

### OBA Working Paper Series

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## Output-based Aid: Supporting Infrastructure Delivery Through Explicit and Performance-based Subsidies

Increasing access to basic infrastructure and social services is critical to reducing poverty and achieving the Millennium Development Goals. However, this is a challenge because of the gap between what it costs to deliver a desired level of service and what can be funded through user charges. Subsidies have often played a role in funding this gap because of, for example, limited ability to pay by the poor. However, given the political commitment by a number of countries to increase aid flows, but at the same time the mounting concern of aid effectiveness, it is critical that subsidies be linked to the actual delivery of services, or “outputs.” Output-based aid (OBA) is a strategy for using explicit performance-based subsidies to deliver basic services where policy concerns would justify public funding to complement or replace user fees.

Two key features distinguish OBA from some other forms of public funding: OBA subsidies are *explicit* and *performance based*. They are explicit because they ensure recognition of

*why* the subsidy is being provided, *who* is receiving the subsidy and who is providing it, and *what* is being subsidized—both the activity and the financial sums involved. OBA is performance based because it strongly links the payment of service providers to their delivery of specified “outputs”. By contrast, in many other approaches, donors or governments pre-fund “inputs,” so there is commensurately less transfer of performance risk.

OBA is also a mechanism for implementing public-private partnership: effective use of donor funding and the public budget via OBA-type mechanisms can mobilize private capital and efficiencies for increased service delivery to the poor. By early 2005, some 30 projects with an OBA-component have been initiated. With more projects—including those involving the public sector and/or incumbents as well as larger scale schemes—we can demonstrate that OBA is a key mechanism for increasing infrastructure and social services delivery to the poor.

### About the Global Partnership on Output-Based Aid

**What is output-based aid?** OBA is a strategy for supporting the delivery of basic services—water, sanitation, electricity, telecommunications, transport, education, health care—where policy concerns would justify public funding to complement or replace user fees.

**How can GPOBA help?** GPOBA can assist in the design and development of pilot OBA projects, and can help identify and disseminate emerging knowledge on issues related to OBA approaches through studies, publications, workshops, and conferences. GPOBA can also contribute to the funding of subsidized payments for the provision of services under OBA schemes.

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# Output-Based Aid

## Supporting Infrastructure Delivery through Explicit and Performance-Based Subsidies

Global Partnership on Output-Based Aid

March 2005

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## 1. INTRODUCTION

In the context of basic infrastructure and social services, subsidies are typically provided to fund the gap between what it costs to deliver a desired level of a service and what it is possible to fund through user charges (when user charges are feasible). There are varying economic rationales as to why this gap arises and why one might fund it, such as where a particular service has limited affordability, especially among specific disadvantaged groups; the service has “public good” characteristics making it difficult to collect user charges; and there are major positive economic externalities, so that the benefits of one individual’s consumption are felt much more widely in society, as in the case of health and sanitation.

At the same time it is critical that the subsidy funding be linked to actual service delivery, ensuring that donor or government resources are achieving desired results.

This paper is particularly timely given the recent political commitments by a number of donor countries to increase aid flows to developing countries, driven in part by the desire to make greater progress toward the Millennium Development Goals (MDGs). A number of other papers have demonstrated the crucial role that basic infrastructure services can play in reducing poverty and realizing most, if not all, of the MDGs.<sup>1</sup>

In this context the purpose of this paper is to:

- Clarify what output-based aid (OBA) is.
- Set out the advantages of using OBA as a method of providing subsidies for delivery of basic services.
- Describe when OBA should or can be used.
- Provide guidance on how to use OBA.

### 1.1. What is OBA?

Output-based aid is a strategy for using explicit performance-based subsidies to deliver basic services—such as water, sanitation, electricity, transport, telecommunications, and health and education—where policy concerns would justify public funding, in the form of explicit performance-based subsidies, to complement or replace user fees.

Key is the fact that OBA subsidies are both *explicit* and *performance based*, with payments strongly linked to the delivery of specified outputs.

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<sup>1</sup> For example, Jeffrey D. Sachs, John W. McArthur, Guido Schmidt-Traub, Margaret Kruk, Chandrika Bahadur, Michael Faye, and Gordon McCord, “Ending Africa’s Poverty Trap,” *Brookings Papers on Economic Activity*, no. 1 (2004): 117–240; and Chris Willoughby, “Infrastructure and the Millennium Development Goals,” paper prepared for U.K. Department for International Development and presented at POVNET Conference, Berlin, 2004.

### 1.1.1. Explicitness

A key distinction of OBA interventions—by contrast with some other forms of publicly funded subsidy, such as concessional loans—is the explicit recognition of *why* the subsidy is being provided, *who* it is being provided to and by whom, and *what* is being subsidized in terms of both the activity and the financial sums involved.

Historically, implicit rather than explicit subsidies have often been involved in infrastructure service delivery in both developed and developing countries. Such implicit subsidies are often hidden—for example, bundled into a concessional loan so that it is not possible to determine the degree of subsidy—and it may not always be clear who the ultimate beneficiary is. Moreover, the issue of who funds the subsidy—government, donors, or other customers—is not always addressed, leading to problems of sustainability and market distortions.

These implicit subsidy approaches are not well targeted and are often inefficient. Better-off, mainly urban customers tend to benefit from such subsidies, while poorer people are left with no service at all. Subsidized infrastructure services may be priced well below both what customers are able to pay and what they are willing to pay. Using scarce public resources in this way is also likely to detract from other uses to which subsidies might be put.

### 1.1.2. Performance based

The second key distinction of the OBA approach is that payment to service providers is performance based, strongly linked to the delivery of outputs—that is, specified services—by the providers. This payment on outputs transfers performance risk to the service provider. As such, the service is largely self-funded by the provider, with reimbursement occurring mostly on verification of successful delivery. This contrasts with other approaches in which inputs are prefunded by donors or governments and in which the transfer of performance risk to the service provider is commensurately less.

## 1.2. Increasing aid and investment effectiveness

As aid flows look set to increase to help in achieving the MDGs, there is an increasing focus on how to deliver new and existing aid more effectively. Implementing OBA approaches across a range of activities—many of which are as yet untried—can help improve aid effectiveness through:

- *Increased accountability.* The transfer of performance risk to the service provider maintains pressure to deliver the prespecified outputs. Clear delineation of outputs also increases the accountability of donors and governments.

- *Transparency.* Explicit recognition and identification of subsidy flows reduces the scope for corruption.
- *Value for money.* Competitive award of OBA subsidies, together with the transfer of performance risk to the service provider, can increase the value for money.
- *Reduced economic distortions.* Explicit recognition and identification of subsidies can help reduce the economic distortions that subsidies are prone to introduce.

