

Open government data for regulation of energy resources in India

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Abbreviations

BREE	Bureau of Energy Economics
CAG	Comptroller and Auditor General
CAPP	Canadian Association of Petroleum Producers
CCO	Coal Controller's Organization
CIC	Central Information Commission
CIL	Coal India Limited
CMPDIL	Central Mine Planning & Design Institute Limited
DECC	Department of Energy and Climate Change
DGFT	Directorate General of Foreign Trade
DGH	Directorate General of Hydrocarbons
DOE	Department of Energy
EGoM	Empowered Group of Ministers
EIA	Energy Information Administration
EMPs	Environment Management Plans
FDES	Framework for Development of Environment Statistics
FOI	Freedom of Information
FOIA	Freedom of Information Act
GSI	Geological Survey of India
MKSS	Mazdoor Kisan Shakti Sangathan
MoPNG	Ministry of Petroleum and Natural Gas
MOSPI	Ministry of Statistics and Programme Implementation
NAC	National Advisory Council
NCPRI	National Campaign for People's Right to Information
NDR	National Data Repository
NDSAP	National Data Sharing and Accessibility Policy
NELP	New Exploration Licensing Policy
NIC	National Informatics Centre
NKN	National Knowledge Network

NRCan	Natural Resources Canada
NSO	National Statistical Office
OCC	Oil Coordination Committee
OFGEM	Office of Gas and Electricity Markets
OGD	Open Government Data
OGP	Open Government Partnership
OGPL	Open Government Platform
OIDB	Oil Industry Development Board
OIL	Oil India Limited
OISD	Oil Industry Safety Directorate
ONGC	Oil and Natural Gas Corporation Limited
PIOs	Public Information Officers
PPAC	Petroleum Planning and Analysis Cell
PSCs	Production Sharing Contracts
PwC	Price water house Coopers
RAGA	RTI Assessment and Analysis Group
RBI	Reserve Bank of India
RGI	Resource Governance Index
RTI	Right-To-Information
SCCL	Singareni Collieries Company Limited
SIC	State Information Commissions
SPCB	State Pollution Control Boards
UPA	United Progressive Alliance

Executive Summary

The last decade in India has been an important and eventful decade for access to information in India. Right to Information Act in 2005 can be seen as a landmark in the history of access to information in India. The last few years also witnessed the emergence of Data Sharing and Accessibility Policy and OGD portal in India.

TERI, with its previous work on energy governance and resource extraction has undertaken this study to examine how better availability and access to data can help in governance of resource development, especially energy resources. With support from IDRC and the World Wide Web Foundation, this study was initiated to examine the availability and accessibility of Open Government Data (OGD) for improved governance of extractive energy industries in India and understand the issues therein. The study focussed on coal and oil & gas sectors.

Open Government Data (OGD) and Resources

The open data initiative is largely a developed world driven initiative. Public availability of government data is expected to improve governance by facilitating greater and more meaningful public participation, improved transparency and effectiveness in government functioning. The main drivers of OGD across countries as listed by Janssen (2012) are

1. For transparency and accountability of the government to the public on a continuous basis (rather than only at the time of election)
2. To enable participatory governance in a more structured and informed manner (by providing more platforms for interaction)
3. To act as a catalyst for innovation and economic growth (by encouraging new business models based on data and possibility for citizens to interact more effectively with his or her environment and make informed decisions)
4. As value for public sector itself – government department's getting access to data of other government departments or improvement in their data through feedback from citizens

Application developers and other intermediaries are expected to use this government data to develop products which can help citizens in their day- to -day- activities and facilitate improvement in service delivery. Data can allow information from many different sources to be brought together and for patterns to be formed (Davies, 2013).

History shows that resource rich states are particularly susceptible to governance failures. While companies and governments benefit, the poor are left worse off despite the resources. The EITI Standard, Publish What You Pay and Revenue Watch are all initiatives driven by the western countries and to which most resource rich countries subscribe. These initiatives seek to promote greater transparency in the contracts between governments and industries by compelling industry and government to report on revenues. India is not a signatory of any of these initiatives but increasingly industries in the natural resources sector are being asked to publish more and more information and data on technical, revenue, health and safety aspects.

In India a common concern across most sectors is lack of enough information in the public domain. Though, there have been various sources of information on the functioning of the government, ranging from annual reports of government departments, Report of committees constituted from time to time, to Parliamentary Q&As, overall information is scattered and there has been a cultural of secrecy in the working of the government from the pre-independence days. The Right to Information Act, 2005 is an important point in Indian history as it empowered every citizen of India with a right to seek information from every public authority. While substantial number of RTI have been received by the concerned Ministries in case of the study sectors, the unavailability of replies in the public domain constrained the study from assessing the impact of RTI in increasing openness in working of the government with respect to the sectors. There is however instances where research reports (based on data collated through RTI) have brought out significant governance issues and lapses in public policy with respect to the sectors.

Open Government is particularly relevant for the energy industry in India because public sector accounts for major portion of the production. In 2009-10, the public sector accounted for 91% of total coal production, 86 % of crude petroleum and 77% of utilized natural gas (Dutta, Sreedhar, & Ghosh, 2012). A major reason for need for better governance in the extractive sector is that while extraction has led to huge profits for companies, it has largely left the local communities impoverished. This has also led to armed mobilization against the state and private companies (Ibid).

Effective natural resource governance also becomes crucial as the country looks towards more private sector and foreign investments. For instance, if natural resources are being allotted through a bidding process, the criteria of selection, information on bidders who submitted bid and who was finally selected should be put out for public scrutiny. In India, concerns have been raised regarding insufficient information on winning bids and final contracts for bid contracts (Sreenivas & Sant, 2009) under the New Exploration and Licensing Policy (NELP). Similarly in the coal sector in India, major concerns have been raised on irregularities in coal block allocations. A CAG report of 2012 confirmed that very little progress has been made in production from the coal blocks awarded and this has resulted in a loss to the public exchequer. Questions have been raised over lack of transparency in the process of allocation of coal blocks.

In a milieu where there are information constraints and gaps, data and open data is an even greater challenge in India.

Legal and Institutional framework

The most important instrument for opening up of government data in India is the recent National Data Sharing and Accessibility Policy (NDSAP) of 2012. NDSAP gives impetus to this proactive opening up of government data and facilitating access to government data in human readable and machine readable forms. The Policy, inter alia, provides for Open Government Data Platform 'to increase transparency in the functioning of Government and also open avenues for many more innovative uses of Government Data'. The policy is at a nascent stage and does not have a force of law.

Since no specific law for opening government data exists, open data in India is influenced by a number of existing legislation for statistics, transparency and governance of various

sectors. Several sectoral and crosscutting laws and corresponding rules deal with data with a clear focus on collection of data, duties and powers with respect to collecting and managing data. Collection of Statistics Act, Right to Information, Environment Protection Act are some of the cross cutting laws. Mineral Concession Rules, under the Mines and Mineral Development and Regulation Act, Coal Mines Conservation and Development Act, Petroleum and Natural Gas Rules, under the Oilfields Development and Regulation Act, and the Petroleum and Natural Gas Regulatory Board Act are specific laws for coal and oil & gas, which contain provisions relating to data collection and management. These laws are mostly silent on dissemination related aspects.

The abovementioned laws and policies are administered by a number of central and state level institutions housed in various ministries. The study has divided these institutions into three categories: data providers, information providers and data intermediaries. The main data providers are Geological Survey of India, Coal Controller's Organization, Directorate General of Hydrocarbons, Petroleum Planning and Analysis Cell, Economics and Statistics division, Ministry of Petroleum and Natural Gas, and State level departments. The main data intermediaries include National Informatics Centre, data controllers/ managers in the nodal ministries and the Ministry of Statistics and Programme Implementation. Most nodal agencies for collection and managing data for coal and oil & gas are under statutory authority to act as the nodal agency for the data they are dealing with. The mandate and capacity of these data providers varies substantially across departments. Intermediary organizations play an important role in data dissemination in India by collating and cataloguing the data that is available with the government in different departments and different forms, and publishing it in a consolidated manner periodically.

State of government data in coal and oil & gas

Data on different aspects of coal and oil & gas extraction are available on various fora. The availability, accessibility, quality and openness vary across parameters. In general physical and monetary data are easier to obtain and access as compared to environmental and social data pertaining to energy resource development.

In terms of data on production and revenue, both coal and oil sectors provide sufficient data. Disaggregated data (mine wise in case of coal and field wise in petroleum), though collected is not made available in the public domain. Overall, data in the petroleum and natural gas sector is more recent, available from multiple sources and often in 'machine readable formats' (Excel). Coal data is predominately provided by a single agency – the Coal Controller is relatively more dated and available in hardcopy and CD/ PDF in the form of Coal Directory and or Provisional Coal Statistics.

Data portal of the government of India, data.gov.in, contains some energy related data, including data on upstream coal, and oil and gas. Ministry of Petroleum and Natural gas has uploaded petroleum related data on this portal while the ministry of coal is yet to upload coal data. However, some coal related data has been uploaded by other government agencies such as Ministry of Statistics and Programme Implementation and Planning Commission.

Issues in accessing data

Users (primarily comprising of researchers and industry) in the coal and petroleum & natural gas sectors depend on a number of sources for data including government departments, private suppliers of data and international data agencies. The growing usage of private supplier's data and international agencies is a result of users' dissatisfaction with the way data is organized and provided by government agencies. At this stage, very few users are even aware of the open data portal and data sets on energy industry are limited. Inter alia, there are concerns about the quality and reliability of data, timeliness of data, lack of sufficient time series data, and insufficient availability of disaggregated data. Data cataloguing and disaggregated publication is also not appropriately done by government agencies. PDFs and scanned documents are still commonly provided by departments rather than 'machine readable formats. Some data is difficult for people to understand and there are differences noticed in data provided by different agencies.

Challenges in opening data

Several challenges and impediments emerged in sharing data by government agencies. There are concerns on sharing data that could be confidential or that data can be misused/ misreported. While there is a certain apprehension in sharing data with the public, a bigger issue that emerges is the lack of priority given to data, its collection and dissemination. Departments report that they do not have the resources and staff to manage data. The emphasis on e-governance in recent years and the resources made available for the same; do raise questions on the veracity of these. There are issues of co-ordination between different government agencies, which hampers timely collection of data.

Suggestions for way forward

The study has proposed some suggestions for ensuring a greater openness in government data. In order to address the gaps and challenges that exist with respect to data, the following should be taken into account -

Fostering a culture of openness

While there is a need for stronger enforcement of existing laws and policies, it is important to create a 'culture of accountability and transparency' in the government. There is need for further 'sensitising government officials and staff' of their accountability to the public and not only to political heads. Enhanced interaction/availability of public officials for the public will itself reduce the pressures for transparency.

Making open data useful for improved governance and service delivery

In a situation where many citizens may not be able to make sense of the data, one must ensure that data does not result in widening the gap between public and governments. There is need for 'intermediaries' to effectively utilise data, develop visualisations and applications that make sense of data and is easily comprehensible by public at large. There is need to find ways to incentivise IT developers to India to come up with such applications.

Independent verification of data

Independent verification of data and/or appropriate quality checks needs to be in place before putting out data to ensure quality. Where data needs to be collected and compiled from different agencies, formats and processes should be such so as to require minimum human intervention. This would reduce margin of error.

Streamlining data

Data sharing formats need to be made uniform across government departments in order to ensure inter-operability. Data users suggest that having a single source of data for Energy as against multiple sources for different fuels would streamline data and make analysis and comparison more easy.

Confidentiality

The ‘need for confidentiality’ emerges as a major impediment in getting access to government data. There is however a lot of ambiguity on what data is confidential and what can be shared.

Definitions and methodologies

In terms of consistency in data, a common concern has been on ‘definitions’ and ‘methodologies’ on how estimates are arrived at (for instance for oil reserves, refining capacity). Often there seems to be no consensus or single definition/methodology. Consequently, same data from different agencies may differ. Such inconsistencies can be avoided by a consensus on definitions.

Inter-linking data to avoid multiplicity

More data does not necessarily mean more openness in government and its data. Data deluge is something that the data portal has to stay away from. It is important that there is a system in place that links to different datasets that provide the same information, either on the data portal or elsewhere. Reducing multiplicity is a key step in avoiding confusion and lack of clarity about which is the most reliable and best quality data source.

Usefulness as important as usability

Data portal in its short span has put a variety of data in a readily accessible and machine readable format. While the focus on a machine readable format is immensely helpful for usability of data, it may not always be sufficient to make data useful for improved transparency and governance.

Criteria for seeking data

NDSAP and data portal depend on various government agencies to upload data. The portal allows citizens and users to place a request for a certain dataset online. While this is a good practice where citizens can directly influence data availability, it is important for the data portal and its implementing agencies to seek data in a structured manner. Towards this, a multi-stakeholder group or the communities can be engaged with to help in proposing a clear list of data that can be uploaded for different sectors.

Awareness about data portal

Awareness about the portal needs to be increased, especially amongst government agencies to facilitate better contribution of data in this portal and ensure that government uses this data in its decision-making. With respect to awareness amongst non-government users, many users are still relying on the data sources used earlier.

1. Introduction

The last decade in India has been the most important and eventful decade for access to information in India. Right to Information Act in 2005 can be seen as a watershed in the history of access to information in India. The rights based approach to information was a marked departure from a history comprising Official Secrets Act and selective (and often limited) disclosure in Government reports. While RTI empowered citizens to get access to information, it was a reactive tool. The last decade also saw the emergence of an OGD portal and related policy in India.

Around the time the discourse on open government data was emerging globally, in India, many developments in the energy sector were taking place, which underlined the need for greater transparency and improved information and data in the sector. Lack of transparency, especially in the sphere of allocation of blocks and private participation in extraction of natural resources was seen as a major transparency issue. Comptroller and Auditor General of India (CAG) audit on allocation of coal blocks suggested that due to insufficient transparency in the allotment of coal blocks, private players have been allotted blocks at less than competitive rates and as result private players have reaped major benefits at the expense of the public. In terms of natural gas, CAG reported that the private developers inflated expenditure for extraction in certain gas basins. It was noted how this would result in a loss to the state exchequer. (Comptroller and Auditor General of India, 2011)

TERI, with its previous work on energy governance and resource extraction, sees this as an opportune moment to see how better availability and access to data can help in governance of resource development, especially energy resources. With support from IDRC and the World Wide Web Foundation, this study was initiated to examine the availability and accessibility of Open Government Data (OGD) for improved governance of extractive energy industries in India and understand the issues therein. The study focussed on coal and oil & gas.

1.1. Good Governance, Open Government Data and Natural Resources

Governance has been variedly defined by institutions but most institutions today agree that governance is a multi-stakeholder process involving ‘processes and institutions through which citizens and groups articulate their interest, exercise their legal rights and obligations, and mediate their differences’ (UNDP.) Governance is also seen as a process by which social and economic resources of a country are effectively managed and used for development (World Bank, ADB). While several indicators for measuring good governance have been discussed in literature, the main are transparency, public participation, accountability and efficiency (WB, ADB, and UNDP).

Government Data is defined as ‘data and information produced or commissioned by government or government controlled entities’ (OKF, 2012). ‘Open’ refers to ‘open access’ that implies data must be accessible freely online, available without technical restrictions to re-use and provided under open access license that allows the data to be reused without limitation (OKF, 2012).

In the subsequent section, the relation between open data and good governance principles is discussed to understand how and to what extent open data contributes to meeting these objectives. This section also discusses the special need for good governance (in terms of greater transparency, accountability and public participation) for natural resources. It then delves into the specific governance challenges in the natural resource sector in India with particular examples from the petroleum & natural gas and coal sectors. It discusses how availability and easier access to information and data can address some of these challenges.

1.1.1. Principles of Good Governance and Open Data

Transparency & Accountability

Transparency provides citizens with a window into what the government is doing. (Jetzek, Avital, & Anderson, 2012) Accountability refers to the process of holding actors responsible for their actions (Darbishire, 2010). Though generally considered together, transparency and accountability are separate and the first may not necessarily leads to the second.

Transparency involves providing information to outsiders that enable them to have an informed voice in decisions and assess decisions made by outsiders (Natural Resource Charter, 2014). Hence transparency through greater and easier access to data and information should lead to better decision making.

Open data should serve as a powerful tool to make government processes transparent. Open data can allow information from many different sources to be brought together, and for patterns to be found (Davies, 2013). It can help civil society and concerned stakeholders find out where money is being spent, how government is performing in different regions, or which companies are the largest polluters in a region (Ibid).

It is however not merely sufficient to have a lot of data available publicly. Large amounts of raw information in the public domain may breed opacity rather than transparency. (Darbishire, 2010) In order to be useful data needs to timely, primary, non-discriminatory and complete. Inadequate data can result in skewed or incomplete analysis and lead to incorrect decisions. Easy access to data is equally important as is data availability. In the absence of easy access, more data could result in shifting of some power away from the government but only to another interest group, public or private.

Participation

Participation in governance is considered at different levels. It can be either as consultative participation or as empowered participation (Darbishire, 2010). Stakeholders should exercise influence over public policy decisions and share control of resources and institutions that affect their lives, thereby providing a check on the power of government (ADB). There can be citizen participation in which there is an interactive communication, say through social media, which helps develop a connect with citizen and government and also amongst citizens on governance challenges. This can be a consultative process but it is not necessary for decision makers to take heed of the suggestions. Empowered participation is where citizens are actively involved in decision making or provision of service. (Jetzek, Avital, & Anderson, 2012) Participation is a key to more transparency and accountability in governance. (Darbishire, 2010)

Effectiveness/Efficiency

Efficiency in governance is seen where 'processes and institutions produce results that meet needs while making the best use of resources' (UNDP). Opening government data can improve efficiency through consolidation of overlapping repositories, improved information infrastructure, inter-agency co-ordination and better financial control (Jetzek, Avital, & Anderson, 2012). Open data can facilitate streamlining of data repository within the government which may lie scattered across various levels. One central repository of data would avoid duplication of effort within various government departments and help identify inconsistencies in data provided by different government departments across similar parameters.

Emergence of Open Government Data globally

OGD is largely seen as an initiative driven by developed countries. The USA enacted the 'Open Government Directive' on 21st January 2009. This Directive stated that the US administration would be guided by three policy principles – being transparent, participatory and collaborative. Though this directive deals with transparency policy in a wider context, it does explicitly include the notion of Open Government Data (Janssen, 2012). Subsequently USA launched its open data portal 'data.gov' in May 2009 as an 'important part of the Administration's overall effort to open government' (data.gov). UK launched its data portal, data.gov.uk in January 2010. Subsequently several countries and international organizations (such as the World Bank and OECD) have launched their open data initiatives. Many city governments including London, Toronto, Montevideo, Sao Paulo and Buenos Aires and Paris have also enacted open data initiatives (Janssen, 2012).

The main drivers of OGD across countries (though differing in priority) as listed by Janssen (2012), are the following:

1. For transparency and accountability of the government to the public on a continuous basis (rather than only at the time of election)
2. To enable participatory governance in a more structured and informed manner (by providing more platforms for interaction)
3. To act as a catalyst for innovation and economic growth (by encouraging new business models based on data and possibility for citizens to interact more effectively with his or her environment and make informed decisions)
4. As value for public sector itself – government department's getting access to data of other government departments or improvement in their data through feedback from citizens

OGD and Right to information (RTI)

Internationally OGD is closely linked to the right to information (RTI) movement and policy on the re-use of public sector information (Janssen, 2012). While the RTI movement aims for greater availability of data held by government, the latter is more of a demand by the information industry in the European Union for the availability of public information for reuse in added value information product and services (ibid).

While RTI and OGD may reinforce each other, there are however some significant differences between the two. While the RTI was a rights based movement, OGD is mostly a technology driven initiative. Their respective proponents and defenders generally differ in background and the kinds of information or data they target (Janssen, 2012). While both movements share drivers relating to transparency and democracy, the OGD movement also includes economic drivers and the possibility of economic return. The type of data set of interest to both the stakeholder groups may also differ. In case of OGD, data of interest may include, but not be limited to, more innovation and economic growth related data-geographic data, postcodes, transport data, corporate data, etc. In case of RTI, the data of interest may be budget and spending data, legal information, and procedural items such as meeting minutes and reports (ibid).

Open Government Partnership

Open Government Partnership (OGP) is a 'voluntary multi-stakeholder international initiative that aims to secure concrete commitments from governments to their citizenry to promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen governance'. It acts as a platform for sharing experiences on opening government. It was launched in September 2011 by 8 founding countries with the objective of providing an 'international platform for domestic reformers committed to making their governments more open, accountable and responsive to citizens' (OGP, 2014). There are now 64 participating countries in this initiative.

In order to be part of this initiative governments need to show commitment to open government in four key areas: fiscal transparency, access to information, income and asset disclosure of elected and senior public officials and citizen engagement (OGP, 2014). Government commitment in these areas would be measured by objective indicators and validated by independent experts (ibid).

Though India was initially one of the founding members, it later withdrew 'concerned about the Independent Review Mechanism that would accompany government self-assessment' ¹

Under OGP commitments are to be structured around a set of five 'grand challenges' that governments face, namely improving public services, increasingly public integrity, managing public resources more effectively, creating safer communities and ensuring corporate accountability².

OGP and OGD

Under OGP, opening government information and data is considered essential for transparency. 'Such information on government activities and decisions has to be open, comprehensive, timely, freely available to the public, and meet basic open data standards (e.g. raw data, machine readability)'. Access to government data is also recognized as part of OGP's key focus areas on 'access to information'. Further, one of the commitments under the Open Government Declaration is to pro-actively provide high-value information, including raw data, in a timely manner, in formats that the public can easily locate,

¹ India Withdraws From Open Government Partnership, 12 July 2011 Toby McIntosh

² Open Government Partnership: Articles of Governance, June 2012 available at http://www.opengovpartnership.org/sites/default/files/attachments/OGP%20ArticlesGov%20March%2019%202014_0.pdf

understand and use, and in formats that facilitate reuse'. (Open Government Partnership, 2011)

1.1.2. International Standards and Initiatives for Improved Governance of Natural Resources

Extractive Industries Transparency Initiative (EITI)

The EITI, initiated in 2002, is a global, voluntary coalition of governments, companies and civil society to 'improve openness and accountable management of natural resources'. It requires extractive companies, including public sector undertakings, to publish what they pay governments-fees, taxes, royalty, profit shares, etc. Governments also publish what they receive in revenues from companies. An independent audit, in which civil society is a participant, examines both sets of revenue disclosures and looks for discrepancies.

Countries/companies participating and implementing the EITI Standard are required to timely publish EITI reports containing contextual information about the extractive industries including information on legal and fiscal regime governing the extraction, overview of the extractive industries, industries contribution to the economy, state participation in extractive industries, revenue allocations and sustainability of revenues, license registers and allocations, contractual provisions and production data.

As part of the EITI reporting, the EITI specifies which companies and government entities are required to report and what payment and revenue data needs to be reported. Specifically, it requires that the following revenue streams must be included - the host government's production entitlement (such as profit oil), state-owned enterprise production entitlement, profits taxes, royalties, dividend, bonuses, such as signature, discovery and production bonuses, licence fees, rental fees, entry fees and other considerations for licences and/or concessions, any other significant payments and material benefit to government. Civil society is engaged in the monitoring process. While the EITI focuses on financial flows, through the need for disclosure and transparency, it seeks to improve arrangements for resource extraction – for instance by encouraging competitive bidding instead of discretionary allocation of resources.

EITI is seen as an initiative that gives countries international recognition for meeting certain standards of transparency in their extractive industries. Since all companies are required to share same level of information, it should provide a level playing field between public and private companies and amongst private companies. It also provides easy access of information to citizen and citizen groups to hold governments accountable on matters relating to revenue from natural resources. The EITI was aimed at resource rich but poorly governed countries.

EITI was supported by civil society groups such as Publish What You Pay. PWYP is an international coalition of civil society organisations calling for mandatory disclosure of company payments and government revenues. Currently there are 27 EITI compliant countries and 17 candidate³ countries (EITI, 2014). It is notable that while most OECD countries are supporting EITI, barring Norway none of them are EITI compliant. Most of the complying countries are from Africa, Eastern Europe and a few from Asia. USA is now

³ implementing provisions of EITI but yet not fully compliant

in the process of complying with EITI. India and China are not part of the EITI. Indian companies operating in EITI compliant countries will have to follow EITI practices in respective countries.

