MAXIMISING THE BENEFITS OF DATA AND EXTRACTIVES INDUSTRIES FOR THE POOR:

UNDERSTANDING DATA DEMAND

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Report Summary

More and more data around extractives is becoming available. Data made public, in the right format, can be used by citizens to hold governments and companies to account and drive improved development outcomes from mineral resource exploitation.

This report was commissioned by the UK's Department for International Development (DFID) as a working paper to provide an analysis of the range of different stakeholders of current and potential users of data to help improve accountability. It is intended to support improvements to transparency in the extractive industries and create enduring positive development outcomes.

Three major trends over the past decade are driving the need for this approach:

1. **Increasing transparency and accountability** in extractive industries – widening and deepening from Extractive Industries Transparency Initiative (EITI) to legislation such as the US Dodd-Frank Act and transparency along the whole extractive value chain.
2. **Big Data** - mobile technology and the internet, particularly in developing countries, is producing enormous amount of data which was previously unavailable, which also requires new tools and approaches to collate, analyse and disseminate.
3. Recognition of the complex linkages between **extractive industries and development** outcomes, not just as a source of revenue and jobs, but also for its wider direct social impacts.

Stakeholders with interests in data relating to extractive industries and development can be characterised into five groups:

- **Framework crafters** – groups who develop the frameworks for data production and analysis.
- **Data producers** – extractive companies and government agencies who are the primary producers of relevant data.
- **Data analysers** – predominantly non-governmental groups who collate and analyse information and use the findings to lobby for change.
- **Data users** – government agencies and others responsible for making evidence-based decisions to manage extractive industries and development outcomes.
- **Public citizens** – citizens who are affected by or have an interest in extractive industries.

Key messages from this report include:

- Look at the whole picture; transparency is needed along the whole value chain.
- Improved data standardisation is needed in order to make data comparable and enable linkages between different data sets to be made.
- Increased technical and resource capacity of data analysers is needed in order to make the most of big data.
- Data users need specific tailored information; 'data dumping' needs to be avoided.
- Public citizens have a largely unmet demand for transparency around more immediate issues relevant to them – extractive industry impacts and development outcomes.

SECTION 1

Introduction

More and more data around extractives is becoming available. Data made public, in the right format, can be used by citizens to hold governments and companies to account and drive improved development outcomes from mineral resource exploitation.

This report was commissioned by the UK's Department for International Development (DFID) as a working paper in order to provide an analysis of the range of different stakeholders of current and potential users of data to help improve accountability (see Annex 1 for the Stakeholder Analysis). It is intended to support improvements to transparency in the extractive industries and create enduring positive development outcomes.

Three major trends over the past decade are driving the need for this approach:

1. Increasing accountability and **transparency in the extractive industries.**
2. **Big Data**.
3. Recognition of the complex linkages between **extractive industries and development** outcomes.

Transparency and the extractive industries

Governments and companies globally are being increasingly pushed to be more open about the information they hold, and more accountable for the decisions they make. If this information is more readily accessible, citizens are better equipped in holding their governments to account and demand that basic needs and infrastructure are delivered.

Extractive industries have been at the forefront of sustainability reporting, with most leading companies producing annual sustainability reports.

The Extractive Industries Transparency Initiative (EITI) has been hugely successful in driving transparency in the extractive industries. This agenda is now rapidly widening, with the US Dodd Frank Act requiring US listed companies to meet reporting requirements in line with EITI, and similar legislation following in the European Union. In addition, the "Publish What You Pay" coalition, having successfully lobbied for the establishment of EITI, are now broadening their focus to the whole value chain, through their Chain for Change campaign[1]. The Democratic Republic of Congo (DRC) is a good example of how a resource-rich government is moving towards gathering and providing systematic information more transparently. International agencies such as the World Bank have invested heavily in the development of DRC's Ministry of Mines, both in terms of its human capacity and resources. A result of such investment can be found in the interactive mapping of mining concessions and operations[2].

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[1] http://publishwhatyoupay.org/sites/publishwhatyoupay.org/files/Chainforchange.pdf

