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The comments from Reviewer 1:

Comment	Action
The abstract is two long. Detailed objectives are not necessary.	Shortened/ Detailed objectives deleted
Page 6, last parag.: Insert (W&S) in the first line after sanitation to show the meaning of the abbreviation.	Done
Page 7, parag. 2, line 5: Chnage "often poor" to "poor often".	Done
Page 13, parag. 1, line 3: Insert "(KWSB)" after Scheme to show the meaning of the abbreviation	Done
page 13, parag. 3, line 1: Change "innovate" to "innovative".	Done
Page 13, parag. 4, line 2: Change "south" to "South".	Done
References: Please indicate "access date" or "date visited" on all references to web pages.	Done

The comments from Reviewer 2:

Comment	Action
An alternative title of the paper might be adopted	New title is “Accountability Arrangements to Combat Corruption and Improve Sustainability in the Delivery of Infrastructure Services”
It is punctuated by far too many references	Number of references reduced from 90 to 46
The paper also needs to be correctly formatted in accordance with the original proposals	Done
The paper is far too long.	Reduced from 27 pages to 16

Accountability Arrangements to Combat Corruption and Improve Sustainability in the Delivery of Infrastructure Services

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ABSTRACT

Internationally, it has been recognised that corruption in planning, procurement, construction and operation and maintenance (O&M) undermines the sustainability of infrastructure services (defined here as water supply, sanitation, drainage, access roads and paving, transport, solid waste management, street lighting and community buildings). What progress has been made, therefore, in implementing greater accountability to combat corruption in the planning and delivery of infrastructure services? This paper documents the growing interest (in developed and developing countries) in securing greater accountability for the delivery of infrastructure and assesses the potential to improve both provision and performance of infrastructure services.

Keywords: *civil engineering, developing countries, sustainability, ethics.*

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INTRODUCTION

Corruption undermines the sustainability of infrastructure services. For example, corruption raises the cost and lowers the quality of infrastructure resulting in sub-standard infrastructure and poor infrastructure management. Corruption often steers money away from community based service delivery towards large capital-intensive infrastructure projects, which are often unsustainable, but also adversely affect the poor by increasing the price of and restricting access to public services. Corruption can also cost lives and livelihoods, for example where inspectors have been bribed to ignore building and planning regulations. It is the purpose of this paper to argue that with improved accountability and reduced corruption, it is possible to construct, operate and maintain adequate quality and quantity of infrastructure on a sustainable basis.

The paper is structured as follows: Section 1 begins by defining infrastructure services and outlining the purpose of service delivery. It is argued that adequate and appropriate urban service delivery depends on the sustainability of service outputs. Section 2 broadly describes and defines corruption before moving on to examine how corruption affects the way infrastructure services are delivered in greater detail. Section 3 discusses how accountability can be operationalized in the context of infrastructure services and identifies the impact of greater accountability on the quality of public service delivery. This section also describes how accountability arrangements might realise sustained improvements in infrastructure performance. Evidence is provided of new thinking and innovative action on how to respond to corruption and hold officials accountable in the delivery of infrastructure services. In particular strategies are presented by which ordinary citizens can hold service providers to account to improve the overall quality and sustainability of public service delivery. Section 4 concludes by summarizing the evidence presented.

This paper is based on the initial findings of a DfID funded research project in a number of countries in South Asia, Southern Africa, Central Eastern Europe and Latin America, conducted by Water, Engineering, Development Center (WEDC) at Loughborough University a. The project is entitled 'Accountability Arrangements to Combat Corruption' and the research is intended to provide evidence of how anti-corruption initiatives in infrastructure delivery can contribute to pro-poor outcomes.

Section 1: Infrastructure services

The term 'infrastructure services' covers a wide variety of activities but is defined here as those services derived from physical infrastructure networks or installations, including water supplies, sanitation, drainage, access roads and paving, street lighting, solid waste management and community halls. These services are normally the responsibility of a local government, but may be provided by the private sector and Non Government Organisations (NGOs).

The provision of infrastructure services is intended to achieve a number of goals, such as:

- Human development goals: including public health, well being, welfare, security, comfort, convenience, income redistribution, poverty reduction, and enhancing human capital.
- Economic development goals: these relate to economic growth, efficiency of economic activities, facilitating trade, and creating employment.
- Environmental sustainability goals: including improvements to the environment and conservation of natural resources.
- Governance goals: for example the promotion of urban management, civil harmony and social integration.
- Financial goals: improving the household's ability to generate income and savings, for example, by enabling a more productive use of women's time, or enhancing the scope of household-based businesses.