Thus OBA is also a tool to implement *public-private partnership* for service delivery to the poor: better-designed subsidy mechanisms that are explicitly channeled through the service provider (in the case of supply-side subsidies) with credible payment and monitoring systems will attract and mobilize the private sector. This can increase the leveraging of public resources through the mobilization of private sector capital and efficiency.

### 1.3. Key design principles

Each application of OBA will be at least slightly different from other applications. An early collection of observations of the uses of OBA was published in 2001,<sup>2</sup> and since then some 30 projects have been developed, mostly within the World Bank, that include an OBA-type component. However, many of these projects are at an early stage of execution. Information supporting the use of OBA approaches as an aid effectiveness tool as well as lessons for designing such approaches on the ground are therefore still being collected. An objective of this paper, however, is to highlight some of the key design principles involved in developing OBA schemes, based on experience to date, particularly for groups that may be less familiar with the approach.

In addition, while earlier applications of OBA tended to focus on new private sector participation schemes, there is currently an increased interest in applying the same design principles to situations in which there is an incumbent service provider or a public sector service provider. Some of the issues associated with this are incorporated in this paper.

Regardless of the context in which OBA is applied, there are arguably three key design principles that need to be considered. These might be seen as the three main pillars upon which successful OBA schemes are built. They are:

- *Intelligent subsidy design*, which involves improving the targeting of subsidy (where desired), that is, reaching the desired beneficiaries and not others; providing just the right amount of subsidy to effect the desired response and minimize market distortions; and maximizing the sustainability of any subsidy

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<sup>2</sup> Penelope Brook and Suzanne Smith, eds., *Contracting for Public Services: Output-Based Aid and Its Applications* (Washington, D.C.: World Bank, 2001).

intervention that does not hinder long-term development or prevent the achievement of goals in other areas; in particular, the importance of considering the opportunity costs of subsidies and their impact on the available “fiscal space.”

- *Development of a performance regime*, in which performance risk can be transferred to service providers, either as a result of introducing subsidies within a competitive regime or by developing specific, performance-based subsidy contracts. A major challenge in designing performance-based regimes is determining appropriate outputs against which subsidies will be paid and that deliver the desired outcomes. This challenge is greatest where a public sector provider is unfamiliar with performance disciplines.
- *Creating a competitive dynamic or tension*, an important factor in ensuring value for money by minimizing the extent of the subsidy required or maximizing the benefit from a given amount of subsidy. Creating competitive pressures will be critical in schemes involving public and private sector incumbents, where competition may need to go beyond subsidy award, even where this competition is a threat rather than actual.

In reality, it will be extremely difficult to create “perfect” OBA schemes that incorporate all these elements. Nonetheless, they can be seen as a starting point for consideration when developing schemes, even when real-world practicalities require a step back from the theoretically desirable.

Moreover, it should be noted that just because an approach for infrastructure service provision falls outside the definition set out here, it is not necessarily a “bad” approach. OBA is only one way of applying subsidies. Nor should it be expected that just because something fits within the broad definition of OBA, it would be entitled to specific donor support. It is highly likely that the types of projects qualifying for donor-funded OBA support will form a smaller subset of OBA schemes, reflecting the priorities of the donors involved. Finally, and importantly, tacking an OBA scheme onto a bad—or poorly designed—project will not make it a good one.

To date, OBA has been applied within a relatively limited range of circumstances, but where aid flows appear set to grow to meet the MDGs, its potential to improve aid effectiveness is considerable. This is particularly so in infrastructure sectors, where historically support has not always been as effective as intended. Recognizing this, the World Bank has included OBA as an integral part of its Infrastructure Action Plan in recent years.

The following sections address the issues raised in this introduction:

- Section 2 considers issues relating to the justification and design of intelligent subsidies.

- Section 3 considers the challenge of creating appropriate performance regimes.
- Section 4 details some key implementation issues, not least the challenges in introducing a competitive dynamic and in using an OBA approach where there is an incumbent or public sector provider.
- Section 5 summarizes the key issues raised in the paper.

## 2. JUSTIFYING AND DESIGNING INTELLIGENT SUBSIDIES

The introduction summarized some of the economic rationales for using subsidies (such as limited affordability). But before considering issues of detailed subsidy design, it is important to consider the expected subsidy requirement and the implications of providing it at both micro- and macroeconomic levels. Many of these issues are dealt with elsewhere in much greater detail. The objective here is to place the design of OBA schemes in context, recognizing that the subsidy can range from a minor component of the wider arrangement to a major one.

### 2.1. Why subsidize?

The rationale for the provision of any subsidy, including OBA approaches, is to deliver a higher level of consumption of the goods or services in question than would be possible to fund purely through user charges. The need for such subsidies might arise in a number of different contexts. These include situations where:

- A particular infrastructure service has *limited affordability*, especially among specific disadvantaged groups. Affordability will generally be determined by the relationship of two factors: household income levels and the costs of delivering the infrastructure service. Subsidies are used to deal with either or both of these factors so as to reduce the gap between them and thus enable the users to achieve an acceptable level of consumption of the service.
- The service has “*public good*” characteristics making it difficult to collect user charges and therefore needs to be funded by government, through subsidy payments.<sup>3</sup> Defense and radio, for example, are often described as perfect public goods. But many services exhibit these characteristics, although to lesser degrees, such as communal sewers or roads. The service could also have “*merit good*” characteristics. For merit goods, such as schools and hospitals, the costs of provision will be very high relative to incomes, but because society benefits, there is a case for supporting levels of consumption that are greater than can be funded through user fees.

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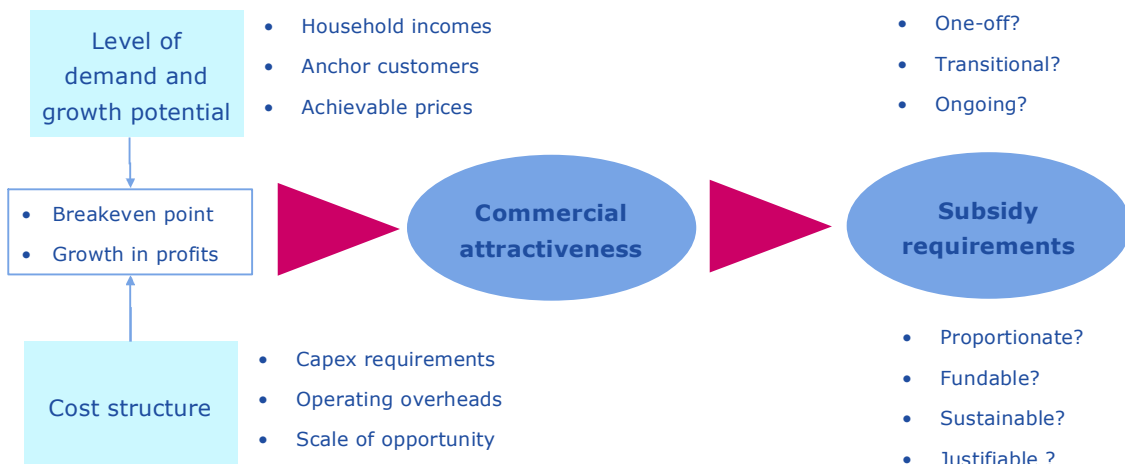
<sup>3</sup> Pure public goods are typically defined as those for which it is difficult to prevent consumption and for which the level of consumption by one person does not affect the level of consumption by another.