[2] Visit DRC mining registry (Cadastre Minier) http://www.flexicadastre.com/DRC/ for more information
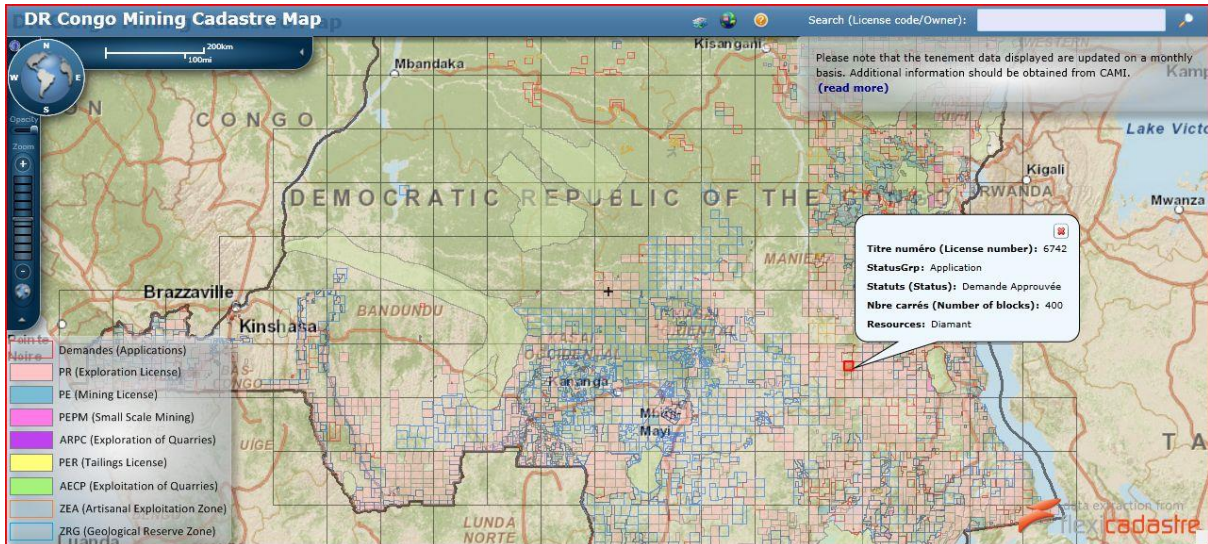
Figure 1: Screenshot of DRC mining registry website interactive mapping

The interactive map provides answers to issues that have previously been a source of frustration to both the private sector and Non-Governmental Organisations (NGOs) due to their inaccessibility and lack of clarity. For example, simple questions regarding the demarcations of mining concessions, or the name of the licensee were often unanswered. It can be regarded as a platform for more sophisticated data input and information gathering. Efforts to improve legislation and enforce mining rights allocation are still on-going and it will be interesting to see how the planned reform of the 2002 Mining Code will improve the situation and how improved transparency feeds into the reform and implementation process.

Big Data

The advances in technology and the high level of internet usage have increased the amount of information available – these massive collections of interlinked data sets are termed **Big Data**[3]. Big Data has significant implications for making better predictions and evidence-based decisions about complex situations which had previously relied on limited analysis or intuitive decisions.

What distinguishes the Big Data from traditional analytical data are the 'three Vs'[4]:

- **Volume** – 2.5 exabytes of data are created each day and is set to increase by 40% per year by the end of the decade. An exabyte is one billion gigabytes.
- **Velocity** – thanks to the use of mobile technology to provide real-time, instantaneous information which could provide competitive advantage to companies and help deliver and assess aid assistance.

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[3] Big data is a collection of data sets so large and complex that it becomes difficult to process using on-hand database management tools or traditional data processing applications. The challenges include capture, curation, storage, search, sharing, transfer, analysis, and visualisation. The trend to larger data sets is due to the additional information derivable from analysis of a single large set of related data, as compared to separate smaller sets with the same total amount of data, allowing correlations to be found and better decision made about complex situations http://en.wikipedia.org/wiki/Big_data

[4] McAfee, A. and Brynjolfsson, E. (11/09/2012) 'Big Data's Management Revolution', *Harvard Business Review – HBR Blog Network*, available at http://blogs.hbr.org/cs/2012/09/big_datas_management_revolutio.html

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- **Variety** – the sources of data are very different (e.g. social media, Global Positioning System (GPS) tracking, credit card usage, blogs, etc.) and unstructured.

Another singularity of the Big Data Movement is the fact that it is not confined to developed countries. The high use of mobile phones and internet in developing countries provides huge opportunities to development efforts as Big Data hold the potential to allow decision makers to track development progress, improve social protection and understand where existing policies and programmes require adjustment. In Sub-Sahara Africa the spread of mobile phone technology has become a service platform which has substituted weak infrastructure and telecommunication. Studies show that 80 per cent of the world mobile phone usage takes place in the global South and internet traffic more specifically is expected to grow more than 50 per cent[5].

The use of Big Data in development operations has the potential of capturing "digital smoking signals"[6]: visible changes in patterns of behaviour in a community through the monitoring of how services are accessed may become indicators of changes in well-being. The velocity in obtaining and acting on the information could lead to a more agile and adaptive approach to international development. For example, tracking trends from online news and social media can provide information on emerging concerns and patterns at the local level which could be relevant to global development. In countries with weak institutional capacities Big Data may be relevant in "filling the gaps" of limited and often unreliable traditional data.

