) is the sixth largest sovereign pension fund in the world with over a third of its investment portfolio in loans and bonds, used in part to finance infrastructure projects. The picture is also promising in Africa, where by 2050, USD 7 trillion of assets will be managed by pension funds. In order to tap into this vast latent capacity, national regulations need revisiting. In Nigeria for instance investment in private equity (which usually finances infrastructure) is capped at only 5% for pension funds. Developing a domestic base of institutional investors, with appropriate savings incentives and a proper capital market, can play a decisive role in national growth and enhance domestic capability to address infrastructure needs.

Institutional investors outside of the ‘host country’ (such as pension funds and insurance funds based in OECD countries) also represent a vast and rapidly-growing pool of finance for infrastructure projects in

developing and emerging economies. In principle, infrastructure utilities are an asset class which suits the long-term nature of the liabilities of such funds. Yet worldwide, less than 1% of the assets of insurers, pension funds and sovereign wealth funds are invested in infrastructure. This is in part explained by regulatory constraints: some home countries impose strict controls on the investment of such funds in infrastructure and utilities, especially outside the home country. To overcome such obstacles, in 2014, the OECD has delivered the *G20/OECD High-Level Principles for Long-Term Investment Financing by Institutional Investors*. A voluntary checklist has also been developed against these Principles, to assist governments in self-assessing their support schemes for long-term investment financing. Developing appropriate investment vehicles to access long-term investments, and promoting infrastructure as an asset class for long-term investors, is important. Institutional (and other) investors for instance need a sufficient pipeline of projects in which to invest over the long-term. Currently, however, project financing often requires an ‘investment grade’ credit rating (be it at the project or country level); this can be particularly difficult to secure for developing countries, of which only a minority are comprehensively assessed by international credit rating institutions.

On the public sector side and to complement private inflows, finance can be provided by government budgets, bilateral or multilateral development finance institutions, export credit or guarantee agencies, and development assistance agencies. Public sector finance can also be used to leverage private sector finance, so as to support a portfolio of infrastructure projects substantially larger than if all the finance had to come from the public sector and development partners. Malaysia released its first infrastructure-related bonds in the mid-1990s (OECD, 2013d). Meanwhile Namibia has successfully issued corporate bonds, South Africa has issued municipal bonds and equity, and Mozambique, Uganda and Zambia among others have issued bonds for power sector projects (EIB, 2010). In addition to address the financing needs of infrastructure PPP projects, the government of India has established the India Infrastructure Finance Company Limited (IIFCL) to provide long-tenor debt to infrastructure projects. The government has also launched a scheme for financial support to PPPs to provide “viability-gap” funding to PPP projects that would otherwise not be financially viable (OECD, 2009b).

2.4. Project monitoring

During project roll-out, it is necessary to regularly check to what extent the assumptions made during project preparation align with reality. Ensuring quality delivery during project roll-out requires dedicated staff. They may be a temporary team drawn from the agency in charge of procuring the project or they may be in a permanent unit of government that can be drawn upon for this purpose. For instance India has an independent project monitoring unit in the Ministry of Statistics and Programme Implementation, which can provide monitoring services to other units of government based on MoUs. In the case of PPPs, project monitoring may be done in a dedicated PPP unit. Given the variety of oversight options available, the legal regime for public procurement needs to specify who will be responsible for monitoring project implementation.

For effective monitoring, the procurement contracts themselves must also specify timelines, deliverables, and metrics with enough precision for the monitoring unit to validate the performance of the contractor. In cross-border projects these must be agreed upon by all public parties. Among other methods, contracts can be settled through performance-based procurement (PBP). Under PBPs payments are made based on the quantity delivered during specified time periods subject to a quality standard. In the bidding process the inputs are not specified, as it is up to the contractors to specify how they intend to achieve the desired results. Payments to private providers often take the form of fixed monthly payments plus a variable amount based on performance standards set in the contract. Some contracts also call for retention of payments if results fall short of the quantities specified, or for premium payments in the inverse case.

Various developing and emerging economies have attempted PBP contracts relatively early on (for instance Venezuela in 1997 with Aguas de Monagay, or Jordan in 1999 with Aman Water and Sewerage Management). Some others have attempted a slightly different form of performance contracting, by defining performance targets in terms of improvement rates relative to a benchmark, rather than in absolute levels. For instance in Chile performance of water concessions is measured against a model company, while water sector contracts in both Manila and Jakarta have been segmented into East and West Zones, allowing for direct performance comparisons (OECD, 2009a). By contrast more traditional forms of infrastructure procurement tend to include detailed technical specifications related not only to expected outputs but also to inputs, with less room for innovation (but also less risk transfer) for the private party (see Figure 2.2 above).

The advantages of PBP are their greater cost-effectiveness, and scope for technological innovation. However, there are disadvantages. The need for higher performance security (shifting risk for delivery of outcomes to the private partner) may mean higher project costs and thus may result in fewer qualified bidders; the preparation of functional specifications may require sector-specific specialised training; and the evaluation of options using different engineering specifications may require hiring external expertise. Section 3.2 below addresses in more detail the importance of adequate public sector capacity for managing private participation in infrastructure projects, from conception to contract termination.

2.5. *Key policy takeaways*

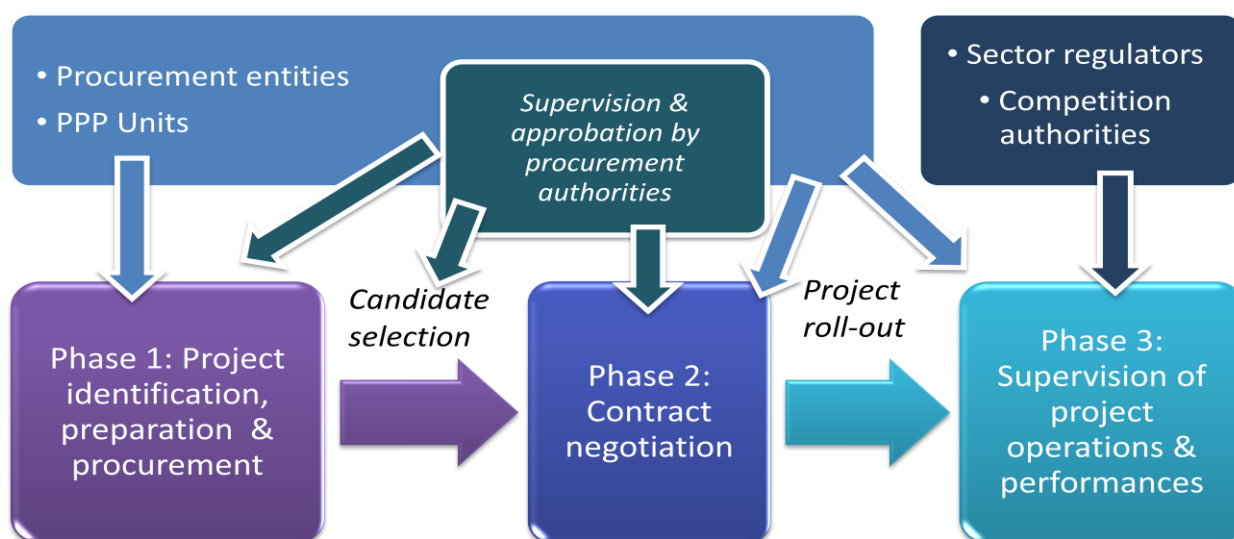
- Investment projects and infrastructure priorities should be developed in co-operation with local and regional authorities, involve public consultations, and be aligned with the strategic needs of specific sectors of the economy. These national strategies and plans should clearly identify the expected role for private investors to play across different infrastructure networks.
- Investment projects should be carefully evaluated by first requiring pre-feasibility studies, and – after screening – be subject to full project appraisal including cost-benefit analysis and sustainability impact analysis to ensure value for money. The public expenditure component of infrastructure investment projects should also fit within the government’s budget envelope.
- Risks should be allocated appropriately between the contracting parties in public private partnerships, as well as among countries in regional projects. The contract modality chosen for a particular project will have implications in terms of asset ownership, project duration, and the degree of technological innovation required in the project. It should also to a large extent determine the degree of risk transfer.
- Sources of finance for infrastructure projects should be as varied as possible, and governments should make optimal use of national and municipal bonds (among other innovative sources). Home countries have a role to play in creating a more enabling regulatory framework that can allow investment by pension funds and other institutional investors overseas. Meanwhile host developing countries can seek to create more avenues for infrastructure bank financing, by improving the liquidity and breadth of domestic financial markets.
- Monitoring project roll-out requires skilled and dedicated staff in dedicated PPP Units, or other agencies responsible for project monitoring. Performance criteria can be specified in the contract and be associated with a system of penalties and rewards based on the level of performance.

3. INSTITUTIONAL ENVIRONMENT FOR SOUND PRIVATE PARTICIPATION IN INFRASTRUCTURE MARKETS

3.1. Role of PPP Units, procurement entities, and privatisation authorities

The shift towards private sector participation in infrastructure places new demands on government agencies and involves the responsibilities of multiple bodies (see Figure 3.1). Most countries have established a public authority for co-ordinating public procurement at the national level, as well as authorities for receiving appeals of procurement procedures and for overseeing privatisation processes. Many have also established specific PPP units, although with differing levels of capacity.

Figure 3.1: Implication of public agencies in the roll-out of public procurement infrastructure projects



Source: NEPAD-OECD Africa Investment Initiative (created by author)

Together with Ministries of Finance, various oversight and management authorities are frequently established in order to secure an efficient use of public funds, and to ensure that public procurement is carried out in a fair and transparent manner. Most frequently this includes: central procurement authorities, which approve the award of contracts by procurement entities, and channel and re-direct all tendering and bidding from line ministries and local government (established in most countries); procurement appeal authorities with complaint and dispute resolution functions (such as the Mauritius Independent Review Panel, or Botswana's Independent Complaints Review Committee); and privatisation authorities, to oversee procurement that takes the form of outright or partial divestiture, and to monitor the performance of public entities once they have been privatised. The latter authorities tend to have a mixed track record in developing countries, with limited visibility and effectiveness relative to the line ministries responsible for initiating the divestiture process. Tanzania's Consolidated Holdings Corporation (CHC), and Tunisia's *Commission d'assainissement et de restructuration des entreprises à participation publique* (CAREP), for instance both operate somewhat on the side-lines of restructuring and privatisation processes regarding infrastructure companies.

In addition to the above agencies, actual procurement is carried out by the procurement entities in line ministries. The line ministry or the procuring entity's accounting officers and staff retain overall

responsibility for identifying, developing, implementing, monitoring, and managing infrastructure projects in their relevant sectors – relying, in the case of PPPs, on the technical guidance of PPP Units. Both procurement entities and PPP Units are thus involved from the outset of project. Project teams are also often created from among line ministry and other government entity staff, as well as external advisors to develop and procure specific PPP projects.