Resource Governance Index (RGI)

There are some other international initiatives closely linked to EITI that focuses on governance of natural resources. One such initiative is the Resource Governance Index (RGI) brought out by the Revenue Watch Institute. This index measures the quality of governance in the oil, gas and mining sector of 58 countries. The RGI evaluates four key components of resource governance in each country: Institutional and Legal Setting; Reporting Practices; Safeguards and Quality Controls; and Enabling Environment. On its India report published in 2013, RGI focused on the oil and gas sector. India received a “partial” score of 70, ranking 12th out of 58 countries. (Revenue Watch Institute, 2013) India scored relatively lower on ‘Institutional and legal setting’ -29th/58 reflecting ‘insufficient disclosure requirements’ (ibid). It received a better score of 13/58 on reporting practices. According to the report ‘while the government publishes useful data on petroleum industry, there is little contract transparency’. India received a higher score – 6/58 on Safeguard and Quality Control due to substantial reporting requirement. This can be attributed to the fact that Comptroller and Auditor General (CAG) annually audits petroleum revenues. These reports are published online and reviewed by Parliament (ibid). It received a moderate score of 11/58 on Enabling Environment with higher budgetary openness but poor performance on corruption control (ibid).

1.1.3. Good Governance, Open Data and Natural Resources

“Breakdowns in governance are generally recognized as the principal reason why natural resource wealth does not generate more sustainable development ” (IMF, 2010)

Natural resources are public assets kept in trust of the state and hence decisions in the use of resources should be matter of public debate. The size of resource rent earned by government in many states also creates the need for improved governance. Governments should have transparent processes for establishing and implementing resource policies, for awarding contracts, for taxing, collecting and managing revenues, and for taking spending decisions (Natural Resource Charter). Such transparency will also give more credibility and confidence to the citizens as well as investors. For instance large upstream projects in coal and oil & gas production may impact local communities adversely and by keeping citizens informed about the benefits as well as extent of impact, it may be possible to get more acceptability for the project.

From an investment perspective, transparency is crucial for ensuring that public interest is safeguarded, that all environment and fiscal obligations are met and that a level playing field is provided for all players. Access to information on licenses granted and the process through which license are granted would ensure that agreements are not entered into with only certain producers, that contracts are not heavily skewed in favour of the producer (as against the larger public/government interest), or that permits are not allotted in a way that circumvent existing environmental regulations.

The producers/industry players in the natural sector need to provide information to the regulator and community on production figures, costs of production, revenues and receipts

from sale. They should also provide data and information on technical performance parameters pertaining to efficiency, technology used and employee safety. While making industry related information public, there are concerns about confidentiality of certain financial and technical data. These concerns could relate to industry player losing competitive advantage or even compromising security interests. These concerns need to be carefully balanced such that the need for confidentiality does not become a cloak for hiding what industries or governments do not want to share.

In a number of countries funds developed from the proceeds of sale of natural resources to be utilized specifically for the community. In such cases, community participation in monitoring such funds with the help of data and information can be a way to ensure that funds benefit the affected people. As the government is managing natural resources in trust for the people, the people have a right to know what is being done with their natural wealth.

The drive for Open-government and Open Data can also push the government towards better record management in areas where data is not adequately available for organized. For instance, since coal mining may involve large tract of lands, it would be necessary to have well managed land records. This is because conflicts between multiple local landowners and natural resource companies, are becoming increasingly common (Darbishire, 2010).

1.1.4. Good Governance, Open Data and Energy Resources in India

Open Government is particularly relevant for the energy industry in India because public sector accounts for major portion of the production. In 2009-10, the public sector accounted for 91% of total coal production, 86 % of crude petroleum and 77% of utilized natural gas (Dutta, Sreedhar, & Ghosh, 2012). A major reason for need for better governance in the extractive sector is that while extraction has led to huge profits for companies, it has largely left the local communities impoverished. This has also led to armed mobilization against the state and private companies (Ibid).

Publicly available data on the environmental and social impacts of energy project development would put pressure on the government to address some of these issues and create a case for making local communities beneficiaries in such projects. The Mines and Minerals (Development and Regulation) Bill, 2011 suggests setting of a Mineral Foundation from the profits of mineral extraction. This fund is to be used for the benefit of the local community including creation of local area infrastructure. In future, if the Mineral Foundation is set up, there would be need for monitoring of the funds by various stakeholders, including citizens. An improved data and information system will be key for any such benefit sharing initiative. Similarly improved and comprehensive availability of data on key environmental parameters will help governments make better decisions on mining operations and it will help citizens substantiate their concerns to the government. At present, even the data on ambient air quality, water and soil quality is not uniformly or adequately available across various state pollution control boards.

Effective natural resource governance also becomes crucial as the country looks towards more private sector and foreign investments. For instance, if natural resources are being allotted through a bidding process, the criteria of selection, information on bidders who submitted bid and who was finally selected should be put out for public scrutiny. In India, concerns have been raised regarding insufficient information on winning bids and final

contracts for bid contracts (Sreenivas & Sant, 2009) under the New Exploration and Licensing Policy (NELP). There have been concerns in the monitoring of costs and profits for production activities under NELP. Producers are expected to share profits with the government according to the terms of the bid. These profits are calculated by subtracting the costs of exploration, development and production, from the revenue generated by selling hydrocarbons. There have been reports and a CAG audit which suggests that costs are often escalated (gold plated) to hide profits. Often it is difficult to find information about actual discoveries, such as verified and validated reserves in different blocks, expected rate of flow, etc. (Sreenivas & Sant, 2009).

Similarly in the coal sector in India, major concerns have been raised on irregularities in coal block allocations. A CAG report of 2012 confirmed that very little progress has been made in production from the coal blocks awarded and this has resulted in a loss to the public exchequer. Questions were raised over lack of transparency in the process of allocation of coal blocks. At present, coal blocks are allocated not through a bidding process but through a screening committee comprising of various Central Ministries. The procedure or criteria of allocation is not clearly laid out and more importantly no information (for instance minutes of meeting where decisions are taken) is provided in the public domain.

Issues of insufficient transparency have arisen in the utilization policy for natural gas as well. In India, the government prioritizes sectors for natural gas allocation- fertilizers, power, etc through a gas utilization policy. This policy keeps changes over time based on overall development goals of the country. However this policy is never clearly laid out and allocations are decided in meetings between the concerned Ministries and companies. With not very clearly laid out guidelines, there are possibilities of favouritism and undue benefit in the interest of a few companies or sectors.

Clearly, it is seen that there exists a lot of information gaps in the energy industry and even before we move to 'open data' we need to improve the supply of information through easy access to communications between government departments and between government and industry.

Hence as a precursor to open data, efforts need to be made to put all relevant government policies, laws and regulations online.

1.1.5. History of Information and data in India

It is not that government data was not at all accessible before the intervention of the judiciary or the legal provision for RTI. Information concerning different aspects of government activities was available in the public domain through the proceedings of the parliament/legislative assembly debates, reports of different committees set up by the government, annual reports of the departments and agencies of the government, and several other government publications. The citizens could raise questions on different aspects of government activity through their elected representatives in assembly or parliament and the minister concerned would reply to such queries with required information which in turn was accessible to the larger public. The emergence of information technology furthered the access to all such information as publications and annual reports began being uploaded on the web portals of the government departments and organizations and efforts were made by different departments to make other information available in their webpage.

However, 'secrecy, distance and mystification' has been a dominant culture of the bureaucracy even after independence and this prompts the government departments to reveal less or reveal incomplete information (Mander & Joshi, 1999). There was selective sharing of information with the public and in practice government officials decided what was to be shared. This culture of secrecy, a colonial legacy was also legitimized by 'the Official Secrets Act, 1923 that makes the disclosure of official information by public servants an offence (ibid.). So the demand for an open government regime through stronger legal provision was not just for access to information per se but for the right and complete information and empowering the citizens to break the shackle of secrecy surrounding the activities public authorities.

The RTI Act was enacted in May 2005 and came into force in October 2005. The Act empowered every citizen in India with a right to seek information from any public authority about the activities they perform. Section 4(1) (b) of the RTI Act requires proactive disclosure of information (including data) but very little effort has been made to comply with this clause and information is provided only in response to the demand for information. However while RTI came about as a result of strong civil society pressure, literature on OGD in India does not seem to suggest a similar organized civil society demand for open data. The current OGD framework in India has emerged as part of a series of initiatives for Indo-USA collaboration announced by Prime Minister Dr Manmohan Singh and US President Barack Obama in November 2010 in Delhi. The USA provided support in setting up the data portal under the Open Government Platform (OGPL). While the RTI Act was a result of several rounds of consultation with civil society, there seems to have been very limited deliberation with civil society on the Open Data Policy. Though a draft version of the Open Data Policy for public feedback in May 2011, the finalised policy does not suggest that comments of civil society groups were taken into consideration (See Chattapadhyay, (2013)).

A policy called the National Data Sharing and Accessibility Policy (NDSAP) was notified by the Government of India in March 2012. The main objective of this policy is to allow access to Government owned sharable data in machine readable form through a network, across the country in a proactive and periodically updatable manner, within the framework of various related policies, acts and rules of Government of India. Government Ministries & Departments have already nominated Data Controllers to lead their Open Data initiative. NIC has set up an open government data platform and is the nodal agency for co-ordinating and putting out government data on the open data portal.

1.2. About the study

Project Approach

The starting point for the analysis in this study was to understand the key issues in governance in the oil, gas and coal mining sectors in India. This included examination of relevant economic, environmental and social governance issues across the extractive industries value chain. The study explored the relationship between governance challenges and availability/absence of open data.

Data accessibility

Data collated and published through various sources in the coal and petroleum and natural gas sectors was checked for availability and accessibility followed by a gap analysis of data needed for addressing the governance challenges in energy resource development. An attempt has been made to adapt the different open government data principles propounded by other countries and groups in the Indian context and these sectors. For example, the study approaches human readable data as open too and PDF documents as partially machine readable.

Instruments and agents for open data

The study delved into the role of instruments and agents in collecting, supplying and facilitating information and open government data. A case study approach was adopted and two case studies were undertaken - one in each of the two study sectors – on Coal Controller's Organization and Directorate General of Hydrocarbons. The case studies of institutions analyzed the agencies which are responsible, or have the potential for collating and disseminating data. The case analysis delves into the current data collection and publication practices and challenges experienced (if any) in undertaking such activities.

As a second step to understanding the role of agents and their impacts, the study explored the purpose and processes employed by the intended, potential and actual users of the government data. These included individual users from academic/research institutions, industries and industry associations, and civil society organizations. The study assessed the needs of data users - the kind of data that is needed by them as well as the issues and challenges faced by them in accessing/using data.

Based on the findings from links between open government data and natural resources governance in the study sectors, assessment of data accessibility and role of agents, recommendations have been made for identifying existing knowledge gaps and actions needed for collection and sharing of open data. Some measures are proposed as a way forward for strengthening openness, participation and transparency in government data, especially in coal and petroleum sectors.

Methods of data collection

The current study has adopted a mixed methods approach comprising qualitative research, stakeholder engagement and consultation. Within this approach, the various stakeholders for open government data initiative were identified through network mapping. The project divided all the stakeholders into the broad categories of Data Producers, Data Providers and Data Users.

Stakeholder perspectives on their needs, challenges and experiences have been assessed with respect to government data in extractive energy sector. Besides individual consultations, a stakeholder workshop was organized to discuss issues and preliminary findings. A list of participants at the stakeholder consultation and the key personnel interviewed for this exercise are provided in annexure I and II. The concerns highlighted at the stakeholder consultation were organized under three sessions focusing on the governance challenges in the resources sector that can be addressed by data and OGD; user perspectives on availability to accessibility of data and the suppliers' perspective on bringing the data from government to citizens.

The project explored different interview techniques like face-to-face interviews, telephonic interview and email interviews to elicit information from stakeholders. After consideration of all the techniques, the study conducted qualitative research complemented with stakeholder engagement through consultations; semi structured interviews with different target groups.

The research interviews conducted with users and suppliers of government data were organized as semi structured interviews using two interview guides – one for users of government data and another for suppliers, providers and intermediaries of government data. The interview guide for users were organized around the gathering of facts and information on the extent of usage of government data, their experience in using government data and their opinion on the ‘openness’ of government data with their suggestions on overcoming the challenges. The interview guide for suppliers was also organized on similar lines with questions on facts and information on the data handled and provided by the suppliers, their experience in supplying data and their opinion on the current ‘openness’ of data, as well as how it can be made more ‘open’.

The interviews used open ended questions using ‘responsive interviewing’ allowing for the conversation to build and delve into areas deemed important by the respondent. All comments from the interviews and the stakeholder consultation are summarised to respect confidentiality.

Method of collection of data for assessment of accessibility

In order to collect data for assessment of accessibility, the study team visited the websites of institutions identified under stakeholder/agent mapping of data producers and data providers to search and download freely available data sets related to the coal, oil and natural gas sector. Post this, the data that was reported by data users as important for governance of energy sectors was searched by using key words on agency websites as well as general search engines.

After collection of these data sets, these were classified according to physical, monetary, environmental and social data; and listed according to forum, supplier and format of data. Post this collation of data on these heads, the data sets were analyzed based on parameters of open government data listed as follows –

- Complete
- Timely
- Primary
- Machine processable
- Non-discriminatory
- Non-proprietary
- License free

This analysis was also corroborated by inputs and views of various stakeholders to comment on the status of data and gaps in data openness in these sectors.

1.2.1. Structure of the report

This report is set in the context laid out in this chapter and the follows the abovementioned approach. The next chapter provides an overview of the various laws and policies that govern data related functions of the government in coal and oil and gas sector. It also discusses the roles of different government agencies as data providers, information providers, and intermediaries. Given the importance of information and RTI, the next chapter traces the developments in RTI movement and emergence of RTI Act and its relevance for OGD. Chapter four provides a case study of two institutions in coal and oil and gas sectors with reference to their data related functions, practices and experiences. Chapter five maps the data landscape in coal and petroleum (upstream) in India giving details on the status of data availability in the public domain. Chapter six presents the main issues and challenges that exist in accessing government data, as well as the challenges for making such data accessible and 'open'. The concluding chapter gives some suggestions for the way forward as we move towards a culture of open government data.

2. Legal and Institutional framework

World over open government data is driven by policies and programmes more than dedicated legislation to open up data. This is however changing, as is evident in the recent federal Digital Accountability and Transparency Act legislated by the United States. The open government data practices, with their varying nature and degree of openness, have been preceded by different laws, mostly on right to information.

The Indian government has promulgated a National Data Sharing and Accessibility Policy (NDSAP), which deals with opening up of government data. However, the overall government data landscape predates NDSAP and is rooted in a milieu comprising several laws and policies being administered by a number of agencies. This chapter offers a review of the key legal and policy instruments that have a bearing upon openness of data in the country, especially in the two identified sectors of coal and petroleum. It also summarises the main institutions performing the role of data providers, information providers and data intermediaries.

2.1. Legal and Policy Instruments

2.1.1. Constitution of India

Under Article 19 (I) of the Constitution of India, every citizen enjoys the right to free speech and expression. In India, most of the fundamental rights have a much evolved jurisprudence at the level of higher courts. The Courts have read right to information into the right to free speech and expression. Right to Information has been construed as an extension of this right as information is a pre-requisite for exercising the right to free speech and expression. The Supreme Court of India in *Raj Narain vs. State of UP* in 1975 held that “(The people of this country) are entitled to know the particulars of every public transaction in all its bearing.”

2.1.2. Statutes: General

Collection of Statistics Act, 2008

The primary legislation governing data and statistics is the Collection of Statistics Act of 2008. Its objective is to facilitate the collection of statistics on economic, demographic, social, scientific and environmental aspects by government agencies. The 2008 Act replaced the 1953 Act, which had a more restricted scope relating only to industries, trade and commerce. Therefore, now the Act includes within its ambit a whole array of data and recognizes the importance of environmental and social data, and not just trade related data. Under the Collection of Statistics Act, the office of Coal Controller has been made the statistical authority with respect to coal and lignite statistics.

Right to Information, 2005

As mentioned in Chapter 1 and introduction to this chapter, freedom of information or right to information has been an important catalyst to open government data worldwide. In India, the Right to Information Act was enacted in 2005, following a long widespread public movement, to help citizens get access information under the control of public authorities.

The Act also provides for setting up of a Central Information Commission and State Information Commissions, and public information officers to further the objectives of the Act. Any citizen who wishes to seek information from a public authority can make an application to the public authority in question or the designated public information officer. The legislation and its relevance for OGD is discussed in detail in Chapter 3.

Environment Protection Act, 1986

Beside sectoral laws – those focusing on coal and petroleum – laws on cross cutting areas are important to examine in the extractive industry. Environmental impact of resource extraction is phenomenal in large scale open cast mining, as is practised in coal mining. Environment Protection Act, 1986 (and Environment Protection Rules) provide for the protection and improvement of environment and for associated matters. The Act enjoins a duty on person in charge of units in certain cases where an affluent discharge occurs to provide information to the official concerned at the State or District level. This information is collected by the government officials to ensure emergency or disaster relief operation.⁴

The Central Government also has the authority to mandate any person, officer, State Government or other authority to furnish any reports, returns, statistics, accounts and other information.⁵

2.1.3. Statutes: Relevant to coal

Mineral Concession Rules, 1960

The main law regulating mining, including coal mining, in India is the Mines and Mineral Development and Regulation Act. Under the Act, Mineral Concession Rules are made for regulating the grant of reconnaissance permits, prospecting licences and mining leases.

Under the Mineral Concession Rules, any entity that has been granted a reconnaissance permit has to provide any data collected by it (during the course of reconnaissance) to the Geological Survey of India, Indian Bureau of Mines and the State Government. This data can be made available to any prospecting investor after a period of at least two years has lapsed since the expiry of this permit.⁶

The State Governments are also entitled to receive a final and periodic (six monthly) reports of the work done by permit holders. In these reports, the provider of the information can specify which data provided therein is to be kept confidential by the government.⁷ Similar provisions exit for prospecting operations (Rule 16) and mining lease (Rule 24). The operators have to provide geological, geophysical or other valuable data collected by them.

Under the Act, a permit holder or licensee or lessee is supposed to furnish all geophysical data relating to prospecting/ mining fields or engineering and ground water surveys, collected by it to the Director General, Geological Survey of India, Calcutta and the Director of Geology and Mining of the State.⁸

⁴ Section 9

⁵ Section 20

⁶ Rule 7

⁷ Rule 7

⁸ Rule 66

Coal Mines Conservation and Development Act 1974

Under the 1975 Rules pursuant to the Coal Mines Conservation and Development Act 1974, every owner, agent or manager of coal mine has to provide to the Coal Controller, any information regarding production and dispatch of coal from the mines, working conditions, opening, re-opening, closure of mines as may be required by the Coal Controller. Any owner, agent or manager of a coal mine that has obtained financial assistance from the government is also obliged to provide information, plans and drawings to further objectives under the Act.

Thus, the above two instruments, Mineral Concession Rules and the Coal Mines Conservation and Development Act empower the government to collect different data related to operations of a coal mine. Some of this data is however restricted for publication and sharing with other stakeholders.

2.1.4. Statutes: Relevant to Oil and Gas

Petroleum and Natural Gas Rules, 2003

Petroleum and Natural Gas Rules are Rules (P & NG Rules) under the Oilfields Development and Regulation Act, 1948. Rule 19 of the P & NG Rules requires all licensees and lease holders of oil and gas exploration and extraction to keep records of all data collected, such as, surface geological maps, magnetic and gravity measurements, anomaly maps, seismic profiles, structure contour maps, and electrical current survey data.

Petroleum and Natural Gas Regulatory Board Act, 2006

The Petroleum and Natural Gas Regulatory Board Act, 2006 requires the statutorily created board to maintain a data bank and information system on activities of different entities dealing with petroleum and natural gas. This is one of the most clearly defined data management functions for an energy related department or agency.

Similar, to coal, operators are under a statutory obligation to furnish all the relevant data and government is authorised to collect it, and maintain it for the oil and gas sector.

2.1.5. Policies

National Data Sharing and Accessibility Policy, 2012

While the right to information is a successful tool for obtaining government information and data, it is passive or reactive in nature. As a proactive means to make government data open, departments could serve as a repository of data or publish their own data. The National Data Sharing and Accessibility Policy (NDSAP) gives impetus to this proactive opening up of government data. It aims at facilitating access to government data in human readable and machine readable forms. It mandates government departments to proactively open up data on 'as-is where-is' basis. It is applicable to all entities within the Government Setup.

The NDSAP was notified in March 2012 with the aim of 'enabling provision for proactive and open access to data generated using public money'. More specifically the objective of this policy is 'to facilitate the access to Government of India owned shareable data and information in both human readable and machine readable forms through a network all

over the country in a proactive and periodically updatable manner, within the framework of various related policies, acts and rules of Government of India, thereby permitting a wider accessibility and usage by public' (NDSAP, 2012).

The policy mandates all Ministries/Departments to release datasets in the public domain. NDSAP is applicable to all sharable non-sensitive data of Ministries, Government Departments and Autonomous bodies. The Department of Science & Technology has been appointed as the nodal agency for monitoring of the policy. As part of this policy the 'Open Government Data Platform' (<http://data.gov.in/>) has been set up and maintained by the National Informatics Centre (NIC), Ministry of Communication and Information Technology, GoI. The Open Government Data Platform is 'intended to increase transparency in the functioning of Government and also open avenues for many more innovative uses of Government Data' (www.data.gov.in)

The policy classifies data into sensitive and non-sensitive data. Non-sensitive data is further classified as high value and low value data. High Value data would be governed by the following principles: Completeness, Primary, Timeliness, Ease of Physical and Electronic Access, Machine readability, Non-discrimination, Use of Commonly Owned Standards, Licensing, Permanence and Usage Costs (Sunlight Foundation, 2010).

In order to make this initiative more participatory, data portal users are given the option to provide feedback on the data that is relevant and useful for public. The respective Ministries are then required to furnish this data. Users have the option to rate the data that is made available, and also provide inputs on what kinds of data set are more useful and should be provided on a priority basis. The data portal also has a Communities component that facilitates forming of communities around datasets in domain of interest such as agriculture, education, health, etc. Communities are also encouraged to develop applications using this data which could help improving service delivery or that could help citizens navigate their day-to-day activities.

Data Sharing and Accessibility Policy Geological Survey of India, 2014

Geological Survey of India has had a Dissemination and Data Sharing Policy since 2009, which has recently been replaced by the Data Sharing and Accessibility Policy of 2014. The 2014 Policy is yet to be notified, but aims to remove the gaps in the 2009 Policy.

The Geological Survey of India's Data Sharing and Accessibility Policy published in January, 2014 provides a framework for the GSI to meaningfully engage with its obligations to proactively publish data under Section 4 of the RTI Act, 2005. The basic types of data it deals with are maps and reports, offshore data, drill core and geophysical data. Regarding accessibility, data is classified into shareable and non-shareable data. Non-shareable data refers to the data placed by the Government on the Negative List or whose discovery has been sponsored by outside agencies.

Shareable data is meant to be accessed by general users and bona-fide users. There are three types of access to shareable data - Open, Registered and Restricted. Open access data does not require any registration or authorization. Registered access data requires non-Government agencies to sign up to receive access based on procedures to be prescribed by the relevant Government agency. Restricted access data is only to be shared among

Government agencies. Annexure-I of the policy details the procedures to be followed to access registered and restricted access data.

Data is meant to be available at no cost, as far as possible. Printed copies are to be provided on a no-profit-no-loss basis. In order to protect the intellectual property rights of geo-scientists the policy allows them a two year period (after the circulation of the R&D report) to publish works based on data they discover, before it is made available to the public through the GSI Portal.

The policy takes a nuanced approach to the various categories of data it deals with. It does establish which aspects of the data categories will be subject to open, registered or restricted access. For example, pertaining to map and report data, general users can access Unpublished Maps as toposheet-wise-metadata with low-resolution and resized images, whereas registered users can view, explore and download data through the Web Feature Service on the GSI Portal. However, the policy is un-clear on what the registration requirements for a 'bona-fide user' are.

Policy for Geo-Scientific Data Generation for Hydrocarbons in Indian Sedimentary Basins

The Ministry of Petroleum & Natural Gas' Policy for Geo-Scientific Data Generation for Hydrocarbons in Indian Sedimentary Basins, approved in February 2014, seeks to encourage market participants to undertake speculative surveys. Private participation in such surveys could possibly help improve the quality of data on exploration and can be used in the long term for attracting private investment in exploration and production. In areas which pose too high a risk to attract Service Providers, government will continue to undertake data acquisition on its own expense and use data so obtained to encourage bidding on the acreages.

2.1.6. Conclusion on laws and policies

The above review shows that while many sectoral and crosscutting laws and corresponding rules deal with data, their focus is clearly on collection of data. Such legislation lay down what kind of data is to be collected, empower the government agencies to collect data, and enjoin the operators with a duty to submit data. In the case of petroleum and natural gas, where a statutory board is constituted, maintaining a data bank is listed as an important function. However, overall, there is hardly any focus on making the data public or 'opening' it up for the public or other stakeholders. In some cases, laws state when and what data can be provided to certain stakeholders, especially for confidential and industry relevant data. The only legislation that focuses on providing data is the right to information, which is not restricted to data. Besides responding to an individual's right to information, the RTI Act does touch upon the issue of proactive disclosure too.

