

# Technology for Transparent and Accountable Public Finance (TTAPF)

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A report by the Open Knowledge Foundation

This report was commissioned by the Global Initiative for Fiscal Transparency

The Global Initiative for Fiscal Transparency (GIFT) is a multi-stakeholder action network working to advance and institutionalize global norms and significant, continuous improvements on fiscal transparency, participation, and accountability in countries around the world.

<http://fiscaltransparency.net/>

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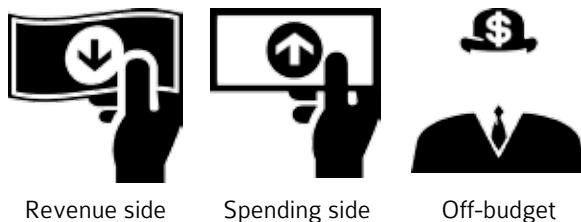
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## Key to Case Study Icons

### Fiscal Scope

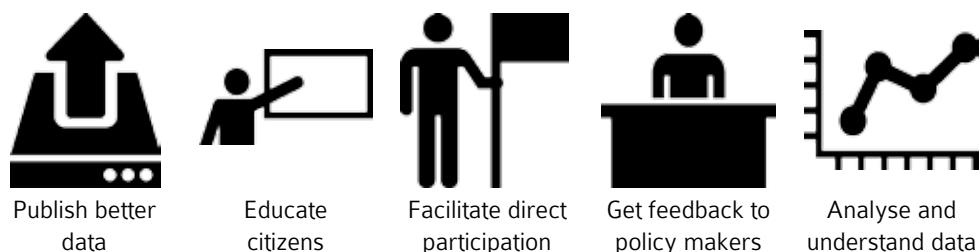


Revenue side

Spending side

Off-budget

### Aims of the Project



Publish better data

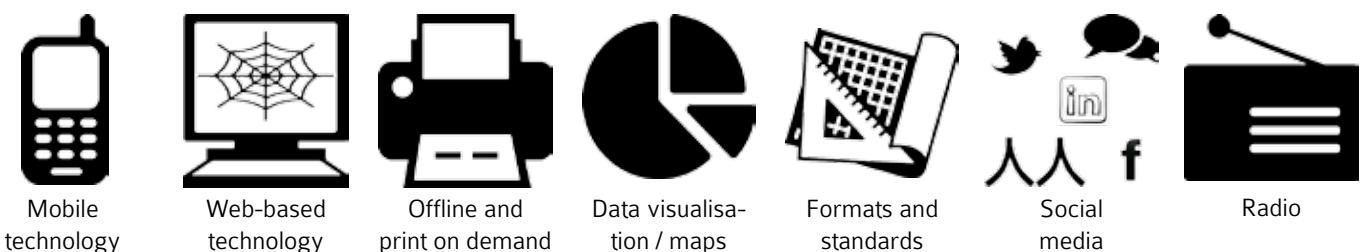
Educate citizens

Facilitate direct participation

Get feedback to policy makers

Analyse and understand data

### Technology



Mobile technology

Web-based technology

Offline and print on demand

Data visualisation / maps

Formats and standards

Social media

Radio

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# Chapter 1

## Introductions and Methodology

## Introduction and Methodology

This report, "Technology for Transparent and Accountable Public Finance", was commissioned by the Global Initiative on Fiscal Transparency (GIFT) in February 2012 in order to assist the GIFT in assessing the potential of technology to aid transparency and accountability in relation to governments' fiscal activities.

This report provides examples of projects around the world that are using technology (web, mobile or otherwise) to further aims of fiscal transparency. We focused on projects which:

- Publish more or better data related to fiscal processes (aid, revenues, budgets, audits, etc. — see below),
- Help understand this data through the creation of better visualisation and data analysis tools,
- Educate citizens about fiscal processes, and assist civil society organisations in promoting accountable governance,
- Facilitate direct participation in fiscal matters through participatory budgeting, citizen auditing, etc.,
- Provide policymakers with complete and reliable data relevant to their work, enabling them to make better decisions.

We have sought to find projects which reflect all stages of the fiscal process:

- **Looking at where the money comes from:** both getting more data released and building analysis and visualisation tools in the context of revenue processes e.g. taxation, extractive industries, etc.,
- **Monitoring where the money goes:** presenting data about the budgeting process and getting citizens involved in fiscal processes e.g. through participatory budgeting and comparisons of planned and retrospective budgets,
- **The invisible money:** improving public understanding of state-owned or semi-state owned enterprises, off-budget information and social audit projects which verify whether official

money is being concealed or is not being spent according to official plans – information which often is not published as part of current budgeting practices.

In each case, we considered questions such as:

- Who are the users and audiences of the project?
- What are their motivations and what skills are required?
- What are the successes, failures and limitations?

For each project, we have highlighted strengths and weaknesses based both on our own experience of developing tools, and also by seeking feedback from civil society organisations and the technical community.

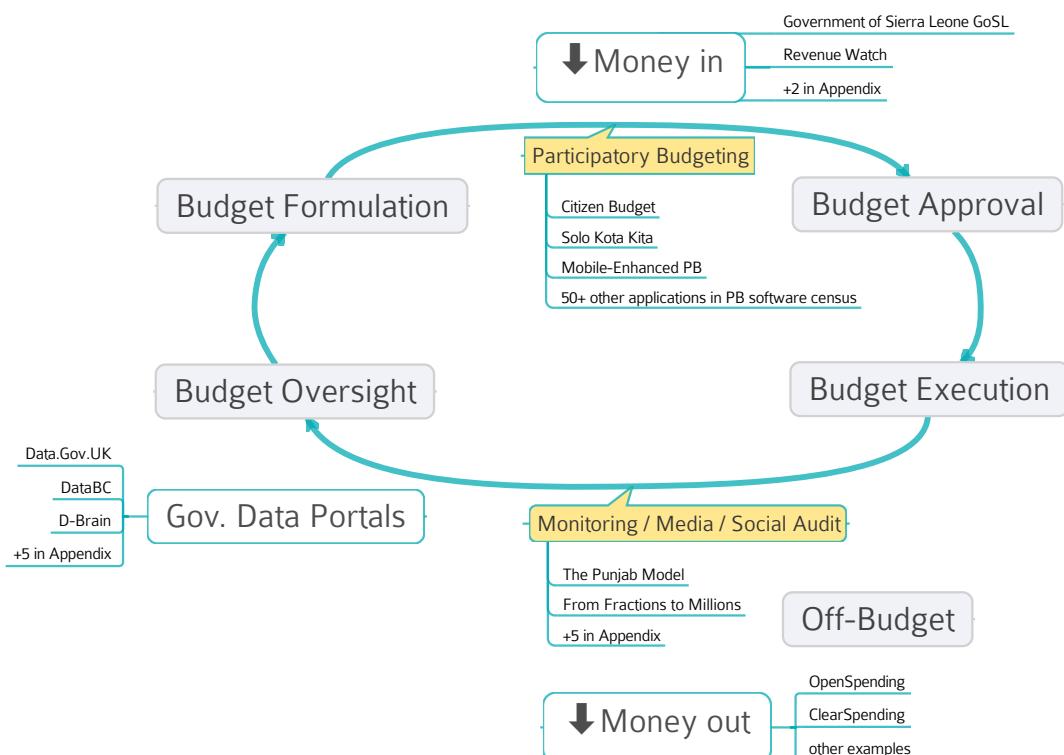
This report also aims to highlight the gaps: In some instances, cutting-edge technology is being used in fields besides public finance, which may merit further exploration; in other cases, we highlight points in the budgeting cycle which are currently underserved by technical tools.

### Methodology:

We have selected case studies that are appropriate across:

- Different levels of literacy and access to technology
- Different budgets
- Government-led, civil society led and citizen led initiatives

The research was a combination of qualitative interviews and direct inputs from case study representatives through online questionnaires.



## Context

We are living in a technical revolution. The Internet allows almost instant sharing of information, computing power permits complex calculations, visualisations and tools to allow better analysis and comprehension of large datasets.

Technology facilitates two-directional information flow, not only from governments but also to governments, allowing them to collect meaningful and structured feedback on fiscal policies. Instead of commissioning external consultant firms to estimate citizens' opinions and needs, governments could use the direct input from citizens through the technological and communication tools.

Over recent years, the world has become increasingly "hyperconnected"<sup>1</sup>, driven by the rise of big data, mobile technology and social media. Access to the Internet has transformed the relationships between individuals, consumers and enterprises, civil society, citizens and the state, enabling accessible and immediate services and direct citizen participation. The possibility to be interconnected and to communicate instantly has created opportunities for informing citizens and including them in the decision-making processes of governments. Moreover, the price of technology is dropping, sparking extensive access to mobile technology, even in developing countries, which brings exciting opportunities for outreach, education and feedback.

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<sup>1</sup> Bilbao-Osorio and Dutta (2012) - <http://reports.weforum.org/global-information-technology-2012/>

Well-established, low-cost technologies such as the radio, SMS and print hold strong, and continue to be a stronghold for outreach and communication of messages. The open data movement, particularly opening up government information through data-portals, would most likely not have been financially feasible even a few decades ago.

These developments hold promising new possibilities for fiscal transparency and accountability, more information, better information, new possibilities for reaching out to people who would not normally interact with government, new possibilities to collect feedback and new possibilities to present information for analysis. In this report we examine two main areas: technology for transparency and technology for accountability around public finance. We will look in particular at who builds these tools, who uses them, and who benefits from them.

With initiatives such as the Open Data Strategy for Europe<sup>2</sup> soon due to come into force, and similar emphasis on opening up government data in other parts of the world, it is prudent for governments to start to look into new ways to open up their data, to save time, money and effort in opening up a backlog of data and to get necessary workflows in place.

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<sup>2</sup> <http://bit.ly/EUopendata>

## Highlights, Gaps and Recommendations

*"There's a really interesting dynamic interaction between work on data availability and quality, and on building tools, visualisations etc. that work with it. Without good data it's hard to use it for transparency and accountability, and to build good tools. But without tools to start using the data, it's hard to discover where it needs to improve."*

Tim Davies - Practical Participation

In this section, we summarise the key highlights from the various sections of the report. The highlights are arranged by section of the report and followed by a few notes on the 'gaps': areas which, in our opinion, merit further investigation or have thus far lacked resources or coordination to make happen. Each section concludes with 'recommendations': We have tried to stagger these suggestions, ranging from first steps, easily obtainable goals which are likely to be feasible in the short term, to ideal scenarios, desirable end goals, which will take more commitment and longer term planning.

### Data Portals

In this section we examine four government data portals from across the globe. The aim is to highlight government perspectives of making fiscal data available to the public. We focus on motivations for creating the service in the first instance, what features and data are offered, successes and outcomes, challenges and areas for improvement and what resources are needed to assemble and maintain such a site.

#### Highlights

- Data portals help address a fundamental requirement to make data accessible and discoverable once it has been made available: If data is spread across hundreds of websites and is difficult for people or machines to find, much of its value will be lost.
- Data portals can be useful both within and outside of government. Lack of information sharing affects civil servants and policy-makers -- not just those outside of government. This was highlighted in the OpenDataBC case study, where approximately one third of traffic to the citizen-facing data portal came from IP addresses within government.
- Keep it simple: A portal can be very simple initially and developed in response to user and government demands. Moreover, today exist off-the-shelf open-source solutions: Governments are increasingly learning the benefits of open-source solutions, (flexibility, adaptability, auditability etc.) but further work needs to be done to encourage more widespread adoption<sup>1</sup>.
- An explicit open data policy is not needed to start an open data portal: One can begin with datasets that are already open or which are "voluntarily" donated by departments. In the UK's case the portal preceded, and helped catalyse, development of a formal open data policy.
- Data portals could become of the most important technological tools of the government with regard to public spending monitoring and control.

#### Gaps

- Greater promotion of open-source tools for open data
- More explicit opportunities for citizen participation. Some projects highlight good examples of how participation can fit within existing government workflows. See participation section for more, largely civil-society driven projects, which may provide inspiration - or source code - for some government-led initiatives promoting direct participation.

#### Recommendations

##### 1. First Steps

- Fiscal data must be openly licensed and available in machine readable format in bulk. Be strict about licensing: make sure that

all datasets on the portal are released under a proper open open license<sup>2</sup>.

- Engage with your user community both within and outside government. What data do they want, in what form? How can they report issues effectively and easily? Have explicit and prominent contact links so that citizens can report issues. Even better, allow them to browse past issues or see the clarification which others have received in answer to other questions e.g. through online discussion forums.
  - Engage with your provider community: civil servants and others working inside government who will be publishing data using the site. What can be done to make this process as easy and rewarding as possible?
  - Be timely: particularly for financial information, having current data is key to enabling re-use with an impact.
- Open tools for open data: use free and open-source tools wherever possible.

#### 2. Next Steps

- Monitoring data release, quality and usage and reporting this to relevant decision-makers becomes increasingly important as the project matures.

### Finding and Using Data

In this section we asked the open spending data community - who come from a variety of backgrounds; research, technical, media etc., what fiscal data they require, what they want to do with it, and importantly, how easy it is to obtain and use. Through a series of structured surveys, we established the following:

#### Highlights

- Fiscal transparency is about more than budgets: Users will often require more than just basic budget information to hold governments to account. Fiscal transparency should therefore not be limited to making these key budget documents accessible. Company and procurement data are common requests, as are audit reports and sub-national budget information.
- We received responses to the questionnaire from eighteen countries, spread around the globe. Six respondents mentioned that they used a government transparency portal to get their data, three used FOI requests, seven collected the data themselves from various sources and two said they had not been able to acquire the data.
- 'The current status of open data': Feedback was mixed. Some respondents praised the ease with which they acquired the data, but in the majority of cases, it was not easy to use the data that they had obtained. Barriers included:
  - Machine readability: The most common complaint was non machine-readability of data - usually the complaint was

<sup>2</sup> i.e. one that conforms to <http://OpenDefinition.org/>

<sup>1</sup> <http://open-source.gbdirect.co.uk/migration/benefit.html>

- about PDFs.
- Poor quality: Frequently there are problems with the data such as lack of care for the process of creating the data, poor structure, too aggregated and inconsistencies in structures between years.
  - Disappearing data or hidden data: Several users mentioned that historic data disappeared from government websites and two could not get access to the data because of paywalls. A couple of more technical users of the data said an API for the data would be useful.
  - There is often a lack of supporting documentation to complement data releases, meaning that users cannot find out what is actually contained within a dataset.

## Gaps

- Machine-readable data
- Data-management systems which ensure good-quality, consistent data
- Preservation of historical data

## Recommendations

### 1. First Steps

- Make data available in a machine-readable, fully disaggregated form
- Provide some adequate basic information about the released data

### 2. Next steps

- Provide of machine-readable forms of important datasets such as companies registries, contract awards and underlying tender specifications
- Provide structured, machine-readable information on budgeting process, e.g. important dates (publication dates, points in the process where feedback is possible), amendments and information on "who does what" in budgeting issues
- Provide comprehensive documentation to accompany the documents i.e. read-me files explaining what a given dataset, data-dictionaries, glossaries
- Capacity-building, connecting policy and data processing/analysis expertise
- Promote data sharing of intermediate results e.g. integrated datasets produced by researchers, journalists, advocacy organisations and developers and the creation of data commons for processed output of re-use applications

### 3. Ideal scenario

- Open-source tools used within government for production and consumption of data
- Long-term archives of data on "neutral ground" i.e. not run by states nor advocacy groups, something like the Internet Archive for data
- Integration of budget, procurement, companies and contracts, metrics/evaluation and spending information.
- Real-time access to data via an API: Note that this is not relevant in all cases, e.g. for budget information that only changes once per year.

## Standards for Fiscal Data

This section examined whether having standards for fiscal data

could provide a solution to some of the usability issues described by the users of the data in the previous section, by looking at two internationally recognised standards, IATI and XBRL.

## Highlights

- Standards enable a distributed rather than a centralised approach in data publication and use. No or very limited general fiscal data standards are currently in existence and in use.
- XBRL is establishing itself as a worldwide standard for accounting information and may grow into a standard for general ledger data. It is however complex and focused on the traditional accounting domain - especially around balance sheets - which may limit its relevance and benefits as a format for transparency purposes.

## Gaps

- A standard for transaction level spending data.
- Lack of widely-adopted standards for entity identifiers, which would greatly facilitate merging and matching
- Tools to merge and annotate the data
- Training and quality assurance (validation) tools

## Recommendations

### 1. First Steps

- Use well-known, commonly used formats such as CSV, XLS or XML for the release of data.
- Adopt existing coding conventions for shared entities, such as countries e.g. ISO-3166 and EU NUTS codes. Publish information on the identifiers used for companies and make sure they are not entangled in IP e.g. DUNS numbers or behind a paywall.
- Publish additional information on the coding schemes used, such as functional or economic classifications, charts of account.

### 2. Next Steps

- Enter standardisation process, beginning with core taxonomies. Additional work on aligning 'spines' of data e.g. mapping IATI data onto COFOG compliant budgets.
- Geocode data using re-usable, openly licensed coding services to avoid inclusion of proprietary IP.
- Begin using globally unique URLs for companies and other organizations, government bodies, and projects.
- Critically evaluate the options for re-using IATI or XBRL formats rather than creating new standards specifically for transaction level spending data. Explore options for format convertibility.