While there are several institutional options for implementing a PPP programme besides establishing a PPP Unit, this has been the preferred route for many countries. Dedicated PPP Units are most often located within Ministries of Finance, which are well-placed to co-ordinate and support efforts of each line ministry. This also places the PPP projects under close supervision of budget officials and of the Auditor General who can assess the fiscal feasibility and value-for-money of projects. Other approval bodies, including the Cabinet and Parliament, must also ensure that proposed PPP projects are in line with the budget and policy priorities. Passing all projects through the Ministry of Finance for approval of their fiscal implications moreover lowers the risk that PPP Units are bypassed in procurement processes (OECD, 2012c). When PPP Units are independent of the Ministry of Finance they can be more easily side-lined or over-ruled.

The institutional roles and responsibilities of agencies responsible for design, negotiation and roll-out of infrastructure procurement (whether using the traditional procurement, the PPP, or the privatisation route) must be well defined and delineated. On the legal front, this requires full alignment of all relevant legal and regulatory frameworks and the administration (notably to ensure consistency with former regulations on concessions and procurement, and to align line ministries and regulatory bodies against common infrastructure development objectives).

3.2 Peer-learning and training for managing private participation in infrastructure projects

On the practical level, multiplication of the number of agencies should be avoided as this can blur lines of accountability. It is equally important that governments provide these agencies (including PPP Units) with sufficient resources to attract top-level staff with the necessary expertise. In developing countries, PPP Units are seldom adequately staffed and trained: they face difficulties in ensuring a prudent and coherent procurement process, and in negotiating and monitoring infrastructure contracts on an equal footing with private investors. In 2011 Botswana's PPP Unit comprised only two part-time staff-members, which considerably weakened the credibility of the country's PPP pipeline; by contrast the Lagos Office of PPPs brings together highly trained staff with considerable private sector expertise, which provides guidance to all other states in Nigeria. It will be involved in supporting the establishment of equivalent branches across the country (OECD, 2014e).

Peer-learning on a regional level can also be effective to build the requisite public capacity. For instance the SADC Public-Private Partnership Network (SADC 3P) brings together PPP Units from all member states of the Southern African Development Community to address common challenges to attracting and retaining bankable PPP projects in African infrastructure markets. Meanwhile in the interest of building capacity at the regional level and harmonising the enabling environment for infrastructure investment across its Member States, the SADC Secretariat is putting together regional guidelines for infrastructure investment. This will form one pillar of the SADC Regional Investment Policy Framework, currently under elaboration in partnership with the OECD. Along similar lines, the Asia-Pacific Economic Cooperation is preparing APEC Guidelines on Infrastructure Investment, which should help deliver bankable projects and ultimately enhance the capacity of the region's infrastructure to support trans-national supply and trade chains.

Beginning with a pipeline of small-scale, low-risk 'pilot' PPPs can also help build the necessary public capacity and experience. Similarly, training workshops can help enhance public sector familiarity

with PPPs and other contract modalities, as long as these trainings are well tailored to country specificities. Making sure that capacity exists within contracting authorities at local level is also essential. In India, in order to meet the capacity requirements of public institutions for preparing a pipeline of bankable PPP projects and for responsibly managing the project process, state governments and central ministries are being provided with technical assistance in the form of in-house financial/risk experts, management information system (MIS) experts and access to a panel of legal firms. To intensify capacity at state and municipal level, a curriculum for training at state administrative institutes and a “Training of Trainers” programme are also being developed. India has also rationalised procurement and concession procedures, which can likewise help meet the capacity challenge. Standardised sector-specific model concession agreements and bidding documents have also been prepared (OECD, 2009b).

3.3. *Key policy takeaways*

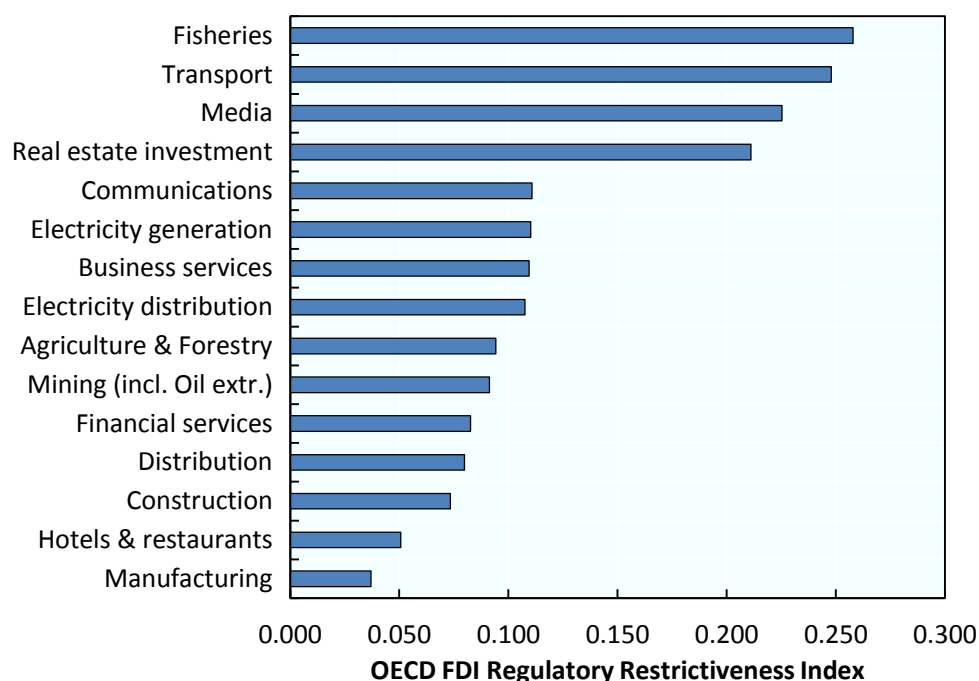
- PPP Units, procurement entities and privatisation authorities should be located in appropriate ministries, and equipped with sufficient numbers of well-trained staff with experience in the private sector.
- These agencies must be given clear mandates and sufficient resources in order to both: ensure a prudent and coherent procurement process; and negotiate and monitor infrastructure contracts on an equal footing with private investors, in view of protecting the interests of society. Multiplication of the number of agencies should be avoided so as to avoid blurring lines of accountability.
- Where possible, capacity-building efforts (and the expertise of PPP Units) should be extended to the local government level in order to facilitate private participation in small-scale infrastructure projects. Beginning with a pipeline of small-scale, low-risk ‘pilot’ PPPs can also help build the necessary public capacity and experience.
- Dedicated authorities can facilitate oversight of procurement processes and enhance investor confidence. Procurement boards, agencies tasked with dealing with procurement complaints, and bodies which can monitor the performance of former SOEs once they have been divested or privatised, must be granted the requisite political clout and technical capacity to facilitate (and to assess the impact of) private participation in infrastructure networks.
- Regional infrastructure projects require shared standards for oversight and transparency of infrastructure procurement processes, including common criteria for bid selection, and co-operation across procuring entities.

4. ACCESS TO MARKET: TACKLING SECTOR RESTRICTIONS AND ENSURING FAIRNESS AND TRANSPARENCY IN THE PUBLIC PROCUREMENT REGIME

4.1. Tackling FDI restrictions in infrastructure Sectors

Restrictions on private ownership are still relatively common in strategic infrastructure sectors across countries. These can involve a blanket restriction on any form of private participation, whether it be domestic or foreign; or restrictions that are specifically imposed on foreign direct investment (see Figure 4.1). Foreign equity restrictions are by far the most important type of restriction in infrastructure sub-sectors, and can take different forms: sometimes the scope is limited to only acquisitions and sometimes to both acquisitions and greenfield projects; sometimes it applies only to listed companies or to investments in a specific company, most notably in former state monopoly holders; sometimes there is an overall cap of foreign investment in the entire sector, allowing foreign investors to compete in the marketplace, but only up to a certain limit. Regardless of the type of measure, these restrictions usually aim to foster linkages with the domestic economy or to protect national interests; however, as discussed below, they seldom secure the intended effect and can in fact result more in protecting specific interest groups than in stimulating domestic entrepreneurship more broadly (OECD, 2014).

Figure 4.1 OECD FDI Regulatory Restrictiveness Index for secondary and tertiary sectors, 2014³



Source: OECD FDI Regulatory Restrictiveness Index database, 2014. www.oecd.org/investment/fdiindex.htm.

³ The OECD FDI Regulatory Restrictiveness Index covers only statutory measures discriminating against foreign investors (e.g. foreign equity limits, screening & approval procedures, restriction on key foreign personnel, and other operational measures). Other aspects of an investment climate (e.g. the implementation of regulations and state monopolies among others, which can be significant in infrastructure sectors) are not considered.

Most of the 22 countries covered by OECD investment policy reviews since 2006 have made large strides towards opening their economies, including infrastructure sectors, to domestic and foreign private investment. In most cases where FDI is not allowed, the sector or sub-sector involved is closed to private domestic investment as well, with a SOE enjoying a public monopoly. This is often the case for: fixed line telephone services; transmission and distribution of energy, especially grid-based electricity; railroads, airports, and maritime ports; and improved drinking water. The transport sector, particularly air and maritime transport sectors, including airport and port operations, tends to face greater restrictions.

The OECD's FDI Regulatory Restrictiveness Index includes seven infrastructure sub-sectors and has been compiled for 15 of the 22 countries considered here. In developing countries in particular, these sector restrictions on foreign investment are frequently combined with clauses within public procurement legislation establishing preference margins for domestic bidders to infrastructure contracts (in Botswana, Mozambique, and Tunisia among others). Many countries (such as Mauritius or Botswana) also establish preference margins for SMEs to encourage their participation in infrastructure projects that are often dominated by large firms. Where they are used, it is important to ensure that such schemes are well-targeted and do not compromise the quality of the procured product or service. The more effective schemes include caps based on the volume and technical complexity of projects, and are accompanied by supply-side efforts to enhance the capacity of domestic suppliers so that they can offer truly competitive bids.

Such restrictions clearly impose a first-order limitation on the level of private participation in infrastructure markets. While these measures may actually be justified and serve the purposes of public policy, the overall effect on investment can be significant and not only limited to the equity threshold allowed, since potential foreign investors may shy away from entering the market if majority control is not possible. Domestically-owned companies may also operate with higher levels of debt than they would wish if greater levels of FDI were permitted (OECD, 2014a). Rather than excluding foreign participation outright, participation in infrastructure sub-sectors could be accompanied by business linkage and training programmes, as well as SME financing schemes to promote greater involvement of domestic suppliers in infrastructure projects.