While laws are mostly silent on dissemination, policies discussed above are geared towards dissemination and sharing. However, NDSAP and the GSI policies are at nascent stage. The GSI policy is still to come in force. Even though of great relevance for natural resources, it is not possible to comment on the extent to which it will indeed be useful. NDSAP has been in place for some time but is still evolving and its implementation via data portal of India has been evolving. Being a policy, NDSAP cannot mandate data sharing like a statute. It depends on various ministries and departments to provide data as they may deem suitable.

Further, at state levels, similar such policies on open data need to be enacted to encourage state governments to provide state related data.

2.2. Institutions and Agencies

There are several institutions involved in making information and data available and accessible to the public. This section divides them into three broad categories data providers, information providers and data intermediaries. Data providers are those agencies, which are the designated or nodal agencies responsible for collecting and publishing data. These agencies are the official data sources. They may be sourcing data from companies or agencies, but are responsible for releasing the official data for their domain. Thus, they are the primary source. Information providers are the organizations that enable access to information and not just data. Their task is not to collect or publish data but provide information as and when sought. Data intermediaries are one of the most important categories of institutions as they compile existing government data with different government agencies and publish it in the form of reports, compendia, or raw data.

2.2.1. Data Providers

Geological Survey of India

Geological Survey of India (GSI) is one of the oldest survey agencies in the country, established in 1851. It is a key source for government information and data related to earth sciences. GSI has a very wide range of activities under its ambit. These include surface mapping (geological, geophysical and geochemical), mineral and energy resources exploration, including for coal, and other geotechnical investigations.

Thus, GSI is responsible for creation and updation of national geoscientific data and carry out mineral resource assessments. The GSI has adopted a Mission mode and functions around Five Missions: Mission I - Baseline Geoscience Data generation, Mission II - Natural Resources Assessment, Mission III – Geoinformatics, Mission IV - Specialised Investigation, Mission V – Training and capacity building.

GSI publishes several of its data in print and online format in the form of memoirs, records, bulletins, catalogue series, manuals and journals. A lot of GSI data has been made open for public since 2008, except confidential and secret data, such as those from airborne and marine vessels.

Coal Controller

India's Coal Controller's Organisation is a subordinate office under the administrative control of the Ministry of Coal, government of India and is headquartered in Kolkata with five field offices in coal rich parts of the country. The coal controller is the statistical authority with regard to coal and lignite statistics. It compiles, publishes, and disseminates data related to coal and lignite sector.

Coal Controller collates data from companies and operating agencies and shares it with the Ministry of Coal, Central Statistical Organization (under the Ministry of Statistics and Program Implementation), Reserve Bank of India (RBI), Directorate General of Foreign Trade, Department of Industrial Policy and Promotion (under the ministry of commerce),

Indian Bureau of Mines, various state governments, and other national and international organizations and agencies. Two major annual publications that the office of the coal controller comes up with is the 'Provisional Coal Statistics' as well as the 'Coal Directory'.

Directorate General of Hydrocarbons

The Directorate General of Hydrocarbons (DGH) was established in 1993 vide a Government Resolution to promote sound management of the Indian petroleum and natural gas resources having a balanced regard for the environment, safety, technological and economic aspects of the petroleum activity.⁹

DGH was formed to respond to the needs of the upstream oil industry in India which was opening up to private investments in early 1990s. Government committees on oilfields development and organizational restructuring recommended the establishment of an independent regulatory institution to supervise the activities of new players in the oil and gas sector of the country.

One of the main functions DGH is entrusted with is 'to regulate the preservation, upkeep and storage of data and samples pertaining to petroleum exploration, drilling, production of reservoirs etc. and to cause the preparation of data packages for acreage on offer to companies.' Further to this function and the fact that DGH is the nodal agency for upstream oil and gas activities of the Ministry of Petroleum and Natural gas, DGH receives various data from the operators or licensees of the NELP regime. Treating data as a national asset, DGH classifies data it receives and maintains it in the following broad heads:

- Cultural Data
- Geological Data
- Petrophysical Data
- Seismic Data
- Well Data
- Production Data
- Reservoir Data
- Various Unstructured Data (Reports, Documents etc.)

The government of India, through DGH is also planning to set up a National Data Repository (NDR). The NDR would provide online data on exploration and production, including seismic data, well and log data, spatial data and other data like drilling, reservoir, production, geological, gravity and magnetic. The NDR will facilitate improved data storage and sharing through better reporting, exchange, and monitoring.

Petroleum Planning and Analysis Cell

Petroleum Planning & Analysis Cell (PPAC) was established in 2002 as an agency attached to the Ministry of Petroleum and Natural gas. Initially it was set up to assist the government in performing the functions of the erstwhile Oil Coordination Committee (OCC). The OCC

⁹ No.O-20013/2/92-ONG, D-III, Government of India Ministry of Petroleum & Natural Gas New Delhi, Dated: 8th April, 1993

used to coordinate the planning of supplies and demand projections for the distribution of petroleum products.

The PPAC is an important stakeholder in oil and gas data, especially downstream aimed at being the official source for data and policy analysis on the hydrocarbon sector in the country. It is entrusted with the task of maintaining an information data bank and communication system to deal with emergencies. It is also the nodal agency to analyze trends in markets and pricing, and import and export trends in the sector. To discharge these functions, PPAC collects, compiles and disseminates data on oil and gas through its data bank.

Economics and Statistics division, Ministry of Petroleum and Natural Gas

The Economics Division of the Ministry of Petroleum and Natural Gas brings out the Annual Petroleum and Natural Gas Statistics. The division has been publishing these statistics since 1967. The Economics Division, through the P&NG Statistics compiles and publishes data on exploration, production, refining, marketing activities of the oil and gas sector. The Division also facilitates oil and gas related data for the new Data Portal of the government of India. In exercising this function, MoPNG may source data from other agencies such as PPAC and DGH but it is primarily responsible for contributing and uploading data on the data portal of India.

State level Departments

Most of the laws applicable to energy resources are federal laws, with certain roles assigned to state level agencies. Thus, some state level departments and agencies collect and maintain data on certain aspects of energy resources, especially minerals like coal. The extent to which state level departments and institutions are collecting and publishing data varies from state to state and issue to issue.

Many states have directorates or departments of geology and mining, which are normally engaged in mineral prospecting within the state as per the Annual Field Season Programme agreed upon. Usually, these departments perform administrative functions as well, such as monitoring of royalty collection. Interestingly, directorates in states like Madhya Pradesh do undertake geological inspection and exploration activities, but as a service for Central Mine Planning & Design Institute Limited (CMPDIL) and any data generated therein is the property of CMPDIL.

Details of reserves available within a state, mostly collected from secondary sources, are available with these directorates and published in different formats by different states. Details of coal blocks allotted are made available by some coal rich states. However, the details and quality of data varies from state to state. State of Odisha gives details of the name, location, date of allocation, state of end use plant, reserves and the coal requirement.¹⁰ State of Chhattisgarh has published on the website details of the coal blocks allocated and the awardee of contracts in their state, based on Coal News published by the Geological Survey of India.¹¹ Chhattisgarh Directorate of geology and Mining publishes a *Khanij Sankhiyiki* (Mineral Statistics) too.

¹⁰ <http://www.orissaminerals.gov.in/Download/DetailsCoalBlock.pdf>

¹¹ <http://chhattisgarhmines.gov.in/Coal.htm>

Some states also provide data on minerals seized and illegal mining activity reported in their States or Circles. For example, in Odisha, data on number of illegal mining cases detected and mineral seized is published online.¹² Usability and quality of that data is albeit another issue and is discussed in Chapter 6 .

Some states collate and publish Environmental Statistics on various aspects, including those related to energy development. These environmental statistics are similar to the environmental statistics published by MOSPI at the National level.¹³

2.2.2. Data Intermediaries

National Informatics Centre

The Department of Science and Technology is the nodal agency responsible for implementation of the National Data Sharing and Accessibility Policy of the Government of India. It coordinates and collaborates with the National Informatics Centre (NIC) under Department of Electronics and Information Technology, and other sectoral ministries and departments.

NIC was established in 1976 and is the nodal point for ICT infrastructure for departments and institutions of the government under the Department of Information Technology of the Government of India. NIC houses the NDSAP, Project Management Unit, which manages the Open Government Data Platform and coordinates the datasets contributed by various departments and ministries.

Data Controllers/ Managers in the nodal ministries

In order to implement NDSAP, the Ministries and departments have to nominate a senior official as a Data Controller or a Data Manager to act as the coordinator of open data initiatives from their respective ministries.

The Data Controllers are assigned the task of identifying datasets that are of high value and need to be published, as well as identifying those datasets that are not-sharable. They are responsible for publishing datasets on the open government data portal of the government and responding to queries, feedback and suggestions made therein. The Data Controllers have to monitor and manage the open data programme of the department and ensure veracity of the data released or published.

The Ministry of Petroleum and Natural Gas and Ministry of Coal have nominated the Economic Adviser and Joint Secretary respectively for this task. Ministry of Environment and Forests and Department of Land resources have designated senior officials as data controllers for their departments and ministries. The nodal persons appointed are high ranking officers of the Ministry to ensure that that initiative has enough structural support.

Ministry of Statistics and Programme Implementation (MOSPI)

The Ministry of Statistics and Programme Implementation has set up a National Statistical Office (NSO) which is responsible for coordinating all the statistical work of the various departments and ministries of the Government of India and Statistical Bureaus at State level.

¹² http://www.orissaminerals.gov.in/Download/Statelevel_Information.pdf

¹³ See for example, Environmental Statistics of Madhya Pradesh

The NSO also performs the role of an advisor to different Ministries for matters relating to statistical methodology and statistical analysis of data. Since its establishment in 1999, the NSO has been responsible for dissemination of statistical information on several aspects in the form of periodic publications. The Ministry adheres to the Special Data Dissemination Standards of the International Monetary Fund.

The Ministry publishes 'Energy Statistics' annually. Relying primarily on data from the different nodal energy ministries, namely, Ministry of Coal, Ministry of Petroleum and Natural Gas, Ministry of New and Renewable Energy, and Ministry of Power, the Energy Statistics is a compilation of data on reserves and potential for generation, installed capacity and capacity utilisation, production, availability, consumption, trade, and pricing.

MOSPI's Environmental Statistics Unit has been publishing some basic environmental statistics since 1997. 'Environmental Statistics' broadly follows the Framework for Development of Environment Statistics (FDES) information categories developed by United Nations Statistical Division.

Non-government and business organisations

Organisations such as Infraline Energy¹⁴, Indianpetro¹⁵, India stat¹⁶ etc are important players in the data and information provision in the energy and infrastructure sector in the country. These data providers have subscription-based access to information, reports and data on the extractive industries too. Expanding their activities over time, these companies have also started producing special issue based publications and reports that are available for sale. Some of these organisations also organize conferences on key energy sector related issues which provide forums for networking for key industry players. In addition to this, some of them are also in the business of providing daily news reports to the registered users. The data provided by the companies is usually collated from different sources, over time to prepare long term trends of series.¹⁷

2.2.3. Information providers

Public Information Officers

The union government and the state governments have notified RTI rules to facilitate the implementation of the law. Public Information Officers (PIOs) were designated in all public authorities to process the application and provide information. Central Information Commission (CIC) and State Information Commissions (SIC) have been constituted to oversee the implementation of RTI. Given the colonial legacy and culture of secrecy in the public administration in the country, parting with information on their activities would not have been easy even with a strong law. Government visualized these challenges and appointed very senior or retired bureaucrats as heads of CIC and SICs to give these bodies' greater legitimacy and acceptability (Tolia, 2010).

¹⁴ <http://www.infraline.com/>

¹⁵ <http://www.indianpetro.com/>

¹⁶ <http://www.indiastat.com/>

¹⁷ For instance, the Indiastat website provides historical numbers on accidents related data for the coal, oil and gas sectors whereas the Government reports only provide data for the most recent 3 year period.

Lok Sabha and Rajya Sabha Secretariat

Under the Rules of Procedure, the two House of Parliament have to report the detailed proceedings of each sitting of the House. This requires the debates, questions and answers to be recorded and reported. The debates are published verbatim as well as edited. Question and answer sessions of the Lok Sabha and Rajya Sabha are rich in information and data that is often not published elsewhere. A lot of the information and data provided in response to the questions raised in parliament are specific and more recent than the reports published by nodal ministries. The Lok Sabha and Rajya Sabha debates have been useful tools for making sectoral data publicly available. However, there are certain limitations in the information and data provided through these debates and their accessibility. Being isolated pieces of information, they are not a regular source of information or data and not necessarily in a user friendly or reusable format.

2.2.4. Conclusion on institutions and agencies

Most of nodal agencies for collection and managing data for coal and oil & gas are under statutory authority to act as the nodal agency for the data they are dealing with. However, there are some agencies which collect and manage data, not under a statutory authority or obligation, but in the course of their functions. The mandate and capacity of these data providers varies substantially across departments. Data published by these agencies and their quality also is not uniform. A detailed case study of the practices and issues in data related functions of two of these institutions – Coal Controller Organization and Directorate General of Hydrocarbons is given in Chapter 4.

Intermediary organizations play an important role in data dissemination in India. The study categorises those institutions under intermediaries which are not the primary data collecting agencies but collect data from other sources and publish it to enable citizens to use this data. The most important role played by these agencies is in collating and cataloguing the data that is available with the government in different departments and different forms, and publishing it in a consolidated manner periodically. While government ministries like the MOSPI publish these in the form of reports like environmental statistics and energy statistics, NIC as the implementing agency for NDSAP, publishes data from secondary sources in Open Data format. However, unlike MOSPI, NIC does not proactively seek and compile data as this is not its mandate. NIC uploads whatever data nodal ministries and agencies wish to publish. Thus, its role is more important from the point of view of format and machine readability and other technical aspects etc.

3. Right to information

Open Government Data (OGD) and Right to Information (RTI) are closely related as they have similar objectives – availability of government information in public domain and greater access of the citizens to such information and also driven by similar concerns- transparency and greater accountability (Janssen, 2012). While RTI is a reactive initiative, OGD is a proactive initiative to move towards an open government regime. Although substantially different in nature and design, RTI is an important case study, both as a tool and process. Moreover, in the Indian context, where information itself is difficult to access in several domains, gaining access to data is even a greater challenge. More importantly, information and data are closely linked. In the absence of an effective open government data regime, RTI is the most important tool for gaining access to data. Various stakeholders seek data from government agencies through the RTI route. In light of the importance of RTI in accessing data, the study finds merit in discussing RTI in greater detail.

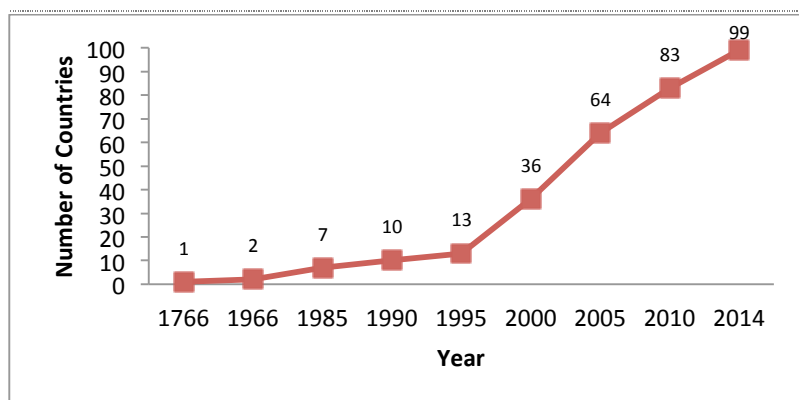
Information is considered key to transparency. The growing demand for transparency in the affairs of the government resulted in popular movements to make the information concerning various activities of the government and its decision open or accessible to citizens. Freedom of Information (FOI) or Right to Information (RTI) is a win-win strategy for both the government as well as citizens. It not only acts as a guard against ‘abuses, mismanagement and corruption’ but ‘improves the trust’ of citizens on government.

Access to government information is also considered a legitimate entitlement of the citizens as it’s a national resource created for the service of the public and entirely funded by the national exchequer (Mander & Joshi, 1999); (Birkinshaw, 2006). There have been several initiatives in the recent years across the globe in some or the other to move towards a more open government regime. Initiatives include enactment of laws, policy changes and institutional reforms to facilitate disclosure of information- both proactive and reactive by public authorities (PA). From a legal perspective, enactments of freedom of information laws have stronger implications as it confers a right to the citizens to access any government information unless it is classified.

Sweden was the first country to enact a transparency law in the form of freedom of press in 1776 and till 1995 there were less than 20 countries to have similar laws (Singh S. , 2011); (Ackerman & Sandoval-Ballesteros, 2006). The last two decades have experienced a spurt in the number of countries endorsing such access to information regimes and in January 2014 Maldives became the 99th country to have a right to information law¹⁸ (see Figure 3.1). Growth of democracy in many part of the world, emphasis on transparency in various international conventions/treaties, multilateral donor agencies’ persuasion by making the grant/aid conditional to a transparency regime and the civil society movements-from grassroots to global level- are some of the major factors that fuelled such a change globally (Singh S. , 2011); (Banisar, 2006).

¹⁸Maldives President Signs RTI Bill into Law; 99th in World, 17 January 2014

<http://www.freedominfo.org/2014/01/maldives-president-signs-rti-bill-law-97th-world/> last accessed on April 15, 2014



Source: <http://freedominfo.org/documents/Countriesaccesslist.pdf> last accessed on April 16, 2014

Figure 3.1: Number of countries (cumulative) with freedom of information laws

3.1. Right to information in India

The movement for Right to Information (RTI) in India, which gained momentum four decades after it embraced democracy, was spearheaded by the civil society organizations as a tool to empower the citizens to have a say in the matters of governance and hence to bring transparency in government activities. As Sekhar Singh stated, 'in India, it was not so much the birth of democracy (in 1947) but its subsequent failures, especially as a representative democracy, that gave birth and impetus to the transparency regime' (Singh, 2011, pp. 45). The inherent limitations of India's democracy to deliver 'effective governance and a semblance of justice to the poor and marginalized' resulted in widespread disenchantment among the citizens and manifested in the form of demand for a more transparent and accountable government¹⁹ (Ibid). Along with civil society or people's movements, the legal pronouncements of the judiciary and the resultant actions by the state and central governments have facilitated the RTI regime in the country (Central Information Commission (CIC), 2006).

Singh (2011) has well-articulated the genesis and evolution of India's RTI regime by critically analyzing this arduous journey which took little over three decades to materialize. Though the citizen's demand for information concerning government activities dates back to 1970s, the popular movement for an open regime by enacting RTI emerged in 1990s through a series of civil society movements in different spheres like environmental protection, access of poor to basic amenities, human rights and so on. Some of the important milestones in the evolution of RTI regime in India are presented in Box 3.1.

The journey towards a RTI regime in India started with a Supreme Court ruling in 1975 that recognized the right of the citizens to know and another judgment in 1982 which ruled right to information as a fundamental right that is implicit under Article 19(1) (a) of the Indian constitution, which guarantees the right of free speech and expression. However, there had not been much effort to institutionalize the citizen's access to information in the line of apex court's ruling at national level. Subsequently, the political leadership sensed the public mood in bringing in transparency legislation and during 1989 general election the common

¹⁹ Violent movements (naxalism) to overthrow the state is another response (Singh, 2011)

3. Right to information

manifesto of the National Front (Rashtriya Morcha) promised for the same in their election manifesto.

Though National Front formed the government at the Centre post-election, the RTI legislation did not make much headway due to the political instability of the time. The RTI movement in India got a major impetus from a grassroots initiative by rural poor in Rajasthan to control corruption in famine relief work of the government in early 1990s (Mander & Joshi, 1999). This powerful grassroots initiative was led by a people's organization named *Mazdoor Kisan Shakti Sangathan* (MKSS) that was founded in a small remote village in Rajasthan in 1990 and soon gathered support of a wide range of stakeholders culminating to a national level movement (Roy, Singh, & Dey, 2006). The movement got further momentum with the formation of National Campaign for People's Right to Information (NCPRI) in 1996. NCPRI mobilized support of different stakeholders and prepared a draft RTI bill. The union government constituted a committee led by H. D. Shourie in 1997 to review the draft bill and come up with draft legislation on freedom of information.

While the above developments were happening at the national level, several states of India (like Tamil Nadu, Goa, Karnataka, Rajasthan, Delhi, Maharashtra, Assam, Madhya Pradesh, Jammu and Kashmir, Haryana) enacted legislations or issued government orders facilitating access to information. However, most of these state acts were 'not very strong tools to enforce accountability' as they were not citizen friendly, didn't have provision for proactive disclosure of information, didn't have penalty clauses and lacked clarity in several important areas (Central Information Commission (CIC), 2006). The Freedom of Information Bill drafted by the Shourie Committee was introduced in the parliament in July 2000 but was criticized for ambiguities and lack of teeth in dealing with the problem it aimed at (Godbole, 2000); (Godbole, 2000). It was again tabled in parliament in 2002 after the Supreme Court gave the government an ultimatum to enact a RTI act. The Freedom of Information (FOI) Act 2002 was passed in the parliament in 2002 and also got the presidential assent subsequently in 2003 but was never notified. This Act neither addressed the concerns raised about the state acts nor laid a clear implementation roadmap and was hence considered a weak law.

During 2004 general election, one of the leading political party promised to operationalize and strengthen the FOI Act in their election manifesto. The party in coalition with other political parties formed an alliance-United Progressive Alliance (UPA) and came to power at the Centre. The UPA government also included the RTI agenda in their Common Minimum Programme. National Advisory Council (NAC) of the UPA government also played an important role in pursuing the RTI agenda with the government. NCPRI and NAC worked on the RTI draft bill and the RTI Act 2005 was passed by both houses of parliament in May 2005. The Act got presidential acceptance in June 2005 and came into force in October 2005. India's RTI Act 2005 is considered one of the best RTI laws in the world. However, there have been efforts, though unsuccessful, to amend the act in subsequent years to weaken it by the same government who got it passed in parliament²⁰. The first amendment was proposed in 2006 to limit the access to the file noting for some specific sectors, the second attempt to amend the act was made in 2010 to impose a word limit on RTI applications and the third attempt to amend was made in 2013 to keep the political parties out of the ambit of the RTI

²⁰ <http://www.firstpost.com/politics/under-siege-and-over-amended-does-the-rti-act-still-matter-1016241.html>
last accessed 16th April 2014

law. The government introduced an amendment bill in parliament in December 2013 to nullify the Central Information Commission's decision to recognize six national political parties as public authorities²¹.

Box 3.1: Some landmarks in the RTI journey

1975 :	Supreme Court of India rules that the people of India have a right to know.
1982 :	Supreme Court rules that the right to information is a fundamental right.
1985 :	Intervention application in the Supreme Court by environment NGOs following the Bhopal gas tragedy, asking for access to information relating to environmental hazards.
1989 :	Election promise by the new coalition government to bring in a transparency law.
1990 :	Government falls before the transparency law can be introduced.
1990 :	Formation of the <i>Mazdoor Kisan Shakti Sangathan (MKSS)</i> in Rajasthan and the launching of a movement demanding village level information.
1996 :	Formation of the National Campaign for People's Right to Information (NCPRI).
1996 :	Draft RTI bill prepared and sent to the government by NCPRI and other groups and movements, with the support of the Press Council of India.
1997 :	Government refers the draft bill to a committee set up under the Chairmanship of HD Shourie.
1997 :	The Shourie Committee submits its report to the government.
1999 :	A cabinet minister allows access to information in his ministry. Order reversed by PM.
2000 :	Case filed in the Supreme Court demanding the institutionalization of the RTI.
2000 :	Shourie Committee report referred to a Parliamentary Committee.
2001 :	Parliamentary Committee gives its recommendations.
2002 :	Supreme Court gives ultimatum to the government regarding the right to information.
2002 :	Freedom of Information Act passed in both houses of Parliament.
2003 :	Gets Presidential assent, but is never notified
2004 :	National elections announced, and the "strengthening" of the RTI Act included in the manifesto of the Congress Party.
May 2004:	The Congress Party comes to power as a part of a UPA coalition government, and the UPA formulates a "minimum common programme" which again stresses the RTI.
Jun 2004:	Government sets up a National Advisory Council (NAC) under Mrs.Sonia Gandhi.
August 2004 :	NCPRI sends a draft bill to the NAC, formulated in consultation with many groups and movements. NAC discusses and forwards a slightly modified version, with its recommendations, to the government.
December 2004:	RTI Bill introduced in Parliament and immediately referred to the Parliamentary Committee. However, Bill only applicable to the central government.
Jan-April 2005:	Bill considered by the Parliamentary Committee and the Group of Ministers and a revised Bill, covering the central governments and the state introduced in Parliament.
May2005:	The RTI Bill passed by both houses of Parliament.
Jun 2005:	RTI Bill gets the assent of the President of India
Oct 2005:	The RTI Act comes into force.
2006:	First abortive attempt by the government to amend the RTI Act.
2009:	Second abortive attempt by the government to amend the RTI Act.