Section 2: Corruption

A general definition of corruption is the misuse of public office for personal gain either at one's own instigation (e.g. extortion) or in response to inducements (e.g. bribes). Nye's definition (1967; 419) of corruption refers to "behaviour which deviates from the formal duties of a public role because of private regarding (personal, close family, private clique) pecuniary or status gains, or violates rules against the exercise of certain type of private regarding influence". According to Klitgaard (1988; 24), corruption occurs when an agent betrays the principal's interest in pursuit of one's own. Ley (1965) refers to corruption as behaviour that breaks some rule, written or unwritten about the proper purpose to which a public office/institution has been put. However, Williams (1987) states corruption resists simple labelling; how corruption is defined depends on the context in which it is located, the perspectives of the definers and their purpose in defining it.

Specific forms of corruption include:

- **Bribes** - payments made in order to gain an advantage or to avoid a disadvantage e.g. 'speed money' to overcome delay in the administrative process to obtain a service or to subvert proper decision-making,
- **Fraud** - theft through misrepresentation,
- **Embezzlement** - misappropriation of corporate or public funds,
- **Kickbacks** - sweeteners or rewards for favourable decisions.

Corruption can differ in its scale: it can be 'grand' (involving large amounts of money) or more commonly 'petty' involving small amounts of money and which citizens may experience in their encounters with 'street level bureaucrats' (Lipsky, 1980) such as junior public officials. For instance, Aminuzzaman (1996) finds that the higher the level of bureaucracy the less the frequency but higher the amount of bribe paid: the lower the level of bureaucracy the higher the frequency but the less the amount of bribe. According to Davis (2004) corruption can be 'collusive' (the willing and planned cooperation of the giver and taker), 'extortionary' (forced extraction of bribes or other favours from vulnerable people by those in authority), or 'anticipatory' (paying a bribe in anticipation of favourable actions or decisions from an authority).

The literature describes the main causes of corruption as greed, the low salaries of public officials, peer pressure, institutional cultures of corruption, the lack of accountability of public officials, a lack of morals, poor law enforcement/lack of punishment of corrupt officials, or complex bureaucratic processes and regulations. Olivier de Sardan (1999) argues that corruption typically involves social networks, moral and social codes and cultural practices such as gift giving and helping family and friends. For example, the corrupt official may have been educated at the expense of the extended family, who then expects favours in return for their investment. Or else, corrupt civil servants may give their allegiance to high-ranking politicians and, in return, enjoy their protection from prosecution.

Corruption has a number of consequences, for example it might:

- Act as a bottleneck for development (Robinson, 1998).
- Distort commercial and industrial enterprise development (Kaufmann, 1997).
- Undermine political stability & leads to ineffective government (Mauro, 1997).
- Undermine legal and judicial systems (Rose-Ackerman, 2004).
- Lower the quality of public infrastructure (Tanzi & Davoodi, 1997; DFID, 2002; Esfahani & Ramirez, 2003; Bo Dal & Rossi, 2004).
- Reduce the effectiveness of social spending (Gupta et al, 1998).
- Decrease foreign direct investment (Wei, 1997).
- Infringe civil and political rights (Persson, Tabellini & Trebbi, 2003).
- Lead to prosecution, fines, blacklisting and reputational risk (Stansbury, 2004).

Médard (1986) argues that conditions in Less Developed Countries are particularly conducive to corruption. Corruption is perceived as a particular problem in 'developing' countries: the Africa Commission, for example, recently identified corruption as the single most important explanatory factor for the lack of economic development in Africa (Commission for Africa, 2005). The Corruption Perceptions Index (2004) of Transparency International found that a number of developing countries, such as Haiti, Bangladesh, and Nigeria scored less than 5 out of a clean score of 10 in the Corruption Perceptions Index in 2004. Whereas, the countries that secured a score of higher than 9 were predominately rich countries such as Finland, Denmark, New Zealand, Iceland, Singapore and Sweden. The literature suggests that corruption should disappear with economic liberalisation, political democratisation, and social modernisation (Kaufmann 1997). However, Girling (1997) demonstrates that corruption does not disappear in highly industrialised, democratic societies, but rather the form of corruption changes as countries develop. As Lewis (1996) notes corruption is typically viewed ethnocentrically: western corruption is often interpreted as individualized, deviant, pathological behaviour, while Third World corruption is typically seen as structurally generated and generic.