Should sectoral restrictions be left in place, they must be clearly set out and delineated in an easily accessible document, such as a "negative list" that groups all such restrictions. In Indonesia for instance, a new Negative List was issued in 2010 (Presidential Regulation 36/2010) which offers both increased sectoral liberalisation and an improved presentation of what was previously a confusing array of overlapping restrictions. Foreign equity restrictions still vary greatly by sector, as ministries have been largely free to set their own equity limits, but most are now set either at 49% or between 51 and 95%. Some electricity sub-sectors, drinking water, toll roads, and ICT subsectors have all been substantially liberalised (Indonesia, 2010a). Such an approach greatly improves legibility of the investment regime for prospective infrastructure investors.

4.2. *Transparency and predictability of the procurement regime*

The degree of transparency, fairness and predictability of public procurement regimes also has a strong impact on whether private investors can operate in infrastructure markets on a competitive footing with incumbent operators (frequently state-owned), and more generally with other bidders for infrastructure projects. A 2012 OECD review of public integrity in Tunisia suggests that some of the largest opportunities for corruption prior to 2011 indeed resided in public procurement procedures, notably involving large-scale concession projects. A clear and transparent public procurement framework can help avoid such risks, and ensure that project proposals are assessed in a neutral and fair manner. The procurement regime can also help verify that bids (especially in the case of PPPs) are selected with adequate attention to risk-sharing, budgetary oversight and value for money. Savings from more competitive procurement practices are estimated to be as high as 8% of total project development costs.

However to realise savings of this magnitude, the optimal number of bidders reaches seven in the road and water sectors and three in the electric power sector (EIB 2010). This in turn increases the need for a greater number of qualified staff in procurement agencies.

Procurement legislation should include the following measures for greater ease of understanding and transparency: commitments to public announcements of tenders; standard or model contracting agreements; procurement appeal provisions; and objective eligibility requirements and evaluation criteria. Clear and consistent rules for transparent bidding and tendering procedures should be established, so as to guide the choice among different forms of public, private, and hybrid provision of infrastructure services. This includes consideration of VFM, financial sustainability, and risk analysis among others. Other good practices include a prescribed timetable for the duration of the procurement process, differentiated according to national bidding, international bidding, and restricted bidding; clear procurement appeal procedures; and a well-defined list of information which must be provided to all bidders and to the broader public.

A number of developing countries, including several that have been the subject of OECD reviews based on the PFI, have been implementing electronic procurement systems (“E-Procurement”) to improve transparency and reduce corruption, notably by conducting transactions between awarding authorities and suppliers over the Internet. E-Procurement covers every stage of purchasing, from the initial identification of a requirement, through the tendering process, to the payment and potentially contract management. Developing countries recently introducing such systems include Colombia, Malaysia, Mauritius, Kenya, and the State of Andhra Pradesh in India.

Simplifying procurement procedures can also help cut ‘red tape’, accelerate the process, and especially facilitate participation by small-scale bidders. To encourage renewable energy investment, Jordan has for instance simplified its procurement process by allowing domestic and international companies to submit unsolicited proposals for renewable energy projects directly to the Ministry of Energy, instead of through a regular bidding process. In addition, residential and commercial establishments that have installed renewable energy facilities on their premises are allowed to sell any excess electricity to the national utility even without following a procurement procedure, thereby offering a strong incentive for clean energy use at small-scale (OECD, 2013c). Nevertheless it is important to ensure that simplification does not ‘cut corners’ and come at the cost of due diligence and careful upstream contract selection. The many infrastructure PPP projects in Spain which were awarded on a mere ‘least-cost’ basis rather than based on adequate risk analysis, suffered considerably from such over-simplification in second half of the 2000’s (Foster, 2011).

4.3. *SOE governance and competition in infrastructure markets*

Beyond FDI restrictions and procurement procedures, the regime for corporate governance of state-owned enterprises (SOEs), as well as the competition regime, can both significantly influence how much space is left for private investment in infrastructure markets. In many economies SOEs still represent a non-trivial share of the productive economy: on average across OECD countries for example, SOEs account for 2.5% of national dependent employment. SOE employment share exceeds 6% in Norway, France and Slovenia. SOEs are also often present in crucial segments of the economy, with 50% of SOEs from OECD countries by value operating in network industries (electricity and gas, telecommunications and other utilities, and transportation). These shares are even higher in most developing countries. The governance of SOEs is thus critical to ensure their positive contribution to the overall economic efficiency and competitiveness of the country.

SOE efficiency and good governance vary across countries. While in some countries the cost of subsidies and other forms of financial support to these companies is not excessive (Botswana’s SOE in

telecoms is for instance profitable), in others this exerts a considerable drain on the public purse (Tanzania has thus repeatedly bailed out loss-making SOEs). The dominant position of SOEs can also create market distortions, with an impact on the potential for private participation: in Myanmar SOEs enjoy a lower cost structure as they benefit from preferential access to finance in the domestic financial market, preferential land allocation, low utility prices, low-interest loans, and easy licensing processes. Yet the majority of SOEs are not commercially viable because they are often inefficiently operated. Their recurring financial losses worsen national budget deficits, increase their debt levels and result in a shortage of funds for business expansion (OECD, 2014d). Ineffective SOE management can also result in poor infrastructure maintenance, service quality and network coverage – which in itself can also deter private participation. Following some basic corporate governance principles, including the same accounting and auditing standards as for listed companies (see Box 4.1), can help tackle these issues by pushing SOEs to raise their standards of accountability and transparency.

SOEs should not be exempt from the application of general laws and regulations, including high quality accounting and auditing standards. They should also have flexibility in adjusting their capital structure, and face competitive conditions regarding access to finance. Mauritius provides a good example in this regard. Functional separation⁴ can help to identify in which areas profits or losses are made, and can therefore shed light on what operations the SOE is best-suited to shoulder, as opposed to the functions that would be best left to private actors. If well-managed, enhanced functional separation can help SOEs to better focus their staff and resources on delivering higher value-for-money and quality infrastructure services to the general population. Functional separation and the associated efficiency gains can also better prepare SOEs for potential competition once infrastructure sectors are liberalised, and can pave the way for privatisation in functions deemed better-suited for private sector provision.

Box 4.1. Principles for sound corporate governance of SOEs

A good corporate governance framework includes high levels of transparency and disclosure and well-defined shareholder rights. The OECD Corporate Affairs Committee has developed a set of principles for the corporate governance of SOEs, which include the following:

- SOEs should develop efficient internal audit procedures and be subject to an annual independent external audit based on international standards.
- Adequate disclosure of material information is also important to foster accountability, in particular relating to any financial assistance received from the state, commitments made on behalf of the state and any material transactions with related entities. Such transactions are often a significant source of an uneven playing field for investors, particularly in weak institutional environments.
- Publishing annually an aggregate report on SOEs, focusing on their financial performance and their valuation, and giving an overview of their evolution also helps to ensure public accountability of SOEs. Secondly, the ownership function of the state has a strong influence on the overall investment environment. The involvement of the state in SOEs needs to be clearly separated from other state functions, including regulatory oversight, to help ensure a level playing field for all investors, especially with regards to complying with laws and regulations.
- The state, while being an active and informed owner, should not interfere in the day-to-day management of SOEs, leaving their boards with full operational autonomy to realise their defined objectives and fulfil their function of strategic guidance and monitoring of management. Board

⁴ “Functional separation”, carried out within formerly vertically integrated industries often managed by SOEs, should not be confused with “structural separation” which divides a formerly integrated infrastructure company into competitive and non-competitive parts, thus making more space for private participation in one or more segment.

members should be nominated through transparent processes, based on competencies and experience and should act in the best interest of the company as a whole, rather than as representatives of the constituencies that appointed them.

- SOE boards should be independent to be able to protect minority shareholders. In particular, the government should prevent SOE managers during the privatisation process from becoming incentivised by third parties, especially where new owners are identified prior to transfer of control.

Source: OECD Corporate Affairs Committee

Alongside infrastructure sector regulators, competition authorities can play a role in guiding the process of structural separation in infrastructure networks (see Section 5.2). Countries must decide whether such separation can be imposed by regulators to improve the existing market structure (even in the absence of an infringement of competition law), or whether it can be imposed by the Competition Authority only as a remedy for competition violations. In the latter case, structural separation needs to be enshrined within the competition law itself. Countries have different approaches to this question. While divestiture, which would include structural separation, is not available as a remedy under the ‘abuse of dominance provisions’ in Australian law, in Chile the Antitrust Commission can impose structural separation as a remedy if it finds that there has been a violation of competition rules.

More generally, competition authorities can help creating a more level playing field between SOEs and private actors if their advocacy is taken into consideration at the adequate political level. They can for instance denounce abuse of dominant market position by SOEs, as well as disproportionate subsidisation by Government; and can also help ensure that privatisation processes are adequately carried out (for instance that private bidders are not offered market exclusivity clauses – see Section 5.1). To play this role effectively, competition authorities require adequate political support and independence, in particular when they must challenge vested interests in utility markets. Mauritius is a strong performer in this regard, as two competition cases launched since 2009 involved Air Mauritius and Mauritius Telecom, both of them SOEs (OECD, 2014c).

4.4. Key policy takeaways

- The benefits of private sector participation in infrastructure are enhanced by efforts to create a competitive environment, including by subjecting activities (including those undertaken by SOEs) to appropriate commercial pressures, dismantling unnecessary barriers to entry and implementing and enforcing adequate competition laws.
- If they exist, preference margins for domestic versus foreign bidders in infrastructure procurement contracts should be made public and their impact on business linkage creation should be regularly assessed; in the interest of safeguarding infrastructure quality, these margins should also be calibrated according to project size and to the specificities of infrastructure sectors (including technical complexity).
- Preference margins to encourage SME participation in infrastructure contracts should be accompanied by supply-side efforts to increase SME productive capacity. SME financing schemes can also be used to promote greater involvement of domestic suppliers in infrastructure projects.
- Procurement legislation should be amended or updated to include measures for greater transparency in procurement contracts agreed between SOEs and private bidders. These measures

can include: public announcements of tenders; standard contracting agreements; procurement appeal provisions; and objective eligibility requirements. Electronic procurement systems (E-Procurement) can also help improve transparency and reduce opportunities for bid-rigging.

