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TURNING INFRASTRUCTURE DATA INTO COMPELLING INFORMATION: HOW THE CoST ASSURANCE PROCESS CAN BE A CATALYST FOR SECTOR REFORM

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CoST addresses the challenges of corruption, mismanagement and inefficiency by working with government, industry and civil society in 12 countries to promote greater transparency and accountability in public infrastructure. This helps to inform and empower citizens and enables them to hold decision-makers to account. Informed citizens and responsive public institutions help drive reforms that reduce mismanagement, inefficiency, corruption and the risks posed to the public from poor quality infrastructure.

One of the tools that CoST promotes is an assurance process that turns infrastructure data that has been disclosed to the public by clients into clear and compelling information, prompting questions and actions. In this paper, we will show how the assurance process complements and adds value to existing audit mechanisms, why it can be a deterrent for poor performance and how it can be used as a catalyst for project improvements and sector reforms.

Keywords: accountability, data, infrastructure, performance, transparency.

1. INTRODUCTION

Investing in public infrastructure is a vital part of efforts to meet pressing global challenges such as climate change, poverty, rapid urbanisation and ageing populations. According to the International Finance Corporation (IFC), infrastructure investments which are well planned and executed tend to boost GDP and offset any increase in debt, or in other words, they pay for themselves (IFC 2012).

However, it is estimated that up to a third of investment in public infrastructure could be lost through corruption, mismanagement and inefficiency (Stansbury 2005). With US\$78 trillion expected to be invested in infrastructure between 2014 and 2025 (Oxford Research 2014), the potential financial losses are enormous. And unless we stem these losses, the anticipated social and economic benefits will be unrealised and the poorly constructed assets could become a public liability which in extreme cases may fail, causing injury and death.

CoST addresses these challenges directly. It works with government, industry and civil society in 12 countries to promote greater transparency and accountability in public infrastructure. This helps to inform and empower citizens and enables them to hold decision-makers to account. Informed citizens and responsive public institutions help to drive reforms that reduce mismanagement, inefficiency, corruption and the risks posed to the public from poor quality infrastructure. This approach has the potential to significantly reduce losses and if successful, could increase productive investment by up to a third without having to mobilise additional investment.

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questions and actions. In 2018, countries as diverse as Afghanistan, Guatemala, Honduras, El Salvador, Ethiopia, Thailand and Uganda will have engaged independent experts from the infrastructure sector to prepare these reports that will set out how taxes have been spent on public infrastructure.

In this paper, we will show how the assurance process complements and adds value to existing audit mechanisms and why it can be a deterrent for poor performance. It is work in progress as we look to compile data from assurance reports that have been published over the last three years. What is presented is indicative of the type of information that the assurance reports generate and how it can be used as a catalyst for project improvements and sector reforms. Initially, the paper will set out the CoST approach to transparency and accountability.

2. THE CoST APPROACH TO TRANSPARENCY AND ACCOUNTABILITY

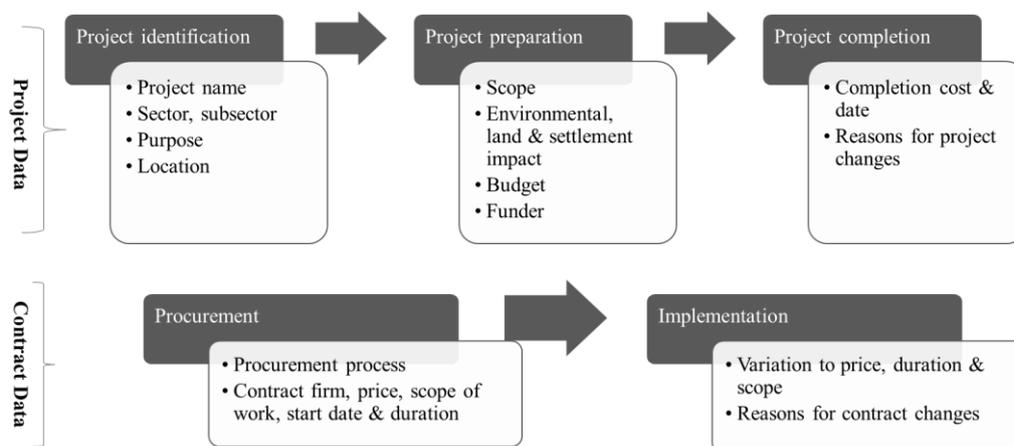
CoST provides a range of tools and standards that support the disclosure of data into the public domain. It also helps to process and organise the data into information that informs and empowers stakeholders and enables them to hold decision-makers to account. Ultimately, this supports the delivery of good quality infrastructure and services that improve lives.