### 3. Ideal Scenario

A global spending data registry which lists spending data from around the world in a standard format - similar to the IATI registry for aid information.

## Where Does the Money Come From? Where Does the Money Go? and The Invisible Money

## Highlights: Tools for Data

- Civil society is often cited as the target users for transparency portals, as was the case for the Sierra Leone Mining Repository. However, in reality, 65 % of the users of this platform are investors, donors and other governments, who have knowledge of complex legal terminology and sector-specifics. The level of technical knowledge required to understand this data means that similar audiences may be the main user groups for other such tools.

- Design of tools for end-users are most effective when they bear in mind less-web-savvy users or users who will have to work in lower bandwidth or with older computers. Options such as saving and printing user-generated reports could be very useful for these purposes.
- “Data is not always actionable simply because it is available.” Having the possibility to download the data does not guarantee that one would be able to use it or understand its structure and source.
- Open source tools allow rapid dissemination of approaches and the adaptation of tools to different contexts internationally. For example, the visualizations from OpenSpending have been widely and independently re-used (e.g. to power the Hungarian site “A mi Penzünk” and the Czech site BudováníStátu.cz).
- Information to hold individual politicians personally accountable for their financial choices is highly desirable, particularly for journalists, and could have a great impact, particularly in situations where individual politicians wield choice over discretionary funds.

### **Highlights: Participation**

- Technology can add additional channels for participation to reach out to people who might otherwise be hard to reach, or make it easier for those who already do participate. Yet technology is not a substitute for face-to-face contact.
- Technology is not a fix-all. If a tool is to be successful, it will most likely target a specific aspect of the Participatory Budgeting-cycle. A strategy can target a particular part of the PB process rather than being a super-app that will work at every stage.
- Conversations should be tightly facilitated in the idea collection and deliberation phases to ensure that the conversation remains structured and duplicate or irrelevant ideas do not distort its clarity. Governments should also ensure that they have the response capacity to be able to deal with the potentially large amounts of feedback, which could ensue before implementing a technical solution to idea collection.

### **Highlights: Social Auditing**

- Social audits using technology offer a possibility of close to real-time feedback and reporting.
- Technology, e.g. mobile, can help transform traditional labour-intensive social auditing practices, which gives a possibility to scale-up corruption monitoring.
- SMS technology has the possibility of reaching out to rural areas with limited Internet access.
- Many of the projects featured in this section rely on sub-national level data to function: It is at local and regional level that many of the services from which citizens benefit most tangibly are delivered e.g. infrastructure, healthcare, schooling.
- Another type of data, which could be key for stimulating citizen feedback on an individual level, is data on personal entitlements, which might motivate citizens to provide feedback on whether

they received their personal allowance.

### **Gaps**

- Raw, machine-readable data is vital. Having to extract structured data from unstructured documents (e.g. PDFs and Word documents) prior to use creates work, could introduce errors (e.g. from manual transcription) and can lead to supply-side data-quality issues, e.g. if the government faces bad data management practices.
- Very few projects are currently able to trace the difference between planned and actual expenditure. Sunlight’s work in the United States is one of the few examples of success in this area.
- Good, open-source tools for doing entity matching and extraction
- Sub-national level spending data
- Data on citizens’ personal entitlements

### **Recommendations**

#### *1. First Steps*

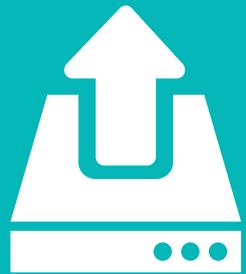
- Build public-facing tools, targeted at enabling expert oversight, e.g. by investors and other governments, who have both incentives to scrutinise this data and pre-existing knowledge to enable them to do so.
- Promote use of these tools to infomediaries, who perform the role of translating complex information for the benefit of the public
- Related datasets: Fiscal data is most useful when related core datasets (e.g. reference identifiers, geospatial information) are also available
- More and better data: Access to good quality sub-national transaction-level data on expenditure; access to data on personal entitlements

#### *2. Next Steps*

- Contextualise the data in a way that is suitable for a layman audience - how was it generated? What is and is not covered?
- Build tools using the data that has been released as part of the ‘first steps’, in order to allow greater understanding of information for a layman audience. For example, citable, pre-computed statistics (as long as the methodology behind generating them is clear) which have been generated by experts are extremely attractive for those looking to use them in reports and for the press.
- Closer collaboration between advocacy NGOs and journalists.

#### *3. Ideal Scenario*

- Finishing off the great work done so far in this area in compiling country-level reports into one place and building a sortable online database.
- Extensive capacity-building for journalists to enable them to analyze and present data.
- Social Audit Portals similar to Andhra Pradesh with near real-time access to financial data.



# Chapter 2

## Publishing Fiscal Data: Government Perspectives

When it comes to proactive transparency and publishing fiscal data, there are numerous considerations to be taken into account. In this section, we take a look at different approaches to government financial data portals from the perspective of the people behind them; solutions range from out of the box, ready to implement, customisable, open-source solutions to custom sites, built specifically for the part of government they serve.

We look at:

- Motivations for creating the service in the first instance
- Available fiscal data and features
- Successes and outcomes
- Challenges and areas for improvement
- Resources are needed to assemble and maintain such a site

### **Featured Case Studies:**

- Data.Gov.Uk, United Kingdom
- DataBC, Canada
- DBrain, Republic of Korea
- Brazilian Transparency Portal, Brazil

## Out of the Box solution: CKAN in Data.Gov.UK



**Country:** United Kingdom

**URL:** <http://data.gov.uk/>

### Background

Data.Gov.UK is the UK Government's official open data portal. The site provides a central "way into the wealth of government data" and aims to make that data "easy to find; easy to license; and easy to re-use." Data.Gov.UK was launched in closed Beta at the start of October 2009 and entered public beta in January 2010. The project is ongoing at the present time.

Data.Gov.UK has been built on a combination of CKAN, the open-source data portal software developed by the Open Knowledge Foundation, and Drupal, the open-source CMS.

Initial requirements for Data.Gov.UK were data catalog capabilities (entering, editing, listing, and searching datasets) combined with basic CMS features (site content, blog, theming etc). The use of open-source plus the use of existing components which allowed for rapid development were desired (the initial prototype was developed in less than a month). Over time a variety of new requirements have arisen, most notably some need for data storage and presentation.

Outcomes have been very positive. The UK government is continuing to use and develop Data.Gov.UK and the site has a global reputation as a leading exemplar of a government data portal. The system has successfully handled growth from a few dozen datasets to many thousands of datasets and a concomitant growth in site traffic, and the site has played a significant enabling role in the UK government's development of its transparency and open data agenda.

### Available Fiscal Data

In 2010 the UK government committed to the ongoing release of a substantial amount of open fiscal data. Specifically, in the Prime Minister's letter of 31 May 2010 the Government committed to<sup>1</sup>:

- Historic COINS spending data to be published online in June 2010.
- All new central government ICT contracts to be published online from July 2010.
- All new central government lender documents for contracts over £10,000 to be published on a single website from September 2010, with this information to be made available to the public free

<sup>1</sup> <http://www.number10.gov.uk/news/letter-to-government-departments-on-opening-up-data/>

### Fiscal Scope



### Project Aims



of charge.

- New items of central government spending over £25,000 to be published online from November 2010.
- All new central government contracts to be published in full from January 2011.
- Full information on all DFID international development projects over £500 to be published online from January 2011, including financial information and project documentation.
- New items of local government spending over £500 to be published on a council-by-council basis from January 2011.
- New local government contracts and tender documents for expenditure over £500 to be published in full from January 2011.
- Other key government datasets
  - Names, grades, job titles and annual pay rates for most Senior Civil Servants with salaries above £150,000 to be published in June 2010.
  - Names, grades, job titles and annual pay rates for most Senior Civil Servants and NDBP officials with salaries higher than the lowest permissible in Pay Band 1 of the Senior Civil Service pay scale to be published from September 2010.

The actual delivery of individual commitments obviously took some time, but, for example:

- The COINS database was released in June 2010. The COINS database is the central government database for budgetary information, used by HM Treasury to manage budgeting and outturn against budget from all departments. This data was published on <http://data.gov.uk/> at <http://data.gov.uk/dataset/coins> (More information here: <http://thedatahub.org/dataset/coins-data>).
- In November 2010 the government released, and committed to ongoing monthly release of, detailed departmental and local authority transactional spending data (all spending above £25,000 for departments and above £500 for local authorities). Departmental spending data was published onto <http://data.gov.uk/> while local authorities usually published their data onto their local website or data catalog.
- In Autumn 2010 details of central government contracts became available online.

In July 2011 the Prime Minister issued another letter<sup>2</sup>. In addition to reviewing performance against commitments from the previous year, the letter proposed various improvements and extensions in relation to fiscal data (note that almost all major fiscal information was now open so there was little to do in terms of new data release):

- All government spending data to include plain English descriptions explaining the scope and purpose of every transaction, from September 2011
- Every department, working with the Cabinet Office transparency team, to produce an action plan in November 2011 for improving the quality and comparability of data
- Unique reference indicators to be introduced by DBIS and

<sup>2</sup> <http://www.number10.gov.uk/news/letter-to-cabinet-ministers-on-transparency-and-open-data/>

### Technology



HMRC beginning in December 2011. These will enable the public to track more easily the interaction between companies and government bodies

- Working with the purchase and payment card providers to provide a consistent method of reporting government procurement card spend data for transactions above £500 in value, so this is available for publication on departmental websites, from end September 2011.

### **Overview of Features**

Data.Gov.UK acts both as a data portal and as a home for some of the government's information on transparency and open data (for example, minutes and notes from the Transparency Board). As a data portal, its main features are:

- Publish and find datasets: full data catalog with rich search capabilities
- Store and manage data: the majority of the datasets that data.gov.uk lists are hosted elsewhere (for example, on individual departments' websites). However, there has been the need to store and manage data and an upcoming release will see these features substantially enhanced.
- Community and social features such as the ability for users to list applications or ideas that relate to a dataset, comment, share dataset information on social media, and subscribe to RSS/Atom feeds to be kept up to date with the latest developments.
- Federation and Harvesting: data.gov.uk acts as the UK's hub for geospatial metadata aggregation in relation to the EU's INSPIRE directive and therefore harvests information on geospatial datasets from a large number of other data catalogs and hubs.
- Geospatial: Add and manage geospatial information about a dataset, view this information on maps and incorporate into search queries.
- Rich API: Access to all dataset information over an API (Application Programming Interface).

While this is a very rich feature-set it should be emphasized that essentials of a successful data portal can be substantially less -- data.gov.uk itself in its original incarnation had many fewer features. A data portal in its simplest form need only have a mechanism for easily listing datasets (both in human-readable and machine-readable form) -- and datasets may "point out" to data stored on other sites (e.g. individual ministries' or departments' websites) rather than being stored on the portal itself (though over time, there may be a need to store data, at least for archival purposes).

### **Successes**

Data.Gov.UK has won widespread recognition as an exemplar data portal and its influence has been felt widely within the international community. In the UK, it has become the online home of the UK Government's open data and transparency efforts and the data published on the site has been widely used and reused by companies, journalists, CSOs, and citizens.

By providing a clear, and very visible, home for UK government open data it has also played a direct role in driving forward the

open data and transparency agenda -- departments were already releasing datasets onto the site voluntarily \*before\* there was any specific policy mandating this, and publicity and interest around the site at its early stages from developers, media and others helped to galvanize further policy developments.

In addition, data.gov.uk has played a significant role in the development of a very clear open licensing policy for UK government data by ensuring that all datasets found on the site are under an open license -- the Open Government License [3] drafted by the UK Government's Office of Public Sector Information (now within the National Archives).

### **Challenges**

Data.Gov.UK has seen some failures. Largely, these relate to processes around data release that are not under the direct control of that project itself (though the project could take steps to ameliorate these problems).

To take one example related to fiscal data and the publication of the £25k spending by departments: Because each department publishes individually, this data on government spending is spread across approximately 1000 datasets on data.gov.uk (it can actually be hard to find them all because there are so many and there is no straightforward method to search for them). In addition, not all data is published in the correct format and some data links disappear as departments move data on their website. While ultimately this is a process issue, data.gov.uk have been taking steps to help improve this: for example, by ensuring consistent tagging of datasets when they are created, automatically checking datasets on a regular basis for broken links, developing validators to ensure that data is provided in a consistent format, and developing reporting tools so that Ministers and managers can get an overview of the process.

### **Project Resources**

The project was initiated in September 2009 with a go-live data 1-month later for the first version of the site. This target was met and a closed beta started in early October 2009. In January 2010 the site was made public. The project has seen continuous development and maintenance since that date. Initial project resource was limited (approximately 3-4 person months to create the initial closed beta launch site). Subsequent work up to launch involved approximately another 8 person months. Since that time (January 2010) the size of the team working on data.gov.uk on the technical side has fluctuated but generally been between 3-6 full-time equivalent.

Phase	Duration	Full-time human resources
Planning and data-collection	1 month	3
Design and implementation	3-4 (person) months (up to closed beta stage), 8 person months (up to launch)	3-6
Ongoing	Since July 2011	3-6

## DataBC Open Data Portal of British Columbia



**Country:** Canada

**URL:** <http://www.data.gov.bc.ca/>

### Background

When the Province of British Columbia decided to launch the first Canadian provincial level data portal offering access to more than 2,500 datasets of local and province level data, it followed the need to address both the needs of the community and to transform and civil service system. With a large part of the workforce retiring, the accumulated knowledge and skills had to be transferred and new technology harnessed for realising three main aims: 1) Citizen participation and supporting a community around open data, 2) Data self-service - transforming the way government is present on the web and providing automated access to information 3) Business innovation - encouraging the use and re-use of data for fostering innovation through better information and certainly in government policy.

### Available Fiscal Data

revenue side of public finance, pre-budget statements (projected budget), data from quasi-fiscal activities, economic indicators, executive budget proposal, enacted budget, supplementary budget

### Overview of Features

The BC open data portal contains data across a broad spectrum of subjects; access to tools to visualise and analyse the data; and a blog with posts related to the data. The contextualisation of the original document is accomplished through the possibility to "follow" the document, tracing its progression, and the source document link is provided alongside the dataset. The contact form encourages users to ask questions, to enquire about more data when needed, as well as to provide general or specific feedback.

DataBC is also trying to balance between servicing the data and supporting the already existing open data community in British Columbia, from whom they received valuable feedback for the project. They are an active Twitter user with a growing number of followers. Organising hackathons also aids developers in using the data and creating data visualisations and apps which present different ideas and communicate messages around data.

### Standards, licences and formats

Having used the example of the UK Government's Open License for Public Sector Information, most of the BC data can be freely reused for commercial purposes, advocacy or personal use.

As the portal provides access to many different types of data, the underlying format and standards vary. There is a need to sepa-

rate the final format from the file structure - e.g. it could be data in CSV format but the data could be poorly-structured. DataBC had to resolve problems related to the integration of the existing data management systems within the government as no mechanisms for data sharing existed previously.

### Successes and Outcomes

Probably one of the less-expected impacts was seeing how civil servants themselves are using the portal, as about one third of all the traffic originates from government IPs. Technology enables faster access to relevant data within the government departments, contributing to better interconnections between people working e.g. on labour policies and requiring fiscal data on income tax revenues and unemployment benefits. The most popular data turned out to be the financial data of the government, which signals the importance of transparent public finance based on the demand for information. There was also about 20% increase in the number of Freedom of Information (FOI) requests, showing that releasing a small amount of data fuelled wider interest in data.

### Challenges

Probably the "Holy Grail question" of government data portals is how the data is being used and re-used and what value it generates. As there is no authentication for datasets download and privacy policies only allows the tracking of institutional use, it is difficult to know where the data goes and how it is being used.

It was difficult to switch from a closed system in which data publication was produced in closed formats such as PDFs to one in which the importance of data management, useful metadata etc., is prioritised. Those working on the project experienced an asymmetry in the readiness of various departments to open up their data, for example, those in geospatial data already had much experience with opening up their data, whereas to those in finance, it was the first time that they had been asked to think about their data as 'open data' and progress was slower. For DataBC the project was not a compliance exercise, but an attempt to integrate governance, policy-making and citizen participation.