- There are major *positive economic externalities*, so that the benefits of consumption by an individual are felt much more widely. The arguments for using subsidies on the basis of positive externalities are particularly strong for services that have public health implications, such as provision of clean drinking water, sewerage reticulation, and possibly even medical goods and services that promote better sexual health (for example, free provision of condoms is likely to reduce the spread of HIV/AIDS).

## 2.2. Ascertaining the scale of and case for subsidy

Subsidies should be applied only where it can be demonstrated that they are needed and where there is a strong case for providing them. A first step in establishing the scale of any subsidy requirement is to model the context in which the subsidies are to be applied. This is likely to be driven by the underlying economics of the service provision. Figure 2.1 provides an illustration of the analysis that could usefully be undertaken in the context of a private sector, commercially oriented infrastructure scheme.

Figure 2.1 Determining the need and case for subsidy



As shown in the figure, various demand and supply characteristics will determine the commercial attractiveness and inherent viability of the opportunity and hence the extent and nature of the subsidy requirement. The subsidy requirement will vary considerably according to the nature of the service being provided: in some instances it will be minor, while in others—for example, the provision of health and education services—it is likely to be considerable.

The extent and nature of the subsidy required to fund services in the absence of user fees can therefore vary greatly. For simplicity, three types of situation are distinguished:

- Those in which a *one-time subsidy* is required, often used to support initial connection costs.
- Those in which some form of *transitional subsidy* is required, for example, to smooth an increase in tariffs to full cost recovery levels.
- Those in which an *ongoing subsidy* is needed, for example, to support a lifeline tariff.

While the case for subsidy should be reviewed for each situation on merit, the implications of subsidizing a service should always be considered. At the microeconomic level there are a number of things to consider. Where the objective is to develop a largely sustainable, stand-alone project, the provision of a subsidy will not make a “bad” project “good.” The attractiveness of the project will be driven by its underlying economics. Because the provision of subsidy has opportunity costs somewhere else in the system (see section below), ideally it should be used sparingly—where it tips the balance between a project being unworkable and its being workable.

Some of the other obvious things to consider in providing subsidies are the potential impacts on competition or, where public entities are being subsidized, the potential for, and implications of, crowding out private sector activity.

### **2.2.1. Macroeconomic issues—opportunity costs and “fiscal space”**

At the macroeconomic level it is important to consider the opportunity costs of subsidizing an activity given the typically scarce availability of “fiscal space.” It always needs to be recognized that the provision of a subsidy for one use has an opportunity cost in terms of the other potential uses forgone. Thus, for example, a decision to provide subsidies for electricity may have implications for the delivery of health or education services.

The alternative uses of subsidy should also be borne in mind when issues of proportionality are considered. Proportionality relates to the amount of subsidy that can be justified in providing a service. For example, the level of subsidy required to connect customers with electricity in thinly populated rural areas can be extremely high, amounting to even multiples of annual household income. Where this is the case, it would be important to first consider alternative service specifications that might require lower amounts of subsidy (for example, provision of household solar systems rather than fixed wire). If the alternative is still deemed too expensive relative to the likely benefits, a decision may be made not to provide a subsidy at all because of its high opportunity costs.

But any government expenditure will have an impact on fiscal space, and for basic services such as water and electricity provision the argument for making that expenditure can be strong. In the case of health and education services, which are typically funded largely out of government expenditures (subsidies), employing OBA approaches might greatly improve the value for money. Indeed, the goals of all OBA-type approaches are to ensure the maximum efficiency of subsidies, especially by lowering required subsidy amounts through competitive bidding processes where possible, and to ensure that outputs (services) are actually delivered. In this way expenditures are seen as having value for money and fiscal space is used wisely.

### **2.3. Developing intelligent subsidies**

As used in this paper, the concept of intelligent subsidies involves three key aspects:

- *Targeting*—reaching the desired recipients and not others.
- *Efficiency*—delivering just the right amount of subsidy to fill “the gap” and to effect the desired response.
- *Sustainability*—structuring subsidy payments in a manner ensuring that they can be fully funded and that they do not hinder the achievement of more important goals.

These terms are used loosely, to illustrate the objectives, rather than necessarily in a strict economic sense.<sup>4</sup> They are all important considerations in developing a sensible subsidy approach. In reality, however, the likely degree of attainment of each needs to be considered pragmatically. For example, the costs of targeting may simply not be worthwhile. Or in the case of education services funded through budgetary support, funding may not stretch very far into the future because of donor budgeting cycles.

The following sections discuss and, where possible, illustrate with examples some of the issues and potential solutions associated with each of these intelligent design principles.

#### **2.3.1. Targeting**

In OBA approaches the main challenge of targeting is to avoid problems of *inclusion* (in which unintended beneficiaries receive subsidies) and *exclusion* (in which intended beneficiaries are excluded).

Targeting can be difficult, however, typically because of the costs involved. Indeed, in many situations it may be arguable that the costs of targeting are simply not worth it.

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<sup>4</sup> For example, in an economic sense *efficiency* is used to refer to much wider issues of technical efficiency (least cost) and allocative efficiency (minimum welfare losses). The targeting of subsidies is explored more thoroughly in the forthcoming book by Jonathan Halpern and Vivien Foster (Washington, D.C.: World Bank).

Having said this, there are several different measures that can help ensure that subsidies are received by the desired recipients:

- Communities might be used to identify appropriate beneficiaries of subsidies. The entitlement of different households will be agreed with the supplier of services. This approach was used in a rural water supply project in Cambodia, where community groups were asked to choose who the beneficiaries of subsidies funded by the International Development Association (IDA) should be (box 2.1).