Our approach is based on four core features: disclosure, assurance, multi-stakeholder working and building social accountability. CoST provides a flexible delivery model that supports implementation across diverse political, economic and social contexts. Our members at the national and sub-national level decide how this approach must be adjusted to address their challenges. These adjustments are typically informed by the results of a scoping study that is completed in the early stages of a programme. This section describes the core features and how they function together to deliver systemic change.

2.1 Disclosure

CoST increases transparency by enabling clients to disclose data on public infrastructure investments. The CoST Infrastructure Data Standard (CoST IDS) comprises 40 data points that are disclosed proactively by clients at key stages throughout the entire project cycle (see Figure 1). It includes data that summarises the project itself and the individual contracts of which it is comprised. CoST also promotes a list of information consisting of 26 documents that clients disclose following a request by citizens or other stakeholders.

Figure 1: A summary of the CoST Infrastructure Data Standard



Clients are responsible for disclosing data and CoST helps build their capacity to meet this obligation. This typically includes developing disclosure manuals and training officials in their use. CoST has also been driving digital innovations that enable the disclosure of data from public infrastructure investments and improve access for stakeholders. This includes enhancing existing e-procurement portals in [Guatemala](#) in addition to creating new information platforms in [Costa Rica](#), [Ethiopia](#), [Honduras](#) and [Thailand](#). This has led to data being disclosed on almost 15,000 infrastructure projects over the last three years – see figure 2.

CoST programmes often start on a ‘voluntary’ basis, i.e. in the absence of any statutory requirement to disclose information. However, governments are expected to eventually establish a legal mandate to make disclosure a statutory requirement across the public sector. Legal mandates can also include the other CoST core features of multi-stakeholder working, assurance and social accountability. Honduras and Guatemala are good examples of where the introduction of such a legal mandate has led to an exponential increase in the transparency of public infrastructure with citizens having access to data from hundreds and thousands of projects respectively.

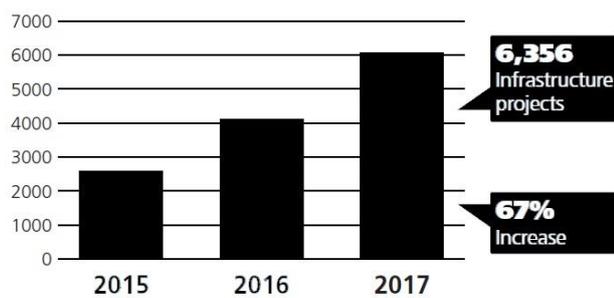


Figure 2: Number of projects disclosed in line with the CoST Infrastructure Data Standard

CoST Honduras, in partnership with the World Bank, developed [SISOCS](#) – a subsystem of the national e-procurement portal – which provides easy access for citizens on data from over 1000 infrastructure projects. Pulling data together into a single source, SISOCS aggregates and discloses data on projects with a total value of US\$880 million with the proportion of projects currently being disclosed representing about 80% of public infrastructure investment. The system has been replicated in Malawi and Panama and will soon be available as an open source system.

Guatemala has gradually strengthened the legal mandate to disclose data in line with the CoST IDS initially through annual budgetary decrees and now as part of public procurement legislation. This has led to data being disclosed on over 4000 projects in 2017 on the e-procurement platform Guatecompras.