### Project Resources (approximate):

Phase	Duration	Full-time human resources
Planning and data-collection	3 months	3
Design and implementation	2 months	12-20
Ongoing	since July 2011	8

### User comments and feedback:

Herb Lainchbury, open systems developer: *"The main things I would like to see are: i) more raw data - right now in DataBC we see a lot of small aggregated data tables which are not all that useful, ii) more interesting data - there are easy ways to tell what data is interesting but so far BC is not releasing much of it [...] iii) license - I would also like to see them use a license that conforms to the open definition..."*

### Fiscal Scope

### Technology



Thanks for input from David Wrate, DataBC

# D-Brain in Korea: Digital budgeting and accounting system



**Country:** Republic of Korea

**URL:** <http://www.digitalbrain.go.kr>

**Total cost:** \$63 million

**Vital Statistics:** Total 77,000 registrations of central and local government officials and public agency users. 200,000 transactions by 15,000 users per day. Payment of about 3.6 trillion won (\$3billion) on daily average (Korea's 2010 budget : 292.8 trillion won). Connected to 55 related information systems

## Background

The top-ranking e-Government nation according to the e-Government Development Index and UN Global E-Government Survey was the Republic of Korea<sup>1</sup>. Korea's solution for a public facing Digital Budget & Accounting System (DBAS - or nicknamed D-brain), adopted in 2007, has also been making waves as a leading model of innovative digital budgeting.

More than a data-portal, D-Brain is a web-based participatory budgeting system which ensures citizens' participation throughout the entire budget cycle from budget preparation to audit. D-Brain was covered in detail by Gigler et al. in their report 'Technologies for Transparency and Accountability: Implications for ICT Policy and Administration' and as such, we will not replicate the same research. A couple of key points from their research are highlighted below.

## Overview of Features (see Gigler et al. 2011):

- Integrated web-based system providing the public with real time analysis on government's fiscal activities including budget formulation, execution, account settlement and performance management.
- Participatory budgeting where the central government, local governments, public institutions and the public collaboratively decide on the allocation of resources and participate in nationwide fiscal decision making.
- Citizen participation is enabled throughout the budgeting process through Internet surveys, an online bulletin board, online bidding, a cyber forum, d-budget participation corner and public hearings to name but a few. Furthermore, there is a Budget Waste Report Center, which offers a hotline and on-line system for citizens to prevent central government agencies and local government offices from misbehaving. Citizens are encouraged to report alleged misappropriations of government funds and are incentivised to do so with a 'budget saving incentive bonus', at most \$30,000 which can be awarded to a citizen reporter if allegations are found to be true.

## Benefits for Government:

<sup>1</sup> [http://www2.unpan.org/egovkb/global\\_reports/12report.htm](http://www2.unpan.org/egovkb/global_reports/12report.htm)

Fiscal Scope



Project Aims



Technology



- System enables a better use of the national budget by reducing duplicative expenditure, leading the nation towards a more efficient fiscal policy. Oversight led by both policy makers and the public, who all have access to the necessary budget information to validate the accuracy and reliability of the budgeting records.

- Before the existence of d-Brain, Korea had experienced budgeting and accounting difficulties and no feedback mechanisms to monitor inefficiency. These difficulties included no ability to strategically distribute national resources, as information was not efficiently shared even within government departments.

## Successes and Outcomes

- For the congress, it has become easier than ever to review budgeting and payment information for the different sub-ministries
- The budget authority is also able to make accurate budgeting decisions, due to their increased ability to review financial statements of previous projects in detail. They are able to better predict each expenditure line item of a future project, by which means it can also systematically manage the financial risk of the project.

## Failures, Challenges and Problems

- The government needs to assess new areas that can be linked to the system and reflect it in the system to continuously maintain the efficiency of the system.
- Although the public participation rate has increased, it has shown that they have the tendency to remain as a passive user only making electronic payments and transfers. The public institutes will have to devise a way for them to become more active participants in the fiscal decision making process.

## Scalability:

Some of the reasons for the success of the project are:

- 'The nationwide ICT infrastructure and high ICT literacy' - ICT training is subsidised by governments (Gigler et al. 2011). Korea achieved the world's second largest broadband penetration in early 2000 thanks, in part, to the active role of government in promoting it and according to the 'Ten Million People Internet Education Project', South Korea has the highest Internet user rate as a percentage of the population. Computer literacy is also a requirement of entering college in South Korea.
- Web-participation is common in Korea, which provides most services over the Web. The approach may seem more alien and be less successful in countries where this is not the case.
- The initiative is supported by both the private and public sector. The Korean government steered the project, with cutting edge ICT technology provided by Samsung and LG CNS - this approach can be explored in other countries.
- D-Brain streamlines information exchange between central government, local government and public agencies, providing real time processing between agencies and facilitating payment collection.
- People are interested in fiscal activities, as more efficient use of funds by the government is directly linked to lowering their taxation.

# Brazilian Transparency Portal:

## Access to Information and Citizen Oversight



**Country:** Brazil

**URL:** <http://www.portaltransparencia.gov.br/>

### Background

In 2004, the Brazilian Office of the Comptroller General (CGU) created the Transparency Portal, a tool that aims at increasing fiscal transparency of the Brazilian Federal Government. Developed in partnership with the Federal Data Processing Service – SERPRO, the Transparency Portal relied on the collaboration of diverse Ministries and bodies of the Federal Public Administration to advance the transparency of information on the application of federal public resources and to offer a tool that can stimulate citizen participation. The Portal brings, in simple language, detailed information about how public resources are spent. It is known as one of the most important tools of e-government in regard to public spending control.

### Available Fiscal Data

#### 1) Expenses:

- Daily Information: Budget and financial execution data with daily updating of the acts performed by administrators,
- Transfer of Resources: To states, municipalities, companies, transfers made in foreign land, or directly to an individual,
- Direct Expenses by the Federal Government: Construction contracts, government purchases, per diems paid and expenses on government credit cards, indicating the person that expensed any of the financial operations above

#### 2) Revenue: Budget and financial execution data with daily updates of the estimated government revenue.

#### 3) 2014 World Cup and Rio 2016 Olympic Games Expenses

### Overview of Other Resources and Features

- Agreements: Register of Covenants, government partnerships sealed in the past years
- CEIS: List of companies sanctioned by public entities
- Public Officials: List of public officials, including information about position, function and functional position, with a link to a schedule of remuneration and government positions
- Other links: List of all institutions of the federal government that have their own transparency websites
- Other information and Services: Orientations about public participation and social control, including a section “saiba mais” (know more about it) about government programs and how to police/audit it.
- Download of queries
- Data in graphs and other visualizations

### User Groups and Audiences

The Portal registers an average of 410 000 monthly visits. The

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Thanks for input from Izabela Moreira Correa, CGU

number of citizens accessing the Transparency Portal has grown from 10 000 to 336 512 per month, between 2004 and 2012. A total of 44 640 citizens are registered and receive information about resource transfer in government partnerships with 5 561 municipalities. Information is sent to registered users via email.

### Successes and Outcomes

There have been a number of concrete cases where the Transparency Portal has supported direct social control of government activities. At the beginning of 2008, Brazil's domestic media published numerous reports about “suspect” expenditure made using federal government Payment Cards. In one case the reports led to the resignation of one federal minister. In other cases the portal’s data has given rise to unsubstantiated media reports.

The Transparency Portal will only be successful if a variety of stakeholders are engaged in anti-corruption efforts. Citizens, non-governmental organizations, press, private sector, academic institutions, think tanks and other civil society actors have an indispensable role to achieve the project’s effectiveness. To improve the interaction between government and civil society, the Transparency Portal discloses a communication channel: “Contact us”. Through this channel, the Portal users can elucidate any doubts related to the accessibility or to its own content, as well as praise or make suggestions. Through this channel the Portal also receives many suggestions for improvement and denounces of misuse of public money.

### Challenges

Monitoring and evaluating the impact of the Transparency Portal is an evolving area. The Office of the Comptroller General of the Union measures the average time spent on the website, as well as its bounce rates, pages per visit, visitors, most demanded searches, among other data. Access numbers have been used to identify demands for different queries and the depth of information researched by users. This analysis allows web managers to prioritise the most requested information in the layout. Bounce rates can be used to improve e.g. the frequently asked question section.

### Project Resources

The Portal is administered by a Management Group and a Working Group (operational), composed of representatives of the areas of Corruption Prevention and Strategic Information, Internal Control and Information Systems, approximately 12 public officials (including Managers and operating team, most of them part time). In addition, there is a Technical Technology Group in total approximately 10 public officials working directly to Portal. This makes use of Public budget resources of the Federal Government.

Approximately 137 000 USD was invested for the initial stage of the Portal’s development, from the Office of the Comptroller-General regular budget. Nowadays, the Office of the Comptroller-General of Brazil (CGU) controls the program’s database and the maintenance cost is relatively low.



# Chapter 3

## Using Fiscal Data: Civil Society Perspectives

The Open Budget Index has been instrumental in establishing the key budget documents that every government should publish. The Open Budget Index, grades governments according to their publication practices (timeliness, how many key documents are published etc.<sup>1</sup>); the survey does not currently look at the file format of the released documents.

Getting format and content right is vital to ensure data can be used to hold governments to account. In this section, we examine from a user perspective how easy it is to find, get hold of and use that data. We asked the open spending data community (who come from a variety of backgrounds; research, technical, media etc.) what fiscal data they required, what they wanted to do with it , and importantly, how easy it was to obtain and use. The examples demonstrate that simply publishing the data is not enough, attention must also be paid to how the data is published.

Respondents were asked 6 questions:

1. How does data on government financial processes relate to your work?
2. What is your mission?
3. How did you get the data?
4. If you used a government transparency portal to obtain the data, was it user friendly and were you able to find and access all the information you need?
5. If your government has a transparency portal but you did not use it - please explain why.
6. Please explain any issues with the data.
7. What could be done to make your work easier?

The section below contains quotes and in place paraphrased responses from some of the participants interviewed.

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<sup>1</sup> Pre-Budget Statement, Executive's Budget Proposal, Enacted Budget, Citizen's Budget, (Supplementary budgets), In-Year Reports (Monthly / quarterly), Mid Year Review, Year End Report, Audit Reports.

**Canada: DataBC and tools for non-developers**

"Another nice thing about the data.gov.bc.ca website is that it provides tools for non-developers, so that they can play with, and learn from, some of the data"

**Republic of Korea: Perspectives on DBrain**

"DBrain is only open to government officials viewing data. I cannot imagine getting data of my taste (say using SQL to select variables, and do simple analysis on it) from D-Brain. It only shows numbers of each categories by keyword searching."

**Albania: Providing datasets to advocacy NGOs to challenge commonly accepted facts**

"In Albania, every governmental agency has to provide activity data, but the data is not being analytically used for different reasons. Sometimes the process of the data generation in these agencies is neglected, [...] and sometimes these data are erased after a short period. [...] The Albanian government has a statistical office, the Institute of Statistics (INSTAT), which works directly under the authority of Council of Ministers. There is a limited amount of the available data being published and the credibility of INSTAT is questionable - has been accused many times (on) of hiding important data or providing ambiguous data in favour of the government."

**Australia: Monitoring industry influence on government**

Problems with the Data:

- Not openly licensed by default
- Not good data access - we have to get weekly exports every Sunday in CSV and after 2 years they disappear from the data store, so if a project was starting today they could not get all the data. There is no programmable API to access these exports, just a web page.
- No validation/verification - having to build up the database week by week means we could lose transactions and not notice
- Company data is closed - In Australia, the company register is pay-per-use so we cannot afford to find out who the directors of 300,000 different records are.

**Bulgaria: Developing a visualisation of the Bulgarian budget using OpenSpending.org**

Interesting Documents:

- State Budget - Published as a PDF containing the budget law - very ugly. For the OpenSpending budget visualization I made, I had to parse the consolidated financial framework. [Level of detail is not sufficient] I would like to dig down to each expense.
- Public Procurement Information - Published on a website - can be parsed. [Data is very timely] no more than a day or two delay.
- State Audit Agency reports - Published on a website - can be parsed. Financial data on various topics of interest like: election financing, property of the public figures, political donations, party finances and other very, very interesting datasets. [Regarding timeliness] Periodic, they are ok with the terms.
- Company register - Detailed information about all companies in Bulgaria way more detailed than is public in UK. [Unfortunately] Data is behind paywall - 15 000 euros/year, there is an API included in the same 15 000 euros/year cost. [Information is] very timely, updated every moment.

**Croatia: Institute of Public Finance**

"MoF (Ministry of Finance <http://www.mfin.hr/>) web has a lot of interesting data [...] probably too rich, more fit for experts than for citizens or journalists. [...] State Auditing Office (<http://www.revizija.hr/hr/>) claims that it puts all their reports on their web, but they don't keep them there."

**Estonia: Making budgets understandable for citizens**

"When published, the budget structure is too complicated, even for specialists in any policy field. The format is not machine-readable. So there is access to information but barriers for its usability and re-use by non-government groups."

**Georgia: Increasing fact-based dialogue**

"One of our goals was to begin to make an online interactive interface which brings Tbilisi's expenditures down to earth in a way a larger audience can understand. [...] The data, unfortunately, only covered the first two levels of the COFOG classification system, and so lacked the detail to allow me to understand in reality how Tbilisi City Hall spent funds. The reason I did not use a government transparency portal was because at that time it did not exist. Apparently, one exists now, but it was never advertised and nobody knew about it."

"...it would make sense that the financial system used to create and implement Tbilisi City Hall's budget and keep track of expenditures have a public API that would allow for real time queries that provided comprehensive, detailed, up-to-date and machine-readable results."

**Greece: Visualising the Greek Annual Budget<sup>1</sup>**

"We collected data by extracting them from PDFs [...] it would be ideal, if they made them available online in open - machine readable formats , either as digital files or through a web service. A similar problem occurred while we tried to collect financial figures for public debt and deficit"

**Mexico: Applied Research into public policy**

"The TP portal has visualizations and graphics that are useful to understand the budget process and it also has a citizen's budget, but it lacks most of the raw [disaggregated] data you can find in the SHCP portal. The "Analíticos Presupuestarios" is a fairly good source of data but it lacks details such as the classification by "partida" (the most specific economic classification that the Mexican government use). It will be very useful if all the main budget documents have the same data structure (know it is not possible to follow some classifications in the in-year reports for example). Tools such as the Peruvian "Transparencia Económica[2]" are very useful to systematize specific information."

**Nigeria: Building a budget-cut and crowd-sourcing oversight app**

"For sub-national data who have no defined government portal, we have been able to use our informal contacts to [get] data from two states out of thirty six states. We need to reach out to the states as most of them are not used to providing their budget data to the public. Our short term goal is to drive transparency within these states"

<sup>1</sup> <http://projects.thodoris.net/budget/>



# Chapter 4

## Standards for Fiscal Data: Towards an international framework

Raw data is the fuel of many of the tools featured in this report. In later sections, we demonstrate that the poor quality of the available data and the fact that it is often in non-machine readable formats (e.g. PDF) can contribute considerably to the workload involved in developing these tools, or even render them entirely infeasible.'

One of the recommendations of this report is to work towards a standard for transaction level spending data to enable greater reuse and comparison of, as well as confidence in, the data from a user perspective.

To demonstrate the impact that such an internationally recognised standard can have, the International Aid Transparency Initiative standard is showcased here. We look at:

- how a successful standard can be built with multi-stakeholder cooperation and
- the possibilities this approach has opened up for aid transparency

We also briefly examine existing accounting standards which may inform how such a standard might look, focusing particularly on the eXtensible Business Reporting Language.

# International Aid Transparency Initiative (IATI)

**Geographical Coverage:** International

**Users/Audiences:** Donors, parliaments of developing countries, private companies and foundations

**URL:** [www.aidtransparency.net](http://www.aidtransparency.net)

## Background

Building on around 20 years of previous work, the first version of the International Aid Transparency Initiative (IATI) standard was launched in early 2011 and aid donors around the world started publishing to it. The IATI standard documents data about both aid donors and aid activities, enabling comparison and encouraging good practice in data management. The IATI standard also includes space to attach relevant documents and details of project results, to allow the standard to build context around the data and become an end-to-end solution, tracking projects from inception to execution.

The IATI standard has seen far greater uptake than any previous effort in terms of organisations electing to publish their data in the standard. These successes are often attributed to the multi-stakeholder nature of the design process, including both policy makers and technical experts. From 2009 to 2010, IATI consulted with a wide range of stakeholders on the design of the technical standard, alongside a parallel process to secure donor support for publishing their aid information.

## The Role of Technology

In the past it was common to respond to information shortages by building a new database. But by working with open data principles, IATI allows a more distributed solution - where information can flow between organisations in many different ways, not just into a central database.

The benefits of this approach have already been demonstrated, with many NGOs and charities choosing to follow the IATI Standard, although it was developed primarily with governments in mind.

Donors publish aid information as a feed which can be read by many different applications; both those created by other donors, by the open data community, and - importantly - by software providers to developing country financial systems. By providing aid information in a standard format, many different users can access the data in the way they need to - and developing countries can see the resources, which are supposed to be flowing to them.

## Main User Groups:

- *Parliamentarians in developing countries* gain a better overview of the aid resources available. Knowing where to allocate resources in their own budgeting processes is vital to ensure that money is spent in the best way / most efficiently. Sometimes, there is a transparency-asymmetry between different parts of government. For example, a treasury may be very willing to open up the information it holds, but departments which benefit strongly from aid donations (e.g. departments of health) may be

more reluctant to be transparent about aid revenues, as they will not want to 'lose out' from central government budgeting.

- *Donors:* Know where their money is going and whether it is being spent correctly.
- *Private companies and foundations:* e.g. Akvo<sup>1</sup>, who are examining options for using IATI in their really simple reporting system (RSR).