In several countries around the world, governments are capturing the potential of Big Data by creating institutional frameworks and supporting innovative initiatives such as open data movements. However, in many countries there is very limited capacity to either generate or process the large amounts of data involved.

In response to the situation, in 2011 DFID launched the *Open Data Strategy*[7]. The *Strategy* wants first to develop the extent, quality and usability of all DFID data on aid by developing a data "information platform", which will help citizens trace the use and impact of aid expenditure. Secondly, the *Strategy* suggests linking different data, currently held by various institutions, by using one internationally recognised set of standards (the International Aid Transparency Initiative). This would harmonise the information available and reduce the burden of duplicating data and using separate reporting requirements. Thirdly, it strives to make data more accessible in developing countries through the use of mobile technologies.

DFID's commitment to open data in the next two years will not be only limited to making in-house information available to the public. DFID has strengthened its approach to budget support, placing more emphasis on the domestic accountability of partner countries, and making a commitment to spend at least five per cent of budget support to enable citizens in budget support countries to hold their countries to account for the use of public resources.

Consequently, more emphasis has been placed on the use and effectiveness of transparency initiatives in partner countries where revenues from the extractive industries form a substantial amount of the national budget. DFID recognises the need for an increased and concerted effort in making data from oil, gas, and mining activities usable and

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[5] Letouze, E (2012), *Big Data and Development: Challenges and Opportunities*, UN Global Pulse, available at http://www.unglobalpulse.org/sites/default/files/BigDataforDevelopment-UNGlobalPulseJune2012.pdf

[6] Ibid.

[7] DFID, (2012), *Open Data Strategy: April 2012 – March 2014*, available at http://www.data.gov.uk/sites/default/files/DFID%20Open%20Data%20Strategy.pdf

accessible in order to give citizens the necessary tools to make their governments and the extractive sector accountable.

Extractive industries and development outcomes[8]

There is an apparent paradox that many of the world's poorest countries also have much of the world's greatest natural resource wealth. Countries dependent on revenues from the extractive industries are often characterised by weak governance, high levels of corruption, exchange rate inflation, decreased export competitiveness, increased likelihood of conflict and lower Human Development Index scores.

Although mineral wealth can contribute to sustainable development and poverty reduction and help kick-start lagging economies, the mismanagement of mineral wealth has the potential to derail development efforts. There is an undeniable legacy that mineral wealth mismanagement has exacerbated conflicts and increased corruption, poverty and inequality.

The growing demand for mineral commodities, and opening up of new countries to foreign investment, has meant that extractive industries companies are increasingly active in areas rich in natural resources but also with high levels of poverty, and associated issues such as weak governance, limited infrastructure, and lack of technical skills. Even long-established major extractive companies are therefore having to manage new social and community issues which they have not experienced in their existing operations. Likewise, governments and communities have to manage new issues created by mineral exploitation, such as revenues management, social change and infrastructure development.

How can extractive industries contribute to development outcomes?

Transparency in EI has focused on EITI - one point in the process of transforming mineral assets into financial assets held by government

But there also needs to be transparency throughout this chain – from how these revenues are generated ….

…. to how effective government is at transforming this into other forms of enduring assets