- Principles and procedures for choosing between procurement methods (PPP/concession vs. traditional infrastructure procurement) should rely on value-for-money (VFM) principles and the process should be made public. Presenting these procedures in a user-friendly manner for public authorities, for instance in a public procurement or PPP manual, can be a useful step towards increased legibility and VFM.
- Corporatising SOEs can produce efficiency gains in their operations and is usually a necessary step in a privatisation or divestiture process. Moreover SOEs should generally not be exempt from the application of general laws and regulations, including high quality accounting and auditing standards, such as International financial Reporting Standards (IFRS).
- National codes of corporate governance can have a chapter/section (or a separate code) dedicated to corporate governance of SOEs. This can draw on international best practices as reflected in the OECD *Principles of Corporate Governance*, and, more specifically, on the *Guidelines of Corporate Governance of SOEs*. In such codes the commercial activities and their social/developmental activities of SOEs should be clearly distinguished.

5. PRIVATISATION, RESTRUCTURATION, AND STRUCTURAL SEPARATION OF INFRASTRUCTURE NETWORKS

At an early stage of economic development most countries' infrastructure networks tend to be vertically integrated industries managed by SOEs. In the 1980's privatisation and divestiture was widely considered as a means of improving efficiency in these networks. More recently, unbundling these networks – structural separation, which retains public participation in certain segments of the network industry – has become increasingly popular. It is considered to be a major facilitator of competition and private participation in infrastructure. However both privatisation and structural separation are complex undertakings that require careful cost-benefit analysis and supportive institutional structures. This section considers country experiences firstly as concerns privatisation and restructuration, and secondly as concerns structural separation.

5.1 *Privatisation and restructuration experiences*

Elements of natural monopoly throughout infrastructure sectors make it difficult to establish conditions for effective competition. Authorities achieve the best results by exposing as many activities as possible to competitive pressures, while subjecting areas of monopoly or scant competition to regulation in the public interest. An internationally open investment environment may facilitate competition, and enhance its benefits, by widening the number of potential participants and broadening the “relevant market” beyond national borders.

The broad legal framework bearing on SOEs should provide for a periodic reassessment of whether companies eligible for privatisation are better operated under public or private ownership; it should also establish in a transparent manner which entities are authorised to make privatisation decisions. As Section 3 highlighted, dedicated agencies for privatisation and restructuration of SOEs exist in several countries (such as Botswana's Public Enterprise Evaluation and Privatisation Authority, PEEPA; Nigeria's Bureau of Public Enterprises; Tanzania's CHC; or Tunisia's CAREP). However, frequently these agencies play a weak role in overseeing the performance of the privatised entities ex-post; and they rarely have significant clout in pushing the privatisation or divestiture efforts ex-ante.

It is nonetheless critical that SOEs selected for privatisation be put on a corporate footing prior to the sell-off, with due consideration to the corporate governance framework in which these enterprises will operate following the transfer to the private sector (see Box 5.1). The rationale behind each privatisation should be transparently communicated to the public, with supervision by an auditing body that is well-resourced and independent from the executive. In China, due to weak safeguards for transparency, the first round of privatisation in the 1980s led to excessive dividend distribution and insufficient investment; and a subsequent round in the mid-1990s concentrated share-holding in the hands of former managers and key employees to ensure insider control (OECD, 2008c).

The case of Zambia illustrates some of the difficulties encountered in establishing effective SOE governance regimes. As a result of the privatisation programme, over 260 SOEs have been privatised since the early nineties. A few SOEs remain in the energy, building, finance and insurance services. However, in the absence of a co-ordinating central ownership unit, most SOEs are supervised by their line ministries, who also have regulatory and executive responsibilities in the SOEs' areas of operation. Although in all SOEs and statutory corporations the government has relinquished management control to appointed boards of directors, there therefore remains a conflict of interest and board independence is limited. While in principle SOEs do not enjoy preferential treatment by virtue of government ownership, they do obtain protection where they are not able to compete or face adverse market conditions.

In Viet Nam SOE reform and privatisation has been underway for nearly 30 years. There were about 12 300 SOEs at the beginning of *Doi Moi*. Initial reform measures in the late 1980's sought to dissolve unprofitable SOEs and reorganise others through merger and consolidation; profit-based accounting was introduced and output targets were replaced with profit targets; this was followed by a corporatisation programme beginning in 1992, which has slowly improved efficiency. By the end of 2007, over 33 00 SOEs had been corporatised, 200 of which are listed in the stock market (Viet Nam 2009). Morocco, in turn, has progressed towards better SOE governance by turning selected public establishments into limited corporations as a first step, and strengthening State financial oversight of these enterprises as a second step. The functioning of SOE boards of directors has also been enhanced, by separating and clarifying the functions of the board president and director general, as well as reinforcing shareholder rights.

Competition authorities should be closely involved in the corporatisation of SOEs. Indeed a concern of governments and competition authorities has been to avoid replacing public monopolies with private ones. This challenge has sometimes been exacerbated by the pursuit of conflicting objectives, in particular the desire to create more efficient industry structures, on the one hand, and the desire to sell state-owned assets at the highest possible prices, on the other. The latter has sometimes led governments to grant market exclusivity to foreign investors, a non-transparent incentive to FDI and a restraint on the degree of competition. Reconciling competing interests between political elites, the temptation to use SOEs as a source of political patronage, and the general interest is often a delicate balancing act. For these reasons a competitive bidding process should be conducted when privatising enterprises, and competition authorities should play an active role in the process – although this is not always the case in the practice.

5.2 *Experiences in structural separation*

Based on the experiences of structural separation in four regulated industries (gas, electricity, telecommunications and rail) across 34 OECD member countries, the OECD Competition Committee has argued that any policy-driven separation needs to be justified by a thorough cost-benefit analysis. As emphasised by the *OECD Recommendations Concerning Structural Separation in Regulated Industries* (2001), determining whether and what form of separation is appropriate in a particular sector must take into account several factors: the presence of economies of scale and scope; the rate of technological innovation in the sector; the effectiveness of other forms of regulatory intervention; the possible trade-off between competition and efficiency (related to vertically integrated firms' ability to better maximise profits along the production chain); and the likely impact on investor confidence and thus on levels of investment (OECD, 2011b).

In moving towards unbundling integrated network industries, countries wishing to encourage private participation in infrastructure have also revised their sector regulation to remove the monopoly status of utilities in infrastructure sectors such as energy and water. It has meant increasing the allowable percentage of private participation, and in some cases removing restrictions to foreign ownership altogether (see Section 4.1). In Indonesia, state monopolies have thus been eliminated in telecommunications over the past decade and currently also in the operations of major ports. Increased private participation is possible in toll roads, railroads and power generation. Where SOEs still operate, efforts are under way to ensure that they do so on commercial principles, under an independent regulatory authority (OECD, 2010a).

In the power sector, a first step towards the establishment of a competitive electricity market is often the shift from a fully vertically integrated monopoly to that of a 'single-buyer-model' whereby independent power producers (IPPs) contract with a national utility. However this model should be used with care: if poorly implemented it can lead to substantial losses to the public purse, as government is expected to step in if the "single-buyer" (or state-owned transmission and distribution company) cannot honour its obligations to the independent generators. In 2006 the Tanzanian state-owned 'single-buyer' TANESCO was paying more than 50% of its revenue to the country's two IPPs, in the form of fuel and capacity

charges. The latter alone were equivalent to 1% of GDP, obliging the government to step in and cover some of these costs for TANESCO (Eberhard et. al., 2006). Conversely in India in 2009, some IPPs in states that had surplus production had to sell their output at lower prices to the state-owned buyer – who in turn sold it at a premium to consumers in other states. Table 5.1 on the following pages identifies further trends for structural separation across different infrastructure sectors and countries, together with the risks and opportunities entailed.

5.3 *Key policy takeaways*

- Encouraging private participation in various infrastructure sectors can be facilitated by increasing the allowable percentage of private participation (including foreign) in those sectors. Sectoral restrictions on foreign direct investment, in particular, should be clearly set out and delineated in an easily accessible document, such as a “negative list” that groups all such restrictions.
- FDI restrictions should be justified based on well-defined social or economic objectives, and should be reviewed on a regular basis with a view to rationalising them. Rather than excluding foreign participation outright, such participation in infrastructure sub-sectors could be accompanied by business linkage and training programmes.
- Unbundling of infrastructure markets can increase the menu of options for private investors and thus facilitate their greater participation in infrastructure. This should be done with due attention to the possible risks involved: in the power sector, proper due diligence and evaluation of needs should be undertaken when using the single buyer model, so as to prevent high fiscal costs for the government.
- National competition authorities should have the capacity to weigh the costs and benefits of structural separation of infrastructure markets, and should have the mandate and political backing to perform a policy advisory role in infrastructure privatisation and divestiture processes.
- Countries should have a dedicated national authority for oversight of privatisation procedures and/or of all public enterprises. This should include responsibilities for supervising the performance of formerly public enterprises in the first years following their privatisation.

Table 5.1: Trends of structural separation in infrastructure networks across selected developing and emerging economies

Sector	Nature of structural separation	Enabling legal framework: country example
ICT	<p>Unbundling can involve separating regional and national trunk line operators from service providers responsible for wiring households and businesses to the network. In mobile telephony, construction and operation of transmission towers can be separated from services provided directly to users.</p> <p>Participation by the private sector is more frequent and involves more stages in the value chain in the ICT sector because incumbent SOEs have often been slow to take up the new mobile ICT technologies.</p>	<p>In the telecommunications sub-sector in Costa Rica, the new legislation includes regulatory principles such as universal service, independence of the regulatory authority, transparency, interconnection, and fair competition. It opens markets to competition in three sub-sectors: mobile services, internet services, and private networks (OECD, 2013b).</p> <p>In Myanmar the new Telecommunications Law, enacted in October 2013, opened mobile telecommunication to private investment, including foreign, and foresees the establishment of an independent regulator. In early November, the government issued a first draft of the Proposed Rules for Telecommunications Sector for consultation. This contains only a first set of implementing rules and procedures on which the Ministry is seeking consultation, notably on licensing, access and interconnection, spectrum management, numbering and competition. These are mostly in conformity with international</p>