Aid Info Labs has also done a more extensive series of profiles on potential users of IATI data<sup>2</sup>.

## Does the Project Require the Users to Have Specific Skills?

Right now, direct access to raw IATI data requires some technical skills, but tools are being created like spreadsheet export of the raw data and preview tools to lower the barriers to entry.

By working to improve the quality of the data and working with different infomediaries, from developers to researchers to activists on the ground, we can make sure that people can get access to the information they need.

## Project Resources

IATI centrally has needed both political and technical skills in the team - to facilitate a standard development process with a wide range of stakeholders. This involves being able to help people come together from across the world, which takes many resources.

There are many different donors publishing IATI data, so they've needed different skills and support. Big donors have had to adapt their existing databases to output IATI data. Small donors have had a range of tools available to help them create IATI data - like openaidregister or aidstream.

To use the data, some technical skills are needed, but also, importantly, skills to understand the complex aid infrastructure are important. AidInfo have been developing a one week course in understanding aid which will be piloted with NGOs in Nepal later this year, and which will be delivered alongside access to technical support to use IATI data provided by Young Innovations Nepal (YIPL).

## Successes:

- The IATI registry now hosts links to hundreds of files of IATI standard data, covering thousands of aid activities. Over fifty percent of official Overseas Development Assistance will be covered by the IATI Standard now that commitments from major donors have been made to use the standard.
- Previously, it was difficult even for the governments of recipient countries to know how much money the country was getting from external sources. This affected their ability to be able to effectively prioritise budgeting "Understanding what donors are estimating to give to our country, whatever sector, helps us [...] to avoid what

<sup>1</sup> <http://www.akvo.org/>

<sup>2</sup> <http://www.aidinfolabs.org/archives/category/inspiration/people>

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most ministries may do if we are not on top of information, double-dipping. They come to the Ministry of Finance and request for things that are funded by a donor." (Brookings Institution Proceedings 2010).

- Proactive transparency: Lots of Charities (and not only those asked to do so by DFID) are looking at publishing IATI data, as the existence of the standard encourages more organisations to open up what they are doing. The drivers here may in part be around accountability, but also link to motivations of showing donors/public what the charities does, and finding opportunities for collaboration between organisations
- The standard has made it worthwhile to build tools that make it easier to publish data in the correct format: such as [openaidregister<sup>3</sup>](http://www.openaidregister.org/) and Aidstream<sup>4</sup>.
- The existence of this standard has sparked interest in mapping aid onto other types of financial data such as budgets. When budgets also conform to a standard, such as COFOG, tools can be built to do this work automatically. 'Interfacing aid information with budgets needs to be tackled at the country level to make information relevant for a specific recipient country, and at donor headquarters level to facilitate the interface at country level. Country aid management systems need to be enhanced to deliver such functionality' (Mills and Moon 2010).

### **Challenges**

- There are still simple technical issues - not using the right XML field names, or the wrong format for dates. Initially this was a challenge, but the technical team have been developing tools to help assess data, and working with data publishers on data quality. This can't just be an automated process, as there are differences in data across the world, which need human assessment.
- It is still difficult to cross-reference with other published figures such as budgets and expenditure (particularly when they do not balance).
- Adoption: While there have been many early uptakers, more work is needed to ensure that other donors and recipients are encouraged to implement the standard.

### **What is Needed to Address These Issues**

- Quality-assurance tools to automatically check to see that a standard is being used well. Without these, downstream users of the data suffer technical problems.
- Grass-roots level trainers and community building: Working co-operatively with data publishers as far upstream as possible

to check that the content of data is reliable. If this only happens when data comes to be used, lots of people have to duplicate the effort to make the data consistent.

- Data-management and merging systems: Publishers generating data in the IATI format might have data for different parts of the IATI Standard in different systems: e.g. project financials in one system, results in another, and mapping in another. If IATI data is generated from the projects system only, other content is missing from the IATI form. Having tools to allow merging of data, or allowing anyone to apply annotations to the data, would be valuable.
- Auxiliary information: A lot of information is locked up in the documents that IATI files can refer to (projects can have related documents), better linkage between them would be helpful.
- Tools for entity/concept extraction: Entity extraction tools allow the users to identify which individuals, organisations, projects etc. (i.e. entities) are present in a document, allowing them to understand relationships and which documents are related to which transactions and projects. If systems for visualising and presenting data throw the links to these documents away early on, then users' transparency needs are not well served.
- The promotion of a standard for transactional level spending data could be useful. This would enable tools to be built which could automatically map aid data onto other budgetary information.

AidInfo Labs documents plans, prototypes and products, which make use of and build on IATI data. These can be found on their website, under the inspiration tab.

### **Learning Points**

Getting organizations to share their aid data in a sustainable manner and to institutionalize the sharing of aid data through IATI takes time. IATI is already tremendously successful, but it is a long-term project and initial estimates number of donors publishing with IATI could be seen as somewhat optimistic.

Adapting organisational processes to cope with change management, and system adaptation to enable organisations to start publishing fluid, planning stage information, was difficult for organisations that were accustomed to more statistical reporting (DAC and CRS) and required more work than was initially expected.

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3 <http://www.openaidregister.org/>

4 <http://aidstream.com/public/>

# International Financial Reporting Standards

## Background

The eXtensible Business Reporting Language (XBRL) is a data standard for financial reporting, most commonly used to cover accounting information. The goal of XBRL is to efficiently create and disseminate data in a standardized, XML-based format that lends itself to analytics<sup>1</sup>. XBRL makes few assumptions about the semantics of the data expressed in it, instead standardizing a framework in which specific reporting types, such as US GAAP or IFRS can be expressed as taxonomies<sup>2</sup>, each with a specific set of tags to express the reporting elements which are necessary to comply with the standard. A growing number of such taxonomies are developed and maintained by the XBRL community<sup>3</sup>.

XBRL has enjoyed widespread adoption as a reporting language for business accounting data across a number of countries, the most notable being the United States, where both the FDIC (2005) and the SEC (2009) have adopted the standard - by 2013 even international companies will have to file their reports to the SEC

1 <http://www.sec.gov/spotlight/xbrl/what-is-xbrl.shtml>

2 <http://www.xbrl.org/FRTApproved>

3 <http://www.xbrl.org/FRTAcknowledged>

in XBRL/IRFS. There is little doubt that within a few years, XBRL will be the global lingua franca for accounting information. Going further, the XBRL General Ledger<sup>4</sup> aims to make the standard usable within companies, storing detailed transactional and other operational information.

Of course, this comprehensive commitment raises this question: If XBRL is accepted by governments worldwide for receiving data, shouldn't it also be used to report their own finances? While there is some discussion on the use of XBRL for fiscal information, no taxonomies exist for budget information or transactional government spending. One concern regarding the use of XBRL as a reporting standard for government information may be its complexity: the XML schema requires the implementation of extensive standards to be interpreted. This would run contrary to the goal of transparency by raising the barriers of entry to the analysis of government financial releases. The use of common taxonomies, on the other hand, is a very desirable property, as could also be seen in the IATI example.

4 <http://www.xbrl.org/GLTaxonomy>

Fiscal Scope	Project Aims	Technology



# Chapter 5

## Case Studies: Where Does the Money Come From?

In order to assess how much money is available to spend, a government must know how much money it receives. Governments receive revenues in many ways, ranging from taxation to income from natural resources. This section examines tools for transparency regarding revenue and the processes around extractive industries. Transparency around taxation policies is covered in the section on participatory budgeting.

Case studies include:

- Government of Sierra Leone GoSL: Online Repository for Ministry of Mines and Mineral Resources
- Revenues from Oil and Mining: Revenue Watch

# Government of Sierra Leone GoSL: Online Repository for Ministry of Mines and Mineral Resources

**Geographical Coverage:** Sierra Leone

**URL:** <http://sierraleone.revenuesystems.org/>

**Costs:** The mineral rights administrative system and the online repository have been implemented over a period of two years, costing approximately EUR 400,000 (including training, support and equipment for an administrative system)

**Project executed by:** Revenue Development Foundation (RDF)

## Background

A system that allows governments to publish all mining licences and associated revenues directly from their administrative system. The system can also present other types of revenue data such as forestry concessions, fishing rights, property and land rights.

The system aims to increase government credibility and investor confidence in licenses issued by the government, and thereby increase foreign investments. The system currently has over 500 users, 65% of whom are mining companies and investors looking to verify government issued licenses and companies' good standing.

Data comes directly from government systems and supports the Extractive Industries Transparency Initiative (EITI) by making audits of government receipts easier and accessible to the public. This generates a close accountability cycle between the public and government, as compared to EITI audits, where audits of government-received payments usually only takes place 2-3 years after they are made.

The Sierra Leone government is in control of when and what to publish to the public and/or stakeholders, but typically publish updated data bi-monthly. The system contains all mining rights and license payments from 1 January 2010, as well as all exporters licenses and export taxes from 2008.

Developers behind the site have attempted to make integration

with existing government database management systems as simple as possible. Data is imported using an XML schema, which most database systems are compatible with.

The online portal software can be provided for free and hosted by the Revenue Development Foundation to government institutions. However, it requires an administrative system to be in place from which the data can be extracted.

## Challenges and Lessons

Most government institutions in poor countries require extensive support to improve their administrative processes and systems in order to allow public scrutiny of their data. The GoSL Online Repository is the result of RDF support to the Ministry of Mines and Mineral Resources in Sierra Leone which has been given since 2009. RDF has seconded staff to their Mining Cadastre Office throughout the period, in order to change the administrative processes and improve data management. The Ministry use RDF's Minerals Cadastre Administration System (MCAS) to manage the mining licenses they issue, and the data is published to the online portal directly from this system.

While the initial expectations were that civil society organisations would be prime users of the online data, experience has shown that mining companies and investors are the primary users, alongside law enforcement agencies.

## Scalability and Future Plans

The system has been designed to be as flexible and scalable as possible. The backend can import a range of government license- and revenue-related datasets.

The GoSL Online Repository was launched by the Government of Sierra Leone in January 2012. Similar systems are currently being deployed for Liberia and Gambia. Work is planned to start in Mali.

## Fiscal Scope



## Project Aims



## Technology



# Revenues from Oil and Mining - Revenue Watch

**Geographical Coverage:** Global Level

**Scope:** National government

**URL:** <http://www.revenuewatch.org/>

**Users/Audiences:** Civil society, national governments, international institutions, researchers.

## Background

New technologies and new trends in transparency have unlocked wide new streams of government data about oil and mineral wealth. But access to data does not guarantee access to knowledge. Like the raw materials that get converted to energy, disclosed information often needs refinement and a functioning infrastructure of expertise, analysis and advocacy before it becomes "combustible" fuel for change.

Revenue Watch tools are aimed at helping to "follow the money" and make sure that wealth in the ground translates into development and economic growth above the ground. RWI and partners work to make the management of resource wealth more responsible, more transparent, and easier to understand. New technology is an increasingly vital part of this effort.

Revenue Watch has spent more than seven years promoting access to information as an indispensable tool for improving resource management for the public good. Over the last two years, they have been working to define and pilot effective uses of web technology for the display, analysis and dissemination of oil, gas and mining governance data.

## An Overview of Tools and the Role of Technology

The EITI report analysis tool' (<http://data.revenuewatch.org/eiti>) is a tool built by Revenue Watch based on information extracted from over 50 national reports from the Extractive Industries Transparency Initiative (EITI), a voluntary standard in which governments, civil society and companies work together to report payments and government receipts from oil, gas and mining. RWI's tool presents per-country analysis using RWI's own indicators of report quality, features for comparison of different country results, and easy tools for sharing and downloading data.

To demonstrate the significance of disclosure rules for international oil and mining companies, RWI launched an interactive calculator illustrating the number and value of extractive sector companies listed on the largest global stock exchanges (<http://data.revenuewatch.org/listings>). This research and the streamlined presentation by value, by exchange and by sector, allows non-experts to explore the data themselves, and better understand the high stakes in new US and proposed EU laws requiring companies to come clean about what they are paying to governments of resource-rich nations.

A core principle of Revenue Watch's technical work is that gaps in strategy or in familiarity with online modalities are the main obstacles to better uses of tech for transparency, as opposed to gaps in technology investment. Revenue Watch believe that by

developing not only digital tools, but also replicable approaches to data distribution, usability and user training, they can set a higher standard for the use of oil, gas and mining information by governments, companies, advocates, journalists and citizens.

In addition to these two data tools launched during 2011, Revenue Watch also recently created a simple, highly visual interactive for comparing oil company profits with oil producing economies, at the self-explanatory web address [OilvsWorld.com](http://OilvsWorld.com) (as well as [OilvsAfrica.com](http://OilvsAfrica.com), [OilvsEurope.com](http://OilvsEurope.com), [OilvsAsia.com](http://OilvsAsia.com), [OilvsAmericas.com](http://OilvsAmericas.com)).

The Revenue Watch Index, a pioneering measure of oil and mining disclosure practices in more than 40 countries, was launched in 2010 as a way to break down and assess transparency practices (<http://www.revenuewatch.org/rwindex>). The index, created in partnership with Transparency International, is an assessment and comparison of information published by governments about revenues, oil savings funds, sovereign wealth funds and state-owned enterprises, contract terms and other key data. It is an important tool for elected officials, policy makers, civil society and the media when seeking increased public disclosure about natural resource management and greater government accountability. The 2012 index will feature a much richer set of underlying data which will be available for breakdown and comparison by region, country and indicator. This new version of the index is supported by Global Integrity's research platform Indaba (<http://www.getindaba.org>).

Revenue Watch is also currently collaborating with the Open Knowledge Foundation (OKFN) to release an interactive database of original research compiling fiscal rules and royalty practices for mining in African countries.

## Specific User Skills and Usability

To maximize not just usability, but "use" of the tools, Revenue Watch worked on design for less-web-savvy users, working in lower-bandwidth settings, possibly on older computers. To maximize dissemination across social networks, where personal connections ensure information shared is more relevant and thus more persuasive, Revenue Watch paid particular attention to tools for sharing the data, including custom links to share user-created views (building on the examples of the World Bank and Google, among others). And, given the reality that the most effective advocacy and analysis often happens "offline", particular emphasis was given to making custom views and full data sets easier to download or print for later use - particularly in the case of the EITI data.

As new tech approaches are adopted and integrated further across RWI programming, their tools and advocacy will prioritize easier adoption of technology and smarter integration of tech by all actors in the natural resource governance sector.

## Fiscal Scope



## Project Aims



## Technology



### Successes

RWI's analysis of EITI reports and the EITI data tool represent the first ever compilation of the numerous country level reports in one place and extraction of the report data into a sortable online database. Taken together, these tools helped to demonstrate the value of EITI reporting and provide the first one-stop destination for this data for users in the field, including, for instance, officials at the International Monetary Fund, who decided to use the tool as a resource rather than building their own EITI repository. EITI Chair Clare Short has often cited RWI's research and report tool since it debuted at EITI's 2011 global conference. Most importantly, the RWI tool has served as a model for EITI undertakes its own plan to harvest report data and offer the data online.

### Issues with the Data and Standardisation

One challenge especially illustrative of the difficulties of creating data sets for oil, gas and mining governance came whilst RWI were carrying out research into oil and mining companies on the largest international stock exchanges. A widespread practice by companies of listing the same securities on multiple exchanges made it difficult to accurately calculate the cumulative market capitalization of oil and mining companies across multiple exchanges. Even the data provider most commonly used as a source for securities data (Bloomberg) turned out to have data that was still full of "cross-listings" of the same securities. "Cleaning" the data to approach a more accurate estimate of market capitalization (a core statistic for the tool's presentation of oil and mining sector value) was a labor-intensive task that, while replicable, was not one that automation could solve due to the level of "noise" in the data. This basic statistic - How much is the sector worth on a given exchange? - is itself very difficult to determine. This is taken as a further sign that better practices in the industry are needed in order to reach effective fiscal transparency.

A good dataset does not guarantee a good database or tool. Most

importantly, even a working tool that offers simple access and downloadability of the data does not guarantee usability or "understandability" of the data. This step is the one most often short-changed in the open data activity cycle. Data is not always actionable simply because it is available. A simple interface designed according to user-centric principles, with tools that give the end user power to use the data according to their needs, and which has context and guidance to show what the data means instead of just what it "is", are all fundamental elements of the broader "accessibility" that make data leveragable for greater knowledge and further advocacy.