Source: (Singh S. , 2011), pp. 51

The preamble of the RTI Act 2005 has stressed on the importance of 'informed citizenry and transparency of information' to contain corruption and for making public authorities accountable to the citizens (Ministry of Law and Justice, 2011). The Act empowered every citizen of India with a right to seek information from every public authority about the activities they perform. The rights include 'inspection of work, documents and records; taking notes, extracts or certified copies of documents or records; taking certified samples of

²¹ [http://www.prindia.org/uploads/media/RTI%20\(A\)/RTI%20\(A\)%20Bill,%202013.pdf](http://www.prindia.org/uploads/media/RTI%20(A)/RTI%20(A)%20Bill,%202013.pdf) last accessed on 16th April 2014

materials; and obtaining information in the form of diskettes, floppies, tapes, video cassettes or any other electronic mode or through printouts'. (Ministry of Law and Justice, 2011) The law stipulated a time frame for providing the information sought by the citizens and made provisions of penalty for non-complying officials. The information is provided free though there is a charge on the medium (i.e. charges for photocopying, diskettes, postal expenses etc.) and nominal application fee for non-poor citizens. The law also made it mandatory for every public authority to disclose information concerning functions, duties and powers of itself and its officials, decision making procedures, rules regulations, manuals, records relevant to all their activities. The definition of 'public authorities' under Sec 2(h) of RTI Act, 2005 leaves enough scope to include an array of organization/institutions under its ambit (Saxena, 2009).

The RTI Act 2005 covers all departments of the union government, all union territories administration and all states in India except Jammu and Kashmir. The union government and the state governments have notified RTI rules to facilitate the implementation of the law. Public Information Officers (PIOs) were designated in all public authorities to process the application and provide information. Central Information Commission (CIC) and State Information Commissions (SIC) are constituted to oversee implementation. Given the colonial legacy and culture of secrecy in the public administration in the country, parting with information on their activities would not have been easy even with a strong law. Efforts were made by the government as well as civil society organizations to popularize the law. CIC and some of the SICs adopted several innovative measures and also delivered several important judgments for the effective implementation of the law (Tolia, 2010); (CUTs International, 2010); (Centre for Good Governance (CGG), 2009); (DoPT, Government of India)). It's expected that RTI would promote a culture of transparency and accountability in the functioning public authorities in the country by making corrupt practices risky for the officials (Humphreys, 2010).

Over time, the law has succeeded in creating a sense of empowerment among the citizens which would facilitate greater transparency and accountability in the functioning of the public authorities in the country. The latest Annual Report of CIC stated- *"It is not uncommon to hear people say 'I will RTI if so-and-so is not done.'"* It has become a verb. It is often said that in many cases, an RTI-application alone is enough to motivate and compel the authorities to redress the grievances' (Central Information Commission (CIC), 2012).

As per the information reported by different public authorities under Union Government to CIC, a total of 0.17 million RTI applications were filed during 2006-07 and this increased to 0.63 million in 2011-12 (see Table 3.1). Most of these RTI queries are responded to with around 8 percent or less (varies from 5 to 8 per cent across the years) of the application getting rejected. Table 3.1 also presents the number of RTI applications filed in some of the states as reported in the annual report of the respective SICs. The number of applications as well as the rate of rejections varies across the states.

Table 3.1: Total Number of RTI Applications Filed 2006-07 to 2011-12

	Central Government	Maharashtra#	Andhra Pradesh#	Odisha	Chhattisgarh#	Rajasthan
2006-07	171398	316000	8864	4618	960	9140
2007-08	263261	416090	31964	9772	978	19846
2008-09	329728	440728	59664	37997	1047	28790
2009-10	529274	548987	65973	42036	768	45610
2010-11	417955	645023	101453	35649	1400	75577
2011-12	629960	682286	122133	52305	577	71243

data reported for the calendar year e.g., Jan 2007 to Dec 2007 for the 2006-07 row.

Source: Annual Reports of CIC and SICs of the Respective States

There is some anecdotal evidence (For example, success stories in CIC and SIC webpages and documentation by RTI advocacy groups) of the positive impact of RTI on various aspects of governance through improved information about the decision making in government departments and hence by making them more accountable. Access to information about government schemes, list of beneficiaries, selection criteria etc., helped in checking the malpractices in decision making or corruption in delivery of public services. The impact of RTI at grassroots level is found to be significant in improving governance where people are made aware of the law and its use (Price Waterhouse Coopers (PwC), 2009). It has impacted in diverse ways- improving the attendance of village school teachers, timely distribution of students' uniforms in government school, exposing corruption in medicine procurement in public sector unit, payment of pension to the retired employees which was long due and so on (ibid.).

However, the implementation of the law is still marred with several challenges. DoPT, the nodal agency of the government to implement the RTI law, commissioned a study to Price water house Coopers (PwC) in 2008-09 to study the issues and constraint in implementation. RTI Assessment and Analysis Group (RAGA), a civil society organization, also undertook a similar exercise around the same time. The findings of both these countrywide assessments revealed the lacunas in the implementation strategies and highlighted the challenges that hinder the effective implementation of the law. Some of the challenges identified include, low level awareness among people on RTI and procedures of using RTI for any information, low level of RTI use in rural areas, lack of clarity in role, lack of capacities of the PIOs, inadequate staff and infrastructure with public authorities as well as SICs, bureaucratic indifference and sometimes hostility, and victimization of the RTI activists are some of the major challenges (Roberts, 2010); (Humphreys, 2010); (Price Waterhouse Coopers (PwC), 2009); (RTI Assessment and Analysis Group (RAGA), 2009); (PRIYA, 2007) & (PRIYA, 2008). Though the law made provisions for pro-active disclosure of information by the respective public authorities, there is little progress in its implementation (Roberts, 2010).

3.2. RTI and governance

There have not been any systematic assessments of the impact of RTI on governance or corruption in India. At global level, results of the empirical studies on impact of RTI or FOI

laws on corruption or governance shows no such significant impact (Taveras, 2007); (Escaleras, Lin, & Register, 2010). Taveras (2007) found a positive relationship between existence of FOI laws and public sector corruption based on the analysis of data from 71 countries. Escaleras et al, (2010) made a cross country study by analyzing annual data on 128 countries (of which 46 countries had FOI in place) for the period from 1984 to 2003 and found no significant linkage between an open information regime and public sector corruption. The study also found for developing countries, FOI laws are 'significantly and consistently associated with rising level of corruption' (Escaleras et al, 2010). Such trend is explained by the weak institutions in many developing countries (ibid.).

The issue of transparency and accountability in the extractive industries in India has been a matter of concern over last many decades. The major governance challenges in this sector include- 'illegal mining, low royalty rates and the resulting lack of revenue earned by state, lack of proper social and environmental impact assessment, alarming increases in direct and indirect mining-induced displacement, human rights violations and corruption' . (Dutta, Sreedhar, & Ghosh, 2012) RTI and other open government initiative have the potential to improve transparency and accountability in environment or extractive energy sectors (Singh & Singh, 2006).

Literature on assessing the impact of RTI on extractive industry in India is not available. If the number of RTI applications filed gives any indication, Ministry of Petroleum and Natural Gas and Ministry of Coal have received large number of applications in last five years (see Table 3.2). Other two relevant ministries (Mines; Forest and Environment) also received significant number applications. Although there has not been enough data to analyse the kind of information that these applications sought, it can be asserted that all such information for which applications were submitted were not in public domain when requests were made and hence the law empowered the citizens to challenge the culture of secrecy.

Table 3.2: Number of RTI applications and other details of Relevant Ministries of the Union Government 2007-08 to 2011-12

Year	Opening balance of requests received under RTI (as on 1st April)	No. of requests received during year	Total No. of requests	No. of requests transferred to other PAs	Decisions where applications for Information rejected	Total amount collected (fee+ addl.charges+ penalty) in Indian Rupees
Ministry of Petroleum and Natural Gas						
2011-12	3678	16506	20184	86	938 (5.7%)	68625
2010-11	315	9562	9877	541	568 (5.9%)	35362
2009-10	441	15999	16440	807	1370 (8.6%)	188909
2008-09	450	10514	10964	299	1184 (11.3%)	98162
2007-08	233	5426	5659	321	877 (16.2%)	47812
Ministry of Coal						
2011-12	474	10166	10640	430	455 (4.5%)	218565
2010-11	62	4783	4845	62	333 (7%)	100634

Year	Opening balance of requests received under RTI (as on 1st April)	No. of requests received during year	Total No. of requests	No. of requests transferred to other PAs	Decisions where applications for Information rejected	Total amount collected (fee+ addl.charges+ penalty) in Indian Rupees
2009-10	579	9157	9736	239	566 (6.2%)	221061
2008-09	334	5796	6130	224	406 (7%)	235462
2007-08	788	6071	6859	174	423 (7%)	176908
Ministry of Mines						
2011-12	154	2251	2405	92	113 (5%)	56567
2010-11	59	1846	1905	135	102 (5.5%)	49778
2009-10	63	1461	1524	117	102 (7%)	45305
2008-09	75	1144	1219	75	71 (6.2%)	34477
2007-08	191	1166	1357	116	51 (4.4%)	25178
Ministry of Environment and Forest						
2011-12	259	2956	3215	438	38 (13%)	175300
2010-11	287	2373	2660	146	8 (0.3%)	81297
2009-10	517	1798	2315	68	16 (0.9%)	63920
2008-09	92	1723	1815	117	22 (1.3%)	62390
2007-08	60	1273	1333	166	46 (3.6%)	36300

Source: Annual Reports (Various Years), Central Information Commission

In the absence of open government data, RTI applications have been made to obtain data at times. While we have information on the number of RTIs received and responded to by the relevant departments for energy resources, it is difficult to estimate the proportion of RTIs that relate to data. However, consultation with the agencies shows that the subject of RTIs varies from department to department but data can be a subject of up to one fourth of RTI applications in some cases.

There are some inherent differences between RTI and OGD. While RTI is a reactive initiative, OGD is a proactive initiative to move towards an open government regime. The RTI movement is based on citizen rights argument whereas OGD movement is driven by the opportunity to explore the technical possibilities of using government data to achieve improved governance outcomes. The RTI and OGD are becoming closer with the provision of proactive disclosures in RTI laws (Darbishire, 2010).

The close relationship between RTI and OGD is not just the similarities in their goals and objectives but also the imperatives of RTI laws in spearheading the culture of openness and accountability among the government agencies and embracing the OGD regime. RTI, as a legal framework is critical for facilitating OGD and enhancing the credibility of open government partnerships (Center for Law and Democracy (CLD), 2012). RTI and OGD have mutual complementarities. More and more data in the public domain (OGD) will also reduce the pressure on the government officials on demand for information through RTI.

4. Case studies of select institutions

Chapter 2 has discussed the role of different institutions with respect to opening up of data in India. As illustrated there, data collection, collation, dissemination, etc. is not the task of any one agency but there are nodal data authorities for different sectors and segments. For coal, it is the Coal Controllers Organization and for upstream oil and gas, it is the Directorate General of Hydrocarbons. This chapter delves into the structure, functions, practices and performance of these two institutions as case studies. The case studies were undertaken to understand the current data collection and publication practices and challenges experienced (if any) in undertaking such activities by the main agency in the upstream segment of each of the identified sectors. The case studies are based on review of literature, official publications, rules, applicable laws (if any), websites and individual consultations with the representatives of these data providing agencies. Approaching the issue of open data from supply side through these case studies was complemented with stakeholder discussions and interviews with the data users.

4.1. Coal Controller's Organisation

4.1.1. About the organization

India's Coal Controller's Organisation is a subordinate office under the administrative control of the Ministry of Coal, government of India and is headquartered in Kolkata. It has five field offices located at Bilaspur, Dhanbad, Kothagudem, Nagpur, and Ranchi. The organization was set up in 1916 with an objective to meet India's requirement of coal in the early 20th century. However the country started experiencing coal shortages in the early 40s and as a result the Colliery Control Order, 1944 was promulgated for an effective control on mining and production, distribution and pricing of coal. Subsequently, it was revised by a more comprehensive order in 1945. After fifty years, in 1996, pricing of coal and distribution was deregulated and the Colliery Control Order, 2000 superseded the earlier order.

4.1.2. Key Functions

The coal controller's activities are governed by four major rules. These are

- (a) *The Colliery Control Order (2000) and the New Colliery Control Rules, 2004*
- (b) *Coal Mines Conservation and Development Act, 1974 and Coal Mines (Conservation and Development) Amendment Rules, 2011.*
- (c) *Collection of Statistics Act, 1953*
- (d) *Acquisition and Development Act, 1957*

The activities identified under the Colliery Control Order 2000 (and the New Colliery rules 2004), include preparing procedures and sampling of coals, undertaking periodic inspection based on grade or size of coal, acting as the appellate authority for any dispute between consumers and producers regarding coal grade and size, regulating stock disposal and output, granting permission on opening/ re-opening of coal mines, etc.

Under the Coal Mines Conservation and Development Act, 1974 and Coal Mines (Conservation and Development) Amendment Rules, 2011, it assesses and collects excise duty on all raw coal mined and dispatched and provides financial support to coal operators in ensuring that underground coal mines are stowed, developing mines scientifically, undertaking research in efficient utilization of coal, improving infrastructural development in coal fields, etc.

Under the Collection of Statistics Act, 1953 [32 of 1953] and the Collection of statistics (Central) Rules 1959, Coal Controller is the statistical authority with regard to coal and lignite statistics and is mandated to submit the monthly coal data (including that of coal washeries) to various ministries, international organizations/agencies as well as undertake the Annual Coal & Lignite survey.

Finally, under the coal bearing area (acquisition and development act, 1957) it addresses any objection to the Central Government's notification relating to acquisition of coal bearing land and accordingly furnishes reports to Central Government. The office of the coal controller monitors and reports on a quarterly basis on progress of coal blocks that are allocated in the past as well as the use of extracted coal from those blocks. The Coal Ministry, periodically reviews the monitoring of the coal controller and state government representatives are allowed to attend these review meetings.

4.1.3. Data related functions

As presented above, the Coal Controller is the statistical authority with regard to coal and lignite statistics. It compiles, publishes, and disseminates data related to coal and lignite sector. These data are shared with the Ministry of Coal, Central Statistical Organization (under the ministry of statistics of program implementation), Reserve Bank of India (RBI), Directorate General of Foreign Trade (DGFT) and Department of Industrial Policy and Promotion (under the ministry of commerce), Indian Bureau of Mines, various state governments, and other national and international organizations and agencies. Office of the coal controller is supposed to prepare status reports on quarterly basis and submit the same to the parent ministry. It periodically undertakes inspections in cases/situations as required. The office has to maintain the details of all the mines. As far as data from the captive mines is concerned they are collected by the statistical wing of the CCO every month and are further shared with the parent ministry. Two major annual publications of the coal controller are the 'Provisional Coal Statistics' and the 'Coal Directory'.

The key difference between the two publications is that the 'Coal directory of India' provides audited data of the coal mining companies, while the 'Provisional Coal Statistics' are interim estimates.

4.1.4. Overview of data provided

Being the nodal agency for any coal data, the Coal Controller's Office, collates and manages a range of data for the coal sector. The data that are published (hard copies) through the Coal Directory are categorized as

- (i) Reserve,
- (ii) Production (state-wise, type/category, opencast and underground, company wise, etc.),
- (iii) Productivity (output per manshift),

- (iv) Dispatches,
- (v) Pit head closing stock,
- (vi) Exports and imports.

The provisional statistics are available online in the coal controller's webpage, as well as the ministry of coal's website and is presented in portable document format (pdf). The data presented in the coal directory not only contain statistics under the above heads but also include data on,

- (i) Pit-head coal value, price, duties
- (ii) Coal consumption in steel plants, washer performance, electricity and cement production
- (iii) Captive mining blocks: Availability and allotment.
- (iv) Mine level statistics (i.e. state-wise distribution of coal and lignite mines, company wise distribution of coal mines including open and underground.
- (v) International coal statistics
- (vi) Ad-valorem royalty rates

4.1.5. Practices and challenges

Collection practice and its challenges

The coal controller office collects data from various sources. All the mining companies are required to send monthly production data to the CCO for compilation. However, in practice, limited success has been achieved in the past in terms of timely receipt of the data by CCO from the coal mining companies (public and private) as learnt during interactions with officials from the CCO. Most of the times, repeated reminders are sent to the mining companies for sharing various physical and monetary data. Due to non-timely sharing of data by the mining companies, CCO sometimes fail to come up with the current version of the provisional statistics. The last statistics (i.e. provisional coal statistics) available online (on webpage of the coal controller) is for the financial year 2011-12. Another important consequence of non-timely data sharing of data and information is seen as either blank entry or non-availability of relevant report and information in many sections of the CCO's website. For example, under the statistics section in the webpage, there is a link for accessing monthly coal production data, but no documents were found when the study team accessed the link. Non-availability of any document was also observed with regard to collection of excise duty, data related to coal conservation, and other sections like Right to Information (RTI). It may be interesting to compare these contents with that in websites of Central Electricity Authority, Directorate General of Hydrocarbons and Petroleum Planning and Analysis Cell that contain significant information, despite the fact that these organizations have similar mandate to that of CCO.

Quality and accuracy

Some data discrepancies have been noted in the data provided by CCO. Multiplicity of entities involved in data entry and processing may be one of the reasons for such discrepancies. More mechanized process of data entry can minimize human errors/omissions and also minimize communication delays arising from conventional data sharing practices. With regard to the coal sector, it may be noted that mine level statistics on coal production and consumption are not available in the public domain.

Challenges in making good quality data and accurate data openly accessible

Based on the discussion with CCO, it was learnt that the organization is experiencing shortages in skilled staff for handling data. As a result the CSO is not able to process or clean data, as and where required.

As is evident from the above, most of the data collected and published by the coal controller office are technical or economic. Though coal mining has significant environment and social impact, there is not much emphasis on sharing of environmental data related to coal sector.

4.2. Directorate General of Hydrocarbons

4.2.1. About the organization

Until 1955, exploration of hydrocarbon resources in India was mainly undertaken by private oil companies in India. After Independence in 1947, the Government of India realized the importance of oil and gas, and accorded it priority in the Industrial Policy Statement of 1948.

The Industrial Policy Resolution of 1956 placed the mineral oil industry in schedule 'A', making its development the sole and exclusive responsibility of the state. Therefore, until 1990, the exploration and production of oil and gas was dominated by National Oil Companies. However, the gap between supply and demand kept widening and it was felt that private investment and capital was needed to be infused in the sector to bridge this gap. In 1991, a committee under the chairmanship of Mr A K Dasgupta recommended that an autonomous agency to oversee and review oilfields development should be set up. In 1993, the office of Directorate General of Hydrocarbons (DGH) as an upstream advisory and technical regulatory body.

4.2.2. Structure and Functions

The DGH was set up under the administrative control of Ministry of Petroleum and Natural Gas through a Government of India Resolution,²² therefore by an executive order and not a statute. Its purpose is to promote sound management of the Indian petroleum and natural gas resources having a balanced regard for the environment, safety, technological and economic aspects of petroleum activity.²³ The DGH comprises staff drawn on deputation/tenure basis primarily from upstream Public Sector Undertakings and is funded through grants from the Oil Industry Development Board (OIDB).

DGH is primarily an advisory and reviewing authority. The only regulatory function it has is with respect to data. Its other functions include review of exploration programmes of oil and gas companies for adequacy, technical and financial evaluation and review of development plans of commercial discoveries, and advising the Ministry of Petroleum on issues relevant to exploration and optimal exploitation of oil and gas.

²² No.O-20013/2/92-ONG, D-III, Government of India, Ministry of Petroleum & Natural Gas, New Delhi, Dated: 8th April, 1993

²³ No.O-20013/2/92-ONG, D-III, Government of India Ministry of Petroleum & Natural Gas New Delhi, Dated: 8th April, 1993

4.2.3. Data related functions and departments

With regard to data, DGH is entrusted with the function of regulation, preservation, upkeep and storage of data and samples pertaining to petroleum exploration, drilling, and production of reservoirs etc. and to cause the preparation of data packages for acreage on offer to companies.²⁴ DGH treats that exploration and production dataset as a national asset. Departments like the National Data Repository and the Geophysical & Geochemical data department deal exclusively with data and information. Their work is facilitated and supported by other departments within the DGH, such as the departments responsible for monitoring, implementation and information technology.

The DGH is in the process of setting up and operationalizing the National Data Repository (NDR) as a state owned project, which will be contracted to private entities on a turnkey basis. The NDR would store data in a 'safe and reusable manner, in perpetuity'. NDR is expected to be of the size of 100 TB of SAN storage online and 250-slot-LTO4 robotics near-line. Besides collecting data, NDR will also provide web access to some end users through redundant leased lines having high bandwidth (>10Mbps) and build user's terminals in the Indian NDR Centre.

The geo-scientific data that the NDR would collate and store would pertain to 8,500 wells, associated logs, cores and reports, 1,150 2D & 3D seismic surveys, 1.0 million LKM of 2D Seismic post stack, 0.5 million SKM of 3D Seismic processed, 0.5 million LKM of 2D Seismic field data, 0.5 million SKM of 3D Seismic field data, 34,000 scanned logs and 2,300 Seismic reports, and some other non-seismic datasets and reports²⁵ (Box 4.1). NDR, once fully operational, would also be in the domain of 'Big Data'. While it may have the potential of opening up data, it would probably need a good intermediary network to facilitate access to and use of NDR data.

Box 4.1: National Data Repository (NDR)

DGH is actively seeking to establish NDR as a turnkey project on Build, Populate and Operate basis. Below are the data classes that have been proposed to put on the NDR:

- Seismic Data
- Well & Log Data
- Spatial Data
- Other G&G data like Drilling, Reservoir, Production, Geological, Gravity & Magnetic
- Reports and Documents

Objective/goals of National Data Repository (NDR):

The main objective is to setup National Data Repository of reliable exploration and production data for India with provisions for seamless access and on-line data management. Specific goals are:

To validate, store, maintain and reproduce high quality and reliable geoscientific data

1. To facilitate efficient data reporting, data exchange, and data trading among existing players including all geoscientific agencies
2. To improve DGH's ability to monitor and control the E&P activities and reporting
3. To encourage new E & P activities by providing high quality and reliable data
4. To strengthen overall geoscientific activities in India
5. To support an open acreage system for an improved Global E & P Business environment
6. To provide quality E & P data for Processing, Interpretation and Visualization Centres at DGH

Source: <http://www.dghindia.org/DataManagement.aspx>

²⁴ Para 4 (g) Resolution

²⁵ <https://www.energistics.org/Assets/ndr10-india.pp>

4.2.4. Overview of data provided

Being the nodal agency for upstream data, DGH collates and manages a range of data for oil and gas exploration and production. The main categories of data dealt with by the DGH are:

- Cultural Data
- Geological Data
- Petrophysical Data
- Seismic Data
- Well Data
- Production Data
- Reservoir Data

Broadly, these can be divided into technical and non-technical data. Technical data is usually not made available or opened proactively. Non-technical data, such as production data is made available more freely in the form of periodic reports. The Annual Petroleum Exploration and Production Activity Report is a print and pdf publication that provides such non-technical data on:

- Sedimentary Basins
 - Sedimentary Basins of India *[in Map form]*
 - Historical Categorization of Sedimentary Basins
- Activities during the past year
 - Award of Acreages – New Exploration Licensing Policy (NELP)
 - Basin-wise Distribution of PEL Areas under operation (Pre-NELP & NELP Blocks)
 - Company-wise Distribution of PEL Areas under Operation (Pre-NELP & NELP Rounds)
 - Geoscientific Studies by DGH
 - Geophysical Surveys carried out by DGH *[in Map form]*
 - E&P Highlights
 - Exploration Blocks awarded under ninth round of NELP (NELP-IX)
 - Company / Basin-wise Oil & Gas Production
 - Initial in-place and ultimate reserves of Hydrocarbons
 - Exploratory wells drilled
 - Total exploratory wells
 - Development wells drilled
 - Total Development wells
 - Oil & Gas Production
 - Hydrocarbon Discoveries
 - New Discoveries / New Pools *[in Map form]*

4. Case studies of select institutions

The Annual Petroleum Exploration and Production Activity Report and the data contained therein is available online in a pdf format for free.

DGH also provides a lot of technical data, but at a price. These data include seismic sections, offshore and onland Well logs, composite logs, Production Testing, well-wise Geochemical Investigation Report, Palaeontological Report, Palynological Report, Sedimentological Report, Seismic data tapes, Well Completion Report, Time & Depth Maps, and Laboratory Test Results Report formation fluids produced.

An indicative list of the price at which it is made available is given in Table 4.1.