Corruption is typically seen as a serious legal and financial offence. However, Johnson (1997) argues that corruption does not necessarily lead to social problems or economic collapse. Ley (1965) has also suggested that it is wrong to assume that the results of corruption are always bad or important. Klitgaard (1988: 31) suggests that corruption can in fact benefit private actors by putting "goods and services in the hands of people who value them the most, who use them the most". It has also been

reported that corruption may benefit the poor by cutting red tape, making decision-making predictable, motivating underpaid workers and enables some to obtain political power e.g. selling a vote for services.

Nevertheless, Rose-Ackerman (1978) presents the idea that corruption cannot be entirely eliminated, since the cost of doing so would be excessively high (reducing efficiency and perhaps effectiveness), resulting in decision making delay, over-centralisation, inadequate authority, defensive management, trained incapacity, goal displacement and poor morale. Klitgaard (1988) agrees that where the costs of eliminating corruption are too high, an optimal level of control is possible.

Corruption in infrastructure services

Infrastructure service provision is a sector known for its association with corruption (DFID, 2002). Corruption can reduce the efficiency, effectiveness and equity of infrastructure services in a number of respects (also see Table 1):

- Where corruption means public services are corruptly managed (for example service providers extort bribes from service users, favouritism exists in hiring and managing staff, or else complex administrative processes and regulations create opportunities for corruption), this reduces performance and efficiency and increases costs.
- In countries with high levels of corruption, public spending is typically biased toward new large investment infrastructure projects rather than operation and maintenance of old ones or rehabilitation of systems.
- The possibility of obtaining private kick-backs can skew policymaking or budget allocation, which generally favours elites, reducing the governments' ability to reduce poverty and finance infrastructure services to the poor, (Ades & Di Tella, 1997).

Pope (2000) and Strombom (2001) argue that corruption in procurement generates immense opportunities for payoffs with comparatively low risk of detection and punishment. Stansbury, (2004) found the nature of construction projects make them particularly prone to corruption, for example the size and complexity of infrastructure projects makes it easier to hide large bribes and inflated claims in large projects than it is in small projects. Kaufmann, Leautier and Mastruzzi (2004) consider the performance of infrastructure services (water, sewerage, electricity and telephones) in 412 cities in 134 countries. The authors find that corruption has significant and substantial effects on both access to services and on the quantity and quality of service delivery. A study by Bo and Rossi (2004) of 80 electricity utilities in 13 Latin American countries investigated the effects of corruption on the recurrent costs of infrastructure services. The authors suggest that significant reductions in corruption would have a substantial effect on efficiency (the number of workers employed would be reduced, electricity would certainly be cheaper – and hence labour productivity – and total operational and maintenance costs would fall). Similarly, in their study of water utility companies in Africa, Estache and Kouassi (2002) compare productivity among 21 companies and find that nearly two-thirds of their operating costs were due to corruption. They claim that a ten per cent reduction in corruption would exceed the total gain achieved from privatisation. Shadrach & Ekeanyanwu (2003) reviewed the incidence of corruption in the Nigerian National Electric Power Authority and the

Nigerian Telecommunications PLC and found corruption in areas such as the subscription process, billing systems, payment enforcement, fault redress and response to complaints. A study of corruption in South Asia's water and sanitation sector (W&S) found widespread corruption on the part of utility staff, customers and contractors. Davis (2004; 58-59) examined problems with competitive contracting and kickbacks in relations between authorities and local contractors. Despite the use of competitive bidding, cartels were operating, subverting the competitive process by deciding among themselves who would win the bid, and organising the bids accordingly.

Corruption in infrastructure service delivery is of importance for poverty reduction strategies for two main reasons. Firstly because it diverts resources from poverty-focused infrastructure projects and secondly because the poor lack the necessary resources to combat corruption - finance, information, literacy, ability to access the legal system and connections to those with power, and 'voice' (Narayan et al, 2000). The poor are often adversely affected by petty corruption, for example the poor often pay a disproportionately higher percentage of their incomes on bribes than wealthier citizens (Paul 1991) or else are forced to go without a service. The poor are more likely to experience unfair treatment in service delivery since they lack the information on where and to whom to turn in order to complain. The poor are often reliant on the goodwill of gatekeepers who control access to infrastructure services, which reinforces their powerlessness, uncertainty and dependence.