**Box 2.1 Targeting OBA subsidy recipients in water projects in Cambodia and Paraguay**

*In the Provincial and Periurban Water and Sanitation Project in Cambodia, it was decided that OBA subsidies would be targeted directly to individual households: poor households deemed eligible would receive a connection (from a competitively selected private sector operator) that would be funded through an International Development Association (IDA) grant. After the selection of four pilot OBA towns, the local communities played a big part in selecting the households that would receive connection subsidies. A household survey was developed within the communities to collect data, and village representatives and commune council members together determined poverty criteria. Based on these criteria and the results of the survey, the communities themselves identified the poor households that would receive the subsidy. An independent consultant later randomly verified the selection of households. Of the 13,000 households in the four towns, the 3,000 poorest households would receive a connection through the OBA subsidy.*

*An OBA project in Paraguay relied on aguateros (private sector water suppliers) and local construction companies to provide water services to poor communities in rural areas. The providers, selected on a competitive basis, would receive part of their payment from users and the other part from a World Bank-financed subsidy fund. In Paraguay, rather than individual households, unserved rural areas and small towns—where most of the residents are poor—were selected to receive the subsidies. In addition, the very poorest customers were given the option to provide labor for digging trenches (rather than vouchers or cash) as part of their payment to the service provider.*

Source: OBAApproaches 2004 and Viewpoint 2004, World Bank.

- Often the simplest approach is to identify geographic poor areas. Doing so is relatively easy where there is a strong correlation between geography and poverty, as in periurban areas, for example. This approach was used in a rural water supply project in Paraguay, where areas that could not normally be reached by the

*aguateros* (private sector suppliers of water services) were made eligible for subsidies.

- Tying subsidies to a particular type of technological solution used by the poor (such as standpipe water, or “ready boards,” a limited form of electricity provision), that is, to certain target outputs, is a potentially accurate way to identify poorer users. It is not clear, however, that this approach has been used.
- Means testing of individuals, as is done in Chile, for example, is perhaps the most accurate way to determine who might qualify as a beneficiary. However, it is also the most time consuming and costly of all the targeting approaches.

In deciding which approach to employ, the costs of targeting are a major consideration. There are clear tradeoffs between accuracy and simplicity.

### **2.3.2. Efficiency**

For simplicity, the term *efficiency* is used here to refer to ensuring that just the right amount of subsidy is delivered to the desired recipients. A key OBA design issue, and one that has a major impact on the efficiency of any subsidy application, is whether to channel subsidies to potential customers—“demand side” subsidies—or whether to channel subsidies through suppliers—“supply side” subsidies. The first approach is often seen as more attractive because it exerts competitive pressures on the suppliers where there are alternative service providers. The monopolistic nature of many infrastructure services, however, and the institutional difficulties of implementing such approaches mean that subsidies are more usually channeled through suppliers. Special care needs to be taken in supply-side approaches to ensure that the subsidy ends up in the hands of the intended beneficiaries and is not used for the direct benefit of the supplier—for example, to increase profitability or cross-subsidize other activities.

Subsidy “inefficiency” can arise as a result of several factors:

- *Low levels of competition* for the subsidy, which is likely to result in higher levels of subsidy requirement and lower value for money (a particular problem with supply-side schemes).
- *Uncertainty* about the affordability of the infrastructure service, which may result in additional subsidy being required as equity to cushion against slow growth or volatility in demand (price and volume market risks).
- *Limited availability of capital or credit* to fund infrastructure development, with subsidy being used as a substitute for long-term loans.
- *Lack of availability of more appropriate instruments*, such as risk sharing mechanisms or insurance for specific risks, which can lead to excessive subsidy being used to mitigate risks instead.

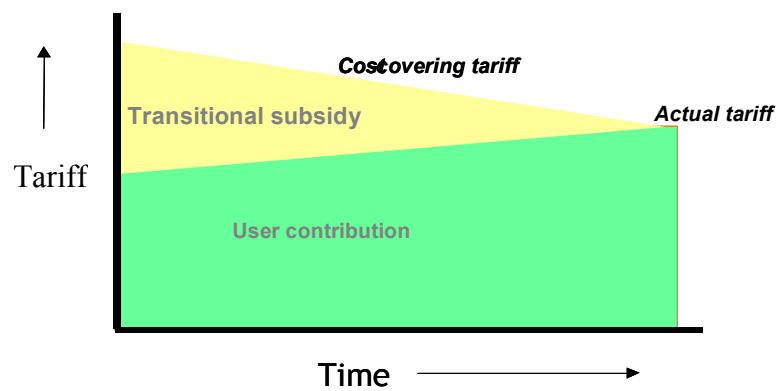
As with targeting, choices on the most efficient way to disburse subsidies—whether as demand- or supply-subsidies—will depend on each situation.

### 2.3.3. Sustainability

One objective of the OBA approach should be to ensure that there is sustainability in the funding of subsidies, regardless of their type. Where it is possible to pay a one-time subsidy—for example, to establish a service connection for a customer who can then afford the ongoing service costs—the degree of sustainability is likely to be high. Many initial OBA schemes focused on developing these more sustainable approaches.

Transitional subsidy arrangements should normally be for a specified length of time and typically are meant to smooth the transition between unsustainable tariff regimes and full cost recovery. As set out in figure 2.2, user charges gradually increase over time to compensate for a declining subsidy contribution. As long as sufficient funding for the subsidy is in place, transitional subsidy arrangements should be relatively sustainable.

*Figure 2.2 Transitional subsidy arrangement*



Ongoing subsidy arrangements are much more challenging, although they may be required in a number of situations. Providing ongoing support to poorer groups through lifeline tariffs is one example. It may be possible to fund this support in part through cross-subsidies, although this approach is a contentious one (the relative merits and costs of which are discussed extensively elsewhere). As discussed above, the alternative of using government or donor funding needs to be considered in the light of scarce fiscal space. Similarly, the provision of services where the contribution from user fees is likely to be low (if any) needs to be considered as part of overall government budgeting. The Pamir project in Tajikistan illustrates how an ongoing subsidy, utilizing grant and “unbundled” IDA subsidies, has been integrated into a scheme financed by the private sector and the International Finance Corporation (box 2.2).

### **Box 2.2 Subsidizing lifeline consumption of power in Tajikistan**

*Gorno Badakhshan oblast, a region in Tajikistan's Pamir mountains, had relatively good power supply during the Soviet era, but the system collapsed with the disintegration of the Soviet Union. The Aga Khan Fund for Economic Development, together with the International Finance Corporation (IFC), sponsored the Pamir Private Power Project, in which the technical solution was to be the completion of a Soviet-era power plant. Coming up with a sustainable commercial solution, however, was going to be much more difficult.*

*Income levels are so low that achieving even a modest return on investment requires tariffs that most of the population cannot afford. In response to this and at IFC's request, the World Bank joined the project with a US\$10 million concessional loan from the International Development Association (IDA) to the government of Tajikistan. The government is to lend these funds on to the project company at commercial rates of interest. The interest rate spread between the IDA loan to the government and the rate at which the funds are lent on to the project company is to be accumulated in a special "social fund." The social fund, together with a US\$5 million grant from the Swiss government, will cover the costs of subsidizing a minimum, lifeline level of consumption for some 10 years with no burden on the government, after which the government will meet costs from its own resources.*

*Source: World Bank and SECCO.*

## **3. DEVELOPING A PERFORMANCE REGIME**

A further distinguishing feature of OBA schemes is the requirement that subsidies be paid within a performance regime in which payments are strongly linked to service outputs, the main form of performance risk transfer to the provider of services. This section discusses successful performance risk transfer and the specification of output-based contracts, where supply-side subsidy approaches are implemented.