2.2 Multi-stakeholder working

Multi-stakeholder working refers to representatives of government, industry and civil society coming together to address complex governance challenges. Typically, this is achieved through a multi-stakeholder group (MSG) that oversees a CoST member programme. By bringing the three stakeholder groups together into a structured process with equal voice, a consensus can be reached that helps to ensure that the solutions developed are realistic, practically focused and likely to receive broad support. The support and participation of each stakeholder group also brings a high-level of legitimacy to the reform effort, which can help sustain it during periods of political or social disruption.

A good example of this is Guatemala where during the 2015 political turmoil which saw the President and Vice President jailed for corruption, the MSG continued to function and operate successfully. This required considerable support from the CoST International Secretariat to convince reluctant partners, especially from civil society, to continue to work with the reformers in Government. It also required clear rules of the game, to ensure each stakeholder group felt they had an equal voice in the decision-making process. Since the political turmoil, the MSG has published three assurance reports and seen new procurement legislation provide an enhanced legal mandate for disclosing data in the CoST IDS format. In addition, the Malawi MSG was able to operate despite a lack of political support exacerbated by a major corruption scandal. Known as ‘cashgate’, an estimated US\$32 million was stolen from government coffers in a six-month period in 2013 including from public infrastructure projects (CoST 2017). Since then the MSG has become a trusted partner with the Malawi Government requesting that it examines two projects where it had some concerns.

Multi-stakeholder working provides definite benefits, but it can be difficult to introduce where it is unfamiliar and where trust between stakeholders is low. It is vital to provide capacity building support in the formative stage of MSGs to build trust and establish the ‘rules of the game’ for its operation. MSGs are typically convened on a voluntary basis. They do not, therefore, have their own legal status and in most cases a host organisation is appointed to execute the decisions of the MSG. In addition, ‘host organisations’ administer grants, employ staff and appoint consultants on the instruction of the MSG.

2.3 Assurance

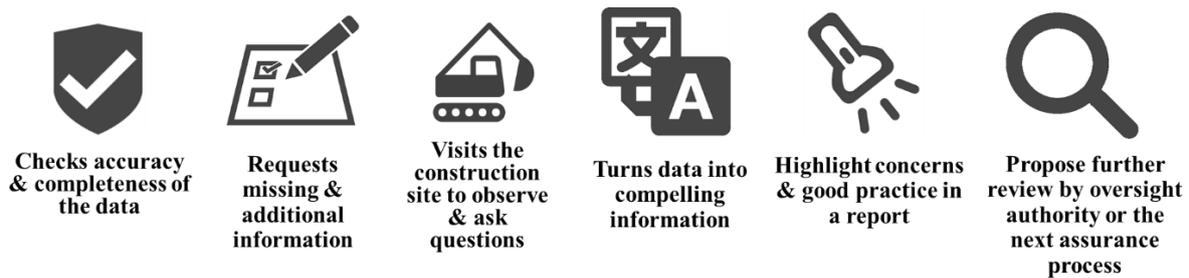
2.3.1 What is assurance?

Assurance is an independent review that highlights the accuracy and completeness of the disclosed data and identifies issues of concern and areas of good practice for the public. An assurance team of independent experts is usually appointed by the MSG to assess the accuracy of disclosed data, and its completeness compared with both applicable regulations and the CoST IDS.

Whilst the CoST IDS was designed to provide some basic facts that a non-technical expert can understand, it may require some expertise and analysis to turn the data into information that can shed light on issues and potentially give rise to evidence-based questions or concerns.

In reviewing what is disclosed on a sample of projects, the assurance team may then ask for additional information and interview the procuring entity officials or members of the supply chain to clarify any potential issues or areas of good practice. It may also visit the site to help with this task to ask questions of the contractor and site supervisor, to identify the accountability systems that are in operation and to observe the quality of infrastructure. Figure 3 below provides an illustrative step by step guide to the assurance process.