		standards and are expected to promote competition and facilitate the roll-out of telecom network. The proposed rules adopt a multi-service licensing framework and technology-and-service neutral rules; establish cost-oriented interconnection and access price regulation; and adopt a liberalised and competitive spectrum management framework, among others (OECD, 2014d).
Energy	<p>In the electricity subsector generation of power can be separated from its transmission through a high voltage grid, and from the subsequent distribution to households within a given catchment area by local wiring, and provision of other services such as billing, fee collection, and customer service. In the gas sub-sector production can be separated from storage of liquefied natural gas in tanks, transmission via pipeline, and distribution to customers through local networks of pipes. As in the case of electricity, distributors are also responsible for billing, collection of fees, and customer service.</p> <p>The volume of private sector investment in the power sector is concentrated in the generation stage (independent power producers) with a SOE as the single buyer; transmission and distribution has tended to remain with SOEs because of the political power of the incumbent firms, and difficulties in securing adequate cost recovery from tariff reform.</p>	<p>The government of Mozambique initiated reforms in the electricity sector in 1997, which opened the generation and transmission market to private enterprises, and created the National Electricity Advisory Council (CNELEC) to set energy policy and provide advisory services (OECD, 2013e).</p> <p>In Myanmar private participation is discouraged by low electricity prices averaging USD 0.05/kWh. The costs of electricity production from gas and diesel were recently estimated to lie between USD 0.09 and USD 0.35 per kWh. Currently, there is no standardised price setting system for electricity and natural gas, and the purchase price for electricity is re-negotiated on an annual basis without appropriate mechanisms. The government is aware of the need to establish an adequate pricing mechanism and announced plans in December 2012 to implement such a system in accordance with international practices. It also plans to revise tariffs upwards to stimulate investment, but this may prove difficult due to the unpopularity of such measure (OECD, 2014d).</p> <p>In Nigeria the <i>2005 Electric Power Sector Reform (EPSR) Act</i> was intended to end Federal Government monopoly in the power sector, and to facilitate the unbundling of generation and distribution functions within the electricity industry. The government intends to retain control of transmission and has obtained several loans from foreign partners to help improve transmission nationwide. On 30 September 2013 the share certificates of 15 state-run electricity distribution and generation companies were handed over to consortiums of domestic and foreign investors.</p> <p>There are three main electricity utilities in Malaysia. Tenaga Nasional Berhad (TNB) is the biggest utility and supplies peninsular Malaysia while Sarawak Electricity Supply Company and Sabah Electricity Limited (80% owned by TNB) supply Sarawak and Sabah respectively. The electricity sector has been open to independent power producers since 1994. IPPs negotiate power purchasing agreements with TNB, which owns and controls the national grid.</p>
Transport	<p>In highways, unbundling is usually done by treating some road segments differently from others. For example, toll roads can be built and freight operators required to use them, with provision for local residents to continue to use parallel secondary roads. In railroads, there are numerous possibilities. Freight services can be separated from passengers services, trunk lines can be separated from the rail segment connecting the truck line to subsidiary routes. In maritime ports and airports, ownership can be separated from management. Different operating companies can be established to provide these different services.</p>	<p>In Mozambique, private sector participation is more prevalent in transport than in other sub-sectors with some notable successes, such as the Maputo Corridor, a cross-border PPP. Private sector participation is welcome in railway construction, rehabilitation, operations and management; and in road, rail and port facilities in the form of concessions.</p> <p>In Nigeria, reforms in 2004 and 2007 broke new ground by establishing an enabling framework for PPP infrastructure projects in Lagos State. It notably formalised the role of the “State Roads, Bridges and Highway Infrastructure PSP Development Board” as a regulatory authority to oversee concessions and other PPP infrastructure projects in the State’s roads sector, and provided a model for future legislation and regulation across the State’s other infrastructure markets.</p> <p>In 2005, Morocco launched a programme of progressive liberalisation in several key sectors, notably rail transport and maritime port activities. This process involved, first, separating the</p>

	<p>Road transport projects have begun to replace telecoms as the second highest volume investment; these involve two different types of projects: construction of limited access motorways with cost recovery from tolls, and rehabilitation and management contracts for existing roads.</p> <p>In the ports sub-sector, the transition from a public service port structure (where all services required for the functioning of the seaport system – including maintenance and cargo handling – are offered by the port authority) to a landlord port structure (whereby the public port authority acts as an independent regulatory body and landlord, while private companies carry out port operations such as cargo handling) can make more space for private participation.</p>	<p>regulatory from the operating function; then transforming public enterprises into corporations (sociétés anonymes) so they could operate on an equal footing with private competitors.</p> <p>In Indonesia the 2008 Shipping Law provides the foundation for a comprehensive reform of the Indonesian port system. Most notably the law removes the legislated state-sector monopoly on ports and allows private sector participation. This is expected to introduce competition in port services, which could put downward pressure on prices and improve the quality of port services. Private firms will eventually be allowed to operate the 111 main ports under the control of the state-owned ports operator. Also in Indonesia the government enacted a new Railway Law in 2007, which established a new state-owned company to manage the rail track separately from the state-owned railway company PT Kereta Api (PT KA), which should allow for greater scope for private participation and eventually for privatisation of PT KA.</p> <p>In Tanzania following a transition toward a landlord port structure, management of the Dar es Salaam Port container terminal has been leased to a private company with major improvement in performance as a result (OECD, 2013f).</p>
<p>Water and Sanitation</p>	<p>Substantial progress has been made in unbundling water and sanitation networks. Market segments include the following: potable water treatment plants with or without sewage treatment; sewage collection with or without treatment; sewage treatment plants; water transfer systems; water utilities (multiple plants) with or without sewerage.</p> <p>Yet private participation in water and sanitation has been disappointing, despite the large needs gap and often due to difficulties in cost-recovery. In many countries the role of private investors has been reduced to that of independent service providers in facilities management.</p>	<p>In recent years, water management in Brazil has become increasingly centralised and investments in the sector have fallen off due to insufficient cost recovery. A number of foreign enterprises have exited the sector. A handful of smaller systems are under private management through leases. Nonetheless, by increasing private sector participation and competition, the water sector has realised significant improvements in operational efficiency.</p>

6. REGULATION AND PRICE-SETTING IN INFRASTRUCTURE MARKETS

6.1. *Price-setting for infrastructure markets*

Based on World Bank research, the low level of cost recovery through tariffs in the water and energy sectors is problematic for countries at all levels of development and in all regions. According to a recent study, no sample country in South Asia or in Sub-Saharan Africa attempts any cost recovery of capital expenditures in these sectors. Only 10% of the poorest countries manage to recover at least some costs of operation and maintenance. In Sub-Saharan Africa, the recovery rate for electricity and water was 75% and 64%, respectively. OECD work on water governance in MENA countries identifies that revenues in the water sector systematically fail to match increases in operating and capital costs because tariffs have remained low, undermining the ability of operators to meet their costs (OECD 2014).

Indeed price-setting and cost recovery challenges arise because basic utilities, especially water or electricity, are intentionally under-priced in the interest of end-user affordability. According to practitioners in the field, a rule of thumb is that the poor should not have to spend more than 15% of their income on infrastructure services (EIB, 2010). Yet in many developing countries target populations are simply too poor to be able to pay sufficient amounts to make private sector projects viable; and even where there might be ‘willingness-to-pay’ for the service in economic terms, political resistance to utility charges remains high. For such reasons no country in the world has to date developed its water sector through tariffs alone; rather, taxes, tariffs and transfers (or the “3Ts”, as identified by the OECD Horizontal Water Programme) are the three ultimate financial sources of investment for the water sector. OECD work on water governance stresses that strategic financial planning is essential to find the right mix of these, so as to achieve service targets and leverage other sources of finance (OECD, 2009a).

Among the “3Ts”, tariffs play a particularly crucial role in achieving sustainable service provision, and keeping tariff levels artificially low for all is in fact likely to harm the poor (OECD, 2009a). Where sector regulation has typically set prices below operating costs (at about 30% of total costs in the water sector for instance), there is little commercial incentive for expanding services. Tariffs that are held too low cannot guarantee a profitable revenue stream even in the long-term. They are detrimental from an environmental perspective as well, as user incentives for conservation of resources are weak. Moreover since tariff adjustments, when they are made, are often backward-looking, they seldom cover planned investment costs nor adequately resolve the challenges of under-investment, poor maintenance, and future capacity bottlenecks (OECD, 2011c).

Nigeria has for many years had one of the lowest retail tariffs in the world, which has hindered the growth of the sector. In addition to preventing cost-recovery by electricity providers, these low tariffs have deterred potential private investors, and have deprived the power sector of funds required to maintain and expand capacity. Partially as a result, this pricing policy has been accompanied by extremely unreliable electricity supply; therefore the seemingly low tariff in reality masks a real cost estimated to be ten times greater for the poorest Nigerians who resort to kerosene and firewood (OECD, 2014e).

Artificially low tariffs backed by production subsidies for SOEs thus do not appear to be the most efficient way to broaden the access of poorer citizens to basic services. In fact, such subsidies do not automatically generate the expected socially desirable effects. In most cases they amount to a subsidy of the middle and upper classes, whose neighbourhoods are far more likely to be supplied with electricity and water than poorer ones. The risks are that the beneficiaries of the subsidies will resist reform efforts to reduce them, e.g., through targeting poor households, and perpetuate a situation of underinvestment and low private sector involvement in these sectors.

In view of these various risks and fiscal costs, an increasing number of countries are using cross-subsidies – such as incremental bloc tariffs for water and electricity, whereby larger users pay more than smaller ones. From a coverage standpoint, standard infrastructure tariffs can be set so that households in easily accessible areas subsidise remote communities, or differentiated pricing schemes can enable extended coverage. However OECD research on the water sector has shown that cross-subsidisation seldom works. Usually poorer families are larger, with the result that increasing block tariffs end up subsidising the richer (OECD, 2009). While such tariffs can usefully support financial sustainability of utilities, as well as signal scarcity, they are not necessarily good at addressing social concerns. Using targeted direct subsidies or connection subsidies instead can allow SOEs to operate on a more commercial basis, by contrast to production subsidies. This can help level the playing field for private operators, and also allow public utilities to better mobilise adequate resources to sustain existing supply systems or invest in the rehabilitation and expansion of infrastructure.

As the caveats above indicate, such subsidisation mechanisms should generally be kept to a minimum on account of their market distorting effects and lack of transparency. Reforming subsidies is thought to have the potential for freeing up about 1% of GDP for additional infrastructure investment. Even when consumption rather than production subsidies are used, aggregate subsidies are estimated to reach about 0.7% of GDP (EIB, 2010). Accurate targeting of needy populations is also particularly difficult, as the example of Mozambique illustrates. The government of Mozambique laid out the retail electricity tariff methodology in 2003, making provisions for automatic annual adjustments to the average tariff baseline. The national energy utility EDM has four categories of tariffs: social, household, farming and a general tariff. However, as there are no regional variations, the same tariffs apply regardless of location. Moreover although the Electricity Law of 1977 put in place a “social tariff” at subsidised rates for low-income households, due to difficulties in qualifying for the tariff less than 1% of households have accessed it.