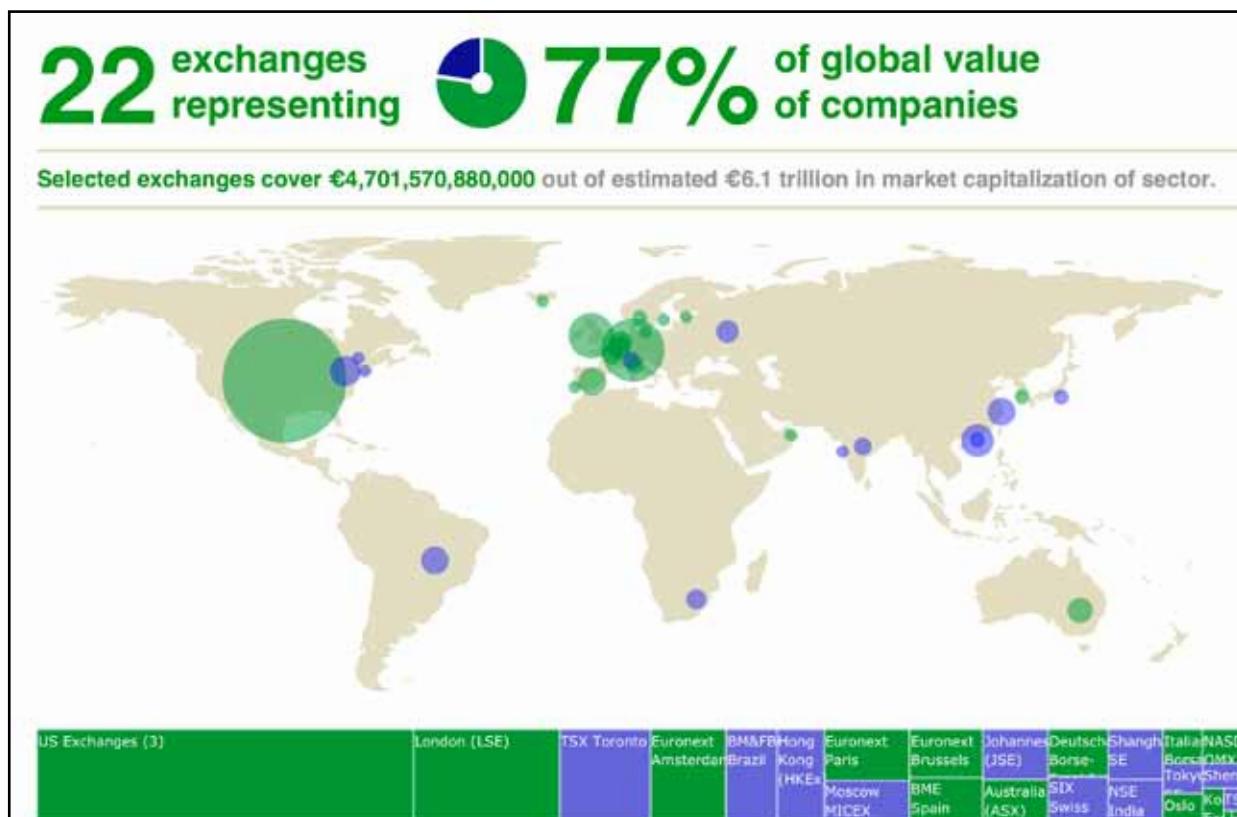
### Project resources

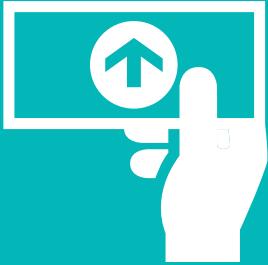
The two main data sites mentioned above required several steps to build: data collection, data analysis, tool creation and interface design. A total of only 4-5 people were involved across all phases, but it is important to note that the skill sets required for each of these elements are quite different. Good data collection does not guarantee good data modeling for comparability (or deduplication, as in the stock calculator example).

### User Comments:

"Of the sources you mention the only one I have regularly used is Revenue Watch's Stock Exchange Calculator. It's been very useful for comms purposes (as a place to source a fact/figure to support my argument, [http://publishwhatyoupay.org/newsroom/blog/why-dodd-frank-1504-won%2080%99t-undermine-competitiveness%](http://publishwhatyoupay.org/newsroom/blog/why-dodd-frank-1504-won%2080%99t-undermine-competitiveness%20) )."

"The Oil vs the World tool is good but could be even more useful with a different set of indicators (I'm not sure about the comparability (even if for the sake of the effect of contrast) between GDP and oil company profit. More effective could be to see revenues generated per country for their natural resources vs population living on less than 1 dollar; or oil company profit vs cost of compliance etc...)".





# Chapter 6

## Case Studies:

### Where Does the Money Go?

The following case studies all feature organisations who re-use the fiscal data released by governments about where money is spent. They seek to promote better specialist and public understanding of the data and increase participation in the budgeting process.

There are two main sections within this chapter:

#### **1. Presenting Data to the Public**

- Grading Government Spending: Clearspending, Sunlight Foundation
- The Media and Financial Data: how do we get this info into the public eye?

#### **2. Deciding where the money goes: Participatory Budgeting**

- Introduction
- Mini atlases for participatory budgeting: Solo Kota Kita, Indonesia
- Citizen Budget: Open North, Canada
- Mobile-Enhanced Participatory Budgeting: The World Bank

## ClearSpending from the Sunlight Foundation

**Geographical Coverage:** USA

**Scope:** Federal level

**URL:** <http://sunlightfoundation.com/clearspending/>

**Users/Audiences:** Civil society, national governments, international institutions, researchers

### Background

Clearspending analyzes the data quality of the grants data in USASpending.gov, the cornerstone of President Obama's transparency platform even before he took office. He co-sponsored the bill that created it whilst he was a Senator, and oversaw part of its execution in the executive branch. Clearspending addresses three metrics: timeliness, completeness, and consistency with other government estimates. Over \$1.3 trillion failed on at least one of these metrics. Users of Clearspending can view topline data quality measurements by agency, or drill down to a program level to view the performance of specific grant and loan programs. Essentially, Clearspending is an oversight tool that examines the compliance of each agency and program with grant and loan reporting requirements. The site also provides substantial background information on the evolution of the reporting systems that power it (some are decades old) and the overall picture of how spending is reported in different areas of the federal government. The original methodology of Clearspending stems from a Government Accountability Office report on the same topic, but the sample-based methodology has been expanded with an automated program to examine all transactions instead of only a sample percentage.

### Target Users

The targeted users are anybody who uses USASpending.gov to get spending data on grant and loan programs. This usually includes, but is not limited to, journalists, academics, policy analysts, concerned citizens, and congressional staffers. For anyone looking at a particular grant or loan program, Clearspending can tell you how much of the program's actual spending data you can expect to find in USASpending.gov. You can also see how on time a particular program or agency is in reporting their spending. Many agencies and programs report far past the 30 day statutory requirement, so their spending can vary widely depending on when you view the data, even after the given fiscal year has

passed. As an auxiliary use, Clearspending is also designed to be used by anyone who would want to investigate which agencies or programs are not fulfilling their legal mandate to publish spending information online in a complete and timely manner.

### Successes

The project saw considerable public success as an oversight tool. The House of Representatives Committee on Oversight and Government Reform convened two hearings where the Executive Director of the Sunlight Foundation, Ellen Miller, was invited to testify regarding Clearspending analysis, one on the subject of achieving fiscal transparency and one on evaluating open government initiatives. Agency CTOs with particularly poor examples of data quality were also invited to testify. Follow-up questions and reports from the Committee resulted in the correction of some of the most notable errors.

Most of the errors that were pointed out were related to non-reporting programs. Specifically, the Department of Agriculture had chosen not to report for several programs because they had misinterpreted the guidance. They later wrote to the Oversight Committee explaining this, and pledging to begin reporting the spending. Also, after demoing the beta version of Clearspending to the department of Health and Human services and showing them the gap in medicare/medicaid reporting that Clearspending highlighted, they began back reporting Medicare data.

### Challenges

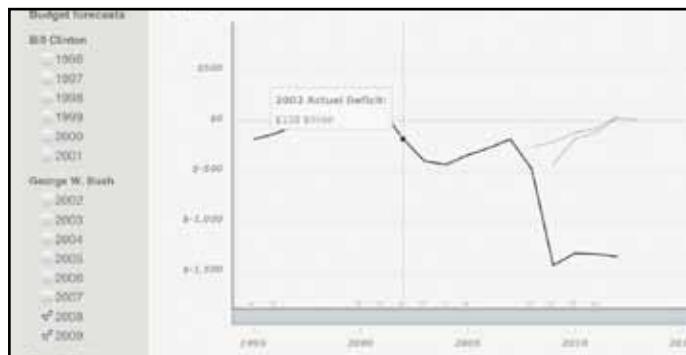
The main challenges of the site stemmed from the complicated picture of the federal spending systems themselves. Sketching a broad view of how the system is designed to work and at what points it is failing proved difficult for most casual users, and even some very knowledgeable users. Federal spending data is nearly impossible to simplify without losing a good deal of information that is valuable to experts on the subject.

### Data Problems

The major problems with the data were programs that, for whatever reason, chose not to report their spending. Additionally, many programs reported their spending long after the 30 day window in which they were supposed to, and sometimes even an entire fiscal year later. Another counterintuitive problem was the issue of over reporting. Confusion on the reporting guidance led to student loans being reported in the \$6-7 trillion range, instead of the actual \$60-80 billion range.

### Future Plans

The Sunlight Foundation re-released Clearspending with new data in Fall of 2011, and there are plans to update the analysis each year with new data. More ambitious aims include expanding the analysis to contracting data, which is a more difficult task, due to the lack of the kind of comparison data that was present for grants. Several FOIA requests for information regarding contracts data were in progress at the time of the report.



### Fiscal Scope



### Project Aims



### Technology



## The Media and Fiscal Data: How do we get fiscal data into the public eye?

One of the key promises of open data is that it can be used by journalists to get a clear, evidence-based picture of government action, in particular by using fiscal information to track budgetary priorities, contractual commitments and patterns of spending. As part of the OpenSpending project, the Open Knowledge Foundation is working closely with journalists to develop tools which aim to make financial data released by governments accessible and usable in a journalistic context. We are regularly approached by journalists asking for advice on where to find information on a particular aspect of government spending. In this section, we highlight a couple of our experiences from building these tools, and document some anecdotes from other organisations who have had varying degrees of success with reaching out to the media.

As a part of this project (Spending Stories), we identified the following challenges:

- Journalists are often not used to working with raw data, and don't consider it a necessary foundation for their reporting. Sourcing stories from raw information is still a relatively new idea.
- They also often do not possess the necessary literacy and technical skill to analyse the data and present their findings. This includes technical skill, but also statistical and design capacity.
- Analyzing and understanding data is a time-intensive process, even with the necessary skills. Fitting this into a short-lived news cycle is hard, so data journalism is mostly used in longer-term, investigative projects. This is reflected in a statement by the Budapest Institute in Hungary: "One of the conclusions of the workshop with journalists and the following consultations with media representatives was that our initial idea [of building a tool that would be useful for journalists] turns to be a false hope. [...] We have learned that the Hungarian media is prone to get ready-made analytics and reports rather than to perform investigative projects on its own."
- The data released by governments is often incomplete or not up-to-date, making it harder to argue a story based on the available information. Very often, released databases cannot be used for investigative purposes without the addition of FOI-requested, more specific pieces of information. In an article in the Guardian Datablog<sup>1</sup>, which followed the release of the UK Local Council spending data, Lisa Evans explained why, despite the impressive show of proactive transparency from the UK government, many barriers still prevent journalists from using the data to hold the government to account. The issues she identified include concerns about the completeness of the data; for example, the inability to see money which is allocated in Private Finance Initiatives<sup>2</sup> (Public-Private Partnerships).

A couple of observations on Spending Stories as a tool:

- We decided early on that we would not confine ourselves to providing journalists with technological solutions, but would also offer training sessions in the use of data and relevant tools. Feedback from participants indicates that this method training was useful. It has also helped us to gauge the level of skill which we can expect users of our technological solutions to have.
- We started under the assumption that our tool would be aimed

primarily at journalists, but have found it is more commonly used by advocacy groups, who have more time to dedicate to research. These advocacy groups then contact journalists with the story in order to gain publicity for the topic once an outline of the story has been researched and the bulk of the data work has been completed.

When we explored the specific information- and tool-requirements for journalists who wanted to work with spending data, the following needs were recurrent:

- **Heuristics for story-finding:** This could include the automated calculation of statistical measures such as percentiles, scatter-plots, standard deviations - but also very specific analysis such as measuring the size of firms in relation to the industry (Herfindahl-Hirschman Index).
- **Time-series visualisations of total spend to date by quarter:** This would allow journalists to detect problematic practices such as those highlighted by Vivek Ramkumar's report: "if the majority of expenses are incurred in the last quarter of the year, this could indicate that the agency was keen to spend money even if it meant wasting it so that it could apply for the next installment of funding in the subsequent year."
- **Notification services for journalists:** When an interesting dataset is published, journalists would get a notification directly to their inbox. When data is open, the determining factor is not who gets exclusive data, but who has the skills to quickly analyse and interpret the data.
- **Ability to call up structured data around the budgeting process is very important:** Such information is required in order to follow debates and to see how different MPs voted, as well as to follow amendments, when appropriations were changed, and who was responsible for making the changes. This also includes easy reference to e.g. laws which affect certain spending patterns laws which affect certain spending patterns, ideally presented in a handbook or short glossary format.
- **Linking the numbers to people and organisations:** Numbers can be offputting - journalists need to put faces to them in order to make them accessible. Other requests in this vein were a personality tracker - people are particularly interested in following particular high profile names, so it would be interesting if you could follow particular people. For example, having information which lets journalists say 'here are all the laws undersigned by a particular politician- are there any patterns'?
- **Disaggregated data or more information to understand provenance of aggregates:** What is the source of the data? What is the formula via which the end result is reached?

### Read more:

- <http://blog.openspending.org/2011/10/27/thoughts-from-the-global-investigative-journalism-conference/>
- <http://www.guardian.co.uk/society/datablog/2011/mar/18/public-finance-data-store>
- <http://www.guardian.co.uk/news/datablog/2012/mar/16/us-open-spending-data>
- Sunlight Foundation: Reporting group <http://reporting.sunlight-foundation.com/SLRG/>

<sup>1</sup> <http://www.guardian.co.uk/society/datablog/2011/mar/18/public-finance-data-store>

<sup>2</sup> <http://www.guardian.co.uk/politics/pfi>

# Deciding where the money goes: Participatory Budgeting

## e-participatory budgeting

Participatory budgeting (PB), put simply, gives citizens direct input into how government money is spent, for example via budget consultations or in-person meetings. PB occurs in over 1500 cities over the world, and there is a Google map<sup>1</sup>, which shows (marked with red pointers) locations which have favoured a technical solution, referred to here as 'e-PB'.

For government officials interested in e-PB, the Participatory Budgeting Unit have produced a useful paper including a list of considerations which governments should take into account<sup>2</sup>.

The collective knowledge of the Participatory Budgeting Google Group<sup>3</sup> is another useful resource for anyone seeking advice on implementing PB, using technical methods or otherwise. Many members of the group develop e-PB systems, and the group has built a census<sup>4</sup> of existing technical solutions.

The census shows that there are a large number of competing software solutions (both proprietary and open-source) but no real consensus on a particular approach to implementation. When it comes to building a software tool for a process as complex as participatory budgeting, perhaps one size does not fit all. In what follows, we have sought to determine activities in the PB process for which the projects in the census may be able to provide solutions.

At the end of this section, we present 3 in-depth case studies of different technical solutions.

## PB Activities targeted by technology

The following bullet points highlight key activities in the PB cycle and outcomes which some of the case studies highlighted in this section seek to target:

- **Outreach:** Encouraging the 'hard to reach' to participate, typically the disenfranchised, the busy and the apathetic. Targeted outreach is also important, being able to contact people who will be most affected by proposed policies or projects.
- **Following projects and collecting feedback:** The 'hard to reach' could equally be defined as finance officers and decision makers in government who have little in-person contact with their citizens. Technology can offer them a way to connect with their citizens.
- **Publicising progress:** To demonstrate clearly what effects the participatory voting system is having, e.g. which projects were funded in previous years by using this system, how many participants etc.
- **Aiding deliberation and facilitating debate:** Structuring arguments and collecting ideas e.g. for potential new projects.
- **Remote participation:** Some people who are unable or unwilling to participate in person, may be willing to do so online or via mobile.
- **Reducing costs:** Commonly incurred costs during a PB process are outreach, planning, running the meetings and collecting the feedback.
- **Reduction of workload:** Running the process can put a lot

of stress on staff particularly around planning and in the run up to and follow-up from meetings. In offline participatory budgeting - substantial amounts of outreach work and other tasks such as translation for minority groups are often taken on by volunteers.

- **Raising additional funds:** Governments are frequently strapped for the money to implement projects. If additional funds are required to get a project off the ground, some projects highlighted in this section turn to citizens or businesses to make in-kind or cash contributions to get the project off the ground.
- **Increasing budget literacy:** Simulators allow participants to explore how certain spending/revenue choices impact the budget and gain an appreciation for how much state projects cost. This allows citizens to explore trade-offs between different options.

## Possible solutions

This section highlights existing initiatives which take advantage of the opportunities highlighted in the section 'PB Activities targeted by technology'.

### Outreach

- Using technology to invite people to take part in offline voting:
  - E.g. geo-targeted SMS (See the Mobile-Enhanced PB case study, where, when asked how they had heard about the participatory budgeting meeting, over 50% of respondents cited the SMS invites they received as the reason),
  - Automatic phone-calls where the voice of the mayor encourages people to come out to vote (good for illiterate populations, and hearing the voice of an authority figure may help convince people to participate),
- Combining online and offline approaches: e.g. putting e-voting stations outside churches and other places where large numbers of people congregate.