Whilst the majority of commentators view instances of corruption as criminal and morally bad behaviour, there are those who argue that in situations of poor governance and infrequent service the benefit of corruption might be as a way of solving problems with access to infrastructure services. For example, a bribe to speed up the installation of a water connection can save the bribe-payers time and hassle. Low-income residents and neighbourhoods may also be the worst affected by anti-corruption clampdowns, for example attempts to prevent or close down illegal connections may mean reduced access to infrastructure services like water supply.

Table 1: Examples of corruption in the different stages of infrastructure delivery

Stage of service delivery	Examples
Planning stages	<ul style="list-style-type: none"> • Project used as vote winners/opportunities for personal gain not on basis of priority/availability of financial resources. • Planning in favour of high value infrastructure (white elephant projects) and against the interest of the poor.
Inspection stages	<ul style="list-style-type: none"> • Bribing inspectors.
Design	<ul style="list-style-type: none"> • Corrupt selection of consultants for feasibility studies, preparation of specifications/bid documents. • Over designed and overpriced projects. • Bribe for favourable environmental impact assessment/planning proposal/approval.
Bid and contract signing stage	<ul style="list-style-type: none"> • Kickbacks for construction and supply contracts. • Lack of competitive/inequitable contract practices. • ‘Entertainment’. • Corrupt civil servants selling recommendations for contracts. • Politicians influence choice of contractors or nature of contract.
Construction	<ul style="list-style-type: none"> • Changing subcontract party after receiving bribes. • Misuse of vehicles and funds. • Cutting corners, ignoring rules, by passing procedures • Payment for equipment, materials or services which were not supplied. • Concealing substandard work. • Bribe the relevant official to certify that the work was done according to specification. • Non-implementation.
Service delivery	<ul style="list-style-type: none"> • Ghost/absent workers. • Siphoning off supplies to market. • Favouritism in hiring/promotions • Use of contacts/money to get better/faster service. • Elite capture of infrastructure services.
Maintenance and management stages	<ul style="list-style-type: none"> • Corruption in procurement of equipment and spare parts. • Withholding needed approval/signatures of gifts/favours. • Corruption increases costs meaning lack of resources for O&M. • Bribes to win O&M contracts/ personnel appointments. • Lower standard of construction creates need for expensive repair and maintenance.
Subscription process	<ul style="list-style-type: none"> • Consumers pay money in order to speed up the process. • Extra-legal payments for new connections. • Officials are paid to turn a blind eye to unauthorized connections.
Billing system	<ul style="list-style-type: none"> • Opaque system of billing. • Irregularities in ledger of paid bills.
Disconnection	<ul style="list-style-type: none"> • Disconnecting customers in good standing. • Extorting money to reconnect. • Extorting money to prevent disconnection.
Fault redress	<ul style="list-style-type: none"> • Extorting money for repairs that are meant to be free. • Gift giving in return for favours in fault redress.

Corruption and sustainability

According to Peter Eigen, Chairman on Transparency International, “Corruption in large scale public projects is a daunting obstacle to sustainable development”. The literature finds that infrastructure services are sustainable if the outputs continue to be realised over the long term (Carter, Howsam and Tryall, 1999). For example, with

reference to drinking water supply, Davis and Brikke (1995; 6) state that sustainability depends on whether: -

- The water consumed is not over-exploited but naturally replenished.
- Facilities are maintained in a condition that ensures a reliable and adequate potable water supply.
- The benefits of the supply continue to be realised over a prolonged period of time.

It has become commonplace to hear the term social sustainability with reference to infrastructure services. Social sustainability refers to the importance of people and social relationships to the sustainability of an infrastructure service. For example, the sustainable operation and maintenance of infrastructure services is thought to depend on social relations of accountability, co-operation, trust and civic engagement, (Putnam, 1993).