Figure 3: Step by step guide to the assurance process

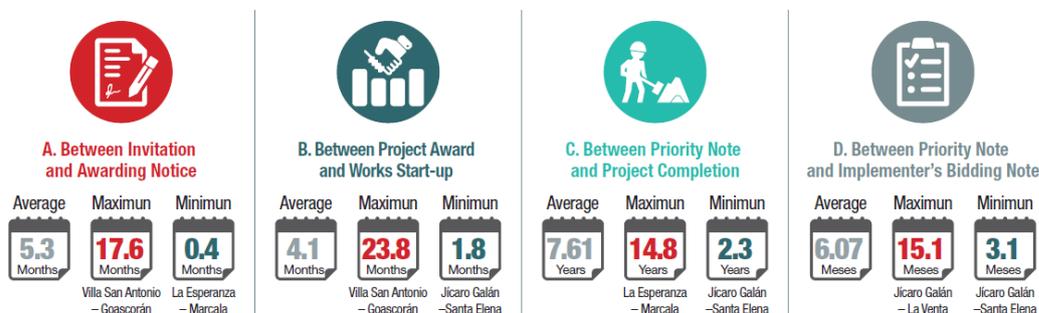


CoST Guatemala has developed a detailed assurance manual based on the above steps as follows:

- Check Guatecompras (the Government’s e-procurement website) to see if data disclosed by procuring entities is complete and accurate on up to 500 projects.
- Identify a sample of projects for further in-depth review.
- Carry out a site visit to interview the contractor’s staff to verify the disclosed data and observe the physical progress of construction against the specification, programme and financial progress.
- Request additional information from the CoST list of information for reactive disclosure.
- Analyse the disclosed data to identify issues of concern for the public.
- Draft a report that summarises the amount and quality of disclosed data, identifies broad performance issues across the sample of projects and highlights points of interest specific to the individual projects.

The assurance team compiles a report that provides a compelling narrative on each project, communicating the key facts to a non-technical audience. The in-depth report is typically accompanied by an infographic summary of the key finding which is the principal means for communicating with the media, civil society and key decision-makers – see figure 4 for an example from Honduras. Those projects that exhibit ‘red flags’ can be referred to an oversight authority such as an audit commission or anti-corruption commission for further review.

Figure 4: An infographic summary from Honduras highlighting red flags on the time it takes to complete a road project stage



The assurance report will also provide a measure of transparency based on the amount of data disclosed to the public across the different clients or sectors. The example in figure 4 on the following page is based on data from the CoST Thailand 2018 Assurance Report that measured transparency from 147 infrastructure projects with a total value of Baht 113 billion (GBP 2.659 billion) (Kasetsart University 2018).

How does assurance differ from an audit?

It is important to convey how assurance differs from a technical audit and adds value. An audit is concerned with checking whether the construction work has been undertaken as specified. The assurance process is interested in this, but it differs in several respects.

Firstly, unlike an audit, its primary focus is on the bigger picture on how improved transparency and stakeholder engagement can help address any apparent shortcomings in

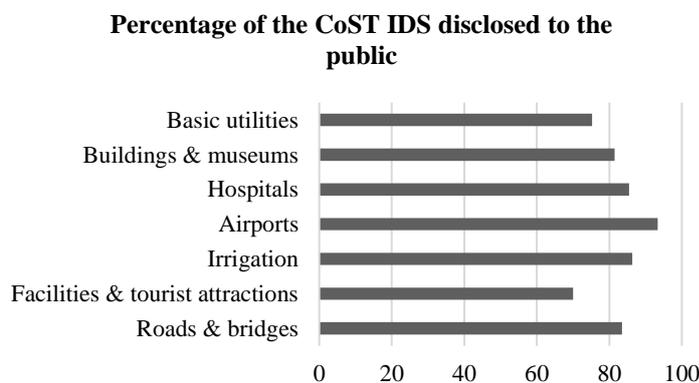


Figure 4: Measuring sector level transparency in Thailand

existing quality management, audit or other accountability mechanisms.

Secondly, the assurance process is focussed on adding value by turning disclosed data into compelling information, highlighting both examples of good practice and red flags that other competent authorities could use as a basis for further investigation. If handled well, this could potentially lead to a trusted audit institution adopting key aspects

of the assurance process as part of its functions.