### Following projects and providing feedback

- 'Problem-solving approaches':
  - E.g. Fix My Street<sup>5</sup> / SeeClickFix<sup>6</sup> or Lichfield council's Fix My Tweet<sup>7</sup> - where citizens identify tangible problems e.g. potholes on the street and submit a request via their mobile / via Twitter to their local authority to have them fixed.
- 'Following the progress of projects':
  - E.g. Gol Mobile App<sup>8</sup> (See picture right) for Porto Allegre is a good example of an application which allows users to track the progress of a request and submit progress reports via their smartphone.

### Publicising progress

- Publicising information on the outcomes of previous rounds of participatory budgeting and what has become of the projects:
  - Bürgerhaushalt Lichtenberg<sup>9</sup> publishes updates on projects suggested by citizens, including implementation stage, relevant authorities overseeing the work and other comments regarding the projects.

### Deliberation

- Online deliberation:
  - Many projects allow citizens to submit their own project

<sup>5</sup> <http://www.fixmystreet.com/>

<sup>6</sup> <http://makehoustongreat.com/seeclickfix/>

<sup>7</sup> <http://www.fixmytweet.com/>

<sup>8</sup> <http://itunes.apple.com/us/app/porto-alegre/id479880903?mt=8>

<sup>9</sup> <http://bit.ly/yE7xGa>

<sup>1</sup> <http://bit.ly/lS8Skf>

<sup>2</sup> [http://bit.ly/PB-role\\_of\\_technology](http://bit.ly/PB-role_of_technology)

<sup>3</sup> <http://groups.google.com/group/participatorybudgeting?pli=1>

<sup>4</sup> <http://bit.ly/PB-software-census>

ideas. e.g.: The UK's YourLocalBudget project, 'Budget Ballot'<sup>10</sup>.

- Allowing direct feedback into laws already in draft stages. e.g. Adhocracy, which allows users to cut, add to, reword and restructure proposed bills<sup>11</sup>.
- Structuring argument: E.g. the MIT deliberatorium<sup>12</sup>, which requires users to 'map' their argument e.g. pro-contra a point made by another, follow-on questions, ideas for solutions to previously raised problems.
- Offline deliberation, aided by tools:
  - E.g. 'America Speaks 21st century town-meetings' are in-person meetings which use computers on every table to serve as "electronic flipcharts" to record general table agreements; table agreements are instantly transmitted to a "Theme Team", which reads who read all the entries to identify the strongest themes. These overarching themes are displayed and quickly presented to all the participants; individuals use their individual voting keypads to vote on what they believe are the most important priorities.



### Remote participation:

Online voting and surveys (numerous examples in census. See also the Citizen Budget case study).

### Cost reduction

- Outreach e.g. advertising meetings on social media
- Email - usually cheaper than paper outreach.
- Even SMS can be a relatively cost effective option. In the Dominican Republic, the World Bank negotiated with phone companies a rate of around \$0.01 per message. A single callout on radio cost around \$200 to advertise the meeting. Nonetheless, text messages appeared to be a more effective option in terms of the number of people motivated to join the meeting (see statistics in the Mobile-Enhance Participatory Budgeting case study).

### Reduction of workload

Systems which help to manage and direct volunteer efforts: e.g. collaborative editors, (Google Docs), Microtask management (Tasket), Translation (Amara<sup>13</sup>, Transifex<sup>14</sup>).

10 <http://budgetballot.com/>

11 <https://adhocracy.de/>

12 <http://cci.mit.edu/klein/deliberatorium.html>

13 <http://www.universalsubtitles.org/en/>

14 <http://www.transifex.net/>

### Raising additional funds

Very few Kickstarter/Pledgebank- style applications exist for publicly funded projects, however this approach has been incredibly successful in crowdsourcing support for non-governmental projects via the Internet<sup>15</sup>. One of the few attempts to do something similar is: Leih Deiner Stadt Geld in Germany<sup>16</sup>, this works by encouraging people to invest in their city.

### Increasing Budget Literacy

- Budget simulators: The Estonian site Meieraha.eu allows people to visualise and explore the effect of different revenue and expenditure policies e.g. raising taxes.
- Personal Impact Calculators: One aspect which very few of the budget simulators dealt with was personal impact, where users are shown what the impact on them personally would be, e.g the effect that increasing spending above budget levels would have on the amount of tax that they as an individual would pay. Large numbers can be disorienting for the average citizen who may find it difficult to relate the numbers to more familiar measurements such as household budgets and their daily salary. An example attempting to solve this problem is Budget Allocator<sup>17</sup>, which explains to users the impact of their choices: "Although you have balanced your budget, based on your current selections, we may still have to increase rates by 6.4%. Typically a 1% rates increase equates to 12 cents a week."
- Research is currently in progress at the Ash Centre in Harvard into forcing people to watch an explanatory video before voting. This will obviously not work in all situations (e.g. places with bandwidth issues), however it does have the benefit over text that it ensures that information cannot be 'skipped'.

### Concerns about using technology in PB

The concerns below were voiced about using technology in PB by those both inside and outside governments:

- "Possibilities for gaming the system" (e.g. with bad voting systems).
- 'Herding effects' from special interest groups, which could be difficult to monitor if participation is remote.
- Using technology as the 'easy option' and not dedicating enough time to face-to-face interaction.
- For both citizens and governments: Not having the right skills to be able to deal with such a system.
- Creating additional work for government officials by allowing torrents of unstructured, unmoderated and often duplicate comments to flood in, all expecting answers.
- Information cascades in online voting systems: Due to the volume of responses, participants often do not have time to review all of the proposed solutions, so if only the most recent comments and suggestions appear at the top, or only top ranked, they may gravitate towards selecting these.
- Who participates? Particularly, where remote participation is concerned: Ensuring that only relevant constituents are participating.
- Finding the right balance between a simple and usable application and an oversimplified solution.

15 <http://www.kickstarter.com/> and <http://www.pledgebank.com/>

16 <https://www.leihdeinerstadtgeld.de/>

17 <http://demo.budgetallocator.com/>

### e-PB: What can policymakers do to help projects such as these succeed?

This section has dealt mainly with tools for direct participation, as opposed to indirect participation, where citizens choose their preferred policies via the proxy of an elected representative. In the latter case, there are also ways in which governments can help to promote informed decision-making in electing their preferred candidate. For example, by releasing structured information on voting records of a given candidate [18]. In countries such as Kenya, where individual politicians hold sway over a large discretionary fund (Constituency Development Funds), having access to information on an individual's previous financial behaviour can be crucial to selecting the correct representative. See [this post] (<http://openspending.org/blog/2012/01/30/hakuna-my-data-nbo-data-bootcamp.html>) on 'Auto-generated campaign speeches' for one suggestion of a project to compare candidates based on their financial track-record

Many of the projects in this section are civil society led and are listed here to provide inspiration for some of the ways in which technology may be used to promote greater citizen participation around budgeting issues. However, these efforts can only go so far without support from governments. The following section highlights a couple of ways in which governments could promote such projects as these.

#### *Promoting public participation in the annual budget cycle, and in the design and delivery of public services and public investment projects*

- Publish machine-readable schedules of key events in the budget cycle e.g. publication of key documents, consultation periods

etc.

- Make sure teams within governments have the resources to deal with potentially large volumes of feedback in order not to disappoint those in their constituencies by not being able to take suggestions into account.
- Make sure technology does not become a substitute for face-to-face contact. Many important parts of the PB process happen offline. Technology is a useful complement to offline channels of communication and participation, but is not a substitute.
- Examine structured data formats for drafting legislation and tabling amendments<sup>1</sup>.
- Be open and transparent about how legislation is drafted. Progress was made recently when the European Parliament (EP) decided to open-source At4am, software that helps staff at the EP write and table amendments. Such moves help those developing tools for deliberation and collaboration around ideas outside government understand workflows and adapt their tools to work with existing government workflows<sup>2</sup>.
- Note that while the European Parliament plans to release the At4am software, it has not currently announced a plan to make the data from its own copy available, and doing so would represent a substantial increase in transparency around legislators' activities<sup>3</sup>.
- Structured information on who in a department is responsible for particular changes. It is unproductive to attempt to talk to an entire department about a proposed project or change, who are the people who can actually make a difference<sup>4</sup>?

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1 <http://www.publicwhip.org.uk/project/liaison.php>

2 [http://www.ictparliament.org/xmltraining\\_brussels2012](http://www.ictparliament.org/xmltraining_brussels2012)

3 <http://bit.ly/KhOr13>

4 [http://www.asktheeu.org/en/request/source\\_code\\_and\\_data\\_for\\_at4am\\_s\\_2](http://www.asktheeu.org/en/request/source_code_and_data_for_at4am_s_2)

# Mini atlases for participatory budgeting: Solo Kota Kita (English: Solo, Our City)

**Geographical Coverage:** Indonesia

**Scope:** Local government

**Users/Audiences:** Donors, recipient country governments, citizens, NGOs.

**URL:** <http://solokotakita.org/en/>

**Contact:** <http://solokotakita.org/en/contact/>

## Background

In 2001, Indonesia underwent ambitious decentralization programs. The “big bang” reforms devolved political, administrative and economic power to smaller administrative units, and local actors took over management of municipal infrastructure and systems. Against this backdrop, the national as well as local governments developed and supported new planning processes that sought to increase community participation in government decision-making.

Participatory budgeting (known in Indonesia as Musrenbang) was piloted by a group of NGOs in Solo for the first time in 2001. In 2005 the national government mandated that every region and city in Indonesia implement an annual Musrenbang process. As part of the Musrenbang process, residents in a city or region meet to prioritize and propose short-term improvements they’d like local government to implement in their neighborhoods.

While participatory processes such as Musrenbang are in place, in many cases local authorities and communities lack capacity or tools to maximize the collaborative decision-making opportunities these processes offer. For example, priorities set during Musrenbang meetings don’t always correspond to the most urgent requirements of a given neighborhood. SKK’s first project sought to tackle this issue in Solo by increasing awareness of urban issues to strengthen residents’ voices and their capacity to prioritize community issues during the Musrenbang process.

## Project Description

The tool, ‘the Mini-Atlas’, presents a map and thematic information about each neighborhood in Solo. Each atlas includes a map of community facilities (responding to local feedback that often the participatory budgeting meetings happen without a map of the neighborhood) and thematic data regarding education, water, sanitation, housing, poverty, and health, highlighting key assets and issues for residents to discuss.

After completing the mini-atlases, SKK, in coordination with the city government and Musrenbang facilitators in each neighborhood post large copies of the mini-atlases in neighborhood public spaces. Residents can also print-off this information themselves and use the maps whenever they like.

## Data Collection and Analysis Methodology

Solo city government had never collected the information included in the mini-atlases, let alone aggregated it through GIS and disseminating it more widely, but the administrative organization

of all cities across Indonesia, including Solo, facilitates the collection of this data.

Each neighborhood in Indonesian cities is formed of administrative units called RTs (roughly equivalent to a US Census Block). A “block captain” keeps track of how many people live on the block, how many poor families, etc. SKK put together a team of community facilitators that liaised with the 2,700 “block captains” in Solo to collect the information to populate the mini atlases. As such, each mini-atlas provides a highly detailed profile of each neighborhood.

## Resources

Data collection - 6 months in total.

Working with data: GIS mapping and analysis, design of the mini-atlases, website with searchable information from the atlases. (local GIS consultants and a California-based firm to produce SKK website) - 6 months total over a six-month period.

Note that following the data collection, SKK found differences in the collected data compared to official statistics e.g. the official population estimate is lower than SKK’s count. Rather than SKK having over-estimated the population, it seems more likely that some people were not counted in the official census, perhaps due to dissemination problems, illiteracy, or inadequate follow-up procedures. While such data discrepancies exist, they are generally not critical.

## Scalability

The experience with the data collection emphasizes that this methodology is replicable. As discussed in ‘Follow up projects’ SKK will attempt to replicate the initiative in Solo and Makassar, adding an innovative SMS data collection approach.

## On the Ground Implementation: Using the Data

SKK trained all Solo Musrenbang facilitators in the use of the mini-atlas during the 2010-2011 Musrenbang process. Further, SKK staff collaborated closely with Musrenbang facilitators in 10 neighborhoods to encourage and observe the utilization of the tool during that Musrenbang cycle.

During the 2011-2012 Musrenbang cycle, SKK staff conducted refresher training for Musrenbang facilitators. Unlike the previous rounds, in four of the 10 neighborhoods, SKK staff worked with neighborhood leaders and facilitators to develop a second-generation mini atlas. The latter, known as MA+, sought to amend/augment the original neighborhood mini atlas with information that community members noted would enhance the effectiveness of the tool. For example, in one neighborhood, feedback included adding information about small businesses within the mini atlas.

## Follow-up Projects

SKK has begun a Musrenbang budget analysis initiative with the

### Fiscal Scope



### Project Aims



### Technology



aim of increasing transparency and developing new planning tools related to the outputs of the Musrenbang process in Solo. To achieve this aim, SKK is reviewing and comparing the lists of proposals made at the RT levels to the respective final city budgets, to determine which projects proposed through Musrenbang were selected and implemented. Ultimately, this information could be utilized to develop maps that visually highlight what type of projects were proposed and where, as well as which were implemented in previous years.

Additionally, with funding from the Ford Foundation, SKK will begin collecting RT-level information from each neighborhood utilizing an innovative SMS data-capturing methodology. Specifically, instead of community facilitators and “block captains” filling out paper forms to aggregate data, SKK will pilot an approach by which the data collection can be conducted using an SMS based cell-phone application. In addition to conducting this work in Solo, SKK will also implement the project in the city of Makassar.

### Successes

- In some neighborhoods the mini atlases served as a catalyst for communities to enhance their discussion of issues and prioritization of Musrenbang funding requests.
- The Solo government officially mandated and included future funding for the printing and use of the mini atlases as part of future Musrenbang cycles.
- As part of a city-sponsored design competition, ‘Solo Eco Cultural City’, to create solutions for a sustainable city, student participants downloaded and used the mini atlases to do their planning.
- Other city and NGO initiatives are utilizing information from the mini atlas to help inform their work. For example, a current City-NGO initiative which will conduct a poverty assessment in a number of Solo neighborhoods is utilizing the mini atlases as an information baseline.
- A critical characteristic of the mini atlases was providing clean, universally recognized graphics that could be understood by community members.
- The mini-atlas is a tool with relevance beyond Musrenbang.

Musrenbang is part of a continuum of planning activities in neighborhoods that includes RPJMK planning, which is medium-term poverty alleviation planning; PNPM, a World Bank upgrading program, and others.

### Failures

- The willingness and ability of neighborhood facilitators to effectively utilize the mini-atlases has a significant impact on whether they are used or serve their purpose. Some neighborhoods resisted the use of new tools. In other neighborhoods, facilitators were not as engaged as they should be with the Musrenbang process (for example, some do not show up to community meetings as they should). SKK is currently working on a set of recommendations to tackle this.
- Feedback during RT and RW (groups of RTs) meetings suggests that in many communities the data presented in the mini atlases is too high level. In other words, the mini atlases do not provide sufficient nuance regarding the blocks since they are presented at the neighborhood level. This issue was a key catalyst in SKK's 2011-2012 effort to develop a second-generation mini atlas.
- Given the 18-month Musrenbang budget cycle and a lack of clarity regarding the projects selected and implemented during previous Musrenbang processes, there is a tendency for communities to recycle project proposals yearly. SKK's ongoing Musrenbang budget analysis project seeks to shine light on this issue.

### Project Resources

**Key Actors:** A project director, 2 community facilitators, an urban designer, a GIS expert, a website developer, 10 community facilitators to communicate with and collect data from RTs, student volunteers (local universities) as map makers/drafters

Additionally, it is important to note that the project had the support of the Solo mayor. The government worked with SKK to engage the neighborhood heads to support data collection.



# Balance your City's Budget - Citizen Budget, Open North

**Geographical Coverage:** Canada

**Scope:** Local government

**Users/Audiences:** All levels of government

**URL:** <http://citizenbudget.com/>

## Background

Citizen Budget is a project of Open North, a Canadian non-profit that creates websites to increase government transparency and promote citizen participation. Open North sells Citizen Budget to municipalities as licensed software or as a service.

Citizen Budget is an online budget simulator that focuses on a local government's controllable operating expenses. The tool challenges citizens to re-balance the budget by increasing or decreasing the amounts allocated to municipal activities, local services and revenue sources. The municipality defines the list of activities and services and their associated amounts.

Once the online consultation is over, Open North prepares a report for policymakers at the municipality, to allow them to better incorporate citizens' priorities in their budgetary decisions. This report evaluates how representative the participants are of the population, analyzes the data, and identifies trends, which it reinforces with data visualizations.

The goal is to consult citizens on their budget priorities, while educating them about the local budget and raising awareness of the difficult choices and trade-offs in balancing a budget. Other potential customers include police and fire authorities, school districts and labor unions.