Sustainability in the infrastructure sector is also a strategic concern for the development sector, as evidenced by various international commitments, for example those of the United Nations Millennium Declaration (2000), the Declaration on Cities and Other Human Settlements in the New Millennium (2001), and the World Summit on Sustainable Development (2002). NGOs, donors and government are all keen to ensure long term operation and maintenance in recognition both of the failure of many developmental infrastructure projects and of the environmental problems that reduce quality of life such as inadequate water and sanitation, or solid waste disposal: the so-called 'brown' agenda' (McGranahan et al, 2001; 9). In 2000, over a billion people lacked access to safe water and 2.4 billion lacked access to adequate sanitation facilities. If the Millennium Development Goals for water and sanitation are to be achieved, innovative approaches are required to combating corruption in infrastructure delivery.

Section 3: Accountability for infrastructure services

The literature suggests that historically, corruption in public service delivery was more or less tacitly accepted. Corruption was seen as a 'necessary evil', something that could "grease the wheels" of infrastructure delivery. In recent years, there has been an important shift in thinking and anti-corruption measures are now viewed as central to equitable and sustainable infrastructure provision. For example, DFID (2002) emphasise that "accountability is a very important ingredient to ensure that the mistakes of the past investments in infrastructure are avoided".

Accountability has attracted a great deal of interest from scholars of various academic disciplines, accordingly, the term means different things to different people depending on the context and the purpose for which accountability is sought. Sinclair (1995; 231) highlights the "multiple and fragmented" nature of accountability: accountability has become the "ultimate moving target" (Kearns, 1994; 187).

Accountability is a relationship between people. By way of general definition, Schedler, Diamond, Plattiner (1999; 17) state "A is accountable to B when A is obliged to inform B about A's (past or future) actions and decisions, to justify them, and to suffer punishment in the case of eventual misconduct". Accountability has two

elements answerability (making power holders explain their actions) and enforceability (punishing poor performance) (Schedler, 1999).

Jabbara and Dwivedi (1989) present a number of themes in the study of accountability, which denote the contexts in which people might be held accountable. These are:

- Organisational or administrative accountability; hierarchical relationships of reporting between bureaucracy and politicians, and internal reporting.
- Legal accountability; legislative and judicial checks on politicians and officials.
- Professional accountability; professional codes of conduct.
- Political accountability; enforced by legislature, competitive political parties and elections.
- Moral accountability; moral and ethical principles in accordance with prevailing societal norms and behaviour.

O'Donnel (in Schedler, Diamond, Plattner, 1999; 2-3) makes the further distinction between the forms of accountability which operate in a horizontal or vertical direction. For example, horizontal accountability includes legal accountability or administrative accountability, and is characterised by 'the capacity of state institutions to check abuses by other public agencies and branches of government'. Citizens have also been involved directly in the workings of horizontal accountability institutions, for example, in participatory evaluation of public spending: Goetz and Jenkins (2001) call this diagonal or 'hybrid accountability'. Vertical accountability can be achieved through fair elections, civil society activity, the media, public meetings, and formal grievances procedures. However, commentators argue that too much accountability "can clog up the works, diverting resources and opening organisations to perverse pressures" (Considine, 2002; 21).

As discussed in previous sections, the complex nature of infrastructure services, asymmetries of information and expertise between provider and user involved mean that service providers have an incentive to engage in corrupt activities (Walsh, 1995; 50). Accountability improves infrastructure services principally in two ways:

1. by making service providers explain and justify their actions against commonly agreed standards of effectiveness and
2. the existence of sanctions for those found to have behaved immorally or performed ineffectively (Schedler in Schedler, Diamond, Plattner, 1999; 16).

The potential of accountability to improve the outputs and sustainability of infrastructure services has been identified (World Bank, 2004). The main reasons advanced for applying accountability to the delivery of infrastructure services can be summarised as: -

- **Reduce discretion:** Discretion has the effect of introducing bias into service delivery, which may result in denying full service provision to certain people, or the selective provision of information. Increasing accountability for decisions and actions can reduce this discretion.
- **Improve information flows:** Greater accountability can make information on the performance of services more widely available to service users, who are then equipped to ensure better quality and standards of service, and more effective use of resources.