Infrastructure pricing frameworks must therefore be very carefully designed in order to facilitate private investment while benefiting end-users by ensuring that basic infrastructure services are affordable for all. This requires that the sector pricing policy accurately reflect the costs of infrastructure improvement. As discussed in the following section, infrastructure regulators can play a crucial role in setting tariffs in infrastructure markets, and in avoiding artificially low prices which can discourage private participation or fail to incentivise innovation on behalf of national infrastructure providers. In a number of countries and across several other sectors, dedicated funds have also been established to finance the universal service requirements that are imposed on private operators and that may impede cost-recovery.

The cost-recovery and bankability of infrastructure contracts must also be tackled at the regional level. For example facilitating cross-border power purchase agreements requires the alignment of national pricing structures, with implications in terms of subsidising domestic state-owned operators in those sectors, as well as aligning the respective responsibilities of domestic sector regulators. The Mmamabula Energy Project (MEP), a planned power station and integrated coal mine project in Botswana intended to provide power to South Africa, is for instance currently on hold due to regulatory changes regarding PPAs in South Africa – and this despite the MEP being the most advanced independent power producer project that can meet the South African demand for energy in the medium term. Conversely during the preparation phase of the Ruzizi III Hydro Power Project (involving the DRC, Rwanda and Burundi), off-take agreements have been negotiated with the three national utilities, purchasing one-third of the power each. There has been a strong level of commitment and co-operation among the countries to date, facilitated by equal stakes and off-take agreements, and by a supportive regulatory framework.

6.2. *Infrastructure sector regulators*

Infrastructure pricing can be the responsibility of line ministries charged with the relevant infrastructure sector, or can be delegated to sector-specific regulatory agencies. In the water sector for

instance, the dominant approach is for utilities to propose tariff changes and the responsible public authority, which then approves or rejects the price change. The extent to which regulators can make their decisions independently of direct ministerial or SOE control can strongly influence the quality of firm operations, and has a considerable impact on the ability and likelihood of private investors to participate in utility markets. In some cases (as in the electricity sector in Mauritius) the state-owned utility and the regulator are one and the same. However most countries considered in this study have established sector regulatory authorities that are separate from the SOEs in the same sector, or are in the process of doing so. For instance as part of opening its economy to foreign investment, Vietnam had established regulatory agencies in all infrastructure sectors by 2008 (Vietnam 2009). Likewise in Tanzania semi-autonomous sectoral regulatory authorities such as TANROADS (for road transport), TCRA (for telecommunications), EWURA (in the energy and water sectors), and SUMATRA (for surface and marine transport) have existed since 2008 to promote fair competition and to protect consumers (OECD, 2013f).

The extent of regulatory reform, and the degree of independence of infrastructure regulators, differs considerably across infrastructure sectors, and even across sub-sectors in the case of transport (see Table 6.2 on the following pages). Typically, the ICT sector has benefited from more reforms towards independent regulation, which seem to have generated increased private participation. By contrast regulatory independence has been rare in the energy and water sectors of many countries, although an increasing number of these (such as Mauritius and Botswana) plan to move towards the establishment of better empowered electricity and water regulators. There is also a gradual move towards multi-sector regulators, as a way to limit risks of political capture by one specific industry.

Countries are also reviewing the autonomy of existing regulators in terms of calculating electricity tariffs, and subjecting SOEs to stricter performance targets. For instance in Tanzania where electricity tariffs rose by 70% over 2008-2012 on demand of the national utility TANESCO, but with no corresponding service improvements, the regulator EWURA has refused more recent demands for tariff increases and is updating its cost calculation methodology rather than relying on TANESCO estimates. Similarly in Zambia, the Energy Regulation Board has recently established Key Performance Indicators in order to directly condition tariff increases on the performance of the utility ZESCO.

Nevertheless even in the ICT sector, many regulators remain under some form of ministerial control – they are not immune from political pressure exercised through their host ministries. In Botswana although it is functionally and financially independent, the Botswana Telecommunications Authority reports its strategic plans and annual operations to the Minister of Transport and Communications; this gives the Minister a potential veto on its decisions, especially as BTA Board members are selected by the Minister. Similarly the Malaysian Communications and Multimedia Commission (MCMC) oversees the licensing process but the sector minister has ultimate approval power, and in Indonesia all resolutions of the ICT regulator must be issued by the relevant Ministry.

In Zambia while the 1994 Telecommunications Act opened the sector to private capital and created a sector regulator for several years, the latter was overseen by the same ministry as the public utility ZAMTEL, and reportedly provided a regulatory environment that favoured the SOE. As a result private investor interest was low and ZAMTEL remained the main operator for over a decade. It was only with the creation of an independent regulatory authority (ZICTA) in 2009 that the investment environment truly became competitive and attractive for private operators: Zambia now counts three ICT operators, and a fourth may enter the market soon (OECD, 2012d). The ICT regulatory structure in Morocco has known similar success: the new regulatory system and introduction of competition in mobile telephony, supervised by the independent National Telecommunications Regulation Agency, led to a tripling of investment from 1998 to 2007 and greatly improved services.

The OECD's Regulatory Policy Committee and its subsidiary body, the Network of Economic Regulators, provide guidance on how governments can support improvements in regulatory practice over time, and strengthen the legitimacy of regulation. The 2013 *OECD Principles for the Governance of Regulators* detail the factors to consider in creating an independent and structurally separate regulatory body. Independent regulatory decision-making, at arm's length from the political process, is likely to be appropriate where both government and non-government entities are regulated under the same framework. This is the case of most infrastructure markets, and competitive neutrality is therefore required. Effective independence will be ensured through a combination of *de jure* elements (founding legislation) and *de facto* factors (such as sources of financing or employment modalities). Moreover the organisational, financial and decision-making autonomy of regulators situated within a Ministry should be safeguarded by provisions in their empowering legislation; and where legislation empowers the Minister to direct an independent regulator, the limits of the power to direct the regulator should be clearly set out.

6.3 Key policy takeaways

- Given the nature of infrastructure sectors, whereby decisions of the regulator can have a significant impact on particular interests and there is a need to protect its impartiality, sectors should have regulators (whether multi-sectoral or sector-specific) that are independent of incumbent operators and free from interference by sector ministries. The regulator should be responsible for setting tariffs in a transparent manner, involving public consultation.
- Tariff setting should strike a balance between the imperative of end-user affordability and the need for cost-recovery. Governments should attempt to use a wide range of sources of end-user finance for infrastructure. ICT and transport can often be fully financed through user charges and fees. By contrast in the electricity as well as the water and sanitation sectors, it is unlikely that user charges can fully cover capital investment costs. While access to these services should be partly financed by government to ensure minimum access for households, the impact and targeting of consumption subsidies should be regularly assessed, the 'user-pays' principle and stepped tariffs can be applied, and modest user charges could be used even at low income levels to avoid waste. Finally tariffs should be adjusted regularly to reflect changes in costs of operation and maintenance, and could include automatic annual adjustments for inflation.
- The total fiscal cost of production subsidies to state-owned utility providers should be regularly assessed, and if possible reduced or replaced by well-targeted consumption subsidies – as they place a high burden on the public purse, prevent SOEs from operating according to commercial incentives, and place private operators seeking to enter the market on an unequal footing vis-à-vis these SOEs.
- In the case of cross-border projects, pricing structures need to be aligned among countries; this may include Memoranda of Understanding across country sector regulators, as well as mutually agreed service purchasing arrangements (such as Power Purchasing Agreements, PPAs, in the case of power projects; or agreed toll rates for transport projects).

Table 6.2: Trends for infrastructure regulation and tariff-setting in infrastructure sectors of selected economies

Sector	Functions & independence of infrastructure regulator	Tariff-setting: affordability and cost-recovery considerations
ICT	<p>In Botswana, the Telecommunications Acts of 1996 established the Botswana Telecommunications Authority (BTA) as the sector regulator, with the mandate to: set and approve tariffs; award licenses; charge licensing and other regulatory fees; resolve disputes among operators; monitor service quality; and protect consumer interests.</p> <p>The Indonesian Telecommunications Regulatory Body (BRTI) became effective in 2004, as an independent agency to ensure a transparent and competitive telecommunications sector. Numerous experts have questioned the degree of independence of the BRTI, especially given that the Director General of Posts and Telecommunications is the ex officio chairman of the BRTI. Furthermore, the BRTI has no independent authority to issue resolutions but must do so instead through the Ministry.</p> <p>In Costa Rica, the Superintendencia de Telecomunicaciones (SUTEL) has been an independent regulator since 2008, and has issued regulations on interconnection, competition, universal service, frequency allocation and other relevant matters, all of which have been published in the Official Gazette.</p> <p>In Egypt, the reform process started in 1998 with the establishment of an independent regulatory authority and the incorporation of the government-owned operator, Telecom Egypt.</p> <p>Myanmar has not yet begun to establish independent regulators except in the ICT sector. Currently, the competent regulatory entities in other sectors are often exposed to political influence and conflicts of interest due to the vertical relationship between regulators and operators, resulting, to a certain extent, in prices being set at uncompetitive levels in many sectors (OECD, 2014d).</p> <p>Mozambique was the first country in the Southern African region to reform its telecommunications sector. In 1992 the National Telecommunications Institute of Mozambique (INCM) was established as a regulatory body with oversight over both telecommunications and the postal service. INCM responsibilities include tariff proposals, frequency allocation, monitoring service quality and establishing licensing fees.</p>	<p>Mobile ICT technologies are not considered to be a basic need and thus fee schedules could be set at cost-recovery levels and include a margin to generate a return on capital.</p> <p>Tariff setting in the ICT sector in most countries has been targeted at attracting investment into the mobile telephony sector with positive results.</p> <p>In Zambia ZICTA is empowered to approve all tariffs charged by ICT service providers. It also regularly monitors and evaluates whether telecommunication pricing policies are competitive, and whether they favour investment in industries that depend on reliable and affordable telecommunications. One of the provisions of the ICT Act also places an obligation on ZICTA to publish guidelines on the definition of the electronic communication market and approved rates in the daily newspapers. It also carries out evaluations of license-holders perceived to hold a dominant position in the market.</p>