Extractive industries also create (or destroy) other types of capital directly

Mineral assets

Natural capital

Financial capital
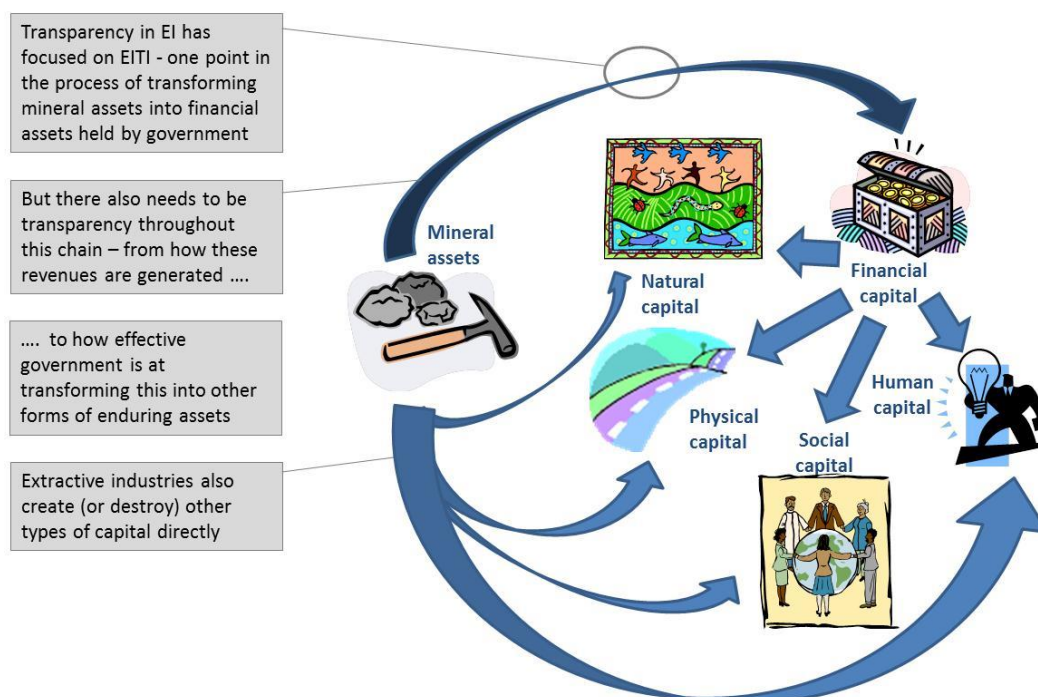
Physical capital

Social capital

Human capital

Figure 2: How can extractive industries contribute to development outcomes?

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[8] This section is adapted from DFID (2007) Extracting equitable benefits: Increasing the contribution of the extractive industry to poverty reduction and sustainable growth. DFID Working Paper.

The extractive industries have significant and diverse linkages with poverty and development (see Figure 2), which in different circumstances may have good or bad outcomes. These cut across almost all of the Millennium Development Goals; from gender equality to environment, the extractive industries are either directly or indirectly linked. Mineral assets have the potential to be transformed to enhance other forms of enduring capital (financial capital, physical capital, social capital, natural capital and human capital) so that whilst the resources themselves are not sustainable they have the potential to contribute to sustainable development.

Under the right circumstances, the extractive industries can provide opportunities and stimulate economic growth, which few other private sector, government or donor initiatives are in a position to be able to provide.

In the past decade there have been several key initiatives by extractive industries companies, governments, international financial institutions and civil society to help improve the contribution of the extractive industries to sustainable development and poverty reduction. The World Business Council for Sustainable Development's Mining, Minerals, Metals and Sustainable Development Consultation Exercise (2002), The World Bank's Extractive Industries Review (2004), the International Council on Mining and Metals Resource Endowment Study (2006) and other initiatives have contributed to significant improvements in understanding the management of mineral wealth.

From initiatives such as these, there is a growing consensus on the effective drivers which ensure that impacts of the extractive industries are positive and that benefits are equitably distributed. Central to these is good governance, including transparency and accountability.

Almost without exception, the drivers to improve the role of the extractive industries in sustainable development and poverty reduction are also the drivers to improve the business performance of the extractive industries. Although the extractive industries companies, governments, civil society and the donor community all have different roles, they each have many areas of shared interest where they can achieve their goals more effectively by working together in partnerships.

SECTION 2

Stakeholders of Extractive Industry Data

The policy space created by transparency and good governance driven initiatives in the extractive sectors is populated by a number of organisations, mechanisms and initiatives – separating these different "voices" from one another will help point out who are the stakeholders who are silent or absent and what opportunities for intervention and improvement there may be.

Stakeholders with interests in data relating to extractive industries and development can be characterised into five groups[9]:

- **Framework crafters** – groups who develop the frameworks for data production and analysis.
- **Data producers** – extractive companies and government agencies who are the primary producers of relevant data which is provided direct to citizens or made available for further analysis and use.
- **Data analysers** – predominantly non-governmental, academic and media groups who collate and analyse information and use the findings to lobby for change and act in the public interest.
- **Data users** – government agencies and others responsible for making evidence-based decisions to manage extractive industries and development outcomes.
- **Public citizens** – citizens who are affected by or have an interest in extractive industries.
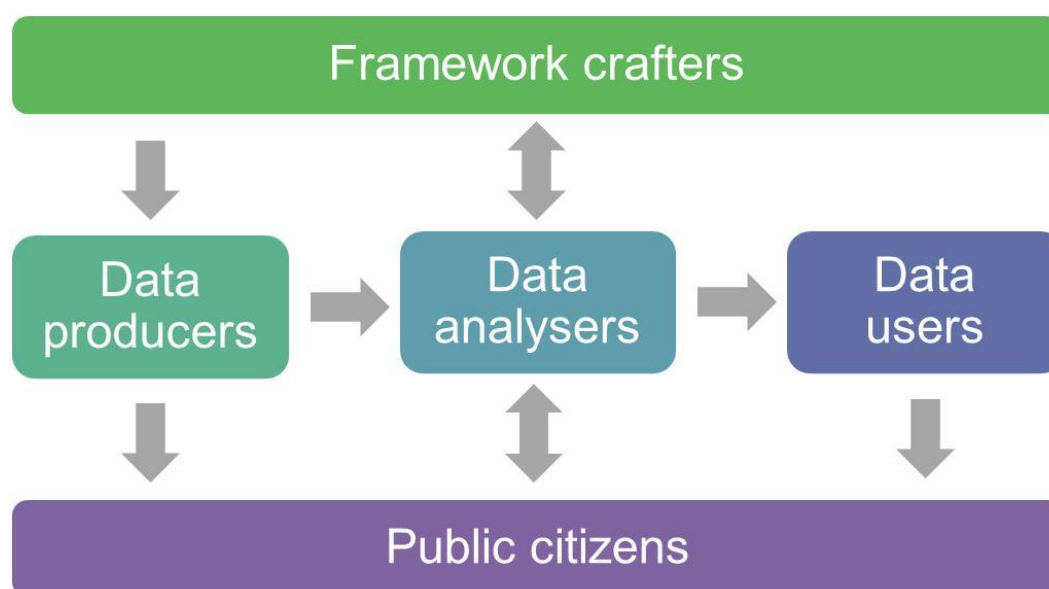

Figure 3: Categories of stakeholders

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[9] It is worth noting that some organisation may fall into several of these categories e.g. some government agencies and investors may do both data analysis and data use.

Framework crafters

Framework crafters provide tools and guidance for the industry in order to improve the transparency, governance and practices of the sector.

Framework crafters do not produce data per se but they provide tools and advice to the extractive sector on what kind of information is needed to ensure compliance with legislation and international standards as well as providing comprehensible sustainability reporting. Often they provide case studies and lesson learned exercises where the tool has been successfully applied.

They consist of a diverse group: multi-stakeholder groups, NGOs, industry organisations, financing institutions, UN Agencies and specific initiatives run by them.

Examples of framework crafters include:

- EITI
- International Council of Mining and Metals (ICMM)
- International Finance Corporation (IFC) Performance Standards
- Equator Principles
- Global Reporting Initiative (GRI)
- Natural Resource Charter
- World Economic Forum (Responsible Mineral Development Initiative)
- UN Global Compact
- Organisation for Economic Co-operation and Development (OECD) Guidelines
- iTSCi (ITRI Tin Supply Chain Initiative)

However, there are gaps in standards for the quality, accessibility, comparability and consistency of data – making it hard to link different data sets within and between any of these frameworks and leading to duplication or reporting and confusion.

Data producers

Data producers are the source of EI data as such the level of the access and quality of data is critical for users. The main producers of EI data are extractive companies and government agencies.

Extractive companies produce a variety of primary data relating to their activities including:

- Geological, environmental, social, land tenure etc. baseline data.
- Contract data.
- Environmental and social impact assessments.
- Sustainability reports.
- Financial disclosures.
- Production data.
- Regulatory reporting (e.g. environmental monitoring reports).

This data often provides a clear link between extractive industries and development. In many cases, the level of social and environmental baseline data can surpass other existing sources. However, one of the criticisms that users have regarding this data set is that extractive companies often find it difficult to define, quantify and measure the success or

failure of their social impacts and performance[10]. In addition, data from one company or operation is rarely accessible in its raw unprocessed form and may not be easily comparable with other data sets (e.g. from other companies or with national government data).

In its 2011 report on oil and gas companies[11], Transparency International assessed the reporting of anti-corruption programmes, the organisational disclosure and country level disclosure of 44 of the major oil and gas companies in the world. Some of the report's key recommendations (which can be extended to mining companies) were to:

- **provide a detailed publication of companies subsidiaries** and fields of operations in order to provide information on the connection between companies, the division of responsibility and routes of financial flow;
- **increase their reporting on a country-by-country basis**. Company reporting should include data of direct and indirect transfers to governments, basic operating data and information on profit and loss accounts;
- **create and maintain active corporate websites** so that public information can be available, accessible and usable.

Since this report there has been significant movement on legal requirements for disclosure of revenue payments, notably Section 1504 of the Dodd-Frank Wall Street Reform Act and the recent EU Directives (Accountancy Directives 78/660/EEC and 83/349/EEC, and the Transparency Directive 2004/109/EC). These requirements compel oil, gas and mining companies covered by their jurisdictions to disclose all payments made to any national government. This legislation effectively expands the application of the EITI approach more widely and adds legal force to the provisions. This will greatly expand the amount of data on revenue payments available, as well as being likely to lead to greater standardisation (and hence comparability) of data.