Table 4.1: Illustrative price of Geo scientific data sold by DGH

Regional Seismic Data acquired by DGH		
Sl. No.	Quantum of data	US\$/Line Kilometer
1	Total East Coast / West Coast / Andaman data	123
2	1000 to 3000 LKM	140
3	Less than 1000 LKM	150
Interpretation report of Integrated Geophysical Data		
Sl. No.	Report	Price in US \$
1	Deccan Syncline basin	15000
Interpretation Report of Deep Water Areas		
Sl. No.	Report	Price in US \$
1	Southern Tip of India	30000
2	Cauvery and Palar Basin	30000
3	Vishakapatnam Bay and Krishna-Godavari	50000
4	Mahanadi-NEC Basin	50000
5	The Interpretation Reports consisting of Vishakapatnam Bay and Krishna-Godavari Basin and Mahanadi-NEC Basin together	75000
6	Kerala-Konkan Basin	30000
7	Mumbai Basin	30000

4.2.5. Practices and experiences

Data collection practice

DGH collects and compiles data from various sources. It regularly collects economic data from private companies on aspects such as production and provides it on a monthly basis to the public. For technical aspects other public and private agencies carrying out geo-physical surveys are relied upon. Until 2009, speculative geophysical survey / reprocessing agreements were executed with certain service providers for undertaking geophysical surveys based on post cost recovery profit sharing. The stakeholders interviewed indicated that DGH does not interact with governments at subnational level for collection or management of data.

Under the 2014 Policy for Geo-Scientific Data Generation for Hydrocarbons in Indian Sedimentary Basins, DGH would grant permission for conducting Geo Scientific survey by way of a non-exclusive multi-client survey agreement or through government funding. The government funding will be used for areas for which no offer has been received, especially in frontier basins and in areas posing higher financial risk. The survey agencies will have the right to licence data for twelve years, but only for exploration and licencing purposes. However, any data collected as per this policy will be owned by the government.

As illustrated in the section above on overview of data, most of the data collected and published by DGH is technical or economic. Despite the importance of environment in oil and gas extraction, both on land and offshore, there is not much policy thinking on aspects of environmental data in the oil and gas sector.

Data sharing/ provision practices

Pricing

A lot of exploration related data (seismic, etc) are provided to industry on payment basis. The industry does not mind paying for this data, which is seen as a raw material. For general public, these costs are high but the DGH representative felt such data may not be of interest or value to the public.

However, DGH does not see data as a source of revenue. The Policy for geo-scientific data generation for hydrocarbons in Indian sedimentary basins clearly states that,

“National Government is not expected to earn profits out of sale of geo-scientific data to E&P companies because this raises the cost of exploring oil and gas. The Government is set to achieve much higher commercial gains as well as energy security through enhanced exploration and production, which may get dampened by a high cost of entry into the hydrocarbon sector through profit sharing on data.”

Format

DGH maintains an offline digital data library for various seismic data. This can be viewed on an Oracle based web application. The DGH is in the process of development/deployment and testing various web based applications to catalogue and compile various structured data and meta datasets.

Quality and accuracy

Discrepancies are noted at times in the data though generally companies amongst themselves reconcile data at the end of the year.

Multiplicity of entities keying in data leads to errors. Data should be fed directly into the IT system and the formats should be well planned and structured that human intervention at various levels can be avoided. More automation would reduce possibilities of corruption. At the moment the formats are not well structured and DGH felt that the technical support provided by government to support MIS is not adequate.

Challenges in making good quality and accurate data openly accessible

Field wise production data is not accessible to public, even when available with DGH. In DGH's view, this kind of data would be huge and public would have little use of such detailed data.

Confidentiality of data is an issue and can be a concern while opening up data. This concern is aggravated due to the existence of leakages within the system. There is little trust that data will not be misinterpreted and misused.

Stakeholder consultation suggests that there is a lack of political will towards greater transparency in the sector. It is also felt that free flow of data could leave many government offices out of business and mandate. DGH does not have its own cadre and the entire manpower is drawn from various PSUs on 'deputation'.

There are multiple agencies providing data- DGH, MoPNG, PPAC amongst others. Data should be provided by one source, which is the primary source of data, in order to remove discrepancies due to overlaps.

The enforcement mechanism for submission of data will have to be strengthened for the National Data Repository to be successful. There is a large volume of legacy data with DGH which will have to be streamlined and digitized.

Experience with other transparency / data / information initiatives

DGH has a designated Public Information Officer (PIO) and an Assistant PIO. However, most Right to Information queries are generally received from MoPNG and not directly from the public. A lot of these queries are repeated. For instance, DGH receives an RTI every month for a particular kind of data and hence DGH has decided to put it online in the coming months.

There is no data controller designated for NDSAP from DGH. Awareness in DGH for NDSAP or data.gov.in is low. As per the stakeholder interaction, DGH has not been asked by the MoPNG to provide any data specifically for the purposes of putting up on the open data portal.

5. State of data in energy sector: coal and petroleum

In this chapter, the main governance challenges in coal and oil & gas sectors are discussed that can be addressed through better data availability and accessibility. This is followed by a brief overview of main data sources and agencies involved in each of the two sectors. Focusing on upstream, the chapter reviews the status of data availability and 'openness' in the two sectors. Broadly, data has been classified into physical, monetary, social and environmental data. This chapter focuses on the state of play in open government data in coal and oil & gas. It does not delve into factors that are responsible for adequate or inadequate openness. These are discussed in the subsequent chapter on issues and challenges.

5.1. Coal

5.1.1. Introduction to the sector

Coal is India's most important energy source constituting almost 52 per cent of India's total primary commercial energy need. (TERI, 2013) Coal mining in India constitutes a share of 80 per cent in total mining activities in India. The coal industry has a turnover of Rs. 340 billion, which is around 1.2% of the GDP. (Dutt, 2007) About 75 per cent of total coal consumed in the country is used for power generation. Other end-use industries include cement, iron and steel, fertilizers, chemicals, etc. India is currently the third largest producer of coal, and contributes 8% of the total coal production in the world (IBM, 2011).

Coal industry in India is dominated by Coal India Limited, a public sector undertaking. India's coal sector was nationalized in 1974 where the Indian government took over the management of majority of the coal mines. The nationalization culminated into the formation a formal holding company Coal India Limited (CIL) in November 1975. In the next two decades, CIL's share in coal production reached 91 per cent, although the current share has come down to 80 per cent. Currently, India is world's third largest coal producing country and CIL is the largest coal producing company in the world with an annual production capacity of more than 450 million tonnes (as per 2012 estimates). CIL has approximately 467 operating mines.) Private sector participation in coal mining exists but their overall contribution in coal production is limited. Their participation is in the form of contract mining to mine development and operation, allocation and development of captive coal blocks and joint ventures for exploration²⁶.

Main Agencies and Data Sources in the Sector²⁷

The Ministry of Coal is the nodal ministry for coal industry in India and has the responsibility for identifying and developing various policies and strategies for India's coal

²⁶ https://www.pwc.in/en_IN/in/assets/pdfs/industries/power-mining/coal-mining-icc-report-v2-300613.pdf, accessed, 29th April, 2014

²⁷ Since the focus of this study is on extraction, the analysis in the oil and gas section has been limited to the upstream segment.

sector. MOC works in close collaboration with CIL & its subsidiaries, and another public sector undertaking called Singareni Collieries Company Limited (SCCL). CIL has eight subsidiaries – seven companies and Central Mine Planning and Design Institute Ltd (CMPDIL), which is responsible for mine planning and designing in the coal sector and renders mining and engineering consultancy services.

The main sources of data around coal are Ministry of Coal, Coal Controller, Ministry of Mines and its agencies, especially Geological Survey of India and Indian Bureau of Mines. Other government departments and ministries such as the Ministry of Statistics and Programme Implementation, Ministry of Commerce, Directorate General of Foreign Trade etc. publish data related to upstream coal industry. Some of these have been discussed in detail in Chapter 2. Other agencies like the Central Electricity Authority also publish coal data, albeit downstream.

Most of the data related to coal, across life cycle, is collected and published by the Coal Controller's Organization (CCO). The CCO comes out with 'Provisional Coal Statistics' annually, which are finalised and published in the form of a 'Coal Directory'. These data are also incorporated in the Annual Report of Ministry of Coal and furnished to other government agencies like the Reserve Bank of India, Ministry of Statistics and Program Implementation (MoSPI).

Data compiled and published by CCO is used by several agencies in their respective publications, for example, Energy Statistics of the MOSPI, Mineral Year Book of the Indian Bureau of Mines etc. No CCO data has so far been uploaded on the website of government's Open Data Portal (www.data.gov.in), except when uploaded by Planning Commission or MOSPI. A list of coal related data uploaded on India's open data website by different Ministries and agencies as per their area of work is given in Table 5.1.

Although not available electronically, Coal Directory is open in terms of other parameters. It is accessible, free of cost, non-discriminatory and primary (since it is compiled by the agency primarily responsible for coal data). It does not fare very well on the parameter of timeliness. While it is regular and is supposed to be published every year, users do not find it very timely. Provisional Statistics are available online in a portable document format, hence, in a 'partially' machine readable format. However, the latest provisional statistics are not always uploaded on the website of Ministry of Coal and archives of these provisional Statistics are not available on Coal Controller's website.

5.1.2. Main governance challenges in the Coal Sector

Delayed approvals and clearances

With respect to clearances that are linked to coal mining, there exist multiple clearances at the central and state level. These include clearance from mining lease, environment clearances, infrastructure provision clearances, acquisition of mining land, etc. In recent times the sector has drawn lot of criticism mostly due to obscure and extremely slow progress particularly on the allocation of coal blocks for captive mining. It is felt that a repository of relevant data, if shared publicly, would help in appropriate evaluation of such allocation from the social, economic and environmental perspectives.

Structure of the industry

Unlike oil and gas, coal is dominated by a public sector undertaking, Coal India Limited. Having a monopolistic advantage, Coal India Limited has access to infrastructure and quality geological data. It is also the agency that determines coal prices in India. Even though private players have now been allowed via captive mining route, coal still remains a domain of CIL and SCCL. Many of the captive mines allocated to private players are located in remote areas and are in need of a more detailed exploration. In terms of data, CIL plays an important role both as a user or supplier. Being the monopolistic player in a nationalised sector, CIL can get access to information and data more easily than the others. Most of the data collected by CCO is also sourced from CIL. Not all of this data is put out in the public domain. If all this data, along with geological data was opened in a fair and non-discriminatory manner, the structure of coal industry would be more level playing.

Environmental impact

Coal mining activities in India contributes either directly or indirectly to air and water pollution at various stages. Dust from mining and transport of coal settles on nearby forests and agricultural lands resulting land degradation. Coal mining and coal washing too have significant impacts on surface and ground water quality. It degrades the quality of water by not only disturbing the pH balance of the surrounding water resources but also by increasing the levels of suspended particulate solid, total dissolved solids and some heavy metals. Further, the overburden generated also contaminates surrounding water bodies and increases heavy metal concentration. Around 60 per cent of coal resources in India are located in forest areas (MoC 2005). Therefore, mining activities affect forest cover and simultaneously affect biodiversity and wildlife corridors in these forest areas due to loss and change of forest habitats, increased erosion, increased silting and eutrophication of water bodies, collapse of natural hydrological systems, etc. Regular monitoring and collection of data on environmental impacts of coal mining will help the government plan and undertake remediation and mitigation measures. Putting out such data in the public domain will help civil society in substantiating their demand for improving environmental quality. It will also help in allaying unwarranted concerns regarding impacts and there magnitude.

Displacement and relocation

Land acquisition and R&R are major issues in coal mining. Although rules and laws exist for compensation and rehabilitation to project affected families, there are serious concerns in their implementation. Availability of data would make it easier for policy makers and citizens to learn the actual performance of companies against what they are supposed to do as per Law. The data on possible impacts of mining, like forest/non-forest land required, affected families, compensation to be made, rehabilitation details, etc. are scattered and generally not openly available to the public.

Confusion over availability

CMPDIL has recently published revised resource and reserve estimates of coal based on United Nations Framework Classification (UNFC). United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources (UNFC) is an international accepted approach for classification of mineral resources and reserves. The total coal resource in India using UNFC is estimated at 68.6 million tonnes, while the coal reserves is 19.8 million tonnes²⁸. Some authors have also tried to estimate the actual coal

²⁸ http://www.cmpdi.co.in/unfc_code.php, accessed 29th March, 2014

resources and reserves based on such classification. For example, Chikkatur et al (2009) have estimated the coal reserves at 44 billion tonnes.

5.1.3. State of data and data gaps

Data for upstream coal sector can be classified into physical, monetary, environmental and social categories.

Physical data on coal includes resources, reserves and production in terms of quantity. The Geological Survey of India and the Central Mine Planning Design Institute (CMPDI) are the agencies responsible for carrying out exploration in coal bearing areas in India, and thus generating and maintaining data related to resources. Geological Survey of India, under the Ministry of Mines, is the agency that first identifies coal availability followed by CMPDI. CMPDI also uses services of Directorate of Geology and Mines in coal bearing States to carry out inspection and exploration. CMPDI uses the preliminary information to assess and categorize coal into resources and reserves.

Resources and/or reserves data are published in the publications mentioned in the previous section, such as, Coal Directory, Provisional Coal Statistics, Mineral Year Book, Annual Reports, Planning Commission Reports and Energy Statistics. The reserve data is updated in every annual version of these publications.

Physical data collated by the CCO is collected from GSI, CMPDI and the coal companies. It is freely available upto a specified scale. Data at a more micro scale, which is needed for undertaking commercial activities of actual drilling and extraction can be purchased from the government agencies concerned at the prescribed price. This is a practice prevalent across all minerals where data upto 125000 scale (varying in different cases) is available for free and a more detailed data and maps can be purchased from the government.

Table 5.1: Coal related data on Open Government Data Portal, as on 30 April 2014, by different agencies (www.data.gov.in)

Sl No	Title	Description	Agency uploading data
1.	State/UT wise length of roads under Coal Mines Department by type of surface in India	State/UT wise length of roads under Coal Mines Department by type of surface in India	Ministry of Road Transport and Highways
2.	Coal Statement of Thermal Power Stations	Details on coal stock position of Thermal power stations	Central Electricity Authority
3.	Wages And Earnings Of Mining Labour	The data refers to the wages and earnings of mining labour in coal and non-coal mines	Ministry of Statistics and Programme Implementation

5. State of data in energy sector: coal and petroleum

Sl No	Title	Description	Agency uploading data
4.	Employment In Mines	The data refers to Employment in Coal, Copper, Chromite, Diamond, Gold, Gypsum, Iron ore, Limestone, Magnesite, Manganese, Mica, Stone, Other Minerals sectors	Ministry of Statistics and Programme Implementation
5.	Production Of Coal, Coal Derivatives and Coal By-Products	The data refers to All India (2000-01 to 2010-11) data on production of coal like coking, non coking and coal derivatives and coal bi-products like hard coke, washed coke etc	Ministry of Statistics and Programme Implementation
6.	Production of Minerals and Ores By Selected Items	The data refers to All India (2000-01 to 2010-11) and State-wise (2009-10 and 2010-11) figures for Mining Production of minerals and ores by selected items	Ministry of Statistics and Programme Implementation
7.	Consumption Of Raw Coal By Different Industries	The data refers to All India (2000-01 to 2010-11) data on consumption of raw coal (million tonnes) by different industries like electricity, Steel and washery, cement, paper, cotton and other industries	Ministry of Statistics and Programme Implementation
8.	Price Comparison of Domestic Coal with other Countries	Price comparison of Domestic Coal with other countries	Planning Commission
9.	Sectoral Coal Demand/Off-take for Annual Plan	Sectoral Coal Demand/Off-take for Annual Plan (2012-13)	Planning Commission
10.	Coal Demand during the Twelfth Five Year Plan	Demand for coal during the Twelfth Plan (in million tonnes)	Planning Commission
11.	Coal Production - Sector	Coal Production as per the Twelfth Five Year Plan (2012-17) document	Planning Commission
12.	Coal Washing Capacity - Eleventh Five Year Plan Period (MT)	Information of the coal washing capacity (in million tonnes) at the end of the Eleventh Plan period	Planning Commission
13.	Details of Coal and	Coal and Lignite Production for the	Planning

Sl No	Title	Description	Agency uploading data
	Lignite Production - Power Sector	Eleventh Five Year Plan (2007-2012) period	Commission
14.	Financial Performance of the Coal Sector- Eleventh Five Year Plan Outlay	Financial Performance of the Coal Sector in the Eleventh Five Year Plan period	Planning Commission
15.	Inventory of Coal and Lignite Reserves	Details of the Inventory of Coal and Lignite Reserves as on 1 April 2012	Planning Commission

Coal production data (in physical and monetary terms) is available company wise, State wise, grade wise as well as at the aggregate levels. Mine-wise data related to production is not available through open sources, even though such data is collected by the coal controller organization. This data was published earlier but has been discontinued since 2006.²⁹

Another source for estimates of mine wise production and output is the environment management plans (EMPs) of the various mines under the public and private sectors. However, such data are often not available openly. Apart from the 'Provisional Coal Statistics' published by the Ministry of Coal where the latest publication presents production data since 2002, time series coal production statistics are also available in the Coal-Directory and the 'Energy Statistics', published by MOSPI. In terms of trends of production, MOSPI data gives trends since 1970, whereas Coal directory gives trends only for the last ten years. Coal Directory, however, provides monthly breakup of data too in its annual publication.

Planning Commission has recently uploaded some production data for the Twelfth Plan period on the data portal. (See Table 5.1)

Export/ import data, both physical and monetary, for extractive industries is of key importance. The Directorate General of Foreign Trade (DGFT) is one of the key agencies that maintains and publishes physical and monetary time series data on exports and imports of coal. The Provisional Coal Statistics and the Coal Directory too share India's export import data on coal. As mentioned earlier, the data from the provisional coal statistics is free and available online. The DGFT data from 1970 onwards is available online on the online export import data bank hosted on the Ministry of Commerce's webpage. The DGFT data is available in HTML as well as excel formats free of cost. The trade data related to coal is updated annually. Coal Directory provides this data for the last ten years in aggregate form port wise and country wise categories. MOSPI, in its Energy Statistics provides trends of foreign trade in coal, crude oil and petroleum products in India since 1970 in PDF format.

The **revenue data** based on the sale of coking and non-coking coal, along with costs incurred under various expenditure heads, are presented in the annual reports of Coal India Limited as well as that in the annual reports/audited financial statements of the subsidiary companies. The data is available with about a two year lag and is available online in portable document format.

²⁹ Based on consultation with officials at the CCO

Royalty on coal received by the state governments is presented in Ministry of Coal's annual report. CIL pays royalty to the states of West Bengal, Jharkhand, Orissa, Madhya Pradesh, Maharashtra, Chhattisgarh, and Uttar Pradesh. The royalty payment is based on 14% ad-valorem on the price of coal (except West Bengal). The data is available freely and is updated annually. However, the latest data available is for the year 2010-11. Subsidiary – wise and grade-wise data is not available. Although the Coal Directory contains the royalty data, it is limited to data on the ad-valorem royalty rates but exclude royalty payments to the various state governments by CIL as well as by other private operators. Some State governments also provide data with respect to royalty collected from coal and other minerals on their websites in PDF or html format.³⁰

Foreign Direct Investment in the coal sector is published in the Coal Directory, and Department of Industrial Policy and Promotion, Government of India's webpage. The annual report of the ministry of coal also provides list of projects sanctioned, the subsidiary company responsible to undertake the investment, the estimated capacity of the project as well the estimated capital requirement and is updated annually.

The 'Provisional Coal Statistics', does not provide **coal price** data but the Coal Directory does provide this data. Although the data is updated annually, it is not available in machine readable formats, whether partially or fully. Since the power to determine coal price in India is conferred upon CIL and SCCL, it is important to look at these two companies as a source of official pricing data. CIL publishes data on prices for different grades of coal based on their Gross Calorific Value (GCV) as and when they are revised and notified.³¹

Availability of data related to **social issues** around coal is similar to other extractive industries in India. Most of the data is either scattered or irregular or difficult to access. Since most of coal rich regions lay in or around forest areas or river basins, large scale opencast mining results (or has resulted) in displacement of families as well as loss in livelihoods for a significant population dependent on the forests or river basins. Official estimates related to displacement are not easily available in public domain. These are submitted to the District Collector at the time of land acquisition process but not published proactively. The environment management plans (EMPs) of various mines sometimes provide estimates on possible number of project affected people/families. However, literature on coal related displacement have raised concerns on the authenticity of such estimates since the actual number of project affected people/families may exceed the estimates provided by the developer agency in its EMP. Moreover, the EMPs are not a published document. Neither the provisional coal statistics, nor the coal directory reports on displacement caused due to coal mining or the compensation paid to the project affected families.

The Directorate General of Mines Safety (DGMS), a Regulatory Agency under the Ministry of labour and employment, provides data pertaining to **occupational safety, health and welfare** of persons employed in various coal mines and non-coal mines. With regard to coal mines, DGMS, data related to accidents in CIL's various subsidiaries. These data are categorized by accidents type (fatal, serious, and minor), and by cause (fall of roof, fall of slides, rope haul-age, dumpers, truck and tanker, machinery, explosives, electrical shocks,

³⁰ For example, Chhattisgarh, <http://chhattisgarhmines.gov.in/PDF/Mineral%20Revenue.pdf>

³¹ http://www.mcl.gov.in/Business/Files/Coal_price.pdf

fall of person, fall of object, others). The accident data is updated on a monthly basis. It is openly accessible and is available in PDF format.

Data related to **environmental issues** associated with mining is difficult to access and either inadequate or fragmented. The same holds true for data on coal mining. Air and water quality data is collected by monitoring stations of the Central and State Pollution Control Boards. Some of these monitoring stations are located in and around coal fields. However, disaggregated data at the level of fields is not published. Several State Boards publish monitoring station data on their websites but not in a regular and comprehensive manner. For example, Odisha Pollution Control Board publishes on its website ambient air quality standards (SPM, RSPM, SO₂ and NO_x) for different cities and towns. However these are not updated regularly and are not provided for ever year. River water quality data on the same web portal is more up to date (upto 2012) than air quality (upto 2009).³² Developers and operators have to provide data on quality of air and water to the respective boards for compliance and monitoring, which is not published. Data related to environmental and social issues are also made available in EMPs which are not made available openly. Moreover, this information is based on anticipated impacts and management, not actual impact and provides only a developer's perspective.

³² <http://ospcboard.org/EnvironmentalMonitoring.aspx>; Last accessed on 15 May 2014

5. State of data in energy sector: coal and petroleum

Table 5.2: State of economic data in Coal sector as on 30 April 2014

Physical

Data	Forum	Supplier	Form	Cost	Openness							
					Complete	Timely	Primary	Machine processable	Non-discriminatory	Non-proprietary	License free	Remarks
Production (Total)	Data portal/MoC website/Energy Statistics/at	NIC/ MoC/ MoSPI/	Pdf, XML, CSV, JSONP, ODS	Nil	Partial	Yes	Primary	Yes	Yes	Yes	Yes	The historical data is not available in a single PDF, XML, CSV, JSONP, or ODS file. For generating detailed historical time series data access to multiple files are required covering data for different time periods
Production (mine wise/basin wise)												Mine wise data is not available. Coalfield wise is data available
Imports	DGFT, Export Import database/Ministry of Coal (Annual report)/Energy Statistics/	NIC/MoC/MoSPI/	PDF	Nil	Partial	Yes	Primary	Yes	Yes	Yes	Yes	
Exports	DGFT, Export Import database/Ministry of Coal (Annual report)/Energy Statistics/	NIC/MoC/MoSPI/	PDF	Nil	Partial	Yes	Primary	Yes	Yes	Yes	Yes	
Resources + Reserves	Ministry of Coal annual report/Open data portal of Govt of India	MoC/NIC/	xml, csv, json, jsonp, xlsx, ods, pdf	Nil	Partial	Partial	Primary	Yes	Yes	Yes	Yes	The data is not periodically updated

Monetary

Data	Forum	Supplier	Form	Cost	Openness							
					Complete	Timely	Primary	Machine processable	Non-discriminatory	Non-proprietary	License free	Remarks
Exports	DGFT, Export Import database/Ministry of Coal (Annual report)/Energy Statistics/Petstat	Ministry of Commerce/Ministry of Coal/MoPNG	xlsx	Nil	Partial	Yes	Primary	Yes	Yes	Yes	Yes	* Not freely accessible so far coal in concerned from the coal statistics

Open government data for regulation of energy resources in India

Data	Forum	Supplier	Form	Cost	Openness							
					Complete	Timely	Primary	Machine processable	Non-discriminatory	Non-proprietary	License free	Remarks
Imports	DGFT, Export Import database, Ministry of Coal (Annual report)/Energy Statistics/	Ministry of Commerce/Ministry of Coal/	xlsx	Nil	Partial	Yes	Primary	Yes	Yes	Yes	Yes	* Not freely accessible so far coal in concerned from the coal statistics
Revenue	Annual report	Individual companies	PDF	Nil	Partial	Yes	Primary	Yes	Yes	Yes	Yes	
Royalty	Data portal	MoC	xml, csv, json, jsonp, xlsx, ods	Nil	Partial	Partial	Yes	Yes	Yes	Yes	Yes	Total All india and regionwise figure; Company wise or well wise data not available; State wise figure not available, contribution of royalty to states by other companies are not provided
Grade price (coal)	Ministry of Coal annual report/	Ministry of Coal	Pdf	Nil	Partial	Updated based on when the prices are revised	Yes	Partial	Yes	Yes	Yes	The data from the previous years are available
Investments (Greenfield/ Brownfield) or (Domestic/International)	Ministry of coal annual report	Ministry of Coal	Pdf	Nil	Partial		Yes	Partial	Yes	Yes	Yes	

5.2. Oil and Gas

5.2.1. Introduction to the sector

The oil and gas sector in India contributes 2.44% to the total output generated in the country as measured by GDP at Factor Cost and employs over 136,000 people across its value chain. Further, the sector also plays a large role in international markets as it contributes 33% and 20% of the country's total imports and exports, respectively. Oil and gas account for 39.3% and 9% of the primary commercial energy supply in India, respectively, which is second only to coal. (TERI, 2013)

The sector comprises three sub-sectors, upstream which essentially covers exploration, development and production of crude oil and natural gas, the mid-stream sector that encompasses refineries and pipelines and finally the downstream sector that includes marketing of products.