- **Improve trust:** The institutions traditionally responsible for service delivery have been accused of abusing the trust of citizens, for example, in their use of public money as well as their capacity for impartial and predictable provision of infrastructure services.
- **Compensate for weak political accountability:** Democratic deficit, clientelistic politics and patronage in service delivery has weakened the voice of voters in service delivery. Currently, attempts are being made to rework the relationships involved in service delivery, so that service providers are more directly accountable to service users.
- **Create demand for better services:** Putting accountability arrangements in place can work to change levels of tolerance for poor service leading citizens to reveal their demand for better quality and more accountable infrastructure services.
- **Induce greater monitoring by service users:** When citizens exert their influence over service providers it ensures that service providers (and policy makers) have the incentives to respond to their preferences.
- **Protect the socially and economically disadvantaged:** As well as extending access to infrastructure services, greater accountability of service providers and policy makers can be used to protect the quality of supply available to marginal and excluded groups in society.
- **Improve public sector provision:** Growing antipathy towards the provision of infrastructure services by a large, hierarchical, public sector has led to attempts to reduce and reorganise the public sector and improve the accountability of its activities.
- **Address fragmentation:** In some countries, the for-profit private sector, non-government organisations, and community-based organisations, are key service providers. Attention is being paid to the allocation of accountability in the context of fragmented service delivery.
- **Improve cost recovery:** Greater accountability in the delivery of infrastructure services may have the consequence of improving cost recovery since service users may be more willing to pay for the services they receive.

How accountability has been used to combat corruption infrastructure delivery

There are a variety of anti-corruption conventions and treaties that apply to the delivery of infrastructure projects for example the Paris Declaration (2003); the UN Convention Against Corruption (2003), The African Union Convention on Preventing and Combating Corruption (2003), the OECD Anti-Bribery Convention (1997), and The UN International Code of Conduct for Public Officials (1996). Engineering consulting firms and water related multinationals are among 62 companies at the World Economic Forum 2005 who signed up to a zero tolerance campaign against bribery and corruption -Partnering Against Corruption Principles for Countering Bribery (<http://www.weforum.org.paci>). Many international institutions have also incorporated anti-corruption activities into their infrastructure programs to promote transparency. For example the Asian Development Bank (ADB) has provisions for suspending or cancelling loans where there is “credible evidence of corruption”.

Current macro-trends in the infrastructure sector (decentralization, privatization, community management, demand-led approaches) are also intended to improve performance improve governance, reduce corruption and promote accountability (UNCHS, 2001). In particular, accountability is thought to be enhanced by the introduction of competition in service delivery. Private operators are thought to have a much stronger incentive to curb corruption because they are losing revenue. Nevertheless, corruption exists in private as well as public infrastructure service operators. There is a concern that privatisation and sub-contracting might lead to accountability gaps, whereby services users have less protection from government if they encounter problems with private providers (Newell, 2002; 92).

Transparency International has launched ‘Minimum Standards for Public Contracting’, which also advocate the use of a TI Integrity Pact. The Integrity Pact, which is a tool that commits the authority and bidding companies to refrain from bribery, has already been successful in reducing corruption and cutting the costs of dozens of procurement procedures around the world. A recent Integrity Pact in the Karachi Greater Water Supply Scheme (KWSB) is anticipated to save \$3.1million and has led to transparency in public procurement procedures to be implemented in the workings of KWSB.

Transparency can make a significant contribution to reducing corruption and embezzlement. For example, in India Citizen Charters are used for tackling low-level corruption by providing citizens with access to information about services. Citizen Charters are documents that summarise details for the services provided by government agencies. Charters change service provision by defining service standards, ensure that users are consulted about their needs as well as setting targets for responses times, waiting times, charges and fees. Charters increase accountability through the publication of information about and requirements for government services. The World Bank Program in Campo Elias (Venezuela) involved greater disclosure of public information with reference to public works (particularly over the Internet) and increased citizen involvement in municipal budgets. As a result corruption has fallen and services are delivered more efficiently (PREM notes, 2000).

Infrastructure service users have been encouraged to become “the active makers and shapers of services, exercising their preferences as consumers and their rights as citizens” (Cornwall, Lucas and Pasteur, 2000; 2). Citizens can normally participate in three key areas of service delivery: operational practices, expenditure decisions and policymaking (Burns, Hambleton, Hogget, 1994). If the users, and particularly the poor, can monitor and discipline poorly performing service providers, this is thought to result in better services. In particular, Davis (2004) highlights the need to bring engineers face to face with the daily hardships of customers in order to increase the moral cost of misconduct and to develop a sense of duty.