Governments in resource-rich countries can be a great source of EI data, including information on:

- Mineral asset information.
- Exploration and extraction licensing.
- Legal and policy requirements.
- Contracts and agreements.
- Revenue payments.
- Budget allocations.
- Macroeconomic data.
- Human development data (e.g. Millennium Development Goals and the United Nations Human Development Index).

It is important to note, that in order to understand the impact of the extractive sector on social and economic development in a region or country, EI data should be complemented

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[10] (2008) "Measuring Impact Framework" *The World Business Council for Sustainable Development (WBCSD)* available at http://www.wbcsd.org/work-program/development/measuring-impact.aspx

[11] Kowalczyk-Hoyer, B. (2011), 'Promoting revenue transparency – 2011 Report on oil and gas companies', *Transparency International*, available at http://www.transparency.org/whatwedo/pub/promoting_revenue_transparency_2011_report_on_oil_and_g as_companies

by other economic data (e.g. gross domestic product, foreign direct investment, economic sectors, etc.)[12] and other contextual factors.

However, governments of resource-rich, developing countries are often unable to provide this kind of data in its fullest extent and to the quality levels needed. The reasons for this may be:

- The level and quality of data available are limited and there is a lack of human and budgetary resources to accelerate the gathering and storage of information. They are unable to keep up with their private sector counterparts.
- There is often a lack of clarity on which governmental department has the responsibility of gathering data and what kind of data.
- There may be a lack of incentives or requirements to produce this data.

Data analysers

National and international non-governmental organisations , civil society organisations (CSOs), research institutes and journalists play a critical role in collating, analysing and distributing data produced, often alongside influencing policy-makers in order to improve accountability, drive governance and performance improvements[13]. The awareness raising and advocacy work of Publish What You Pay, Transparency International, Revenue Watch Institute and Global Witness for example, are founded on evaluating vast amounts of data. Therefore, in order to continue their work of check and balance, it is vital that data is available, accessible and usable.

NGOs are said to fill the void in the "governance gap[14]" where governments have been unable or unwilling to protect the interests and needs of their citizens. They are able to help redress governance failures at local and national level, helping to make extractive industries benefit the poor.

In recent years, NGOs have worked together with governments of developing countries to improve their capacity and effectiveness – but the capability gap is still great. Furthermore, NGOs play an important role in the multi-stakeholder partnership of the EITI, creating a feedback loop between governments and citizens[15].

Data analysers will be influenced by their relationships with citizens, act on their behalf and produce information targeted at them. NGOs tend to operate with a mandate to act in the best interest of citizens. They use information analysis to influence governments of both developed and developing countries in order to introduce policies and regulations that require extractive companies to publish the amount of money (i.e. fees, royalties, etc.) that they pay to governments and to introduce laws protecting and enabling the right to access information regarding public revenue and budgeting[16].

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[12] World Bank's World Development Indicators are a major source of world economic data and statistics (www.worldbank.org), national statistics are also useful but the data might be inconsistent.

[13] Ruggie, J. (2004) 'Reconstructing the Global Public Domain – Issues, Actors, and Practices', *European Journal of International Relations*, 10:499-531

[14] Whelan, G. et al. (2009) 'Human rights, transnational corporations and embedded liberalism: what chance of consensus?', *Journal of Business Ethics*, 87: 367-383

[15] Aaronson, S. and Brinkerhoff, J. (2009) 'Limited partnership: business, government, civil society (NGOs) and the public in the Extractive Industry Transparency Initiative (EITI)', *Institute of International Economic Policy*, available at http://www.gwu.edu/~iiep/assets/docs/papers/Aaronson_IIEPWP2010-28.pdf

[16] Ibid.

However, there is a significant lack of capacity in technical ability and resources to crunch the data and turn it into meaningful information. There are a very small number of individuals and organisations who have the mandate and capacity to achieve the ambitions of the transparency movement in the extractive industries. Data analysers are the critical link in the chain – but lack adequate capacity to make the most of the opportunities for Big Data to drive responsible minerals development.

The cooperation between data analysers and data users (e.g. NGOs and policy-makers) is essential both in holding governments to account and making sure that extractive companies are an engine of economic growth and development.

Data users

Policy-makers are able to turn raw EI data into tangible outcomes: they draft policies that will improve EI governance and its transparency as well as introducing reforms to foster economic growth and drive development.

The decisions of policy-makers are based on data, the needs of citizens and the influence exercised by data analysers.

Policy-makers are not only limited to public institutions: social policy and government relations departments are increasingly important sections of extractive companies. Policy-makers can have an influence within companies and drive their social investments, sustainability and approaches to good governance.