Over time, the share of production of oil from the fields operated by the two major PSUs – ONGC and OIL, has either remained constant or declined. While the production of oil from the block operated by Cairn Energy India Limited in Rajasthan and the offshore gas production in the KG-D6 block) operated by Reliance Industries Limited³³ have added to the country's oil and gas production, the demand exceeds availability significantly. This wide gap between domestic production and rising demand has significantly increased the economy's dependence on imports.

In the midstream sector, India is emerging as a major source of refined petroleum products as the current refinery capacity in the country far exceeds the domestic demand for petroleum products. The current refining capacity stands at over 215 Million tonnes per annum (Mtpa). The domestic marketing sector has also increased tremendously and the total number of retail outlets now exceeds 46,000 (as on April 1, 2013) as against around 25,000 in 2005. With a burgeoning domestic demand for energy, and the resulting increase in household energy consumption, demand for automobiles and industrial usage of petroleum fuels, the demand for refined petroleum products has increased steadily at 4-5% annually over the past few years and this trend is likely to continue.

Main Agencies and Data Sources in the Sector³⁴

As mentioned the major upstream companies include two public sector companies – Oil India Limited (OIL) and the Oil and Natural Gas Corporation Limited (ONGC) and other private entities such as Cairn, RIL, BP, etc. In the refining and marketing sector, the key players include IOCL, HPCL, BPCL, GSPCL, GAIL and RGTL. As regards the major Government bodies involved in the sector, these include the Ministry of Petroleum and Natural Gas (MoPNG), Oil Industry Development Board (OIDB), Directorate General of Hydrocarbons (DGH), Petroleum and Natural Gas Regulatory Board (PNGRB) Petroleum Planning and Analysis Cell (PPAC), and the Oil Industry Safety Directorate (OISD).

³³ It is pertinent to mention here that production from the D6 block has declined significantly in the past 2-3 years

³⁴ Since the focus of this study is on extraction, the analysis in the oil and gas section has been limited to the upstream segment.

As discussed in Chapter 2, the Economics and Statistics Division of the MoPNG, the DGH, and the PPAC handle data collection and provision. While DGH provides information on the upstream sector, PPAC provides downstream data and statistics on imports, exports, refining capacities and throughput, and prices among others. In addition to these designated Government agencies, the companies themselves also provide data in the sector. For instance, the website of IOCL is a source of information on prices and location of their respective refineries. The Annual Reports and Company presentations also provide information on various performance parameters. For the purpose of this study, we do not include these in government data. Although an important source, it would not fall under the definition of government data unless it is published or released by any government agency.

Another source of information on the sector is the press releases brought out by the Government that can be accessed from the portal of Press Information Bureau (PIB) and the Parliamentary Question and Answers which can also be accessed online (both Lok Sabha and Rajya Sabha).

The Lok Sabha Standing Committee on Petroleum and Natural Gas also brings out reports on the sector. These reports are an important source of information on major performance parameters. An Action Taken Report summarising the key updates on the major recommendations provided by the Standing Committee follows each issue report. However, apart from the Demand for Grants Reports which are published every year as per the mandate, the other reports are based on specific issues and therefore do not form a source of regular information and updates.

The Data portal of Government of India under the NDSAP is another emerging source of data in oil and gas sector. It does not provide any new data that is not available in the reports and statistics of MOPNG and associated agencies. However, it puts the data provided by MOPNG in an open format, which is in compliance with the NDSAP principles of open government data. A list of relevant oil and gas data uploaded on the data portal is given in Table 5.3.

Table 5.3: Oil and gas data on Government of India's Open Data Portal (data.gov.in) as on 30 April 2014

Title	Description
Reserves of Crude Oil in India	State wise and year-wise reserves of crude oil in India
Reserves of Natural Gas in India	State wise and year-wise reserves of natural gas in India
Royalty And Oil Development Cess Paid By Oil Companies On Production of Crude Oil And Natural Gas	Royalty and oil development cess paid by oil companies on production of crude oil and natural gas in India
State-wise And Company-wise LPG Domestic Consumers	State-wise and company-wise LPG domestic consumers in India
State-wise And Company-wise Retail Outlets	State-wise and company-wise retail outlets of petroleum products in India
State-wise Gross Production of Natural Gas in India	State-wise and year-wise gross production of natural gas in India
State-wise Production of Crude Oil in India	State wise and year-wise production of crude oil in India
Trends In India Overall Trade Balance And Trade Balance With	Trends in India's overall trade balance and trade balance with OPEC countries

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Title	Description
OPEC Countries	
Trends in Indian Petroleum Industry at a Glance	Reserves, Consumption, Production and Import & Export of Petroleum Products, Crude Oil and Natural Gas in India
Area-wise Development of Deep Drilling Rigs / Wells / Metreage Drilled	Area-wise development of deep drilling rigs, wells and metreage drilled in India
Category-wise Manpower Employed In The Petroleum Industry In India	Category-wise manpower employed in the Public Sector Undertakings (PSUs) in India
Crude Oil, Natural Gas and Product Pipelines in India	Company-wise and year-wise pipelines of crude oil, natural gas and product in India
Import/Export of Crude Oil and Petroleum Products	Annual Import/Export of Crude Oil and Petroleum Products in India
Industry-wise Offtakes of Natural Gas in India	The data refers to Industry-wise and year-wise offtakes of natural gas in India
Month and Year-wise Average of International Crude Oil Prices (Indian Basket)	Month & year-wise average of International crude oil prices (Indian Basket)
Performance of Public Sector Undertakings Under The Ministry of Petroleum And Natural Gas	Details on the performance of Public Sector Undertakings (PSUs)
Petroleum Refining Capacity in India	Refinery capacity and year of commissioning of refinery in India

5.2.2. Major Governance Challenges

The key governance challenges in the oil and gas sector in India today relate to allocation of resources, pricing policy and provision of subsidies on natural resources and overall transparency in the sector. These are discussed below:

Allocation of resources: Need for transparency on policy decisions

Allocation is undertaken for mines/reserve acreages as well as the resources (i.e. oil and gas produced from the acreages) itself. Policies on allocation of oil and gas, the existing operators and acreages operated by them, expenditure incurred in development of different fields, production levels from each awarded block could be shared with the general public on a regular basis to ensure greater transparency and accountability in the sector.

Allocation of oil and gas acreage has undergone several policy and regime changes in the country. The major regimes include allocation by nomination, followed by the Joint Venture-PSC regime and the current New Exploration Licensing Policy (NELP). Within the NELP, there have been changes in the terms of license offered to the bidders over time. These changes relate to pricing of the resource produced, taxation of the output and any discounts in payments to the exchequer. Clarity in these policies and the terms under which each block/field is allotted for exploration is necessary to ensure transparency in the sector. Information on the allocation of blocks and the regime under which these have been allotted is available through the DGH. However, the specific details under which each of the contracts operates are not provided in detail through any open information source.

Further, information on the total expenditure incurred in developing the oil and gas fields are also not made public. In this context, the Report of the Committee on Allocation of

Natural Resources in 2011 also proposed a reconstitution of the DGH as an independent technical body that works on contract administration to increase transparency in procedural aspects of resource allocation (Cabinet Secretariat, GOI, 2011). As mentioned earlier, another aspect of allocation in the oil and gas sector in India is the policy on allotment of the resource itself. As per the existing terms under the NELP, any oil or gas produced from the allocated blocks is to be sold within India as long as the country is a net importer of these resources. In case of natural gas, a more specific direction is provided by a committee of Empowered Group of Ministers (EGoM) that oversees and decides on the allocation of natural gas produced in the country. However, while the decisions made by the EGoM are made public, the details of its meetings and decision process are not shared with the public at large on a regular basis through any accessible formats.

Pricing

Pricing, taxation, and provision of subsidies have historically been a major issue concerning the oil and gas sector in India. Subsidies on major petroleum products have been provided in order to reduce the impact of changing international prices on the domestic markets and, in some cases, to maintain the affordability of these products.

Over time, while policies of pricing have changed to reflect contemporary circumstances in some areas and a few products, the persistence of subsidies has been a critical issue affecting not just the petroleum sector but also the overall macroeconomic performance of the country. Subsidies to the sector accounted for over 28% of the total subsidies budget for 2013-14.³⁵ Over time the pattern of sharing subsidies and under-recoveries³⁶ on sensitive petroleum products has also changed with the Government now sharing the burden up front and also requiring the upstream companies to provide discounts to the downstream sector. The provision of subsidies and ad-hoc pricing of petroleum pricing has been entrenched in the existing system, so much so, that the initial attempts to introduce any reforms faced adverse public reaction. In order to reduce such repercussions and to ensure smooth transitioning to transparent pricing regimes, constant sharing of information through formats that are easily understood and acceptable is necessary. Clarity on the subsidy and pricing policy, details on the existing mechanism of sharing the burden between the Government, the oil companies and the final consumers is necessary to enhance the level of governance and transparency in the sector.

Transparency in Contracts

Transparency in the contracts signed in the natural resources sectors is increasingly being accepted as an important indicator of good governance. As in the case of most countries, oil and resources form public assets in India. The Government acts as a custodian of these resources and is responsible for ensuring their effective and efficient management. In making the terms of these contracts public, the Government can efficiently achieve this objective and, at the same time, vigilance from the civil society and think tanks helps ensure public pressure on operators and government bodies to meet the targets set in each contract.

³⁵ Petroleum and Natural Gas Statistics, 2012-13, available at <http://petroleum.nic.in/pngstat.pdf>, pg 62; last accessed on April 19, 2014

³⁶ The difference between the desired price of a petroleum product for supply to OMCs' dealers/distributors and the government controlled price of that product is referred to as the gross under-recovery per unit of the product.

A recent case in point is the contract for developing the D6 block in the KG basin by the consortium of RIL and Niko Resources (and now, includes BP) where the fall in production of gas led to a significant controversy and are still a reason for conflict between the operator and the government. The report of the Comptroller and Auditor General (CAG) also identified certain irregularities in the award of contracts and the completion of the minimum work programme as was agreed to in the contract. Similar irregularities were also brought out by the CAG on exploration carried out in blocks awarded under different licensing regimes across the country. Further, the provision of allowing full cost recovery and using Production Sharing Contracts (PSCs) as the appropriate mechanism for licensing petroleum acreages has also been debated in both policy forums and in media.

Publication of major contract terms can help reduce the speculation and controversy in such issues and can also ensure the performance of companies is monitored on a regular basis.

Transparency in revenues and spending in the sector

The petroleum and natural gas sector is a large contributor to the state and central exchequers. In the year 2012-13, the total payment to the central and state exchequers from this sector stood at INR 117,422 crore and INR 126,516 crore, respectively. Of this, cess, royalty and profit petroleum on production of oil and gas (which can be attributed solely to the upstream sector) alone stood at INR 33,639 crore. While royalty is collected on the blocks allocated under the JV and NELP regime, the cess is paid on the production from blocks allocated under the nomination regime. In addition to this, revenues also accrue in the form of corporate and income taxes, sales tax, octroi and entry taxes etc.

While these broad parameters are available in open data format, specific details such as block wise revenues, payments and profit petroleum paid by each company are not available. Currently, a large proportion of the revenues collected in the oil and gas sector are transferred to the Consolidated Fund of India and clarity on the extent to which these are used in addressing the needs of the sector itself are not provided. Further, the transfers made from Central Government revenues on account of the oil and gas sector to the state and other governing bodies at the sub-national level is also not available.

Environmental impact of oil and gas exploration

As in the case with most extractive industry sectors, upstream activities in the oil and gas sector have a significant environmental impact. The Deep water Horizon oil spill in the US is an example of this. In addition to such rare but high impact events, there are other instances of accidents and adverse implications of day to day oil and gas operations on the neighbouring flora and fauna. Even when initial surveying and exploration related activities take place, there are repercussions which need to be duly accounted for and mitigated. Currently, however, the existing norms for the sector do not mandate public sharing of information related to these impacts.

Information on the environmental and social impact of oil and gas industry therefore needs to be shared in the public domain and regular insights need to be provided by the concerned company and government officials on a regular (and time-bound) basis.

5.2.3. State of data and data gaps

Data for the upstream petroleum and natural gas sector can be classified into physical, monetary, environmental and social. Physical data relates to information on reserves, production of hydrocarbons, exports and imports. (See Table 5.4)

Data on total **production** of crude oil and natural gas is useful in assessing the domestic availability of these energy sources. Further, in case of India since one of the key issues currently affecting the domestic energy industry is the dwindling production of energy sources provision of regular information on the level of production on crude oil, petroleum products and natural gas is crucial. Data on total production is available in pdf format on the website of the MoPNG. In addition to the cumulative numbers for each financial year, the Ministry also publishes monthly data. The historical data (for more than a decade) for monthly production is available on the Ministry's website. In addition to the cumulative production, data on field-wise production can be found in the Activity Report published by the DGH annually. However, the information in each report is for the respective financial year and does not provide cumulative data for the past periods. To some extent the PPAC provides compiled information on production of natural gas where the state-wise production is reported but for offshore acreages however, the cumulative production levels are provided and not distributed across the blocks.

Data on oil and gas **reserves** is also provided in the Annual Statistical Publication produced by the Ministry and the field-wise reserve levels are provided in the DGH's Annual Activity Report. In the Activity Report, the data on aggregate initial in-Place reserves is provided as aggregate figures. The company-wise numbers are provided only for the two PSUs – ONGC and OIL whereas the total number for blocks awarded under the JV/PSC regime are provided. These sources, however, do not provide any indication of the methodology used for computing the reserves and the reasons for any changes in the reserve levels that become apparent over time.

The trade data on crude oil and product **exports and imports** is provided by PPAC and the MoPNG. The data by PPAC is in downloadable as excel sheets and is updated every financial year. Further, the recent datasheets also carry monthly information for the most recent financial year. In addition to the physical quantity of trade volumes, the value of traded quantity is also available in different worksheets that provide this information in two currencies - INR and USD. However, disaggregated data on the sources of imports and the destination for exports of hydrocarbons is not available. While information can be found in the Export Import statistics of the Ministry of Commerce, it requires using a query based system based on the Harmonized System Code of the respective energy sources. While some of the recent reports of the Lok Sabha Standing Committee on Petroleum and Natural Gas provide this information these sources are not regularly updated. Given the importance of imports in meeting the country's demand for oil and gas and its implications on the overall oil supply security, it is necessary that this data be regularly updated in the commonly used sources for information.

On **monetary** data, the most important factors to be considered are tax and other revenue for the exchequer, pricing of the energy sources, subsidies and investments in the sector. This sector is one of the largest contributors to the state and central government revenues and therefore the inflows and outflows in the sector need to be monitored on a regular basis.

Sales tax rates are determined by the state governments and accordingly vary across states. The level of tax on major fuels and the total tax revenue is provided by the PPAC where it is available in downloadable excel worksheets and is available for the past two years. In the annual petroleum statistics publication of the MoPNG, the data is available in pdf and hard copy format for the period 2005-06 to 2012-13. In addition to the sales tax, the Government also recovers revenues in the form of Oil Industry Development Cess, royalty from upstream production and excise on petroleum and natural gas produced within the country. The time series (approximately ten years) information on these sources is also available in the Petroleum and Natural Gas Statistics.

As regards the outflows from Government, **subsidies** on petroleum products form a major expenditure head for the Central Government. Information on subsidies and under-recoveries is provided by the PPAC and the MoPNG. The level of under-recoveries is calculated on a fortnightly basis and pdf documents with the latest information and data are uploaded on the websites of the Ministry and the PPAC. The information on sharing of under-recoveries among the government, upstream companies and OMCs is also provided by the MoPNG.

The prices of all products are also available in the Petroleum and Natural Gas Statistics publication. The prices of crude oil are determined on the basis of international prices and the average price of the Indian crude basket is also provided in a machine readable format by the PPAC. Information on investments is, however, not available in a consolidated format. To some extent, parameters relating to investments can be found in the Annual Reports of the Companies. However, in most cases, these too, do not provide individual field level investments made by the operators. The requirements and stipulations for blocks allocated under the New Exploration Licensing Policy (NELP) are available in the Model production Sharing Contract. However, the actual contracts signed by the operators and the government are not available in the public domain.³⁷ Details related to contractual obligations for some upstream contracts were made available in the reports of the Comptroller and Auditor General but these too do not provide detailed information on the contracts, the basis for investments and the progress on these.

Activities in the oil and gas sector have significant impact on the **environment** and on the **communities** that these businesses operate in. Large areas of land need to be acquired in order to drill for oil and gas resources and right of way needs to be taken for laying of pipelines to transfer the extracted resources to other facilities such as refineries, compression stations etc. Information on the size of land acquired, details of R&R packages awarded, environmental impact of activities in the sector and efforts made to ensure ecological sustainability in the sector are essential. Most of these are not publicly available.

Information on **health and safety** is useful in determining the extent to which best practices are being followed in the sector. This can also be beneficial in ensuring that the operators and market players meet the standards set in these aspects and in making a comparison with the international best practices. Sustainability Reports of companies provide information on incidents, fatalities, working time lost etc for the respective companies. They also provide information on energy, water and overall emissions. However, the reports carry information

³⁷In some cases it is argued that such information is sensitive and affects the commercial interests of the companies and therefore these contracts are not provided in the public domain.

on individual companies and consolidated data is usually not available. Further, in many cases, the format for reporting also varies across the companies. The Directorate of Mines Safety does provide consolidate data on oil industry related accidents for the most recent three year period, but here, the data is not provided according to the companies, blocks or even segments of the industry.³⁸

³⁸ The latest supplement is available at http://www.dgms.gov.in/pdf/statistical_info/MRA/2014/MRA_FEBRUARY_2014.pdf, last accessed on May 16, 2014

5. State of data in energy sector: coal and petroleum

Table 5.4: State of economic data in oil and gas sector as on 30 April 2014

Physical

Data	Forum	Supplier	Form	Cost	Openness							
					Complete	Timely	Primary	Machine processable	Non-discriminatory	Non-proprietary	License free	Remarks
Production (Total)	Website of the MoPNG	MoPNG	pdf	Nil	Partial	Yes	Yes	Partial (it is in PDF)	Yes	Yes	Yes	The data is made available at the end of each month and the report for March each year contains the details for the entire financial year
Production (fieldwise)	Activity report	DGH	pdf	Nil	Incomplete	Yes	Yes (it is compiled by DGH but provided by the companies to the DGH)	Partial	Yes	Yes	Yes	
Imports	PPAC/Ex-IM bank	PPAC/Ex-IM bank	excel	Nil	Complete	Yes	Yes	Yes	Yes	Yes	Yes	
Exports	PPAC/Ex-IM bank	PPAC/Ex-IM bank	excel	Nil		Yes	Yes	Yes	Yes	Yes	Yes	
Reserves + Reserves	Petroleum Statistics and DGH Activity report	MoPNG/PPAC	pdf	Nil	Partial	Partial	Yes	Partial (in pdf)	Yes	Yes	Yes	

Monetary

Data	Forum	Supplier	Form	Cost	Openness							
					Complete	Timely	Primary	Machine processable	Non-discriminatory	Non-proprietary	License free	Remarks
Exports	PPAC/Ex-IM bank	PPAC/Ex-IM bank	excel	Nil	Complete	Partial	Yes			Yes		
Imports	PPAC/Ex-IM bank	PPAC/Ex-IM bank	excel	Nil	Complete	Partial	Yes			Yes		
Royalty	Data portal	MOPNG/NIC	xml, csv, json, jsonp, xlsx, ods	Nil	Partial	Partial	Yes	Yes	Yes	Yes	Yes	Total All India and region wise figure; Company wise or well wise data not available; State wise figure not available

Open government data for regulation of energy resources in India

Data	Forum	Supplier	Form	Cost	Openness							
					Complete	Timely	Primary	Machine processabl e	Non-discriminat ory	Non-proprietary	License free	Remarks
Royalty	Petroleum Statistics	MoPNG/PPAC	pdf	Nil	Partial	Partial	Yes	Partial	Yes	Yes	Yes	Total All India and region wise figure; Company wise or well wise data not available; State wise figure not available
OIDB Cess	Data portal	MOPNG/NIC/PAC	xml, csv, json, jsonp, xlsx, ods	Nil	Partial	Partial	Yes	Yes	Yes	Yes	Yes	Total All India figure; Company wise or well wise data not available
OIDB Cess	Petroleum Statistics	MoPNG /PPAC	pdf	Nil	Partial	Partial	Yes	Partial	Yes	Yes	Yes	Total All India figure; Company wise or well wise data not available
Grade price (coal)	PPAC and oil company websites	PPAC and oil company websites	html, xls and pdf	Nil	Partial	Yes	Yes	Partial	Yes	Yes		
Pet. Prod. Prices	PPAC and MoPNG	PPAC	xls, pdf	Nil	Complete	Yes (perhaps one of the only data numbers to be reported on a fortnightly basis)	Yes	Yes	Yes	Yes	Yes	
Subsidies	PPAC and MoPNG	PPAC	xls, pdf	Nil	Complete	Yes (perhaps one of the only data numbers to be reported on a fortnightly basis)	Yes	Yes	Yes	Yes	Yes	

5.3. International Best Practices

In this section, the report discusses institutes involved and practices in data sharing for energy in various countries. Practices in Canada and UK are discussed with respect to data specifically on petroleum and natural gas while those of USA and Australia discuss data on energy in general. A concluding table draws learning for India from these international experiences.

5.3.1. Canada

Data on oil and gas sector is available through various government and non-government agencies in Canada. The role of some of the major players in data provision is discussed below. In addition to this, under the country's Action Plan on Open Government, *the data.gc.ca* portal provides enhanced web-based access to information.

Statistics Canada – The agency conducts surveys to collect detailed information on the oil and gas exploration, development and production sector. In addition to making the data available, the detailed methodology for conducting the surveys is shared on the Website.

Natural Resources Canada (NRCan) - is a body of the Government of Canada and acts as the nodal agency for provision of data on natural resources. NRCan is responsible to coordinating the collection of data on mineral production, exploration, trade, and use. It also coordinates the collection of off-mine-site and on-mine-site expenditures for the exploration and deposit appraisal phases and the mine development phase. The provision and updating of data is coordinated with Statistics Canada. For the companies providing this data, a reporting guide for Mineral Exploration has been provided. In addition to this, at the federal level, various provincial governments provide information on the resources of their individual regions. Detailed description of all energy sources, including unconventional sources such as shale gas, oil sands, exploration techniques are all made available on the website of the agency.

Canadian Association of Petroleum Producers (CAPP) - is an industry association that plays a role in making data available in Canada³⁹. The Webpage of the association provides basic data on the sector. In addition this body also makes available information on expenditure in the sector. Provisional level data is also provided (in a machine readable format).⁴⁰

5.3.2. United Kingdom

The largest source of oil and gas production in the UK is the oil fields in the North Sea. The Department of Energy and Climate Change (DECC) is the main body responsible for governing the oil and gas sector in the country. Within the DECC, the Office of Gas and Electricity Markets (OFGEM) regulates the sector and protects the interests of consumers. The OFGEM provides access to most of the regulation related information and data in the sector.

³⁹ <http://www.capp.ca/library/statistics/basic/Pages/default.aspx>

⁴⁰ These can be accessed at

<http://www.capp.ca/library/statistics/handbook/pages/statisticalTables.aspx?sectionNo=4>

Producer wise and field wise production data is made available electronically⁴¹. Data on revenues from the sector is also made available in PDF by the HM revenues and Customs Department.⁴² Most of the data provided by the DECC is in machine-readable formats. Further, in most places, contacts of the relevant officials for getting more information are also readily available. For sensitive information such as that relating to upstream exploration, data is made available once the Confidentiality Period is over.