Finally, unlike a technical audit, the assurance process can occur at any stage of a project so can contribute to ongoing monitoring functions. This increases the potential for areas of improvement to be identified and implemented by the procuring entity that will enhance the prospects for a project’s outputs contributing to the intended purpose of the investment and to broader sector reforms.

2.3.2 How does it deter poor performance?

In the early stages of a CoST programme, the number of projects where data is disclosed is relatively small with the majority included in the assurance process. As a programme matures and the number of projects where data is disclosed rapidly scales up, only a small percentage of these projects will be subject to an in-depth review as part of the assurance process.

MSGs are encouraged to use a randomised approach to identify a sample of projects for an in-depth review based on citizens’ needs. This then helps to provide a deterrent across the hundreds of projects from which the sample will be selected and serve to engender a broader sense of accountability by providing a powerful incentive for procuring entities to ensure that shortcomings do not occur in the first place. The roads directorate in Guatemala reported that the possibility that any project could find itself subject to assurance led to substantial improvements in the integration and coordination of suppliers and the quality of road construction.

In addition, mature programmes where data from several hundred or thousands of projects can be disclosed normally involves sophisticated web-based disclosure platforms that can generate robust performance statistics such as time and cost increases at a sector level (e.g. roads, water or housing). This compares to the more indicative performance data that is published in the early stages of a programme.

2.3.3 Highlighting performance issues

In November 2018, CoST will hold its first assurance week where four countries will publish assurance reports on 67 projects. Over the course of the year 11 reports from nine countries from four continents covering 127 infrastructure projects will have been published, almost an 100% increase on 2017. As you can see from Table 1 below half of the projects are from the roads sector.

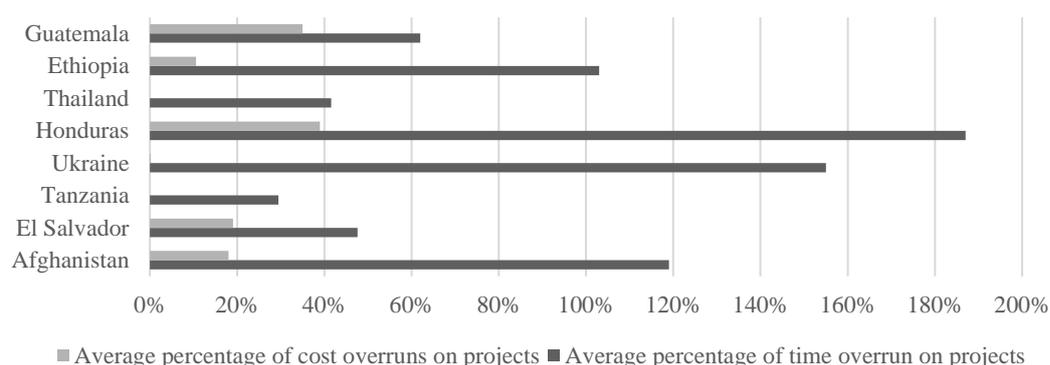
Table 1: Projects subject to in-depth review as part of the 2018 assurance process by sector

Country	Sector									Total
	Roads	Education	Ports	Airports	Energy	Water	Housing	Health	Other	
Afghanistan	6	0	0	0	1	0	0	0	1	8
El Salvador ¹				0						20
Ethiopia	0	14	0	0	0	0	0	0	0	14
Guatemala	8	3	1	0	0	2	0	1	7	22
Honduras	23	1	3	0	0	0	0	1	1	29
Tanzania	1	0	0	0	0	1	1	0	0	3
Malawi	0	1	0	0	0	0	0	0	0	1
Thailand	7	1	0	1	0	2	0	2	1	14
Uganda	5	2	0	0	0	0	0	0	1	8
Ukraine	0	0	0	0	1	0	0	0	0	1
Total	50	22	4	1	1	5	1	4	11	120

Over the next few weeks, the CoST International Secretariat will be drawing together the data from the 11 reports to see if there are any common trends. For example, from the reports that we have been able to initially review that has assessed 86 projects we can see that the length of the construction contract has increased on average by 90 percent and the cost has increased on average by percent 23 percent - see figure 5 below.