Citizen Budget's first client was the borough of Plateau Mont-Royal in the City of Montreal, regarding their 2012 operating budget. Open North is now looking for municipalities who would like to consult citizens on their 2013 operating budget. This project can be tailored to allow citizens to submit input on printed forms or using their mobile devices.

## How it works

Unlike many of the applications in the census, which asked users to vote on abstract priorities e.g. increase health spending by X million (voting in amounts which, without specialist knowledge, do not mean an awful lot to the average citizen who (generally relate more easily to e.g. the scale of their household budget), citizen budget allows users to vote on concrete and tangible outcomes, which are aligned with decisions that councillors might have to make themselves (build more of these, agree to close libraries on Sundays to save money.) Citizens have to produce a balanced budget, so are forced to trade-off priorities against one-another. The voting system is incredibly simple and allows the user to understand the trade-offs and impacts of their given choice in context.

## How long did the project take to implement?

The project is constantly improving and so work is ongoing. The current iteration of the project took 10 days for the technical im-

plementation, with another 10 days for data collection, meetings with government, etc.

## Successes

Online applications can reach a larger and more diverse group of citizens and can offer more personalized information than traditional offline methods. Unlike council meetings or face-to-face consultations, citizens can participate online anytime, from anywhere, using their favourite Internet device.

They can take the time to express themselves carefully without having to wait to be given the floor. In short, online solutions reduce many barriers to participation.

This project has so far been run in one city district, the borough of Plateau Mont-Royal in the City of Montreal. Out of an adult population of 89,000, 3,160 visited the budget simulator and 363 submitted balanced budgets that expressed their budget priorities. The local government used the major trends in residents' budget priorities to inform their budget decisions - principally, to allocate more money to make the borough greener and cleaner.

Residents expressed their appreciation for the consultation and gained a greater appreciation for the difficult choices and trade-offs that elected officials face when balancing a budget.

Many citizens from outside the borough expressed interest in having a similar initiative in their territory.

## Challenges

- The project did not have government staff dedicated to the project's promotion, and so did not reach the greatest number of participants.
- The government did not effectively communicate to citizens the way in which it used the input from the online consultation.
- The major challenge is for the government to determine the actual cost of individual activities and services. Budgets do not tend to be organized per activity, and so a fair bit of work has to go into coming up with these numbers.

## Do users require any special skills to use the platform?

The project requires citizens to have a basic level of competency in the following: Internet use, reading skills, budget literacy, and familiarity with municipal activities and local services.

## What skills are required to implement the project?

The project requires a web developer and a designer to create the application and a statistician/analyst to prepare the report on the consultation for the government. Additional non-technical staff are needed to educate and interact with governments, to manage the other team members, to plan the promotion of the consultation, etc.

## Other comments

1. Consultations cost money. With many local governments facing

### Fiscal Scope



### Project Aims



### Technology



significant budget constraints, many find it difficult to justify (to themselves and to residents) the cost of a consultation.

2. Politics. Some governments may worry about the consultation being a negative experience, especially if residents are already not showing support. They may worry that residents will support a policy or initiative that goes against the government's promises, platform or beliefs. Finally, a particular consultation method may be seen as a vestige of a previous government, and therefore something to get rid of.

3. Many local governments would want an offline consultation in addition to any online consultation, e.g. to get input from harder-to-reach demographics. Even if Open North, as a service provider, makes the online consultation as easy-to-run as possible, some local governments will not use it due to the planning, preparation, operating and follow-up costs of an offline, face-to-face

consultation.

4. It is difficult to get a local government to run a consultation year after year. Most will perform it as a one-off initiative. It is considered more in terms of its publicity, marketing or communications value, rather than its democratic value.

Such systems have the potential to better inform and educate citizens about decisions and processes. By sharing decisions with citizens, they can become more efficient and effective in the delivery of services. Governments provide much of the information for these initiatives. However, without government buy-in, these initiatives would not have the power to effect change.

LIBRARIES AND CULTURAL CENTRE		<a href="#">↑ back to top</a>	Your choice	
<b>Open libraries on holidays</b> There are fourteen holidays: nine around Christmas, New Year and Easter as well as Victoria Day, Quebec's National Holiday, Canada Day, Labour Day and Thanksgiving.		<p><b>Costs: 54 400 \$</b></p> <p>-16 900 \$</p>		
<b>Open libraries on Sunday</b> The libraries are currently open daily, except on holidays. You can make savings by closing them some Sundays.		<p><b>Savings: 50 000 \$</b></p> <p>-16 900 \$</p>		
<b>Hold more or fewer shows at the cultural centre</b> Currently, the cultural centre is open 312 days a year and 30 hours per week. The maximum possible number of days it may be open is 351. Each year, nearly 125 shows and about twenty exhibitions are held.		<p><b>Costs: 12 500 \$</b></p> <p>Your budget is in deficit (-16,900 \$). Cut activities to balance the budget.</p>		
RINKS		<a href="#">↑ back to top</a>	Your choice	
<b>Change the daily opening hours of Saint-Louis rink</b> Currently, the arena is open on average 78 hours per week, so about 11 hours a day, from September to April.				

# Mobile-Enhanced Participatory Budgeting - the World Bank

**Geographical Coverage:** Democratic Republic of Congo (also been done in Dominican Republic)

Mobile Voting has also taken place without the Bank in: Ipatinga Brazil, La Plata (Argentina), Belo Horizonte (Brazil),

**Intended audience:** Individual citizens

This section contains excerpts from Estefan and Weber's short article at <http://bit.ly/ITseQN>

## Background

After years of conflict in the Democratic Republic of Congo, many are unable to access the most basic of public services. While many citizens in the province don't have access to water or electricity in their homes, they do have mobile phones. The World Bank Institute's ICT4Gov program has introduced mobile technology to enhance participatory budgeting processes to help local authorities decide on the allocation of available resources according to citizens' priorities. In a community-chest style process, the local government devotes a percentage of the local investment budget to the project deemed most important by the citizens.

The World Bank played the role of facilitator in a number of spheres for the project - they tailored software, negotiated with cellphone operators and built capacity to demonstrate to local populations how the technology works. In each use-case, the Bank provided the local community with a portfolio of options that technology could offer and allowed the community to decide for themselves which options to deploy. The Bank was also instrumental in other processes such as drafting the text messages which were used to contact constituents and building capacity in understanding the budget. In the case of the Democratic Republic of Congo, the Bank played a role in bringing local governments, civil society, universities etc. together to work out how to implement these projects.

## The Role of Technology

ICT4Gov is using mobile phones for four purposes:

1. To invite citizens to participate offline in participatory budgeting assemblies through geo-targeted SMS messages. These messages, reaching all the phones receiving signal from a particular tower, announce the date, time and location of the assemblies.

Besides the blanket approach, the Bank is also experimenting with manually collecting phone numbers (this was done in the Dominican Republic). When collecting numbers, it is also possible to collect basic information about the person in question, such as their gender, and the neighbourhood they live in, so that targeted messages can be sent out (e.g. low attendance rates from women can be counteracted by sending invites just to women.) So far, the Bank have sent around 2000 messages this way compared to 300,000 through the blanket approach.

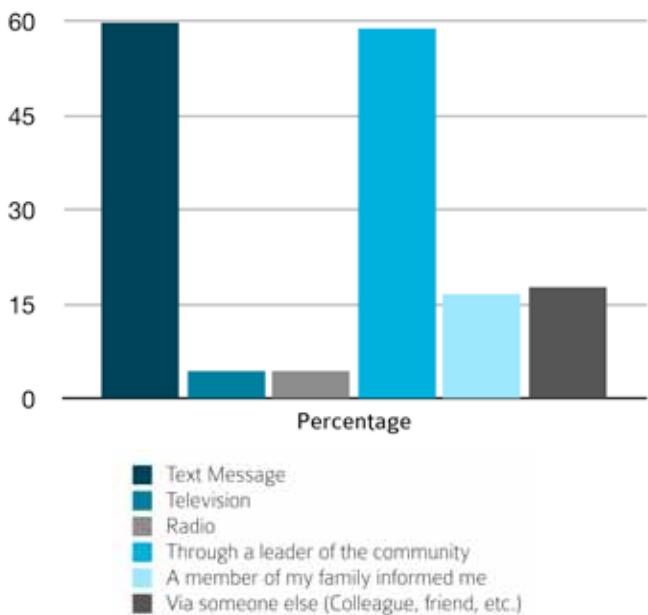
2. Mobile phones were also used for voting (DRC), allowing the citizens to send a text to identify which of the priorities they would like to see addressed in their community. This is being trialled in a controlled environment at the in-person meetings. This ensures

that citizens are present throughout the discussions and so are able to make informed decisions. During meetings, the participants rank their priorities on a scale of 1-4. This makes meetings more efficient as counting is done electronically and feedback can be monitored. In the Dominican Republic participants had the option to vote remotely.

3. As an announcement service to communities to broadcast the result of the vote, making the process more transparent and inclusive.

4. For feedback on the projects that were chosen. Through text messages, citizens are able to offer feedback and monitor the projects.

## How did you find out about the meeting?



Voters in the Dominican Republic were asked how they felt about having the option to vote remotely via SMS.

## Project Resources

- Knowledge of participatory design and community operation
- Development knowledge in mobile telephony sector
- Outreach skills
- Cost of SMS: In the DRC one million messages were negotiated at 10 000 USD

## How long did the various stages of your project take to implement?

- Training on PB: 8 cities - 2 months
- Development: 2 months
- Running a session: 2-4 hours

## Fiscal Scope



## Project Aims



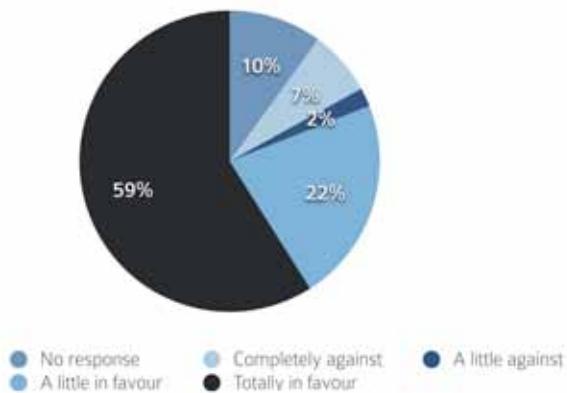
## Technology



## Scalability

There are 1500 cities around the world where participatory budgeting already takes place, and this approach could be considered as an option in them. Using mobiles could be used to encourage citizens is an approach that could be used in other contexts to promote citizen participation, not just PB. In some countries, such as Estonia, mobile voting has already been used in municipal elections and could be extended to other contexts.

## Perception of SMS voting: the Dominican Republic



Participants in the Dominican Republic were asked how they had found out about the meeting.

## Successes

- When the participants were asked what motivated them to take part in the meeting, the majority of respondents mentioned that the SMS had been the strongest deciding factor.
- Since the beginning of the program, as the Provincial government sees an increase in the capacity of local government to al-

locate resources, communities involved have already seen an increase in transfer of funds from the Provincial to the local level.

- The preliminary results of an external evaluation suggest that an increase of tax collection at the local level has been associated with the implementation of participatory budgeting. This is based upon testimonials offered by officials and numbers collected with the municipalities. However, given the high number of potential exogenous factors that could have contributed to this result, further assessment should be done before claiming a causal relationship. For the first time, communities such as Ibanda have gone from not having any investment budget to having 40% of their budget devoted to investments. In 2011, the Ministry of the Budget started the process of institutionalization of Participatory Budgeting in the Province.

- The increase in the transfer of funds from the provincial to the local level has benefited communities, which now have more resources to deliver public services to the poor. For instance, the process has made it possible to begin repairing 54 classrooms and a bridge in Luhindja, to create a health center and repair the sewage system in Bagira, and to build a water fountain as well as toilets in local markets in Ibanda.

## Challenges

- Collecting numbers requires a lot of resources (Dominican Republic)
- With some bulk message providers, some messages did not deliver until many hours later, some recipients received messages in the middle of the night!
- More work needs to be done to help people monitor the execution of the projects. People are engaged in the process and feel empowered when they vote, but there is little follow-up and people could begin to become disillusioned with the project if they do not see results.



# Chapter 7

## Case Studies:

### The Invisible Money

Here we examine projects which track institutional corruption and malpractice. Social auditing, in the sense used here, is when non-governmental organisations or collections of citizens 'audit' government projects. There are a wide variety of organisations who engage in this important work around the world. As well as the examples listed below, the appendix provides further examples of technology which has been used to tackle problems similar to the issues facing organisations conducting social audits (which include violence against auditors, outreach and spreading the message and text-message based reports of service delivery).

#### **Social Audit**

- From Fractions to Millions: Challenging Corruption Using Mobile Phones
- What Can Governments Do to Help Social Auditors?

# From fractions to millions: Challenging Corruption Using Mobile Phones

**Geographical Coverage:** India

**Scope:** Local government

**Users/Audiences:** Rural poor and beneficiaries of local government programs

**URL:** <http://bit.ly/fractions-to-millions> (Vivek Srinivasan's article)

**Stage:** A pilot project

All quotes from Vivek Srinivasan's article.

## Background

In recent years, India has been one of the leaders in FOI legislation, where in many aspects the Right to Information Act was seen as more progressive and powerful than legislation in other developed countries<sup>1</sup>. The possibility of digitising public finance records has lead to a significant decrease in the per unit cost of accessing information. "Mazdoor Kisan Shakti Sangathan (MKSS) and other NGOs involved in India's right to information movement realised that merely having access to government records was not enough given the sheer complexity of the records and people's ability to understand them."

Social audits in India typically involve comparing the official records of government projects (e.g., cash books, muster rolls, measurement books, supply lists) and validating whether these projects actually existed in reality. This information verification takes place through door-to-door surveys, where actual records are compared against the locals' testimonies - where discrepancies indicate acts of corruption. "The power of this process is evident by the fact that even though very few convictions happen on the basis of the findings of a social audit, data shows that the levels of corruption have reduced appreciably in places where audits have been organized regularly."

The method of the social audit involves accessing the official record and verifying it with the person who should have received the goods or services. Yet understanding the particularities of the project requires training and expertise, and the actual survey requires considerable time and resources to conduct. Mobile phones could be used as a technological solution to social auditing. "Through basic mobile phone SMS technology, official records on basic individual entitlements such as pensions, subsidized food grain, and maternity entitlements could be delivered to individuals via monthly text messages."

"The project has now received the commitment of officials in the states of Bihar and Andhra Pradesh in India and a team that we helped organize is just starting to build the basic technology to store and disseminate public records. We will start with select programs such as the National Rural Employment Guarantee Act in India and expand the coverage over the next few years."

## The Role of Technology

The Indian Census showed that around 50% of Indians have mo-

bile phones even in rural communities, whereas access to the Internet is limited, which highlights the potential of using mobile technology to reach out to households without Internet access. "The main benefit of using SMS technology is that it requires very limited skill, knowledge, or effort from the user. And, it eliminates costly and time-consuming in-person surveys and audits. By using this technology, official information can be disseminated on a regular basis, unlike in the current model where social audits are done sporadically."

## Scalability

A planned elaborate survey would compare villages where the technology has been implemented to villages where it has not in order to measure the effect of mobile technology on combating corruption. The existing legal framework and the low cost of making public finance information available mean that more citizens and other organised groups will be able to combat corruption.

"At a later stage of the project, it may be possible to add other features that will enable the victims of corruption to take action using mobile phones. For example, the SMS could include the phone number of responsible officials, or an NGO could collect the complaints and initiate action on their behalf."

## Specific user skills

"The main benefit of using SMS technology is that it requires very limited skill, knowledge, or effort from the user. And, it eliminates costly, time-consuming in-person surveys and audits. By using this technology, official information can be disseminated on a regular basis, unlike in the current model where social audits are done sporadically."

## Successes

- Using SMS technology will facilitate more widespread and more frequent social audits, which are instrumental in tackling corruption'
- "[it] arms individuals with precise information – something they never had before — that officials cannot argue or ignore."
- The resource could be used by people with limited skills or access to the Internet

## Limitations

"Like any technology tool, this of course has its limitations. One of the critical functions of social auditing in India has been its role in mobilizing the general public. The process of gathering people together face-to-face in a public meeting creates a collective energy, which can motivate people to fight corruption."

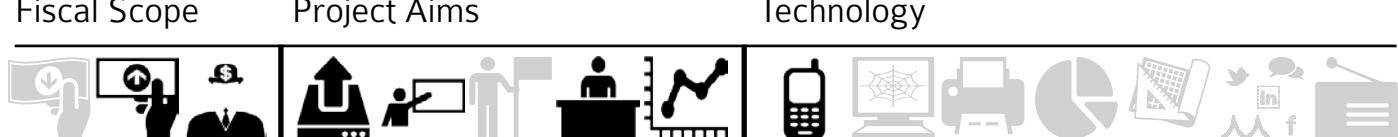
## Issues with the Data

Much of the data is in printed format and should be digitised in order to conduct the project.