However, the majority of effort on policy-making relating to extractive industries has tended to focus on the fiscal dimensions (e.g. attraction of foreign investment, royalties, taxes, etc.). There is an increasing focus on policy measures and government roles in how extractive industries activities can contribute to development of broader economic growth, job creation, food security, health and education.

Data users have very specific data requirements for their specific area of work, and need it analysed and presented in particular ways. There are limits to which general data will suit their needs.

Public citizens

Data analysers act on the behalf of public citizens in order to process the data, make it more accessible and influence change in the data users.

Many countries implementing EITI have faced challenges with broadening citizen engagement to the general public beyond the relatively small number of individuals and organisations with a specific interest in revenues transparency.

Ordinary people in resource rich countries are clearly interested in the extractive industries of their country, but generally prioritise immediate impacts on their well-being:

- How many jobs has an extractive company created in my local areas and/or in my country?
- How well does government allocate EI revenues to service delivery?
- What are the environmental impacts of extractive industries?
- Have my complaints been resolved satisfactorily?
- How are extractive industries going to leave my community better off once they have closed down?

There is a demand for more transparency of the direct impacts of extractive industries and the development outcomes they support. Public citizens would be more interested in the

relation between EI data and development data: revenue data is important in so far as they understand where the money has been spent. That is why some NGOs and others in the sector are advocating for scrutiny of the whole EI value-chain rather than just one step.

However, it is important to note that reaching for transparency and accountability in resource-rich countries will be regarded as futile unless public citizens are able to experience the benefits of its development outcomes: job creation, welfare systems, and infrastructure development.

As Antoine Hauty of the Revenue Watch Institute stated: *"rapid economic growth can only be sustained if they create jobs for the rapidly growing labour force and is accompanied by social policies for the most vulnerable. […] Citizens must be able, not only to give voice to their political aspirations, but very specifically to hold their government accountable for the way they manage the country's natural resources and spend the proceeds.*[17]*"*

The recent publication of the Africa Progress report[18] also echoes Hauty's remarks, pointing out that although the extractive industry is at the heart of African economic resurgence, the gap between the rich and the poor of the continent is still great and little has been done so far to turn the extractive sector into a source of economic and social development. As the former Secretary General of the UN, Kofi Annan and Chair of the Africa Progress Panel says in its report: "*Above all, national strategies have to set out how the extractive sector fits with plans for poverty reduction, inclusive growth and social transformation. Success will require leadership, transparency, and accountability, too. […] African governments must rise to the challenges posed by fiscal policy, tax reform and the development of industrial policies. They must manage their countries' oil, gas and mining resources efficiently and share revenues fairly.*"

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[17] Hauty, A (2012) "Can transparency transform mineral wealth into wellbeing? Good governance of mineral resources in the Maghreb: The challenges and opportunities of regionalization", *Revenue Watch Institute*, available at http://www.revenuewatch.org/publications/can-transparency-transform-mineral-wealth-wellbeing

[18] Africa Progress Panel (2013) "Africa Progress Report 2013. Equity in Extractives: Stewarding Africa's natural resources for all", available at http://www.africaprogresspanel.org/en

SECTION 3
Recommendations

Recommendations based on the findings of this initial stakeholder analysis are provided below. They highlight the main areas where further work could help improve the way in which data transparency and use can help improve the contribution of extractive industries to positive development outcomes.

Look at the whole picture

Extractive industry transparency to date has focused on one step in the value chain from mineral assets to sustainable development. EITI and associated initiatives have been hugely successful and have now opened the door to a much wider and deeper view of the role of extractive industries in development.

Programmes such as Publish What You Pay's Chain for Change and the Natural Resource Charter provide a basis for understanding the value chain, particularly from a government perspective. The International Council of Mining and Metals' Resource Endowment Initiative and the World Economic Forum's Responsible Mineral Development Initiative provide a still wider view of how extractive industries create value.

The transparency agenda needs to start building a holistic and systemic framework for understanding the complex ways in which extractive industries link to development outcomes and identifying points in the system where improved transparency will drive improvements.

Data standards for making the links

There is a lot of data produced already. But, it is hard to make linkages and comparisons between individual projects, companies and countries and different development outcomes.

Huge areas for improved linkages between data sets exist that could help better understand situations and make evidence-based decisions. For example:

- Linking extractive production and revenue data with government budget data and development indicators.
- Linking data with geographic located data (e.g. through Geographical Information Systems).
- Making comparisons across companies, across countries, and over time.

The volume and variety of extractive industry data needs to be standardised in order to avoid replication. This would help to make it easier for users to establish linkages and comparisons between individual projects, companies, countries and different development outcomes. This includes developing open data standards (how we publish) and creating comparable data sets (what we publish) as well as technology which helps puts the data to work (e.g. development of new apps through hack days[19]).