¹ We are waiting for the sector breakdown from El Salvador.

Figure 5: Average increases in construction time and cost²



For a CoST member, the value of this type of data is comparing the performance of the various clients in delivering their infrastructure projects to time and budget. Our Theory of Change presumes that greater transparency and accountability will lead to improvements in performance. Whilst time and cost indicators may be considered to be unsophisticated indicators of performance to the sector, it is data that will become relatively easy to gather on a consistent basis which, in time, can be obtained at scale from the disclosure platforms. They are also readily understood by all stakeholders.

As well as improvements in time and cost, our Theory of Change indicates that greater transparency and accountability will also lead to reducing the risk of entering the market and level playing field when competing for contracts. Consequently, we also expect to see a change in the market place with more companies encouraged to bid.

The real value of the assurance reports are the issues of concern that the assurance teams identify. These provide key messages that allow stakeholders to challenge decision-makers. However, it is critical that the issues identified are simple, factual statements with minimal subjectivity. Table 2 below provides some examples of issues of concern that have been raised in this year’s assurance reports.

Table 2: Examples of issues of concern identified in 2018 assurance reports

Project	Project phase	Issue of concern
Tourist Corridor public private partnership (PPP) Road Scheme, Honduras	Project identification	Incorrect data in the study of road traffic affects the fulfilment of the expected income in some toll booths. Citizens do not pay the toll fee due to the location of the booths. No evidence to support the financial model is made in the contract (Monthiel P. A. et al. 2017).
Lilongwe University of Agriculture and Natural Resources, Design and Supervision of the Construction of Gateway Administration Complex and	Design & Supervision	Initial Contract for design and supervision was K47,906,776.88 comprised of: <ul style="list-style-type: none"> Phase I - Design work undertaken by the Consultant for the project was paid in full at K30,883,789.51

² Please note this does not include data from the Thailand and Honduras reports that have been recently finalised. We are also still clarifying the cost increase in Tanzania. Finally, cost increases in Thailand are illegal hence why it is zero.

Teaching Facilities Block &
Associated External Works –
Consultancy Contract, Malawi

- Phase II Supervision contract was K17,022,987.37.

However, during the course of the contract, the scope was revised and the Consultants' fees were based on a percentage of the works Contract at 14% of the revised BOQ K4,821,798,110.41. These new terms were not negotiated and agreed with the client. The consultant's payments were being claimed through the contractor's payment certificates. (CoST Malawi 2018)

Kamal Khan Dam,
Afghanistan

Procurement

The reason for limited international competitive bidding is ambiguous. According to clause 6, rule number 21 of the Procurement Rules "...from one country two bidders cannot be invited".

Questions are raised why Turkey was considered the sole source for approaching qualified companies and why most of the nominated companies are Turkish (Mangal et al. 2018 p16-17).

Construction of a classroom at
Wollo University, Ethiopia

Implementation

Lack of proper and complete design work, especially the building design with respect to the condition and topography of the site during the design stage which incurred unexpected additional cost (Shiferaw 2018).

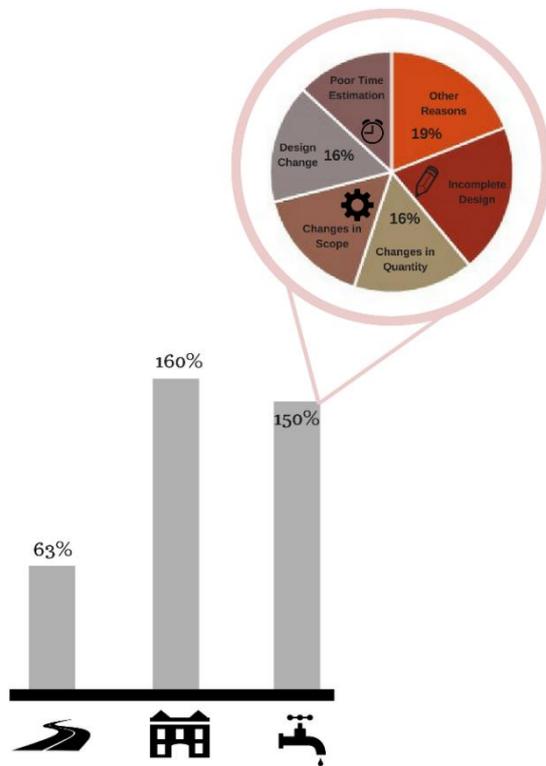
Flyover construction project at
Bor Win Industrial Estate
intersection, Thailand