<p>Energy</p>	<p>In the Nigerian power sector, the Nigerian Electricity Regulatory Commission (NERC) promotes competition and private sector participation in the sector; establishes operating codes and safety and quality standards; establishes consumer rights and obligations with respect to the provision and use of electricity services; and licenses and regulates those involved in the generation, transmission, system operation, distribution and trading of electricity (OECD, 2014e).</p> <p>In Mauritius since 1964, the Central Electricity Board (CEB, wholly government-owned) has been the primary body responsible for regulation and pricing of the electricity sector. It also holds a monopoly in distribution and transmission of electricity, under the 'single-buyer model' of electricity provision. This dual function risks creating some conflict of interest. The situation has generated increasing calls for amending the Electricity Act of 1939, and creating a Utility Regulatory Agency to take over the CEB's regulatory role.</p> <p>In Mozambique CNELEC is the sector regulator with authority to: set tariffs and approve concessions; undertake mediation and arbitration functions for disputes that arise between the government and its contractors; and monitor the performance contract between the government and the SOE, EDM (OECD, 2013e).</p> <p>In 2010, Ukraine became a member of the European Energy Community. This entailed a commitment to strengthen the prerogatives and independence of the National Electricity Regulatory Commission (NERC) in line with EU rules. As a result, the NERC now issues licenses for all activities in the electricity sector, including power generation, distribution and supply to end-users, as well as transport of oil and oil products, and gas transport, storage, distribution and supply. NERC sets wholesale electricity prices and establishes retail electricity tariffs, sets the caps on gas prices, and fees for delivering, transporting and storing gas, oil and oil products. Yet the independence of the NERC has been constrained due notably to the modalities by which the chairmen and commissioners are appointed (OECD, 2011a).</p> <p>In Russia the electricity market is regulated by the Federal Tariff Service (FTS) and the Federal Antimonopoly Service (FAS). FTS regulates most wholesale and retail electricity prices, with about 95% of electricity traded under the regulated regime and the rest traded on a wholesale market via bilateral contracts and a day-ahead, spot market overseen by the Administrator of Trading Systems (ATS). FTS also sets tariffs and charges for the transmission and distribution networks (Russia, 2008b).</p>	<p>In Botswana in the interest of affordability, tariffs are set differentially across five consumer groups (domestic; small businesses; medium businesses; large businesses; government; and water pumping), based on the amount of electricity consumed and adjusted through a combination of fixed and variable charges. Low tariffs have prevented the state-owned BPC from reaching full cost-recovery, requiring it to have recourse to substantial government subsidies in 2011 and 2012 to stay afloat.</p> <p>In Costa Rica, tariff revenues at present do not cover operations and maintenance costs. Consumers in San Jose cross-subsidise those in other cities. A tariff regime based on block tariffs, where higher consumption bands are charged higher rates, is in force.</p> <p>In Indonesia, electricity tariffs will continue to be set by the government and approved by Parliament, but a new Law allows for regional variations. Private power producers must apply tariffs which are in line with central or regional government stipulations, however. In 2009, the subsidy for electricity alone was almost USD 6 billion. The government expects to reduce the subsidy for electricity and to ensure that they go to those most in need of them: the poor and small-scale industries. It has ceased paying subsidies to larger industrial electricity consumers.</p> <p>In Mauritius as from December 2010, tariffs vary by three thresholds of declared connected load. These different groups face different minimum charges and security deposits. Yet this pricing structure Remains suboptimal. Electricity tariff adjustments are made mainly on an ad-hoc basis and do not reflect full cost-recovery. Under-pricing costs are estimated to have reached close to 0.4% of GDP in 2006.</p> <p>In Zambia the Energy Regulation Act was introduced in 1995, and, inter alia, provided for the establishment of the Energy Regulation Board (ERB) in 1997. The ERB is the sole licensing authority for operators in all the energy sectors. Both the cost of producing power in Zambia and the tariffs charged to consumers, are some of the lowest in Africa, and not high enough for full cost-recovery, which has severely impeded private investment. The government's objective is to align electricity tariffs with economic costs of supply whilst also enabling the state-owned utility ZESCO to invest in rehabilitation and expansion. The ERB has approved tariff increases of 17% in both 2010 and 2011, although less than requested by ZESCO. This is now beginning to attract private investors in power generation as the tariffs are becoming cost reflective, but additional revisions to the power tariff structure may be needed (OECD, 2012d).</p>
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Transport	<p>In India, the Civil Aviation Department within the Ministry of Transport regulates the airline industry. Major federal ports have been privatised and are regulated by their respective port authorities that are statutory bodies under the Ministry of Transport (OECD, 2009b).</p> <p>In the Tanzanian transport sector, since 2004 public transport fares are managed by SUMATRA, with the aim of expanding availability to all consumers, including low-income, rural and disadvantaged groups. Increases in public transport fares thus depend on SUMATRA's approval.</p> <p>The Indonesian government plans to create a regulatory agency for ports, following which the government will no longer be responsible both for running and regulating the port system.</p> <p>In Malaysia, a legislative framework for the transport sector, including for regulating toll road charges, has been in place since 1987. In 2010, this was improved by legislation which rationalised the 15 public agencies previously involved in setting policy on public transport.</p> <p>In Botswana, all tendering and operations of the rail sector are directly managed by Botswana Railways, rather than by an independent agency. By contrast the air transport sector is regulated by the Civil Aviation Authority of Botswana (CAAB).</p> <p>In maritime ports, the government of India has recognised that the current regulatory framework limits ability to regulate tariffs on a cost-plus basis and needs to be expanded in view of a more effective model for awarding concessions. As part of the reform it established the Tariff Authority for Major Ports (OECD, 2009b).</p> <p>Tanzania and Zambia have enhanced the financial sustainability of road infrastructure projects by establishing "second generation road funds", whereby management is transferred from a ministry to an autonomous road agency in order to improve project management and to ensure that road maintenance funds are appropriately used.</p>	<p>Rehabilitation and management contracts for existing roads are frequently based on the performance based procurement model, with revenue provided from dedicated road funds financed, inter alia, by fuel taxes, and vehicle registration fees. In the road transport sector, toll roads for limited access thoroughfares, have helped attract private sector investment and reduce bottlenecks. Affordability concerns are largely met by assuring that parallel roads continue to be maintained for the use of those users for whom speed is less important than cost.</p> <p>BRT systems are often considered as cost-efficient "quick-wins" because their profitability and high social benefits deliver results in the short run for sustainable transport. BRT capital costs are much lower than for metros or light rail transit systems. Moreover, cost recovery is usually good since BRTs are typically set up on traffic corridors with high passenger volumes. Revenues from BRT systems can sometimes cover operational costs without requiring subsidies.</p> <p>In Indonesia, a Toll Road Regulatory Agency (BPJT) was created in 2004, and is responsible for regulation, business management and monitoring of toll road enterprises. The BPJT recommends initial tariffs for toll roads and how they are to be adjusted over time. It also takes over toll roads at the end of their concessions or recommends the further operation of these toll roads by a private operator. To encourage toll road investment, it also prepares for the commercialisation of new projects, including by facilitating land acquisitions.</p> <p>In Mozambique which has attempted several BOT projects for rural road development, the viability of tolls on some roads, notably Vanduzi-Changara, is questionable, given the low income levels of the users in these mainly rural areas.</p>
Water and sanitation	<p>In Zambia legislation in 1997, provided for the establishment of an autonomous Regulator, the National Water Supply and Sanitation Council (NWASCO), to regulate water and sanitation providers for the efficiency, reliability and cost effectiveness of their services (OECD, 2012d).</p> <p>In Mozambique CRA, the independent regulator for urban water supply, is in charge of regulating services, ensuring water quality, setting tariffs and</p>	<p>70% of water revenues collected from customers in Botswana are in effect subsidized, and tariffs are set according to an incremental scale. Separate tariffs are also in place for government agencies and town and district councils, who pay more than domestic and business users. Similarly to the energy sector, infrequent updating of tariffs has however impeded cost recovery in water operations. In Mauritius the water sector also functions based on stepped tariffs.</p>

	<p>mediating between the government and concessionaires. Meanwhile the Fund for Water Supply Investment and Assets (FIPAG) has been established as an asset-holding investment fund to promote investment and manage operations, rehabilitation and maintenance of water supply infrastructure.</p> <p>In Costa Rica, the <i>Instituto Costarricense de Acueductos y Alcantarillados (AyA)</i> is the main provider of drinking water supply and is also responsible for management of sewage systems. Some municipalities and two public enterprises also provide these services and manage water infrastructure in their respective areas. ARESEP serves as the sector regulator and, importantly, is in charge of approving water tariffs.</p> <p>In Jordan there is no independent regulatory institution for the sector although a regulatory body is planned by 2022, as well as a Water Council.</p>	<p>In Jordan, cost recovery has been difficult and the government has therefore resolved to set municipal and wastewater charges at a level sufficient to cover operation and maintenance costs. Certain groups of consumers – in industry tourism, commerce and agriculture – pay a tariff reflecting the full cost of water service provision. A tariff increase was approved in 2010, but the Ministry of Water and Irrigation stated in June 2012 that tariffs would not increase further in the near future. Consumption subsidies, which currently cover 50-60% of the water bill, are expected to stay in place. The tariff increase of 2011, coupled with measures to reduce non-revenue water, should help meet the Ministry’s goal of becoming revenue neutral by 2022 (GWI, 2010).</p> <p>In Tunisia, the state-owned water and sanitation utilities, SONEDE and ONAS, are not financially self-sustaining because of low water tariffs (which are very rarely revised, despite rising operation costs and inflation). Expansion of the sector is entirely dependent upon public finance.</p>
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7. INVESTING IN LOW-CARBON INFRASTRUCTURE

7.1. *Regulatory reform in the energy sector*

When considering policy reform for attracting more private investment into infrastructure, it is crucial to consider the urgent need for green investment. Maintaining infrastructure investment in conventional, emissions-intensive technologies (i.e. under a ‘business-as-usual’ approach) would likely jeopardise future growth. Yet according to the Climate Policy Initiative, the global shortfall in climate change adaptation investment will range between USD 69 and 109 billion per year until 2030 (WEF, 2013). Given current strains on public finances, achieving the clean energy transition will entail leveraging both international and domestic private investment at scale.

Private investment in clean energy infrastructure however remains constrained by specific barriers. Governments have a key role to play in strengthening the enabling environment for clean energy infrastructure investment, across all fields of investment policy addressed in the preceding sections. As detailed in the 2013 *OECD Policy Guidance for Investment in Clean Energy Infrastructure*, applying investment policy principles such as non-discriminatory treatment of international clean energy investment, intellectual property protection, transparency, contract enforcement, and adequate property registration systems can considerably facilitate investment inflows in clean energy.

In Jordan following the adoption of the 2010 Law, Parliament passed significant amendments in 2012, including one that exempts all systems and equipment for renewable energy and energy efficiency purposes from customs duties and sales tax. Jordan has also established a Renewable Energy and Energy Efficiency Fund (REEEF) open to both national and foreign private companies which provides subsidies for privately owned and operated renewable energy facilities; interest rate subsidies on commercial loans used for related projects; a Public Equity Fund to support private investment; a renewable energy guarantee facility to ease credit access for project developers; and research and technical cooperation grants for targeted programmes and feasibility studies. The REEEF also offers risk-mitigation measures related to technology, regulatory, and weather risks (OECD, 2013c).