5.3.3. United States

The Energy Information Administration (EIA) works as a part of the United States Department of Energy (DOE) and is responsible for providing information related to the energy sector in the country.

Legislative history

The Federal Energy Administration was established in 1974 under the Federal Energy Administration Act. The FEA was mandated to "...collect, assemble, evaluate and analyse energy information..." Further, under the Energy Conservation and Production Act of 1976, the Office of Energy Information and Analysis was set up within the FEA. This body later became the Energy Information Administration (EIA). This was followed by the Department of Energy Organization Act of 1977 and the Energy Policy Act of 1992 that established the EIA as the federal government authority for energy related information and expanded its mandate to collect and collate information. Subsequently, the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007 have further expanded the mandate of the EIA to cover additional fuels and to provide and prepare additional information sources and reports. A group within the EIA also deals with requests for information under the Freedom of Information Act (FOIA).

Coverage of data and information

EIA provides data on the energy sector through its website www.eia.gov. The data and information provided covers reserves, production and consumption, and trade in all energy sources. In fact, in many cases, EIA also serves as a prominent source of international information and data. Information is classified according to sources of energy, geographies and topics. In source of energy all forms of energy spanning across both primary and final sources are included. The topics covered include analysis and projections, environment, markets and finance, and current energy issues. Under geographies, information at the federal as well as that for other countries can be found. Data series are updated at different time period frequencies (weekly, fortnightly, monthly, annual).

All reports are provided in a pdf format and almost all data is provided in both pdf as well as downloadable Microsoft Excel formats. For more detailed analysis, time series data sets across several decades are also available. For the upstream sector, information is also provided in the form of maps that show the production across basins. Maps for some of the categories are also prepared using GIS enabled software and are available on the shape file (.shp) format.

⁴¹ https://www.og.decc.gov.uk/pprs/full_production.htm, last accessed on April 14, 2014

⁴² This is available at <http://www.hmrc.gov.uk/statistics/prt/og-stats.pdf>, last accessed on April 14, 2014

5.3.4. Australia

Australia's mining and mineral wealth has been an important contributor to the country's economy. Among all mineral resources, Australian coal forms an important source of energy in domestic as well as international energy markets. Increasingly, the gas sector is also gaining ground and Australia is expected to emerge as a large supplier of LNG in the international energy markets. The roles of some of the major agencies in providing energy related data in Australia is given below:

Australian Bureau of Statistics – is the agency responsible for providing all statistical data in the country. It was formed in 1975 as an independent statutory authority under the Australian Bureau of Statistics Act. The Bureau conducts surveys to collect and collate information across all sectors in the economy.

Geosciences Australia – provides all mining and minerals related data and information. The webpage also provides interactive maps that give detailed mining related information for the entire country. The Department serves as the central source of information on all natural resources. With regard to energy, information and data are available on petroleum, coal, and renewable energy. It also provides details of basin geology through interactive maps with detailed data on the sector. The Department also brings out a publication titled "Australia's Identified Mineral Resources"⁴³ which provides updates on the overall energy trends in the country.

Bureau of Energy Economics (BREE) - is a research unit under the Department of Resources, Energy and Tourism. The unit annually publishes the Energy in Australia⁴⁴, a publication that summarises the status of energy sources in the country and provides information on energy development including information on production, trade and prices. The report is available in both pdf and MS Word formats.

Subnational Government Agencies - In addition to the federal level organization, provincial websites such as the Department of natural resources and Mines provides detailed information on energy sources in the state. In addition to the physical data and production details, the website also covers mining health and safety related data.

Table 5.5 summarises some of the lessons from international practice for India.

Table 5.5: Lessons from international practice

Issue/Factor	International experience and lessons for India
Single source of information for all energy/extractive resources related information	The US EIA and the Queensland Government's Department of Natural Resources and Mines provide examples of web sources that provide all energy information at one one source.
Formats for providing data	Interactive maps, data tables, downloadable worksheets and charts are increasingly being adopted by government agencies for providing the data and information in the open

⁴³ Available at < http://www.ga.gov.au/corporate_data/75326/75326.pdf>, last accessed on May 19, 2014

⁴⁴ For the latest issue, see <http://bree.slicedlabs.com.au/sites/default/files/files/publications/energy-in-aust/bree-energyinaustralia-2013.pdf>, last accessed on May 19, 2014

Issue/Factor	International experience and lessons for India
	format. Australia Government's geosciences Australia provides detailed interactive maps for all mineral resources with location of mines, resources etc.
Maintaining historical time series and making them easily accessible	The EIA website has data series for some variable starting from the 1970s. Such long term data is very useful in determining the long term trends of energy sources.
Frequency of updating data	Data is updated at varying frequencies depending on the nature of the data itself. EIA provides data series with varying frequencies ranging from Daily updates to weekly, monthly and annual. But almost all data is revised annually across all major information agencies

5.4. Conclusion

Coal sector in India, is considered to be 'opaque' in its functioning. Its largely a public monopoly with restricted private participation in captive mining. Most of the exploration related data is held either by the GSI or CMPDI (a CIL subsidiary). There are concerns that private players engaged in captive mining may not have access to same level of exploration data as CIL and hence may not be able to make right investment decisions. In recent years, there have been concerns raised in delays in clearance for captive blocks. Further coal mining, particularly open cast has substantial impact on environment and impacts local community. These are some of the governance challenges which may be mitigated with greater availability of data.

In the Oil and Gas sector, particularly with increased private and foreign participation, there is growing need felt for data and information on process and terms of contracts both in case of reserves/fields and in case of resource utilization by different sectors. A report of Revenue Watch in 2013 also ranks India low on 'contract transparency' and much higher on other parameters under the Resource Governance Index. There have been audit reports that bring out irregularities in terms and process of block allocations. There is lack of information on expenditures incurred in development of blocks. There are also growing concerns on assessing the environmental impact of oil and gas exploration. While data is important for transparency in the sector, there is even a greater need for information such as minutes of important inter-departmental government meetings where policy decisions are made.

In terms of data on production and revenue, both coal and oil sectors provide sufficient data. Disaggregated data mine-wise in case of coal, though collected, is not made available in the public domain. Disaggregated field wise data in the petroleum and natural gas sector is provided by DGH but time series Overall, data in the petroleum and natural gas sector is more recent, available from multiple sources and often in 'machine readable formats' (Excel). Coal data is predominately provided by a single agency – the Coal Controller is relatively more dated and available in hardcopy (Coal Directory) and in PDF (Provisional Coal Statistics). The structure of the two industries, one a public monopoly and the other more competitive may partly explain this. Discussions with concerned agencies suggest that PPAC finds it relatively easier to collect data from companies (public and private) than does

the Coal Controller which collects data from the public sector monopoly CIL and its subsidiaries. Private participation may compel the government under pressure from competing public sector units and also the public to monitor and collect more data. While it is difficult to comment on the quality of data in both the sector (given that data is collected as is by the agency), margin of error may be lower in petroleum and natural gas given the more streamlined process of collecting data. Both PPAC and DGH allow companies to directly feed data on an online system. This reduces human intervention atleast at the data collectors end and hence possibility of error. Such system of feeding data is not available in case of the Coal Controller.

Data Related to Energy Sector on the Data Portal

Catalogues on the data portal are maintained ministry-wise. While key word search is possible, data has not been categorized sector wise. This can lead to multiplicity and some confusion as more than one ministry can upload data on a certain aspect/ sector. Similarly some limited data on coal is available from the Ministry of Mines. At present data from the Ministry of Coal or the Coal Controller of India, the repository of coal data in India is not available on the data portal. In terms of the tenets of 'high quality' data, observations on coal and petroleum & natural gas data available on the data portal against different OGD parameters is given in Box 5.1 **Error! Reference source not found..**

Overall the portal is at a nascent stage. As per the NDSAP, 2013, all datasets were to be published on the Data portal within a year of notification of policy. Within the first three months at least 5 high value datasets are required to be published. The data portal is very far behind in meeting these targets and many important Ministries and Departments missing altogether from the portal.

Box 5.1: Coal and Oil & Gas data on Data.gov.in

Completeness: Since the data portal initiative is a recent initiate, it is only gradually that the Ministries and other government agencies are getting connected to the portal. There is very limited data available at present. For many parameters historical data has been provided but for different parameters data has not been provided over the same period of time. This may make comparison of data across parameters difficult.

Primary: Data is made available by the government source and hence can be considered as primary. However details on where exactly the data has been collected from within each Ministry has not been clearly brought out.

Timeliness: Though no specific timelines have been defined, it is suggested that data which is time sensitive should be prioritized. Since annual data only is provided in most cases, the data is a little dated as of 2011-12.

Easy of Physical and Electronic Access: Since the data set is provided across five different resource formats all of which are open source, it can be considered as easily accessible.

Machine Readability: All data provided on this portal is machine readable

Non-Discrimination: There are no requirements for membership for registering on the site. Hence it can be classified as non-discriminatory.

Use of Commonly Owned Standards: Data is provided in following formats: HTML, XLS, XML, ZIP and CSV. All are open source formats.

Licensing: The portal states that "content available on data.gov.in is the intellectual property of NIC and its various content providers from Government of India". Further a disclaimer has been issued on the site that it 'shall not be liable for any delays in content updation by the respective content providers or for any actions taken in reliance thereon'. The responsibility for updation rests with the data controllers, now called the Data Managers.

Permanence: As of now, no data seems to have been removed or archived. However, it would be too early to remark on this aspect.

Usage Cost: There are no costs associated with using/procuring the data available on this portal.

Currently, the data is scattered making it time consuming and difficult for users to retrieve data. More importantly, there is negligible awareness about this site, particularly with the Industry and Researchers. Most data users continue to depend on other data sites and sources of various Ministries, for instance the Petroleum Planning and Analysis Cell (PPAC) website in case of Petroleum and Natural Gas and the Annual Coal Directory of the Ministry of Coal. Technically the site is not user friendly and different links take long to open. There are other technical issues in the functioning of the website and on occasions the website has found to be non-functional. Clearly much more needs to be done both technically and in terms of the quality and amount of data being provided. Given that the data portal is still experimenting with different versions, it will be worthwhile to take note of these challenges into consideration.

6. Issues with existing data and challenges in opening government data

This report has delved into the rationale for promoting Open Government Data (OGD) initiatives in the resources sector of India (coal, oil and natural gas) followed by the existing institutional frameworks for proactive and reactive disclosures in the country – supported by case studies of some relevant institutional arrangements – and the state of data in the resources sector by focusing on the governance challenges that can be addressed by more ‘openness’ in government data.

This report has developed the case for promoting and incorporating the principles of OGD into existing data and information frameworks of the resources sector of India and will now look at the concerns of users of government data that must be addressed by the OGD framework/initiative as well as the concerns and challenges to suppliers of data in making government data ‘open’. This chapter focuses on the various concerns of users of government data and the challenges to suppliers, providers and intermediaries for government data in making data ‘open’.

6.1. Approach to identifying challenges

The concerns and challenges reported here are based on the discussions at the stakeholder consultation held in July 2013 on “Open Government Data and Resources” organized by TERI as well as research interviews with numerous stakeholders in coal and petroleum sectors and data in general – users, suppliers, intermediaries of government data. A list of participants at the stakeholder consultation and the key personnel interviewed for this exercise is provided in annexure I. The summarised proceedings of the Workshop organized in July 2013 is provided in Annexure II.

The concerns highlighted at the stakeholder consultation were organized under three sessions focusing on the governance challenges in the resources sector that can be addressed by data and OGD; user perspectives on availability to accessibility of data and the suppliers’ perspective on bringing the data from government to citizens.

6.2. Challenges or concerns of suppliers and intermediaries

During the course of the study interviews were conducted with various government agencies providing upstream coal and oil & gas data. Interviews were also conducted with agencies providing environment related data on the two industries. Since the NDSAP and the Open Government Data initiative is at present limited to the Centre, the focus was mostly on central government agencies. Additionally interviews were also conducted at the state level, in Madhya Pradesh, to assess state of data and its openness at state level. Madhya Pradesh has substantive reserves of coal and hence the focus was on discussion with mining agencies as well as agencies monitoring environmental data.

Overall, the level of awareness about the NDSAP and Open Data portal varied amongst stakeholders. While most of the concerned Ministries were aware of the initiative, their

respective data providing technical agencies were not. Many of these technical agencies reported that they have so far not been asked to provide data for the open data portal by the NIC. In many cases, it is only the Ministries which interact with NIC on data and respective data agencies only provide data to their Ministries. The level of awareness at the state level is even lesser and none of the stakeholders interviewed in Madhya Pradesh had any awareness of the Open Government Data Initiative. They however felt, that RTI itself was sufficient to ensure data availability to the public.

Discussions with data suppliers and intermediary data providers shed some light on their concerns in providing data to the public and challenges in introducing an open data initiative in the energy resources sector of India.

6.2.1. Concerns regarding open data

Data sets are important source of information and there is a need to promote the use of data by citizens. However, many in the bureaucracy feel that people are not responsible enough to acquire data, may use it irresponsibly and do not need to concern themselves with detailed data. At the same time, some data providers also fear that incorrect analysis of data may lead to misconceptions and may hurt business interests or larger public interests and hence there is a certain hesitation in sharing all government data to the public. This leads a lot of data suppliers to err on the side of caution in what data is being published and whether it is useful. At times, government departments themselves rely on private and international sources of data for their analysis when such data is not readily or comprehensively available from their own sources. However they are not fully confident of the quality of this data and hence avoid sharing raw data with the public.

Several public sector data providers feel that there is a need for a level-playing field across public sector and private sector entities – where public sector companies have been given a statutory obligation of sharing data with government ministries and other public institutions, there is no similar compulsion for private companies. Private companies who already share data with the government feel that while the government expects private data to be shared free of cost, government data is not provided freely to them.

In several aspects, data suppliers feel that there has not been a detailed consideration on whether certain data should be made public or not – for instance data on environmental impacts in energy production. There are certain categories of performance and environment data that are collected by private companies which can be provided through the government in a consolidated manner. While some high performing companies would be interested in sharing this data, under performing companies would not like to share such data for fear of an adverse impact on their corporate image.

6.2.2. Lack of clarity on mandate

Most reactive or proactive data provision initiatives in India have implied an increase in effort from the data suppliers increasing their mandates without provision of appropriate resources. Any work that is mandated under NDSAP is seen as additional work over and above the reports they publish already. This leads to reluctance in maintaining databases with the aim of making it open to public. Data suppliers and providers also felt that there is

little clarity on the need and purpose for open government data and this is not in congruence with the requirements of intended stakeholders.

Suppliers also felt that while institutions like PPAC have a clear mandate to collect and report data on the oil and natural gas sector, this mandate is not clearly communicated to other agencies who do not manage data as their mandate. For instance, there is no clarity on which is the right agency which is legally mandated to collect data on capacity of pipeline and re-gasification terminals and there is little clarity on the purpose of this data's intended usage and the periodicity of its updation. Even though this data is readily available with Customs and Excise authorities, the MoPNG website does not link up to the website of Customs and Excise to provide this data on its own side, where it may find more users. There are however, some good examples of sharing of data such as the all India data on LPG customer base which became possible since the GoI mandated oil PSUs to check unintended subsidies and share their database with each other. Several data intermediaries are of the opinion that a lot of data can be made available but it is not done so due to the lack of will, capacity, resource and a clear mandate for the data suppliers. Intermediaries also report that previous years data is stored electronically by data suppliers yet recent reports or data are only provided in hard copies which implies that the agencies have the technology and expertise, but little motivation to provide updated data electronically.

6.2.3. Agency specific issues

Data suppliers and intermediaries also report that there are multiple agencies collecting the same data and quite often the same data set has to be provided by one government agency to several different government agencies. Collection of the same data by different agencies should in essence lead to multiple checks and verification, but very often agencies collecting data do not maintain data integrity or verification mechanisms. Interactions with data suppliers in private companies revealed that industry is asked for the same data by multiple agencies as well implying little coordination within government agencies. This is most evident in the sudden demands for data to address parliamentary questions.

In several instances reported by data intermediaries, data from two sources does not match due to different definitions and assumptions adopted by different agencies. It is advisable to use definitions put forth by international agencies for metrics and units in such cases. In practice, whatever data is provided by companies is not re-scrutinized as it is assumed that companies have an internal audit and monitoring system with little human interface that can lead to tampering of data.

6.2.4. Resource challenges

Data suppliers and data providers feel that there is a lack of information infrastructure and e-governance to provide machine readable, reusable and easily interpretable data to the public. As mentioned above, there is a need for separate allocation of resources for this purpose. Respondents said that agencies have not been able to archive a lot of data collected by them and in fact a lot of data is lost because it is not preserved properly – either not archived in proper formats or not archived at all.

Quite often untrained professionals are employed to collect and manage data. While more and more policy makers are relying on data for decision making, the resources allocated to

data collection and classification have not increased accordingly. For instance, the number of statisticians has not increased in departments and most data supplying and providing agencies lack trained statisticians and IT professionals to maintain and supply data. Moreover many of these agencies see frequent staff movement across agencies which results in them losing trained personnel.

In the absence of dedicated and trained staff, other officials have to work on data which is not always a priority for them. Even agencies with specific mandate to provide data do not have appropriate capacity and staff. Respondents mentioned that in most agencies, the statistics department responsible for managing data is the most neglected with minimum resources provided and little scope of work. This not only affects collection and supply of data but also discourages demand for data from agencies.

6.2.5. Privacy issues of commercial data and contractual constraints

In many instances, data is not shared by suppliers and intermediaries under contractual conditions on sensitive information (not to be shared with public or other competitor companies). At times a lot of data is not shared because the concerned company fear that the data could lead to speculation and adversely impact price of companies stock at the exchange. This has reportedly been the case with CCO which has been asked by the monopoly coal supplier to withhold certain data that might impact investor behaviour. In case of oil & gas companies, where there exists greater competition, there are concerns about sensitive information reaching competing organizations.

Data suppliers from the private sector opined that industry is generally apprehensive of sharing data which may have commercial value as they are concerned that government systems are porous and data may get leaked. Suppliers for instance state that at times some of their data which they consider confidential is provided to the government but it finds its way into the websites and reports sold by data intermediaries (for public consumption).

6.2.6. Formats for data collection

In a country like India which is extremely heterogeneous, collection of data in itself is a challenging task. It has been observed that the classification of data categories particularly pertaining to social and environmental impact data may vary from state to state and amongst different agencies in the same state.

Data suppliers and providers also reported that the formats for data collection used currently are not scientifically designed and at times not appropriately communicated. Most requests for data are communicated to the head of the agency and by the time the appropriate personnel addresses the query, its data and purpose is lost. As mentioned above, numerous agencies are collecting and providing similar data. Not only do these agencies use varying definitions and assumptions, at times different formats are also used to report the same data. This also leads to duplication of effort and ultimately the data reported cannot be verified against other sources.

Several data suppliers felt that the existing data formats used for feeding data into the IT system are not suitable for presenting it online. Some formats provide too much discretion to the information provider on the kind and detailing of data that can be provided. It is felt that data should be uploaded on the IT system with minimum human intervention so as to avoid

errors. There is also a difference in certain data formats pertaining to reporting period of calendar year (which is followed by most international reporting agencies) and financial year (which is most widely used in India).

6.2.7. Challenges in providing timely data

Data providers reported that they are almost always dependent on other sources for providing accurate and timely data. Since there is a statutory obligation to provide data, companies have to provide data to agencies, however in practice data providers state that a lot of follow up and effort is required to get companies to submit data in time – as was stated by CCO with regard to the coal sector. The Petroleum and Natural Gas sector has not reported this challenge. The CCO also said that coordination issues between Ministry of Coal and CIL with regard to publishing of data is also responsible for delay in data publication.

6.2.8. Recovery of costs and pricing of data

The transition from the current system to an open data system is a costly affair and government departments that are already hard pressed for staff, capabilities and finances consider this an additional burden. For certain technical government departments, data is also a source of revenue and opening such data would deprive them of their major revenue. Such data could be, for instance, data on environment impact of energy projects.

6.3. Challenges or concerns of users

From a users' perspective, data and information are important as they frame the narrative for governance and the challenges to it. Data also provides a picture on the actors involved in processes of governance and provides justification for the action or inaction of these actors and the nature of problems addressed. With respect to the energy sector in India, data can be useful to show the gaps between demand and supply of resources, pointing towards the need for investment and the resulting roles of the various actors in resource development.

It has been established that the provision of data and information is instrumental in avoiding undue advantage to certain actors, ensuring fair competition, transparency in decision making and political accountability. The lack of data or faulty, erroneous or unreliable data can have various implications for public policy such as weak policy formulation with serious social, financial and environmental implications – especially when decisions have long term implications. Beyond political accountability, the provision of data to the public is also important for institutional accountability and transparency in processes of policy implementation.

In our study sectors, there are various kinds of data that are used by actors other than the government. These data include –

- Economic data – sales revenue, trade, prices, operational costs, contributions to exchequer, subsidies, production, consumption, imports, exports etc.
- Technical and process oriented data - allocations to private players, resources and reserves, minutes of meetings of ministries and departments, viability studies etc.

- Environmental data – forest diversion and clearances, geographical boundaries of operations, overlay of other environmental resources such as rivers, forests (flora and fauna species) and other land uses and economic activities such as agriculture, rural or urban agglomerations, infrastructure; impacts on other natural resources, degradation caused, pollution etc.
- Social data – impacts on people, safety, relocation and rehabilitation, displacement.

Data users in the coal and oil & gas sector commonly depend on the following agencies for data Ministry of Coal, Coal Controller's Office, Ministry of Environment and Forests, Ministry of Statistics and Programme Implementation, Ministry of Petroleum and Natural Gas, Directorate General of Hydrocarbons, Petroleum Planning and Analysis Cell. Other suppliers and intermediaries of data in the sector include – indiastats, infraline energy, indianpetro, CMIE, BP stats, International Energy Agency.

Most users of data who were interviewed for this study said that they work their way around the data available. The discussions with various users of data in the natural resources sectors points us to several concerns of users with regard to the current status of government data, which can be addressed through open government data.

6.3.1. Data Available but inaccessible

Confidentiality of data

There are issues of commercial confidentiality of data and security of the country. A lot of data is not made accessible to public stating national security concerns but there is inadequate clarity on the meaning of national security. There is classification of data within the Ministries: confidential, secret, classified etc. Ministries, in their own wisdom, may have classified into these categories at some point of time. In any case, these decisions or classifications are not well debated. Thus the classification can be questioned. There is a need to revise this classification on a periodic basis. Many a time even classified information is published by the companies. Thus there is an information gap about what is classified and what is de-classified. At the moment, there is no clarity between what is confidential and what is not. Some departments have also responded to data requests saying that data cannot be relieved because there is commercial interest, but no further explanation.

On some occasions the departments refuse to share information stating that this is proprietary information and hence cannot be shared – especially when 2-3 departments are involved as in the case of maps for no-go blocks. The response was that since maps authority of India is involved, the maps cannot be shared by any other ministry without their consent. There are a lot of conflicting positions in terms of what can be shared and what cannot be shared. One state department agrees to share a set of data and a parallel department in another state refuses to share it giving different reasons.

Actor dependency

Actor dependency can also be seen in the context of ministries responsible for certain sectors. In our study sectors, economic data is still available but environmental data is virtually absent, especially those related to extractive energy. Not only is it absent in the public domain, users of government data felt that even the government itself does not keep it properly.

Data users also reported that in comparison of quality data maintained by central departments is only slightly better than state level data. Some states have better data collection and records than others. For example, Gujarat & Odisha has traditionally been collating better data in certain sectors.

Data users were of the opinion that there is a lack of will on the part of the government departments and individuals to release and share data and there is no accountability for government officials to release data that is available with the department (other than the RTI route).

Other actors filling up data voids

In the absence of good government data, several institutions are developing their own database. There are several private players who have entered the data business who obtain data from different sources - free of cost from government or at a charge - and charge the public for the same data. Data users purchase data from these agencies for ease of access.

Applicant dependency

Respondents felt that access to data is also dependent on who is seeking the data. Institutes that have government support and backing are better positioned to get access. A lot also depends on the individual in the government department who is allowing/facilitating access. The relationship between the user and the clerical or statistics staff also plays a role in better access to data. Some agencies have good relations with the ministries and several data users outsource their data gathering to these agencies to hasten the process of data gathering and ensuring data provision.

Pricing of data

The state of data accessibility has somewhat improved over the last few years. One data user reported being asked for a bribe to get access data once in the past.

Geographical and physical access

In the absence of electronic data, it is extremely difficult for data users outside Delhi or capitals to get access to data as published data is available only at the cities where departments are located.

6.3.2. Data accessible but unusable

Opacity of data

Particularly in the sectors under study, it was observed that data on energy resources held by private sector is very opaque. In the petroleum sector, production figures from private firms are inadequate; complex quantitative figures are produced by under-recovery which conceal rather than reveal information; LNG import data does not state pricing formula clearly among other issues. In both the sectors there is lack of data on the extent of financial concessions to private firms. There is a lack of phase wise data for extractive industries. Exploration data is key to public interest in resources sector in order to make the right regulatory decisions. Since the government is dependent on data from private firms for

some sectors, the lack of public accessibility to data reduces the transparency and accountability in the sector.