Implementation

Client is non-responsive to complaints from citizens due to inadequate supervision of construction (Kasetsart University 2018).

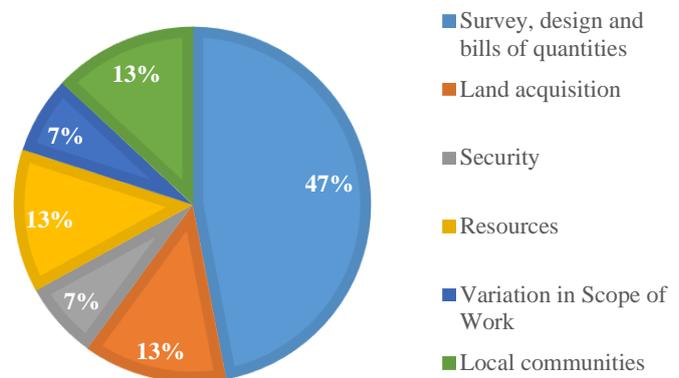
By tabulating the issues of concern we can begin to see if any patterns emerge that provide an indicator of the key risks or red flags within the project cycle. For example, CoST Ethiopia accumulated the performance data from the first 52 projects that were subject to assurance and the issues of concern that were identified. Figure 6 overleaf demonstrates that the high increases in construction time in the roads, buildings and water sectors were due to incomplete design, design changes, changes in scope and changes in quantity (Taddese et al. 2016).

Figure 6: Linking issues of concern with extensive increases in construction time in Ethiopia



In their first report, CoST Afghanistan have been able to identify that the high increases in construction time is directly linked to poor project preparation – see figure 7 (Mangal et al. 2018). This is a common theme that has been identified in previous reports. For example, the Malawi 2016 Assurance Report highlighted how projects funded by multilateral or bilateral donors

Figure 7: Issues of concern highlighted in Afghanistan Assurance Report 2018



were better prepared and consequently suffered fewer delays and cost increases than nationally funded projects (CoST Malawi 2016). We intend to look at this issue in addition to other potential patterns in more depth as we draw together the data from the assurance reports from the last three years on a data set of about 200 infrastructure projects. We will also be encouraging MSGs to include projects in the assurance process prior to construction. This could potentially help to mitigate the risks of cost and time increases and encourage better project preparation.

2.4 Social accountability

Mature programmes have begun to go beyond transparency by using the disclosed data to mobilise collective action and demand social accountability. It has always been recognised that social accountability is essential to translate transparency into practical improvements, but until now our focus has primarily been on the supply side of this equation. To date, we have allowed member programmes to use and develop social accountability mechanisms that reflect the political and social context of the country. Examples of this include:

- Training over 200 citizen transparency commissions in over 60% of municipalities in Honduras to use the data disclosed on SISOCs to monitor road projects and to report back issues that are identified to the Assurance Team by WhatsApp. The trained citizens also accompany the Assurance Team on their site visits.
- Holding regular live radio debates in Malawi where questions from listeners are posed to a panel from government, industry and civil society, allowing citizens country-wide to have their say on the findings from an assurance report.

- Providing citizens in Malawi with an innovative toll-free SMS platform with real-time reporting mechanism for infrastructure related problems. All information received is submitted to the relevant authorities who are provided an opportunity to respond through the radio debates and to address the concerns through remedial actions.
- Organising a ‘Baraza’ or community meeting in Uganda to discuss the findings from a local road project that was included in the assurance report and providing citizens with the opportunity to give feedback.