### **3.1. Project risks**

All contracts involve some form of risk, whether the contracts are in infrastructure or other sectors and whether in developed or developing countries. The key requirement, however, is to allocate risks efficiently—that is, to those best placed to manage or mitigate them.

In most projects there tend to be three key types of risk:

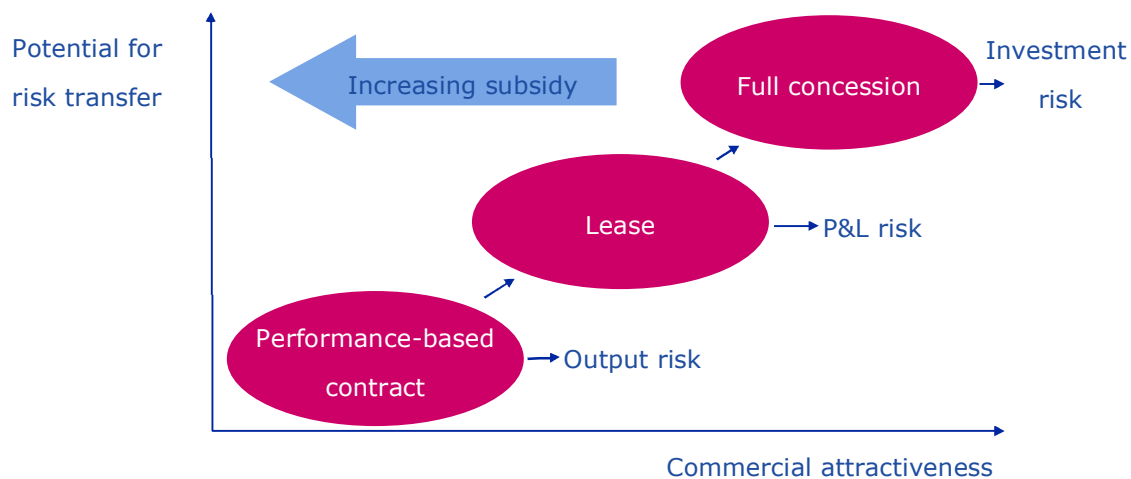
- *Political, country, and regulatory risk.* This type of risk relates to the effects of conflict and civil unrest, possible expropriation of assets by the government, breach or frustration of contracts by the government, and the risk that private sector investors will not be able to repatriate the return on their investment. Regulatory risk may also be an important consideration. In the case of OBA one

key risk is the payment risk faced by the private provider: will the government honor its commitment to pay the subsidy after the outputs have been delivered? This issue is addressed in more detail in section 4.1.

- *Financial risk.* The main elements of financial risk are *exchange rate risk*—the risk that the value of revenues (if they are in domestic currency) will significantly decline in the event of a domestic currency devaluation—and *interest rate risk*—the risk that the economics of a project (if funded in local currency) will deteriorate in the event that local interest rates are higher than expected.
- *Commercial risk.* Commercial risks range from those that are more controllable by service providers, such as *performance risk* (the inability of the provider to deliver contracted services), to the less controllable, such as *market risk* (the risk that the demand for services will not be sufficient) and *payment risk* (the risk that the services provided will not be paid for).

Typically, the greater the commercial attractiveness of an opportunity—in terms of the likely financial returns—the greater the ability to transfer risk (and the lower the subsidy requirement), as illustrated in figure 3.1.

Figure 3.1 The potential for risk transfer



Although different types of OBA schemes may involve the transfer of all or some of these risks to some degree, *at a minimum OBA schemes need to transfer some meaningful measure of performance risk.*

### 3.2. Performance risk and who should bear it?

As noted, performance risk is a commercial risk, related to the ability of an operator to deliver contracted services. Because performance risk is typically seen as being the most

controllable of all these risks (although it is not always), it is therefore the one most appropriately allocated to the provider of services.

In an OBA arrangement the key means by which to transfer performance risk to operators is to ensure that they are paid only upon successful delivery of services. Hence the emphasis on payments on outputs rather than on inputs.

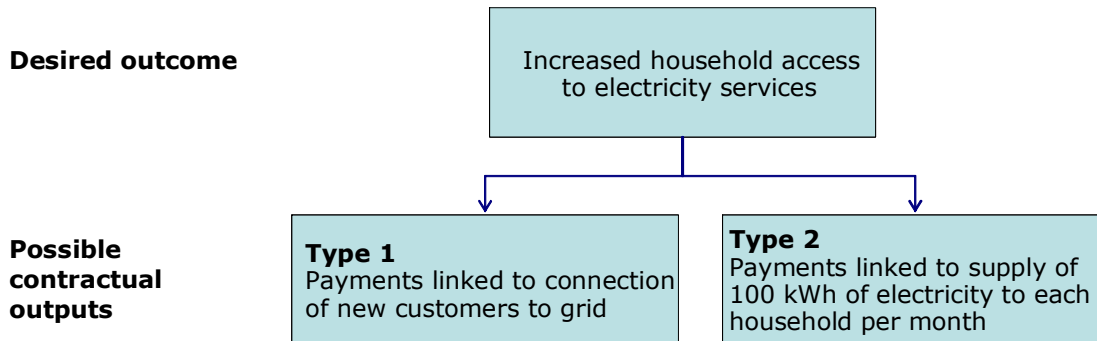
As illustrated in figure 3.1, an OBA contract may take place in a context in which risk transfer is limited to performance risk, or it may involve a wider arrangement, such as a concession, in which there is much greater risk transfer. An example of an arrangement that largely transfers performance risk is a road maintenance contract in which the maintenance company is responsible not for large-scale investment but merely for repairs, the costs of which are repaid directly by the government rather than by the customers. In contrast, schemes in which the private sector is expected to invest its own resources—for example, rural cellular telephony or electricity expansion schemes—typically involve considerable transfer of market risk, not to mention financial and political risks.