## Project Resources

400,000 USD (including an elaborate survey to measure corruption)

## Technology



<sup>1</sup> <http://www.guardian.co.uk/society/2012/apr/10/india-freedom-of-information?newsfeed=true>

## What Can Governments Do to Help Social Auditors?

There are considerably fewer projects in this section than in the participatory budgeting section. The reasons for this are numerous, but projects often suffer from lack of timely and granular data from governments and the feedback mechanisms to enable citizens to make their voices heard. Promoting participation in government audits should not be perceived as a threat, but rather an opportunity: auditors and civil servants cannot be everywhere, but citizens can, and can provide feedback on issues as and when they perceive them, allowing the government to hone in on problem areas when they need to. A few suggestions:

- *Collaborate*: Support and partner with civil society projects which have already developed auditing tools and use the generated feedback for decision-making and public administration oversight.
- *Implement Standards*: Implement accepted data standards and formats in order to ensure the financial data can be categorised and connected back to specific entities and projects.
- *Allow Anonymous Feedback*: Mechanisms by which citizens can anonymously submit information regarding conflict of interests regarding MPs, allowing for the disentanglement of the politicians' interests, where personal benefits might influence the direction of public policy and public procurement: e.g websites such as Inspector de Intereses in Chile<sup>1</sup>, encouraging mobile

<sup>1</sup> <http://www.inspectordeintereses.cl/>

feedback, or employing official hotlines such as those used by Supreme Audit Institutions (SAIs).

- *Organise Structured Feedback Mechanisms*: Beside providing the framework for auditing tools, governments should ensure that the feedback is assessed and acted upon in a structured, timely and efficient manner. This makes it clear who is responsible for assessment and responding to feedback.
- *Provide Online Training and Support*: Training classes and guidance materials about the audit processes for other governments, public officials, civil society and interested citizens could be also made available online with webinars, shared presentations and open training tools.
- *Ensure Collaborative and Participatory Process*: Establish spaces for cooperation between the SAIs and the civil society organisations as they have mutually complementary roles and resources (Nino 2010).
- *Crowdsource Problem Areas*: Providing mechanisms for citizens to give feedback on problems as they experience them. Once an area of concern is identified e.g a particular department is frequently flagged up as asking for bribes when issuing licences, the government would know to investigate further.
- *Lead a Transparent Process End to End*: Clear communication and documentation about how the auditing information is used and acted upon.

# Chapter 8

## Putting the Parts Together

# Getting off-budget on-budget: OpenSpending & Publish What You Fund

**Geographical Coverage:** Uganda (could be re-used in other countries)

**Scope:** Central government and international

**Users/Audiences:** Donors, recipient country governments, citizens, NGOs.

**URL:** <http://openspending.org> (OpenSpending site), <http://bitly.com/uganda-example>

## Background

Aid flows often do not pass through a recipient government's conventional budget mechanisms. When this happens, recipient governments themselves may not have the complete overview of where aid money goes and how donor priorities align with their own. This information is vital for governments and aid donors to be able to make the best use of scarce resources.

Normally this overview is not available – leading to waste, overlap and inefficiency. The lack of comparable information means aid donors and recipient country governments can't work together to coordinate their efforts; it decreases developing country governments' ownership and undermines the potential for good governance and planning. Donors and governments need to know what others are doing - and crucially, what others are planning on doing - if they are to make sure that these resources are used most effectively. Otherwise, some sectors and areas will not receive enough funding, while others may have too many donors involved.

This project was an effort to combine two key types of fiscal data - revenues from aid and spending information - and present them together in an informative way through an interactive visualisation.

## How long did the various stages of your project take to implement?

**Data Collection:** The first step was a huge data-collection effort by the Overseas Development Institute (ODI) and Publish What You Fund (PWYF). It took just over 6 months for the initial data collection, cleaning, and report, with a large amount of manual work by many different people. Not only did the ODI have to manually collect all this data on donors' aid spending, they then had to map it all to Uganda's budget. For data collection, detailed financial information was provided by the Ministry of Finance and this existing data for each development partner (or donor) was sent to them for verification, correction and completion, in the form of an MS Access database.

**Data Wrangling:** 6 months. This data was still not machine-readable and capable of being analysed as it was spread across five different tables. There were other problems as well, e.g. no common currency throughout. PWYF processed the data so that it was in a format suitable for importing into the Open Knowledge Foundation's OpenSpending software.

**Development:** 1 man month. The Open Knowledge Foundation created the BubbleTree visualisation so that it was possible to see multiple dimensions of the data at the same time (you can see both which sectors the money is going to, and how that is broken down by type of spender - donor, project aid, budget support).

## Project Resources

Expert knowledge of budget and aid data. Data wrangling capabilities. Development skills.

## Successes

- The data collected in this project was far more comprehensive than the data in the Government of Uganda's budget. In fact, for the Financial Year in which the report was being conducted (2006/7), donors planned to spend almost double the amount of project-based aid compared with what the Government of Uganda was aware of.
- The project proved that it was possible to collect all the necessary data to be able to do this type of analysis for an individual country. Standards, such as IATI, make it easier for such approaches to be replicated at scale.
- The visualisations drew attention to a couple of interesting patterns e.g. very occasionally aid money showed up in defence spending, big chunks of money going to disaster management and the north. It also made it possible to establish and compare how donors are (or not) aligning to the policy priorities of the Ugandan government.

## Challenges

The project required considerable human resources to clean and collect the data. If data had been published in a consistent and machine readable format, this would have been considerably easier.

## The feedback below comes from people we asked to review the platform:

- When we tried to solicit for feedback and encourage journalists to use the visualisation in their reports, they still asked us 'where are the stories?'. The visualisations gave a high level overview, useful to assess overall priorities and aid distribution, but more work with capacity building to help journalists understand and work with fiscal data is required to help them find the stories.
- Another reason journalists were reluctant to cover the story was that the data was not up-to-date enough. The most recent data available was from 2006 and the visualisation was completed in 2011.
- Further work needed on explanatory texts - what exactly can you do with the visualisation and what are the known limits?
- Visualisation inevitably implies a level of editorial judgment. We received a comment that if Uganda receives general budget support, all the bubbles should show a sliver of aid (since general budget support funds the overall budget, not specific sectors). In the current version, many sectors do not show a budget support component. The decision to show this at the top level only, and not in each of the sectors, was taken because by that point (i.e. at

## Fiscal Scope



## Project Aims



## Technology



the sectoral level) it is then considered part of the Government of Uganda's revenues.

### Scalability

OpenSpending is an international platform, which allows anyone to upload and visualise government financial data. The database already holds many international, national and sub-national datasets and the software can easily be translated into other languages. OpenSpending is open source and open to contributions on any level from the community; contributing data or code and translation are the most common activities.

A similar approach could be taken in other countries, and work currently underway on the standardisation of aid-sector codes may make this easier. In addition, possibilities of mapping IATI compliant aid data onto COFOG compliant budgets are being researched, although more granular standards may be required in order to accurately represent the data<sup>1</sup>. If standards were widely adopted, this approach could be replicated.

To extend the project further and make it even more useful, the following are needed:

1. Aid information (but crucially, it needs to be timely, detailed and comparable): Donors representing over 30% of global Official Development Assistance already publish their data as of 1 'COFOG, which was designed specifically to describe the activities government undertakes, is an appropriate starting point to examine alignment between recipient budget classifications and existing international aid classifications. COFOG represents country sector and administrative classifications fairly well at aggregated levels, but at the lower levels tends not to disaggregate the functions of government in the same ways or to the same degree that many governments do.'
- (Moon and Mills, 2010)

18/11/2011, but more work will be needed to encourage the other 70% to do so.

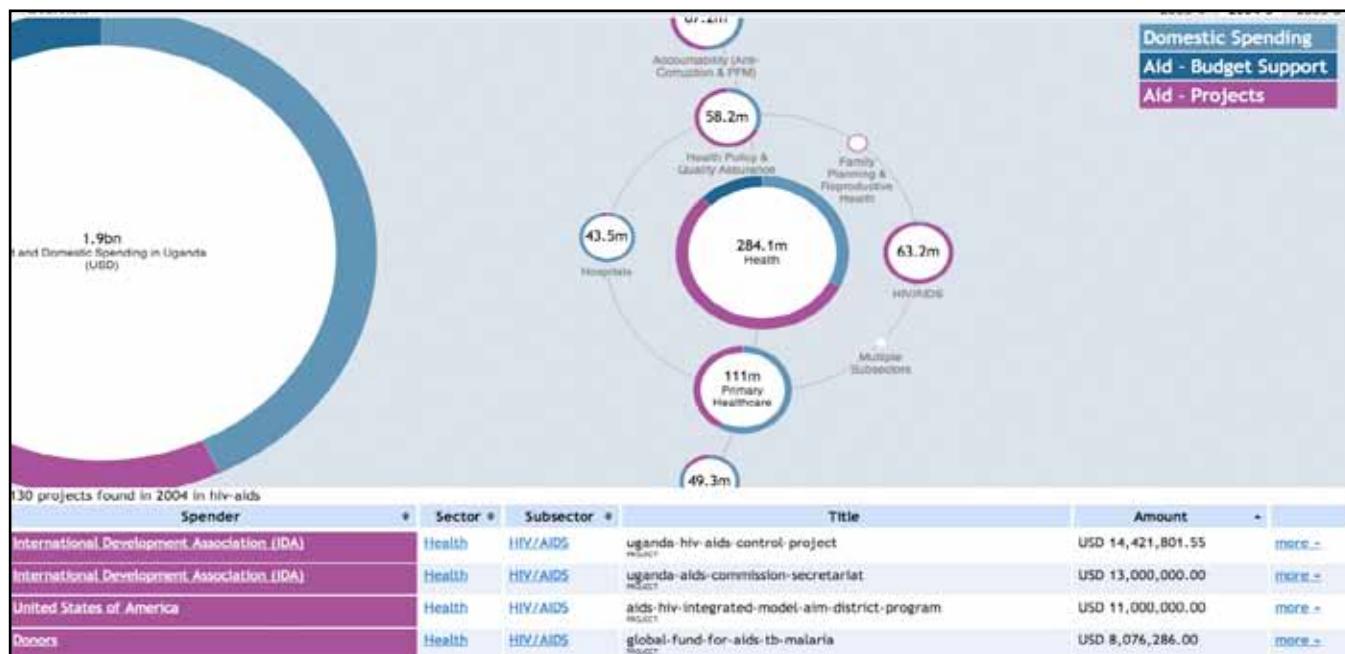
2. Budgets in a machine-readable format: some governments have already begun publishing these (e.g. Kenyan open data initiative); many others have budgets available online in PDF (including Uganda, Sierra Leone, for 2010).

3. Mapping from aid to budgets: work is currently underway in this area.

### Where next?

Possible further areas for exploration and development of the platform:

- Seeing budget in perspective of the legislative process, although this is a) difficult and b) only part of the story, as a lot of the most interesting changes happen when the Budget has been agreed and moves to the Executive.
- Heuristics: On a basic level, show average, maximum, minimum aid donations to a sector. Variance: flagging differences above/below a certain amount
- Comparisons, e.g. Spending relative to other districts. Ability to see the context of your current view: (what filters have you selected?).
- Feedback and comment features, ability to annotate data points as well as collections / facets of the data e.g. to show absence of data.



## Final Observations and Review

While this report demonstrates possible ways in which technology can contribute to fiscal transparency it should also be clear that technology is not a magic potion that will automatically resolve all barriers to fiscal transparency.

The authors of this report were tasked with highlighting 'cutting edge' technology for fiscal transparency. While we have attempted to do so and to show some of the very best and most sophisticated work in this sphere, we would like to emphasize that simple solutions often yield the best results.

In delivering on fiscal transparency, a combination of online and offline, technical and non-technical approaches will be required. In some cases, technology will be neither necessary nor appropriate: e.g. in participatory budgeting it will be crucial to engage citizens offline if the process is to be effective. In other cases, prioritising ICT over offline methods can lead to exclusion for poor and marginalised groups who have little access to the Internet or low literacy levels.

Nevertheless, the examples highlighted here do show that technology can be a very effective complement to existing processes in enhancing fiscal processes and transparency. These tools can work on numerous levels simultaneously, reducing barriers to participation and reaching out to groups who would otherwise not have the chance to participate.

We have already highlighted specific recommendations in individual sections, and here we would like to pull together some of the most important. The report demonstrates that many actors need to be involved in order to promote fiscal transparency:

Below are numerous recommendations related to the role of all parties including governments, civil society organisations and multi-stakeholder initiatives such as GIFT.

### **Governments:**

- Promote the use of simple, machine-readable formats which can significantly increase the usefulness of data
- Make sure that all fiscal data is released under a proper open license (i.e. one that conforms to <http://OpenDefinition.org/>)
- Support and partner with civil society projects to assess whether existing, open-source tools will serve the purpose desired, before looking to create new ones
- Organise structured feedback mechanisms and make sure teams within governments have the resources to deal with potentially large volumes of feedback
- Crowdsource Problem Areas: Providing mechanisms for citizens to give feedback on problems as they experience them. Once an area of concern is identified e.g. a particular department is frequently flagged up as asking for bribes when issuing licences, the government would know to investigate further.
- Make sure technology does not become a substitute for face-to-face contact. Many important parts of the PB process happen offline. Technology is a useful complement to offline channels of communication and participation, but is not a substitute.
- Examine structured data formats for drafting legislation and tabling amendments

### **Technical Specialists:**

- Look into ways to make it easier for governments to make data available from the data management systems they already work with - do they have APIs? can they easily pull out reports from their accounting system (e.g. an 'export report for press' option)?

### **Civil Society Organisations & Private Sector**

- Re-publish data they have derived and added value to.
- Work on capacity building and data literacy: Are all necessary skills being fostered to maintain technical solutions? For example, is an intern relied on to load new data or do all members of staff know the standards and processes required to do it?

### **Foundations & Funders:**

- \* Many of the projects highlighted in this report are one-off solutions, tailored to an individual local problem. Funders may like to review existing projects (e.g. those listed in the appendix & in the participatory budgeting software census, and on sites such as the Civic Commons Marketplace<sup>1</sup>, to see whether any existing open-source solutions could be adapted to serve other or more general problems, before initiating another.
- \* Support platforms (as well as individual instances of a piece of software) which allow solutions to be scaled, promote inter-organisational data-sharing and communities of practice.
- \* Collect resources for long-term archives of data and documents relating to fiscal activities.

### **GIFT Recap:**

First and foremost, we see GIFT as being in a strong position to foster technical standards and best practices regarding fiscal transparency. It should be appreciated that especially the release of data, by its nature, is generative: it is nearly impossible and undesirable to predict what people will want or be able to build when data is made both available and usable. Such outcomes should be specific to each country, addressing its political and technical landscape.

Hence, in this report, we have attempted to highlight case studies which are experimental in their nature. We hope that GIFT will be instrumental in supporting further such experimental projects and promoting discourse between governments and civil society in this area.

### *Promote Open Data as the Raw Fuel for Technology*

- Members of GIFT should themselves ensure - whether they are national governments or international organisations - that they publish their fiscal data and other financial information in full and in machine-readable formats.
- Promote publication of key budget information as machine-readable data. Work with organisations such as the International Budget Partnership to include a related criterion in the Open Budget Survey. Set up online webinars / workshops showing how data is used after its publication.
- GIFT should initiate the creation of a light-weight, demand-driven standard for the release of structured expenditure information to enable its comparability between countries.
- Work closely with the Open Government Partnership to promote release of datasets which are key to contextualising finan-

<sup>1</sup> <http://civiccommons.org/apps>

cial data, such as economic indicators or procurement data.

- Promote the release of sub-national data, perhaps via local partners, as well as national level.

#### *Technology Outreach and Idea Sharing*

- Promote experience sharing between governments through workshops and forums in existing social media platforms. Governments need to share the lessons learned in using technology to promote transparency, accountability and participation across different countries.
- Involve civil society actors who use data and services provided by governments, to review and share ideas about existing and planned initiatives. Such actors could form advisory-panels on particular topics e.g. company data.
- Create a well-maintained index of existing initiatives both on the demand and supply side, including methods of data release,

re-use and presentation, discussion or activism enabled by such information.

#### *Technology Review*

- Review existing projects and solutions from the point of view of both governments and civil society actors. Civic Commons Marketplace as well as the appendix, but a larger-scale, community effort will be required to keep this up to date.
- Based on feedback from the above refine and maintain an online, collaborative catalogue of technical and policy options (perhaps as a wiki) which can guide governments about existing solutions and experiences.

#### *Technology Sharing*

Promote the use of promising projects from the Technology Review stage. Liaise with funding bodies to ensure open-source solutions are available for all.

## Further Resources

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# Appendix

The appendix to this report is a consolidated list of projects extracted from the case studies. In addition to this are other projects, which there was not space to include in the main body of the report, that are however useful examples of tools, approaches and contacts for those interested in fiscal transparency. The list includes the name of the project and the organisation, the geographical focus - where it was implemented as well as the local and national scope, the stage in the fiscal process and the type of technology, link to the tool and a short background.

You can access the list at: <http://bit.ly/TTAPF-projects>.

We would like to encourage users to help keep this list up to date - if you would like to add a project, please at [gift-report@okfn.org](mailto:gift-report@okfn.org).