3. A CATALYST FOR PROJECT IMPROVEMENTS AND SECTOR REFORMS

Over the last two years, we have seen an increasing number of examples where the findings and recommendation from an assurance report have led to government action. The actions were initially on individual projects such as repairing a bridge that was prematurely degrading in Ukraine, improving the design of road drains reducing the flood risk of homes and businesses in Uganda and cancelling road contracts in Malawi that stopped the ongoing waste of public money and at a broader sector level. We have also seen cost savings of US\$3.5 million in Ethiopia following the realignment of a rural road and US\$5 million in Guatemala following the cancellation of a bridge project that did not require rehabilitation.

We are now seeing the introduction of reforms such as the introduction of independent supervision of construction contracts in Ukraine, changes to the Uganda Roads Act that will improve the health and safety of construction workers and road users and the acceleration of road construction in Malawi by breaking up large road construction contracts into smaller and more affordable packages. These actions will have a long-term social and economic impact with citizens able to use more affordable and accessible infrastructure.

On occasion we have also encountered examples of good practice that have then been more widely shared. This includes a major road interchange in Tanzania which had zero accidents amongst its construction workers. The principal reason for this remarkable outcome was the health and safety practices of the Japanese contractor. The project was funded by the Japan International Cooperation Agency (JICA). The lessons from the project have been shared within the Tanzania Roads Authority.

In Uganda, Wakiso District Council had persuaded local citizens to provide land without compensation. The land was required to develop drainage ditches alongside the rehabilitated road but the Council could not afford to compensate the land owners. The Council persuaded the citizens that the drainage ditches would reduce the risk of their homes and businesses being flooded during the rainy season. Proactive citizen engagement is now standard practice for Wakiso District Council on all its road schemes. We are now encouraging CoST members to highlight more examples of good practice as it is likely to lead to the increased support from the participating clients.

There have been two critical factors in this success. Firstly, the MSGs have engaged the media and civil society with the assurance report, empowering them to demand action. An example of this approach is in Honduras where there were 25 newspaper, radio and television reports on its fourth Assurance Report. Secondly, MSGs with representatives from government, industry and civil society have used their unique position to influence decision-makers and encourage them to take action. Figure 8 overleaf provides an example of how the Malawi MSG engaged the media with the findings from their 2014 assurance report and used

their internal influence with the Minister of Public Works to cancel three road contracts which prevented on-going leakage and waste of public money (Hawkins et al 2015).

Figure 8: How the assurance findings were used to cancel Malawi road contracts



We are now encouraging MSGs to take a more strategic approach to following-up on the findings and recommendations from an assurance report. CoST Honduras has taken the lead by developing an action plan with three clients that sets out how each client will respond to recommendations. This has led to government action on three PPP road schemes including a new financial model for the tourist corridor toll road highlighted in Table 2, ensuring private financing is approved before construction commences, and new safety plans during periods of heavy traffic publicised to workers and users through posters and brochures. The Port Authority has also introduced a sector-wide reform by introducing a management process for identifying environmental risks according to the type of project. This demonstrates the potential for the CoST approach to open up and improve the outcomes of what are often controversial and opaque private sector financed infrastructure projects.

4. CONCLUSIONS

This paper has highlighted how CoST provides an approach to promoting transparency and accountability in public infrastructure that can be adapted to the political and social-economic context. It has demonstrated the potential for the CoST assurance process as a tool for turning data into compelling information that the media and civil society can use to hold decision-makers to account. It also shows how the data from assurance reports from a diverse set of countries can be aggregated and used by a range of stakeholders including academia. The multi-stakeholder approach provides a space for dialogue amongst government, industry and civil society that can build trust amongst the stakeholders. With the right organisations and people around the table, the MSG can informally engage with key decision-makers in government to persuade them to act on the assurance report findings and recommendations. Finally, the use of assurance process should be earlier in the project cycle to identify potential issues of concern prior to construction.

In the coming weeks, MSGs in Afghanistan, El Salvador, Guatemala and Uganda will be engaging their communities and decision-makers with their respective reports to encourage action to be taken that will ultimately lead to better infrastructure for all.

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