### **3.3. Defining outputs**

A major challenge of OBA is to determine the outputs against which subsidies will be paid. In some situations it may be possible to identify very discrete outputs, for example, water or electricity connections. Output specification becomes much more difficult when the service is ongoing or where there might be a range of desired outputs (including varying degrees of quality). The United Kingdom, in its experience with the Private Finance Initiative, has found that the most challenging aspect has been the design of appropriate output specifications. As OBA techniques are applied to a much greater range of opportunities in developing countries, the specification of more elaborate outputs—beyond connecting new customers, for example—will become an increasing challenge.

Generally speaking, it is useful to try to define outputs that are linked as closely as possible to the ultimate outcome that is desired. While outputs can take many forms—and may be appropriate or inappropriate—outcomes are tied much more tightly to the overall objectives of a project. As illustrated in figure 3.2, a desired policy outcome of increasing access to electricity services may be translated into different types of outputs that might be built into a performance contract (where subsidies are to be channeled through a supplier).

Figure 3.2 Outcomes and outputs



The most appropriate output will be the one that best achieves the desired outcome. Thus if the OBA scheme was to take place in a rural environment in Sub-Saharan Africa where rates of access to electricity are very low, type 1 or type 2 outputs or even both might be appropriate. In the ongoing Energy Reform and Access Program in Mozambique, for example, where the government is working to increase access to electricity among the rural population—most of whom are not connected to the national utility—a subsidy based on a type 1 output is used as an incentive to private sector electricity providers to extend their reach to as many households as possible.

If, however, the scheme was to take place in, say, one of the Central Asian republics (such as in the Pamir example), where most customers tend to be already connected to the national or municipal electricity grid, tying subsidies to a type 2 output would likely be much more appropriate.

Where the performance regime is determined by contracts, it is not in the interests of any party to a contract that key provisions be difficult to define, especially where desired outputs also form the basis of the bidding or evaluation metric. As ever, it is important to approach these issues pragmatically and to recognize that sometimes the most desirable output may not be possible to utilize within a contract—for example, because it is difficult to measure. As a result, less desirable proxies may need to be used initially.

#### 4. DESIGNING GOOD OBA: KEY IMPLEMENTATION CONSIDERATIONS

There are several key issues to consider when designing a good OBA scheme. In addition to the key design challenges related to intelligent subsidies and the performance regime, the following implementation issues must be considered up front when designing an OBA scheme.

#### 4.1. Wider structuring issues, including government payment risks

OBA is unlikely to be the only instrument to be deployed in a given project. Indeed, its effectiveness is likely to be enhanced when it is used alongside other tools, as in the Pamir project, where the International Finance Corporation was also heavily involved. Subsidy efficiency, in particular, is likely to be improved where there are other instruments to take care of other project issues, such as political risks, or where partial credit guarantees are employed to help raise local currency debt finance (box 4.1). In other cases, for example, where there is a long-term subsidy obligation involving government and potentially other donor commitments, it may well be necessary to deploy a partial risk guarantee to cover breach of contract risks. While the transaction or intermediation costs of such approaches may be higher, they are likely to be offset by lower subsidy requirements, given improvement in delivery efficiency.

##### **Box 4.1 Enhancing the credit worthiness of output-based aid**

*For an infrastructure project supported by output-based aid, the cash flows are subject not only to risks related to tariff payments by customers but also to risks related to subsidy payments by the government or government entity. In many countries government payments are considered unreliable and so are assigned a low credit rating by financial markets and investors. In these cases the quality of OBA payments needs to be enhanced—that is, lifted to a higher level to become creditworthy. World Bank guarantees offer one way to enhance OBA payments that can help attract market financing for infrastructure projects.*

*The World Bank's **partial risk guarantees** can backstop government OBA payments. That is, they can provide a guarantee against government default on OBA payments (up to a preagreed amount) to a private infrastructure provider. If the government does default, a commercial bank takes over the payments, under a letter of credit to the infrastructure provider, backed by the World Bank's guarantee. The World Bank then reimburses the commercial bank under a counterguarantee by the government.*

***Partial credit guarantees** cover private lenders against all risks during a specified period or for a specified share of the debt. These guarantees, available only to middle-income developing countries (specifically, borrowers from the International Bank for Reconstruction and Development, or IBRD), are designed to extend and improve market terms for borrowing by public entities. They are poorly suited for backstopping OBA payments to a single project, since governments are unlikely to add to their commercial debt with the sole objective of financing subsidies. But they could be used to capitalize a subsidy pool set up to finance OBA payments for several (or many) smaller projects and designed to become financially sustainable over time through dedicated user fees and levies. Such a structure could reduce transaction costs for each project as well as total financing costs.*

An additional design consideration is related to protecting the subsidy flows from unrelated claims. This is an important risk allocation issue: it is desirable to transfer

performance risk to the service provider, not government breach of contract risk. If aid funding intended to provide targeted subsidies is channeled through budgetary support, it may be subject to third-party (unrelated) country creditor claims. Designing subsidy mechanisms that will protect the allocated aid funding is therefore very important. This could be achieved by establishing subsidy payment mechanisms that would place donor aid funding outside the government's control, channeling it through escrow accounts or letter of credit arrangements directly to beneficiaries (usually as part of a supply-side subsidy). Such an arrangement is currently being piloted as part of the Mozambican Energy Rural Access Program.

#### **4.2. Mechanisms for service delivery by a public provider**

In an OBA scheme it is not essential that the provider of the services be a private sector entity. In certain situations a state-owned public corporation could also be the recipient of OBA subsidies. The critical requirement, however, is to transfer meaningful performance risk. If this cannot be achieved, the approach will not work.

This is likely to be most difficult where the entity in question has had no experience in working within a performance-driven environment. Transferring real performance risk will be extremely difficult where there is no arm's-length relationship between government and the operator and where management has had little exposure to commercial discipline. Unless failure to deliver is felt in any meaningful way, a performance regime will be impossible to establish.

However, many publicly owned corporations do operate on a relatively competitive basis and certainly compete for contracts across borders. Eskom of South Africa and Electricité de France are both actively looking for electricity opportunities in Africa, although it is arguable that they operate on a different basis than organizations whose shareholders are more profit driven. A greater determinant of the ability to transfer performance risk is the potential for introducing competition, which is likely to be a much greater determinant of efficiency and customer responsiveness.

The potential to apply OBA solutions where the public sector is the operator will be determined by a number of factors, including:

- The extent to which there is an arm's-length relationship between government and the operator (for example, is it a government department, agency, or public corporation?).
- The extent to which the entity faces a hard budget constraint or is used to working on a commercial basis.
- The extent to which regulatory powers might be used to introduce competition.

- The opportunities for introducing competition between suppliers (is the service a natural monopoly, or is there scope for several suppliers?).
- Where there is a natural monopoly, the extent to which individual activities might be seen as being contestable.