Contemporary innovations in fighting corruption rely on the voice and participation of citizens in monitoring their infrastructure delivery. For example, community-based audits of public works have been organised by an NGO called Parivartan in Delhi. In Bangalore, the Children’s Movement for Civic Awareness have surveyed the quality of the city’s roads. The children were given checklists in order to monitor the presence of side drains, evenness of surface of the footpath, obstructions to pedestrians, number of potholes, number of cracked areas, presence of signs or

painted lines to indicate a road hump, unfilled or un-compacted diggings for electrical or telephone cables. The children presented the findings on quality of roads to the Bangalore municipal commissioner at a public hearing and the findings were reported to newspapers. Such surveys have helped to make public officials more accountable and to improve the quality of infrastructure. Paul (1991) has demonstrated how organised public feedback in the form of report cards can be used to challenge service providers to be more efficient and responsive to consumers. Exposing public administrations to pressures and demands from citizens has a major impact on improving service delivery and public administration effectiveness. In the Philippines, NGOs have sent monitors with cameras and photocopies of contracts to uncover corruption by comparing infrastructure plans on paper to what was actually built. Such cases provide evidence of how engineers and other service providers have been made accountable and self-regulating outside their agency through monitoring by the communities.

The link between accountability and sustainability of infrastructure services

In any discussion of sustainability, it is important to clarify what is being sustained, for how long, for whose benefit, over what area, and measured by what criteria. Sustainability was defined in the literature as the constant delivery of outputs. Table 2 describes how reducing corruption in the delivery of infrastructure services can increase sustainability.

Table 2: The effect of greater accountability on the sustainability of infrastructure services

Planning	Plans based on priority, need and finances. Resource sustainability is included in planning.
Inspection stages	Third party control of quality of construction
Design	Costs accurately calculated, appropriate technologies considered, no political interference, clear and agreed plans for O&M and stakeholder participation in design.
Bid and contract signing stage	Accurate, honest bidding. Independent assessor who monitors the prequalification, tender and execution of a project with enforceable sanctions and arbitration mechanisms. Safe channels for whistleblowers. Plans to extend services to poorer areas.
Construction	Assured quality of materials and equipment. Good standard of construction. Payments on time, following regulations. No-Corruption Clause in all purchase requests and contracts. Mechanisms to immediately stop work if there is corruption and compensation rights in the event of corruption.
Service delivery	Systems are readily useable and operate more effectively. Operation of services sustained. Monitoring information is acted on. Civil society collaborations, networks and partnerships promote transparency. Attention to personnel i.e. recruitment process, career path planning, incentives to perform, training in the latest knowledge, skills, and attitudes. Performance evaluation (either by user opinion or by service providers themselves).
Maintenance and management stages	Understanding of the importance of maintenance and of adequate maintenance budgets. Better information management (such as knowledge of assets, demand

	analysis and definitions of service levels, asset creation and disposal, asset utilisation and asset operation and maintenance).
Subscription process	Clear and transparent subscription process. Good access to services, especially for the poor.
Billing system	Transparent and accurate system of billing and revenue collection. The operating cost of infrastructure services is publicized.
Disconnections	Transparent system for disconnecting customers
Fault redress	Fast and efficient system for fault redress. Better knowledge on how to report misbehaviour and low delivery standards. Increased opportunities for citizens to access service providers e.g. through consultations, user surveys, frequent meetings and monitoring.

Section 4: CONCLUSIONS

The sustainability of infrastructure services is compromised by corruption. This paper has reported on a review carried out on the issue of accountability for infrastructure services. The outputs of infrastructure services were discussed and sustainability was defined with reference to the continued production of these outputs over the long term. The types of corruption found in the delivery of infrastructure services were noted. This paper has provided a descriptive review of accountability as a concept and outlined the rationale for applying accountability to the delivery of infrastructure services. The ways in which accountability can reduce corruption in the delivery of public services and improve the outputs and sustainability of infrastructure services were described. Examples of how corruption in infrastructure delivery can be addressed include:

- Increased transparency in the public bidding process,
- Market based mechanisms,
- Increased transparency through the use of information technology,
- Increased confidence in and credibility of public servants,
- Involving communities and NGOs in monitoring contractors, and

This paper has identified service providers who have instituted reforms, which aim both to tackle the issue of corruption directly through increasing accountability and to protect the livelihoods of the poor. This evidence demonstrates that it is practically possible to combat corruption in infrastructure service delivery in an attempt to increase sustainability.

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