Meanwhile in Costa Rica, further opening electricity market to the private sector is a main challenge to expanding clean power generation, and a number of bills were pending approval in the legislature in 2012 to address this issue. One of them would establish a regulated wholesale electric market, lifting the position of the national utility as dominant operator and enabling electricity services to be marketed through diverse legal modalities with private sector participation. To boost investment in solar energy, Costa Rica has also implemented a pilot “net metering” programme in 2010, enabling residential, commercial and industrial end users to install solar systems and sell excess capacity back into the grid (OECD, 2013b).

On the investment promotion front, improving coherence of the broad system of investment incentives and disincentives can help level the playing field for clean energy investment and shift investment incentives away from conventional energy towards clean energy. For instance governments can: provide well-targeted and time-limited feed-in tariffs; set long-term goals for making the clean energy transition; facilitate the licensing of renewable energy projects; remove inefficient fossil-fuel subsidies; and put a price on carbon through the use of carbon taxes and emission trading schemes. As of 2014, several of the countries covered in this report have introduced feed-in tariffs (FITs), among others

Malaysia, Nigeria, Botswana, Indonesia, Jordan, India, China, Ukraine, and Turkey (PV Tech, 2014). However FITs do have drawbacks, as pricing is complex and setting the price too high can lead to over-investment and a surge in electricity prices. Government capacity to accurately calculate the price of FITs needs to be reinforced in the majority of developing countries.

Alongside FITs, various fiscal incentives (such as tax credits, tax exemptions, tax reductions, or accelerated depreciation) can be put in place to decrease the investment costs of renewables and attract investors. Direct investment grants can also be useful when the relevant technology is still far from competitive, since other forms of financial assistance (such as loans and tax breaks) may not suffice to guarantee economical operation. It is however more difficult to make these grants conditional on performance or on the extent to which the renewable energy installation operates. As for all investment incentives, it is imperative to accompany such incentive schemes and grants with a mechanism for regularly evaluating their costs and benefits.

In Malaysia other mechanisms to support investment in renewable energies and other green initiatives include various investment funds, private financing, and making use of the Clean Development Mechanism (CDM) and development assistance. Other countries having made use of the CDM to finance renewable energy infrastructure include China, Colombia, Costa Rica, India, Indonesia, Egypt, Jordan, Malaysia, Mauritius, Morocco, Myanmar, Nigeria, Peru, Tanzania, Tunisia, Viet Nam, and Zambia (CDM Data Base).

In addition, Power Purchasing Agreements (PPAs) between independent power producers and electricity distribution firms can be designed so as to favour a greater share of renewables (rather than being set primarily according to least-cost criteria, as is often the case). Without addressing these concerns, renewable energy technologies cannot compete with the already established alternatives. In Tanzania, the existing guidelines for Standard PPAs recommend that the latter be awarded on a least-cost criterion, thus inadvertently tilting the stakes in favour of conventional energy (OECD, 2013f). In Nigeria, as in many developed and developing countries, the price of conventional energy (especially petroleum products and electricity) is subsidised (see section 5.6 on pricing). Both elements create barriers for renewable energies which cannot achieve a minimum level of market share (OECD, 2014e).

In addition, tariff-setting must take into account the cost-recovery needs of renewable energy producers – and as for other infrastructure sectors, this can be at odds with affordability for end-users. Jordan has been juggling the imperatives of end-user affordability, fossil fuel subsidy reduction, and cost-recovery for several years. In 2008, the government completed a three-stage removal of fossil fuel subsidies. Considering that the cost of such subsidies is expected to increase by 60% in the next decade, this is a field which requires more government attention worldwide (IEA, 2011). The subsidy reform boosted clean energy generation by removing price distortions for conventional and clean fuels, and was also hailed for its compensatory measures that helped cushion consumers from rising living costs (OECD, 2013c). However, protests in 2011 in parts of Jordan compelled the government to reverse some of these reforms.

More broadly, clean energy investment can be encouraged by publicising government commitments towards clean energy generation in national infrastructure plans, and ensuring that the related clean energy policies are predictable and compatible with WTO rules to reduce trade policy uncertainty. In the same vein, clear portfolio standards for clean energies could also help enhance the expansion of renewable energy. These standards can set minimum targets of clean energy content within the overall energy supply. As an example of such long-standing commitment and predictability, one of Costa Rica's priorities in the energy sector is to reduce its dependence on oil and other fossil fuels. The government is currently developing a strategy for importing natural gas as a potential substitute for oil products. Since the 1990s, electricity generation has been gradually opened to the private sector, especially in view of enhancing the

share of solar, hydroelectric, wind, and geothermal energy in power generation (OECD, 2013b). In turn, Malaysia plans to achieve market-based energy pricing by 2015, in part by eliminating energy subsidies. Box 7.1 below illustrates how countries can go further in promoting low-carbon energy systems by encouraging green investment in specific infrastructure sub-sectors, notably in mass transit.

Finally questions of energy market design and competition policy are also raised when considering the case of clean energy investment. As some of the above examples illustrate, creating a level playing field for IPPs and SOEs, and between national and foreign private actors, may be necessary in order to tackle market rigidities that favour fossil fuel incumbency in the electricity sector. Steps must also be taken toward establishing a wholesale electricity market that can accommodate increased renewable energy generation, and in which multiple actors can engage in electricity generation as well as transmission and distribution. Strengthening domestic financial markets and instruments for clean energy investment, and enhancing co-ordination among different parts and levels of government for the efficient design and implementation of clean energy policies and infrastructure projects, should also be priorities for country seeking to make the transition towards a cleaner energy system.

Box 7.1 Encouraging environmentally sustainable transport

Both Colombia and Malaysia have identified transport as one of the areas which present significant opportunities for GHG mitigation. In Colombia the government developed the National Urban Transport Policy in 2003, under which large and medium-sized cities were to benefit from the implementation of Integrated Mass Transit systems (SITMs) and Strategic Public Transport Systems, respectively (OECD, 2012a). Malaysia has prioritised the development of low carbon public transport such as light rail, making it a potential target for investment. Malaysia has used BOT concessions to secure private sector participation in the Light Railway Transit System I and II (OECD, 2013d).

As of November 2013 more than 166 cities had implemented Bus Rapid Transit (BRT) systems, accounting for 4 336 km (2 694 mi) of BRT lanes. About 27 million passengers use BRT worldwide daily. BRT systems are often considered as cost-efficient “quick-wins” because their profitability and high social benefits deliver results in the short run. BRT capital costs are much lower than for metros or light rail transit systems. Since BRTs are typically set up on transportation corridors with high passenger volumes, revenues can sometimes cover operational costs without requiring subsidies. A number of these systems are in operation or under construction in several of the countries examined in this report, namely, China, Colombia, India, Indonesia, Jordan, Nigeria, Peru, Tanzania, and Viet Nam. In Myanmar, Yangon authorities are planning to install a BRT which will include fixed fares, buses using compressed natural gas, specific bus stops, improved traffic lines, and tenders to allow for private operators (OECD, 2014d).

7.2 Key policy takeaways

- To create predictability and long-term visibility for renewable energy investors, establishing long-term carbon emission reduction objectives is necessary at national level. National GHG emission reduction objectives can powerfully complement carbon trading mechanisms. Long-term carbon reduction objectives can also be accompanied by an emission-reporting system to facilitate tracking and measuring progress, including at the local government level to stimulate small-scale renewable energy investments.
- Tariff-setting must take into account the cost-recovery needs of renewable energy producers. Likewise in order to attract these investors, Power Purchasing Arrangements (PPAs) should not automatically be set on a ‘least-cost criterion’ as this by default favours conventional energy producers; rather environmental criteria can also usefully be factored into such arrangements.
- Governments can create a more hospitable environment for clean energy investment by putting a clear, credible and long-term price on carbon emissions across the economy through market-

based instruments such as emission trading schemes or carbon taxes. If a market-based mechanism is used to price carbon emissions, it should be introduced in a transparent and predictable manner, and designed to be resilient to price volatility and other broader macroeconomic changes.

- Governments should consider removing fossil-fuel consumption subsidies, and re-directing the fiscal resources towards more efficient ways of facilitating access for the poor (targeted redistribution programmes such as social safety nets, cash transfers, and life-line subsidies).
- Should governments choose to implement Feed-in-Tariffs (FITs), public capacity in their design must be raised. Moreover clarity needs to be given to investors as to when and on what basis the price of the tariff is susceptible to change; in this light, governments should endeavour to tackle information asymmetries between sector regulators and investing companies. When choosing to implement a FIT, attention should also be given to who bears the costs of the measures.
- Given the low capital costs and high profitability of Bus Rapid Transit (BRT) systems, more developing country governments should be establishing these systems – in addition to making urban transport more environmentally sustainable, this can help decongest major roads and ease traffic flow in growing urban centres.

ANNEX A: OECD GUIDANCE

OECD Checklist for Public Action for Private Sector Participation in Water Infrastructure (2009)

OECD Competition Assessment Toolkit (2007) updated in 2010

OECD Recommendations on Competition Assessment

OECD Principles on Corporate Governance

OECD Guidelines on Corporate Governance of SOEs

OECD Guide for State Ownership

OECD Corporate Responsibility: Private Initiatives and Public Goals

OECD Guidelines for Multinational Enterprises

OECD Principles for Private Sector Participation in Infrastructure (2007)

OECD Private Sector Participation in Water Infrastructure

OECD Engaging the Private Sector in Support of a Low Carbon Future

OECD Principles for Public Governance of Public-Private Partnerships (2012)

OECD Recommendation on Regulatory Policy and Governance

OECD Principles for Enhancing Integrity in Public Procurement

OECD Guiding Principles for Regulatory Quality and Performance

OECD Reference Checklist for Regulatory Decision-Making

APEC-OECD Integrated Checklist on Regulatory Reform

OECD 10 Good Practices for Regulatory Impact Analysis (RIA): Guidance for Policy Making (2007)

OECD/DAC-World Bank Procurement Roundtable Initiative: Johannesburg Declaration (December 2004)

OECD/DAC Methodology for Assessment of National Procurement Systems Version 4 (17 July, 2006)

OECD Recommendations Concerning Structural Separation in Regulated Industries

OECD/DAC Methodology for Assessing Country Procurement Systems Using the Baseline Indicator Tool

OECD Declaration on International Investment and Multinational Enterprises (includes “national treatment instrument”)

G20/OECD High Level Principles of Long-Term Investment Financing by Institutional Investors

G20/OECD Checklist on Long-Term Investment Financing Strategies and Institutional Investors

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