### **4.3. Choosing the market: competitive dynamic and incumbents**

The level of sector reform—specifically, the existence of a competitive dynamic—is of paramount importance in the design of an effective OBA scheme. The design of OBA solutions will be dependent on the number of potential suppliers as well as realistic and practicable forms of competition and regulation.

#### **4.3.1. Situations where there are multiple potential suppliers**

Establishing a competitive dynamic is an extremely important element of OBA schemes. Differing competitive dynamics will be established depending on whether there is a single service provider or multiple ones and whether the subsidy is channeled through the service provider or directly into the hands of customers.

These considerations lead to several different types of competitive dynamic that could be employed:

- *Competition in the market*, where service providers compete directly with one another to supply customers on an ongoing basis.
- *Competition for the market*, where different bidders compete for the exclusive right to supply a market.
- *Project-on-project competition*, where different projects compete against one another for subsidies, typically on a single evaluation metric.

#### *Competition in the market*

Competition in the market is likely to deliver the best results, as competitive pressure can be ongoing as well as one-time. Where there are multiple suppliers, a theoretical ideal is to provide subsidies in the form of entitlements (demand-side subsidies) to consumers, who can decide which supplier to use. This is likely to improve service quality as a result of heightened competition between providers.

In practice, there is only limited experience with OBA schemes utilizing this approach, largely within the health sector. A good example has been in health services in Nicaragua, where female sex workers were provided with vouchers for health checks that

could be used in any clinic, with the clinics being reimbursed by the agency that issued the vouchers.<sup>5</sup>

### *Competition for the market*

As most infrastructure involves a degree of natural monopoly, it is likely that approaches based on competition for the market will be most appropriate in many situations. These approaches normally involve supply-side payments to a supplier of services, which are passed on in the form of lower costs to customers. Box 4.2 provides an example of how a scheme involving competition for the market was developed and taken to market in Nepal.

#### **Box 4.2 Creating a competitive dynamic in OBA telecommunications projects in Nepal and Peru**

*The Nepalese Telecommunications Authority (NTA) used a minimum subsidy auction to select a rural service provider. Bidders were required to submit an application providing evidence that they met eligibility requirements (including operational experience, financial capacity, and Nepalese participation) and specifying the OBA subsidy they required. Unlike in some minimum subsidy auctions, the maximum subsidy available was not publicly announced; with limited competition expected, there was a risk that bidders would have little incentive to propose a subsidy much below that amount. Nevertheless, there seemed to be sufficient interest from serious bidders to run an auction rather than pursuing an alternative such as a negotiated service contract with a single service provider. The NTA conducted a transparent auction, with two bidders competing. Network rollout began in April 2004.*

*Peru also used a least-subsidy bidding approach, in which telecoms operators bid for the minimum government subsidy they required to deliver pay phone services in targeted rural areas. Winning bidders received a nonexclusive concession defining their rights and obligations. Results thus far demonstrate that the investment mobilized has been much greater than the subsidy provided. Furthermore, the winning bid requested a subsidy 41 percent lower than that estimated by the sector regulator and 74 percent lower than a previous amount requested by the incumbent provider.*

*Source: OBA Approaches 2004; Brook and Smith 2004.*

The frequency of the competition for the market might be determined by the scale of the investment being made by the operator. Where this is low, the opportunity should be retendered more frequently.

Competition for the market may also take place as part of a parallel bidding arrangement but could potentially involve sequential approaches. In parallel approaches bidders for the

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<sup>5</sup> See Warrick Smith, "Designing Output-Based Aid Schemes: A Checklist," in Penelope Brook and Suzanne Smith, eds., *Contracting for Public Services: Output-Based Aid and Its Applications* (Washington, D.C.: World Bank, 2001).

market submit their bids at the same time. In sequential approaches bids may be submitted at different times. An example of a sequential approach is the so-called Swiss challenge, in which, following the receipt of a proposal—often unsolicited—other bidders are asked to submit bids to see whether they can beat it. This approach might be appropriate where a scheme already exists and there is a desire to expand it while maintaining a degree of competitive pressure on the existing suppliers.

#### *Project-on-project competition*

In project-on-project competition different projects compete for the available subsidy. While the projects may be very different in scope, they are evaluated against a common metric, such as the minimum subsidy required to connect a customer. This approach has been at the heart of a number of designs for potential rural electrification funds. These funds receive bids from different project promoters to electrify different communities. On a periodic basis all bids that are received are evaluated against the common evaluation metric. All bids are ranked, with the bid with the lowest subsidy requirement being the first to receive the funds and the next lowest the second, and so on until the available subsidy is exhausted.

Studies in Mozambique, the Philippines, and Uganda have developed concepts for such schemes, but to date they have not been implemented. The approach is perhaps particularly attractive in the promotion of very small-scale, community-based schemes. While the idea undoubtedly has merit, such approaches can pose administrative challenges—for example, promoting and operating an annual competition for the subsidy award.

#### **4.3.2. Dealing with incumbents**

There are many situations where infrastructure services will be provided by an incumbent utility and it will not be feasible—often for political but sometimes also for economic reasons—to institute an alternative model, at least in the short term. But there are potential gains in using OBA in the context of service provision by an incumbent. Where there is a public incumbent there may be no plans for increased private sector participation or competition, yet there is still a need to provide service to the poor. OBA can help ensure that the subsidies are relatively well targeted and performance driven. Where there is a private sector incumbent that has *ex ante* won a concession but has not expanded coverage to poor communities, a payment for connections made in poorer areas may provide additional incentives, including an increased market (from higher-income consumers in the new areas), an ability to spread fixed operating costs over a larger consumer base, and even goodwill.

Clearly, introducing competition where there is only one supplier of the desired services is more problematic. To a certain extent this problem will arise whether it is a private or

public sector incumbent operator.<sup>6</sup> The types of methods that might be used to help mitigate problems arising from a lack of competition are those commonly employed by regulators to improve efficiency where there are incumbents. In many developing countries where regulatory regimes are very weak, such approaches must be built into the design of schemes, because in most instances it will be difficult to introduce them later. The approaches to be considered include:<sup>7</sup>

- Identifying and contracting out contestable activities.
- Employing yardstick or benchmarking approaches.
- Using effective regulatory mechanisms.

#### *Contestable activities*

While an incumbent may be the monopoly supplier of an infrastructure service, in large part because of the assumed natural monopoly aspects of the service, this does not mean that meaningful competition cannot be introduced. If the service is broken down into its constituent activities, a number of these may be highly contestable with a resulting potential for competitive outsourcing.