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[19] Hack days (also known as hackathons, hackfests or codefests) are events in which computer programmers and others involved in software development, including graphic designers, interface designers and project

Enable data analysers to make the most of Big Data

There is a significant lack of capacity in the technical ability and financial resources to crunch the data and turn it into meaningful information. Data analysers have the potential knowledge and skills to analyse EI data in a way that would give them the ability to better challenge, lobby and partner with extractive companies and governments on behalf of citizens.

Data analysers are a critical link in the chain, but require increased support in order to fulfill this role. Technical skills in understanding the complex systems and data sets is needed, as well as the technology to gather, process and analyse the data. Partnership skills are also needed in order to work with and influence other stakeholder groups, particularly data users.

Avoid 'data dumping' on data users

Data users have diverse and specific roles, and have correspondingly diverse and specific demands for data. Their demand is for highly specific and tailored information from specialists in the chain in order to make evidence-based decisions – not access to generalised information about everything.

This requires somewhat of a shift of focus from making information available in a single fixed format (e.g. annual sustainability reports or EITI reports) towards a more flexible approach to packaging and linking data in many different ways for different audiences.

Deliver the data which citizens are most interested in

On-the-ground demand for extractive industry data focuses more on the direct issues – direct impacts from extractive activities and tangible development outcomes.

The assumptions regarding the relation between public citizens and extractive industries data may need to be revised in order to better inform future policies on transparency and good governance. Priority questions which citizens may want more transparent data on include:

- Who are the licensees?
- What is the lifetime of the operation? What is the plan after closure?
- What are the terms of agreements between companies, government and communities?
- What environmental impacts is the operation having?
- How many local and national people are employed by the company? How much do they spend on procurement?
- What is the government doing to ensure citizens have the skills to get work with the extractive company?
- What is the government doing to ensure extractive companies are well regulated and citizens get a fair deal?
- How much of this budget is being spent in local services like schools, hospitals, housing, roads, etc.? How much is saved? What is the plan after closure?
- What are the critical points in the process where increased transparency will drive development improvements?
- To what extent can development outcomes be attributed to extractive industries?

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managers, collaborate intensively on software projects, in many cases the goal is to create usable software.
http://en.wikipedia.org/wiki/Hackathon

Annex 1

Summary Stakeholder Analysis

Stakeholder group	Characteristics	Example stakeholders	Priority issues
Framework crafters	Provide tools and guidance to improve the transparency, governance and practices of the sector. They do not produce data per se but they provide the framework for standards of data production. Many of these groups are multi-stakeholder initiatives	• EITI • ICMM • IFC (Performance Standards) • Equator Principles • Global Reporting Initiative (GRI) • Natural Resource Charter • World Economic Forum (Responsible Mineral Development Initiative) • UN Global Compact • OECD Guidelines • iTSCi	Gaps in standards for the quality, accessibility, comparability and consistency of data – making it hard to link different data
Data producers	Data producers are the source of EI data. The main producers of EI data are extractive industry companies and government agencies.	• Multinational extractive industry companies • State-owned extractive industry companies • Government departments for e.g. minerals, finance, revenues, environment, social development, etc.	Lack of capacity Lack of incentives to produce data

Stakeholder group	Characteristics	Example stakeholders	Priority issues
Data analysers	Play a critical role in collating, analysing and distributing data produced, often alongside influencing the data users in order to improve accountability, drive governance and performance improvements	• International NGOs; e.g. Revenue Watch, Publish What You Pay, Amnesty International, Christian Aid, Human Rights Watch, Global Witness • National NGOs • Research and academic Institutes; e.g. Institute for Human Rights & Business, World Resources Institute; World Bank Institute CSRM • Media and Journalists; e.g. New York Times, Economist	Very small number of individuals and organisations who have the mandate, skills and resources to achieve the ambitions of the transparency movement
Data users	Government agencies and others responsible for making evidence-based decisions to manage extractive industries and development outcomes. Develop policies, procedures, projects etc. that will improve EI governance, its transparency as well as introducing reforms to foster economic growth and drive development	• Government departments • Investors and financial institutions • Extractive industry companies • Development NGOs	Data users have very specific data needs to their specific area of work, and need it analysed and presented in particular ways. There are limits to which general data will suit their needs.
Public citizens	Individuals in a country who have an interest in and/or are affected in some way by extractive industries, beyond individuals involved in other stakeholder groups.	• Extractive industry affected communities • Individuals in resource-rich countries	Demand for more transparency for direct impacts of extractive industries and the development outcomes they support