Activities such as connecting customers, billing, and operation and maintenance of, say, a distribution system are all inherently contestable. Many road operation and maintenance schemes involve the outsourcing of some activities. Thus a way to introduce an OBA scheme within such an environment is to outsource a number of activities through a competitive approach: potential service providers would compete on the subsidy required to connect new customers, with the connection costs to be financed by the providers in the short term and then repaid through performance-based subsidies. For such an arrangement to work, it would need to be possible to transfer controllable performance risk to service providers.

#### *Yardstick or benchmarking competition*

Yardstick or benchmarking competition involves using highly comparable analogous market data to determine appropriate costs. While a competitive dynamic will almost always be a better way of achieving value for money, OBA can be pursued using benchmark prices or a yardstick competition where this is possible and applicable. The

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<sup>6</sup> In many instances, however, a private sector operator is an incumbent as a result of an earlier competition for the market, which may have established a number of performance benchmarks that may be useful in expanding a scheme.

<sup>7</sup> In some instances it may be possible to introduce a meaningful *threat* of competition. It may be possible, for example, to use the threat of a Swiss challenge if it is deemed that an incumbent's proposal is too costly. For incumbents the threat of impending sector reform can galvanize improvements in performance and more "competitive" behavior. Of course, the threat cannot be repeated too often without carrythrough, or it will lose credibility.

use of benchmarking or yardstick competition can also be an element of an effective regulatory regime.

#### *Effective regulatory mechanisms*

Regulatory reviews are a well-established part of infrastructure service provision, particularly when private sector participation is involved. These reviews allow regular resetting of tariffs and service standards by a regulator who assesses the efficient cost of providing the service. Engineering assessments and benchmarking against comparable companies are used to establish minimum required levels of operating and capital expenditures.

The tools of regulatory reviews and the process of rate reviews are well developed, although far from perfect as a result of information asymmetries between service provider and regulator as well as imperfect information (for example, lack of local capital markets to determine the appropriate weighted average cost of capital). Further, the regulatory capacity in many developing countries is weak. Thus the reliance on effective regulation to help determine appropriate pricing for OBA schemes will be limited.

#### **4.4. Administrative and monitoring arrangements**

Output-based aid schemes need to be administered competently and at reasonable cost. This requires consideration of the following:<sup>8</sup>

- *Scope of the scheme.* Do the sector and geographic parameters chosen allow economies of scope and scale? The oft-cited Chilean scheme is successful in part because it is used to determine the eligibility for subsidies for a wide range of services. In addition, schemes that are open to multiple sources of funding can help ensure that funding is sustainable.
- *Nature of the scheme administrator.* The credibility and competence of the scheme administrator will be critical for winning the confidence of all stakeholders. The administration of the scheme should involve clear and transparent awarding of contracts and subsidy disbursement as well as monitoring and verification that the outputs have been delivered.

Monitoring and verification of service delivery is of critical importance in OBA schemes, since providers are paid on the basis of actual outputs. Potential candidates to undertake monitoring and verification tasks include existing regulators, independent institutes (including academic institutions), nongovernmental organizations (NGOs), private consulting firms, and local community organizations. The choice will depend on the

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<sup>8</sup> Warrick Smith, "Designing Output-Based Aid Schemes: A Checklist," in Penelope Brook and Suzanne Smith, eds., *Contracting for Public Services: Output-Based Aid and Its Applications* (Washington, D.C.: World Bank, 2001).

political economy of the situation and available capacity. The monitoring system should also ensure that outputs are delivered at expected levels of quality—demonstrating the importance of defining appropriate outputs that not only are as close as possible to desired outcomes but also are quantifiable and verifiable. Both consumers and service providers must have faith in the monitoring mechanisms in place in order for the OBA scheme to be most effective. And very importantly, tradeoffs between overengineering these processes need to be weighed against the costs, including leaving the possibility for innovation on the part of the operator.

## **5. SUMMARY**

OBA involves the use of performance-based subsidies to promote the delivery of basic infrastructure services. The approach is characterized by an explicit recognition of the need to subsidize to address the gap between a desired level of consumption of a given service and what might be funded through user fees (where user fees are feasible); and by the delivery of the subsidy within a performance-driven regime.

The potential for improving aid effectiveness through adopting the OBA approach, in terms of achieving value for money and targeting desired beneficiaries, is further improved when a competitive dynamic is introduced in the award of the subsidy or the determination of subsidy levels.

Very few if any contexts are the same, however. Developers of OBA schemes—whether World Bank staff, governments, or other donors—need to consider a number of issues in optimizing the design of their desired scheme. Among the key issues, discussed in this note, are the following:

- What the merits of the case for subsidy award are.
- Whether to provide one-time, transitional, or ongoing subsidies.
- How to optimize subsidy design so as to meet objectives and target desired beneficiaries.
- Whether to pursue supply-side or demand-side subsidy approaches.
- How best to introduce competition into the award of subsidy and, where this is not possible, what alternative method to use (such as benchmarking).
- To what extent the OBA approach might work where there are public sector suppliers.
- What degree of performance (and other) risks might be transferred to the operator.
- How to choose output metrics that are most likely to produce the desired outcomes.

Given the expected increase in aid funding, it is becoming very important to understand the role of such public funding and its impact on sustainability.

When designing a subsidy intervention (public funding) in various service markets, it is critical to identify what market failure the intervention is trying to address, such as a public good issue or positive externalities. Sometimes it is affordability rather than market failure that is the issue, and it is important to understand what is driving that (household incomes being too low, the costs of delivering the service too high, or both).

Once this is established, the design of the intervention needs to reflect consideration of what the most efficient and sustainable manner would be for applying such an intervention (or subsidy). Before applying subsidies, it is always important to consider the underlying economics of the project. If these are very poor, the subsidy required will be greater and, most likely, less sustainable.

One goal of the pilot work of the Global Partnership on Output-Based Aid (GPOBA), a multidonor trust fund administered by the World Bank, is to scale up the use of OBA approaches in the World Bank and other multilateral institutions to the extent that they become an integral mechanism in large-scale programmatic lending. In this way the benefits of an explicit, performance-based subsidy regime for the infrastructure and social services sectors can be felt more widely.

Subsidies are back on the table as a legitimate policy tool for infrastructure development. There is still a need to collect evidence of OBA's effectiveness as an aid instrument, but the evidence is mounting and initial results look positive. What is clear is that better-structured and in some cases better-targeted subsidy mechanisms with credible payment and monitoring systems will attract and mobilize the private sector. In addition, well-designed OBA approaches could improve the performance and governance of public utilities or help strengthen the partnership between communities and NGOs. When designed properly, OBA can become one of the key mechanisms for improving infrastructure service delivery to the poor and thus help to reach the Millennium Development Goals.