Erroneous data

Data users have reported instances of erroneous data provided by government departments. One instance of it is in the Energy Statistics report from MOSPI - in the 2012 Report there were a number of copy paste errors, where numbers were pasted across tables; there were also a few methodological errors. Other instances have seen data points not matching with other data. Discrepancy across data from various sources has also been reported. This is mostly due to differing assumptions within these agencies. One is not necessarily better than another but there is discrepancy in actual data and the way one agency defines resources, parameters, units and conversion etc. Reports often contain assumptions (about estimates, methods and so on) that are not explained. Since there is discrepancy between various data and a lack of time series data, comparable data is not possible, which reduces data reusability.

Data unreliability

Even when data is published, one does not know if it is valid, useful and reliable. There is of course an issue of coordination amongst different agencies to ensure consistency of data. The lack of civil society participation in monitoring and evaluation leads to the lack in accountability to ensure data veracity.

Unusable formats for sharing data

Many government departments share data in the form of PDF documents making the data machine readable but clearly not accessible for reuse. Data users are of the opinion that this is because the departments feel that if provided in excel or other formats, data could be manipulated. However, these reasons are irrelevant because there are security systems in place on the web sites of the departments that disallow anyone else but the department officials to upload data. Beyond this, there is a check within the RTI for this – any response under RTI is invalid without the cover page on the response from the responding department. The Ministry of External Affairs and Ministry of Commerce are two departments that respond to RTIs in email and have also provided excel sheets to data users.

Organization of data

Many data users reported that they rely on international datasets, like BP stats as they are more organized and maintain time series data. The data compiled by the government is not always internationally comparable as international agencies compile and publish data on a calendar year basis whereas government of India does that on a fiscal year basis.

In some instances, the staff of government departments is unaware of what data is available. There are some good reports and publications but the staff does not know about its existence or availability. At the moment there is no cataloguing of data available in public domain especially in the coal sector. Data cataloguing would be useful to users as it would help them point out what other data may be useful to gather.

Data users who have interacted with ministries to obtain data report that the ministries have reported RTIs not reaching them. In several departments, communication within the

ministry is inadequate. RTIs are handled by 1-2 persons sitting at a different level than the responders of the RTIs. Departments have responded to RTIs stating loss of files - on one of the RTI requests the response was that about 200 files have been lost and so this data cannot be provided. Users feel that as a result of bad data maintenance, government departments don't know where their data is so they are most probably not using the data themselves.

6.3.3. Timeliness of data

Lack of updating and lag in publication

There are several sources of data available, most common being annual reports and statistics which have limited scope. Data users have reported that most often by the time data is published on ministry and department websites it is already outdated. One example is that of coal statistics published by the Coal Controller's Office – the provisional statistics published are updated though may contain errors and discrepancies in terms of estimations; while the actual coal statistics publication takes up to 2 years by which time these become out dated. In practice, the CCO website usually has incomplete historical data and updated versions are not available. Even annual reports of CCO are available 4-5 months later. There are a lot of differences between provisional statistics by the CCO and the actual annual report. There is a feeling that meaningless data is made available to public to intentionally mislead.

Delays in responses by half responses

Sometimes RTI responses have been partial information such as when requesting for communication between two entities, the RTI response provided only one way communication even though the application was for both sides of communication specifically. This results in delay of response and data provision by the departments.

One of the data users related their experience of an RTI hearing when they were asked to justify that the data being requested was for the larger public interest, even though stating the intention for the use of the data is not a requirement within the RTI. In order to delay response in an instance, the department produced a 5000 page document in a hearing and directed the user to go through it in 1 hour and pick out the 10-15 pages required by them. The department refused to give the whole 5000 pages as well and additionally tried to convince the user that sharing so much data with them will not serve any purpose, which goes against the spirit of the RTI.

7. Conclusions and way forward

7.1. Summarising the state of OGD in energy resources

Open data can be a useful tool not only for transparency and accountability of state towards citizens but also streamlining the functioning of government itself and ensuring that departments can use each other's data. Open data can be particularly useful in case of natural resources where there are major concerns regarding what governments get, what companies pay and how funds are utilised. With substantial impacts on environment and health of local communities, energy development also needs to be carefully monitored to ensure that benefits and burdens are more equitably sharing. Various international agreements/charters on extractive industries suggest that there is need for greater transparency in working of companies and government.

In 2012, the government of India formulated National Data Sharing and Accessibility Policy (NDSAP) to give impetus to proactive opening up of government data. It aims at facilitating access to government data in human readable and machine readable forms. Interestingly the nodal agency chosen for implementing and monitoring NDSAP is the Department of Science & Technology and NIC has been given the responsibility of implementing and running the data portal. Hence, it can be concluded that 'open data' drive is seen as an IT drive rather than a drive on data. NIC, the nodal agency for maintaining the data portal does not have any specific power to make it mandatory for departments to provide data. Through its IT platform, it uploads whatever data is provided to it by different government agencies in the prescribed machine readable format.

While data controllers have been appointed under NDSAP for both coal and petroleum & natural gas, so far only MoPNG has shared data of DGH and PPAC with NIC. The Ministry of Coal has not contributed to the data portal as yet and it emerged from stakeholder consultations that Coal Controller has not been asked so far to provide any data for the data portal.

In India, there is still a significant gap in the open availability of government information. Though there has been a conscious drive to improve the availability of policies, regulations on individual government department website, there is still a lot of information not publicly available on implementation of these policies. This could be in the form of minutes of meetings which reveal how and on what criteria decisions are made.

There are several sectoral and crosscutting laws and corresponding rules dealing with data on coal and oil & gas. However, their focus is clearly on collection of data and not on dissemination. There is also no clear mandate for government agencies to verify data received from the industry. While some data suppliers claim to have a system of cross checking data within their departments, others state that they collate data as is provided by the industry.

Some new policies on data and data sharing have been recently introduced in the upstream oil and gas sector, including an initiative for a 'National Data Repository'. However these have just been introduced and their impact will be assessed after a few years. There are also numerous agencies providing data on this sector. Besides the main data providing agencies,

there are also 'intermediaries' such as MoSPI and NIC who collect data from different agencies and provide it at one single source. However this leads to a lot of duplication of work and allows for the possibility of data discrepancy as data may be collected in different formats.

Overall, data in the petroleum and natural gas sector is more recent, available from multiple sources and often in 'machine readable formats' (Excel). Coal data is predominately provided by a single agency – the Coal Controller is relatively more dated and available in hardcopy (Coal Directory) and in PDF or (Provisional Coal Statistics). The structure of the two industries, one a public monopoly and the other more competitive may partly explain this. Discussions with concerned agencies suggest that PPAC finds it relatively easier to collect data from companies (public and private) than does the Coal Controller which collects data from the public sector monopoly CIL and its subsidiaries. Private participation may compel the government under pressure from competing public sector units and also the public to monitor and collect more data.

Users (primarily comprising of researchers and industry) in the coal and petroleum & natural gas sectors depend on a number of sources for data including government departments, private suppliers of data and international data agencies. The growing usage of private supplier's data (infraline, petro.net) and international agencies is an indicator of users dissatisfaction with the way data is organized and provided by government agencies. At this stage, very few users are even aware of the open data portal and data sets on energy industry are limited. 'Confidentiality requirement' seems to be a major impediment in getting access to data. With no clear demarcation, departments enjoy substantial discretion in sharing data. Inter alia, there are concerns about the quality and reliability of data, timeliness of data, lack of sufficient time series data, and insufficient availability of disaggregated data. Data cataloguing is not appropriately done. In some instances disaggregated data is collected by government but consciously not shared with the public. PDFs and scanned documents are still commonly provided by departments rather than 'machine readable formats. Some data is difficult for people to understand and there are differences noted in data provided by different agencies. Such issues could be resolved if data is released with supporting information on definitions and methodologies.

From a supplier's perspective, several challenges and impediments emerged in sharing data with the public. There are concerns on sharing data that could be confidential or that data can be misused/ misreported. Government agencies feel that they are required to provide much more data than private companies do. While there is a certain apprehension in sharing data with the public, a bigger issue that emerges is the lack of priority given to data, its collection and dissemination. Departments report that they do not have the resources and staff to manage data. The emphasis on e-governance in recent years and the resources made available for the same; do raise questions on the veracity of these claims. It is also an issue of lack of will to re-train and reorganize for data management systems. There do not seem to be too many quality checks on data that is disseminated and there can be variations in the data provided by different sources. There are issues of co-ordination between different government agencies, which hampers timely collection of data.

7.2. Towards enhancing openness of government data

Based on the study and stakeholder consultation, several suggestions have emerged as possible solutions to address the gaps and challenges that exist with respect to the data landscape of the country. While our lens of study was energy resources, especially coal and oil and gas, these suggestions hold true for OGD in India in general and can be of use across sectors. Many of the recommendations made below are interlinked and interdependent and cannot (and should not) be looked at in isolation as many would feed into each other. However, for clarity, we have classified these into three groups: Policy, Data and Data Portal.

7.2.1. Policy measures

Fostering a culture of openness

Laws, policies, programmes, have been introduced from time to time to improve transparency in the working of the government. These include the RTI to Information Act, Municipal Disclosure Law, National E-Governance initiatives. There are civil society driven initiatives for improving accountability such as Citizen Report Cards and Social Audits. The success of these initiatives however differs from state to state and department to department. There is therefore a need for stronger enforcement of existing laws and policies. More importantly there is a need to create a 'culture of accountability and transparency' in the government and there is need for further 'sensitising government officials and staff' of their accountability to the public and not only to political heads. There is also a need for greater awareness amongst citizens on their 'right to hold government accountable'. Without enhancing awareness levels, any move for transparency, including the Open Data, will remain a prerogative of the elite and urban professionals. This is particularly the case for sectors such as coal and oil and gas where very often the local communities affected are also the most marginalised. Enhanced interaction/availability of public servants for the public will itself reduce the pressures for transparency.

Making open data useful for improved governance and service delivery

An issue with open data as pointed out by (Janssen, 2012) is the need for 'intellectual accessibility'. Without the ability to interpret the vast amount of datasets made available, many citizens will not be able to make sense of the data. In such a scenario data will create more inequality as it will redistribute the source of power (through data) to another group of educated elite. There is need for 'intermediaries' to effectively utilise data, develop visualisations and applications that make sense of data. International experience shows instances where public data has been utilised by developers to come up with applications that have improved transport planning and public delivery. There is need to find ways to incentivise IT developers in India to come up with such applications. There is a need to incentivise IT developers in India to come up with such applications, and to make them sustainable. Incentives could include greater support to developers to secure remuneration, revenue streams and investment in the applications they create, and creation of spaces to help developers identify and understand the key problems to be solved through data.

7.2.2. Improving data quality

There is need for improving quality of government data through better record keeping, improving co-ordination between government departments and reducing multiple departments and personal providing similar data. Some specific suggestions on improving data quality are:

Independent verification

Independent verification of data and/or appropriate quality checks needs to be in place before putting out data. Where data needs to be collected and compiled from different agencies, formats and processes should be such so as to require minimum human intervention. This would reduce margin of error. Discussion with data suppliers suggest that some government departments are moving towards more real time and machine collected data. Such practices need to become more common.

Streamlining data

Data sharing formats need to be made uniform across government departments in order to ensure inter-operability. Data users suggest that having a single source of data for Energy as against multiple sources for different fuels would streamline data and make analysis and comparison more easy. USA for instance has one single source of all energy data – the Energy Information Administration (EIA). The website provides comprehensive time series data. Data is also presented in a user friendly manner and updated regularly. Such best practices can be studied to improve existing data websites in India.

Confidentiality

From stakeholder discussions, it emerges that the ‘need for confidentiality’ emerges as a major impediment in getting access to government data. There is however a lot of ambiguity on what data is confidential and what can be shared. The NDSAP does suggest government departments to prepare a negative list of data that cannot be made available on the public domain. It suggests that departments should consider ‘Sections 8 and 9 of the Right to Information Act, 2005, the Information Technology Act, 2000 and the right to privacy upheld by the Supreme Court of India in its various judgements while preparing the negative list (Draft NDSAP). However it is not clear whether such a negative list has been prepared by various Ministries. If not than such a list should be prepared by government departments and importantly this list should be made public so that there is clarity and transparency on what is public and what is not. In certain cases ‘confidentiality of data’ is also limited to a certain time period after which the data can be made publicly available. The negative list should also classify what data can be published subsequent to the ‘confidentiality period’.

Definitions and methodologies

In terms of consistency in data, a common concern has been on ‘definitions’ and ‘methodologies’ on how estimates are arrived at (for instance for oil reserves, refining capacity). Discussions with users and suppliers suggest that often there is no consensus or single definition/methodology as a result of which same data from different agencies may differ. Such inconsistencies can be avoided by departments dealing with similar data by arriving at a consensus on definitions.

7.2.3. Improving effectiveness of data portal

Data Portal of the Government of India is a very good initiative, which is still evolving and experimenting but growing at a good pace. The portal has been instrumental in putting a lot of government data in machine readable format but has a large room for improvement.

Awareness

Data Portal has been in place for almost a year and a half but awareness about the data portal is low amongst data users as well as data suppliers. Data controllers are nominated in each government Ministry but the staff, even those dealing with data, are always not aware of the kind of data that is available on this data portal. Thus, awareness needs to be built especially amongst government agencies to facilitate better contribution of data in this portal and ensure that government itself uses this data in its decision-making. With respect to awareness amongst non-government users, many users are still relying on the data sources used earlier.

Linking to avoid multiplicity

More data does not necessarily mean more openness in government and its data. Data deluge is something that the data portal has to stay away from. Number of datasets should not be a criterion for reviewing performance, as often similar datasets are provided by different government agencies. These are usually those datasets that are already available in the public domain on the websites of these supplying government departments or ministries. Thus, it is important that there is a system in place that links to different datasets that provide the same information, either on the data portal or elsewhere. Reducing multiplicity is a key step in avoiding confusion and lack of clarity about which is the most reliable and best quality data source.

Usefulness as important as usability

Data portal in its short span has put a variety of data in a readily accessible and machine readable format. While NDSAP implementing agencies and the Project Unit are largely responsible for facilitating the uploading of data in open data formats, there needs to be a system in place to review the contents of data portal from time to time. While the focus on a machine readable format is immensely helpful for usability of data, it may not always be useful. Usefulness of data is subjective and would vary depending on the sector and use. Therefore, it requires a close interaction, even a joint responsibility, with the different Ministries and Departments.

Criteria for seeking data

NDSAP and data portal depend on various government agencies to upload data. The portal allows citizens and users to place a request for a certain dataset online. Once the number of requests for a dataset crosses 100, NIC officially writes to the department concerned requesting it to provide that data. While this is a very good practice where citizens can directly influence the data availability, it is important for the data portal and its implementing agencies to seek data in a structured manner. Towards this a multi-stakeholder group or the communities can be engaged with to help in proposing a clear list of data that can be uploaded for different sectors.

This report bring outs the need for better information and data systems in the energy sector India especially coal and oil & gas sector. Improvement in data sharing practices will not only improve overall governance of the sector but will also facilitate better and systematic co-ordination within the government. This report has recommended measures pertaining to policy, quality of data and the open data portal that can help addresses some of the data challenges in India. Of these the issues of capacity and resource constraints, identification of confidential and non-confidential data, improved data collection practices, etc. are some of the issues that can be addressed more easily. The open government data initiative provides the government a new opportunity to engage with and address some of these issues.

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Annexure I: List of stakeholders consulted

List of stakeholders consulted –

1. Director (Energy Statistics), Ministry of Statistics and Programme Implementation
2. Deputy Director General, Ministry of Statistics and Programme Implementation
3. Director General, Petroleum Planning and Analysis Cell
4. Additional Director, D&ES, Petroleum Planning and Analysis Cell
5. Chief Engineer (Production), Directorate General of Hydrocarbons
6. Former Additional Coal Controller of India
7. Coal Controller
8. Deputy Director General, Office of Coal Controller
9. Assistant Director, Office of Coal Controller
10. Deputy Assistant Coal Controller
11. Head of Department, Eastern Region, Geological Survey of India
12. Senior Geologist, Geological Survey of India
13. Additional Director and Zonal Officer, Central Pollution Control Board
14. Joint Director, Directorate of Economics and Statistics, Government of Madhya Pradesh
15. Scientific Officer, MP Environment Impact Assessment Authority, Government of Madhya Pradesh
16. Chief Chemist and PRO, MP Environment Impact Assessment Authority, Government of Madhya Pradesh
17. Supervising Geologist, Department of Geology and Mines, Government of Madhya Pradesh
18. Scientist, NISTADS
19. Senior Fellow, Observer Research Foundation
20. Programme Manager, Observer Research Foundation
21. Campaigner, Greenpeace India
22. Campaigner, Greenpeace India
23. Greenpeace India
24. ICRIER
25. General Manager (Planning), Marketing Division, Indian Oil
26. Vice President, Commercial, Corporate Planning and Pricing, Essar
27. Gas Policy & Regulatory Advisor, BP
28. Representative, RIL

Stakeholders consulted during the course of workshops on OGD and Energy Resources

29. Mr Vijay Duggal, DGM, Bharat Petroleum Corporation Limited
30. Mr Harminder Singh, Director, India Infrastructure Publishing
31. Mr S K Chand, Muni Seva Ashram

32. Ms Alka Mishra, National Informatics Centre (NIC)
33. Ms Neeta Verma, Deputy Director General (Data), National Informatics Centre (NIC)
34. Ms Lydia Powell, Senior Fellow, Observer Research Foundation
35. Mr Ashish Gupta, Associate Fellow, Observer Research Foundation
36. Mr Akhilesh Sati, Program Manager , Observer Research Foundation
37. Mr Yogendra Sahai, Director, Petroleum Federation of India
38. Mr Rohit Dawar, AD (Demand), Petroleum Planning and Analysis Cell
39. Mr Ashok Sreenivas, Research Fellow (Energy Group), Prayas
40. Prof S L Rao, TERI; Former Chairperson, CERC
41. Mr P K Aggarwal, Director, TERI
42. Anindya Chatterjee, The International Development Research Centre (IDRC)
43. B N Satpathy, Planning Commission
44. Mr Shaillesh Gandhi
45. Ms Avani Kapur, Accountability Initiative
46. Mr Pankaj K P Shreyaskar, Central Information Commission
47. M R Anand, Ministry of Coal
48. Mr. Prabir Kumar Parui, Geological Survey of India
49. Ms Lydia Powell , Observer Research Foundation
50. Dr Surender Kumar, University of Delhi
51. R Sreedhar, Environics Trust
52. Ms. Tanoubi Ngangom, Observer Research Foundation
53. Molshree Bhatnagar, CUTS Institute for Regulation & Competition
54. Kapil Narula, National Maritime Foundation
55. Sunita Malhotra, The World Bank
56. Shruti Sharma, International Institute for Sustainable Development (iisd)
57. Dr B Shadrach, Independent Consultant
58. Nguyễn Khắc Tuấn, Embassy of the Socialist Republic of Vietnam
59. T V Padma , Scidev
60. Suranjana A Sabhapandit, Avinashilingam University
61. S Vijay Kumar, TERI

Annexure II: Summary of Proceedings of mid-term Stakeholder workshop on OGD and Resources

Date: 17 July 2013: **Time:** 9:30 – 13:30

The Energy and Resources Institute (TERI), with support from the World Wide Web Foundation and the International Development Research Centre (IDRC) organized a consultative workshop on **‘Open Government Data and Resources’** on 17th July 2013 at TERI, India Habitat Centre, New Delhi.

The workshop brought together stakeholders from the government, industry, academia, think tanks and civil society for a discussion on issues around open government data in energy resources, particularly in case of coal, petroleum and natural gas.

The discussion brought out perspectives from users of data, suppliers of data and the intermediaries towards understanding the state of ‘government data’ in these sectors and how greater openness can improve efficiency and overall governance in coal and petroleum sectors. Main themes of the workshop were Energy resources: Plugging the data gap; From Government to Citizens: Suppliers’ perspective; From availability to access: Users’ Perspectives.

Governance challenges in energy resources: Plugging the data gap

This session was directed towards exploring the extent to which access to data can address governance challenges in the energy resources sector. The discussions also delved into the domains of data accessibility gaps and the crucial nature of government in data provision.

There is a growing concern that the Indian economy is gradually moving towards a capture economy where the private sector has been capturing the regulatory process especially in resource based industries which are ‘rent thick’. Since data frames the narrative of governance challenges it is important to ensure that the government data does not create a false or inaccurate narrative. A lack of data accessibility or opacity in data has implications for undue advantage to private firms, competitions, transparency in government actions and political accountability. In all the energy sectors, it can be seen that data shows whether there is a huge gap between demand and supply and if there is a need to infuse investment in the sector to remove this gap. The Indian energy problem is framed as a problem of scarcity of supply and this supports the narrative of giving support to the private sector, so as to increase the supply. The Indian energy problem is social, economic, and political in nature and data for this is inadequate.

Particularly in the sectors under study, it was observed that data on energy resources held by private sector is very opaque. In the petroleum sector, production figures from private firms are inadequate, complex quantitative figures produced by under-recovery - which conceal rather than reveal information, LNG import data does not state pricing formula clearly among other issues.

In the coal sector, resource data does not meet international standards, where techno-economic viability is considered. The Government consistently refused to use UNFC classification as a basis for calculation of reserves. Moreover, the resources figure have irregularities of including resources which are not extractable or which are already mined etc. Data on entities involved in resource development in the coal sector is inadequate, which becomes the basis of collusion between private sector and government.

In both the sectors there is lack of data on the extent of financial concessions to private firms. There is a lack of phase wise data for extractive industries. Exploration data is key to public interest in resources sector in order to make the right regulatory decisions.

Since the government is dependent on data from private firms for some sectors, the lack of public accessibility to data reduces the transparency and accountability in the sector. There are issues of commercial confidentiality of data and security of the country. A lot of data is not made accessible to public stating national security concerns but there is inadequate clarity on the meaning of national security. Classification of data is there in the Ministries: confidential, secret, classified etc. Ministries, in their own wisdom, may have classified into these categories at some point of time. In any case, these decisions or classifications are not well debated. Thus the classification can be questioned. There is a need to revise this classification on a periodic basis. Many a time even classified information is published by the companies. Thus there is an information gap about what is classified and what is de-classified.

From availability to accessibility: Users' perspectives

The session on users' perspectives on open government data started with the question whether policy decisions are actually taken on the basis of evidence or whether evidence is created to support policy decisions. From a users' perspective, data problems can be divided into different categories.

First category is data that is unavailable

- Coal / Oil / Natural gas: Field-wise reserves, production data is difficult to get. No credible estimates for the demand for natural gas in India. No comprehensive data on gas off take by refineries, captive etc.
- Even data on usage is very difficult to get. For instance which sector is using which and how much of energy resource - modal shares of oil use within transport sector.
- Environmental compliance information is missing and therefore data on environmental impact of energy projects is practically non-existent.
- Many projects are under an obligation to provide emissions, affluent related information and share it with the State Pollution Control Boards (SPCB), which then makes it available online. However, such data are not being provided. Information on land, water use of energy projects is also not available.

Second category is data that is available but difficult to access

- Coal statistics is prepared and published by the Coal Controller's Office (CCO). But in practice, the CCO website usually has incomplete historical data and updated

versions are not available. Even annual reports of CCO are available 4-5 months later. There are a lot of differences between provisional statistics by the CCO and the actual annual report. There is a feeling that meaningless data is made available to public to intentionally mislead.

- Getting data is often dependent on some individuals, not a part of the system. It is difficult to even get data that is known to be collected.
- Other examples of such data that is there but difficult to access include electricity tariffs, consumption by economic class, CEA annual electricity statistics, which is available only in print. E auction data is not available anywhere in the public domain. It is available through other priced publications.
- CEA Annual data is available only in hard copy. It is easy for people in Delhi to get access to hard copies but not for people in other cities.
- There is fragmented availability of data and use of inconsistent formats and frequencies for providing data. Central Electricity Regulatory Commission (CERC) comes out with market monitoring reports. It has data only on that month. So a comprehensive month wise data is not available.

The third category is data that is available but unfortunately erroneous

- One instance of it is in the Energy Statistics report from MOSPI. In 2012 Report there were a number of copy paste errors, where numbers were pasted across tables. There were also a few methodological errors. Numbers also do not match with other data (for example the electricity consumption data does not match with coal data)

Other problems with data availability include that of inconsistencies and data relevance. There are inconsistencies in data for instance, in the estimates of wind energy potential by C-WET and others, estimates of emissions from power sector differ by ~15%; and inconsistencies in activity data and energy use data for transport. In terms of relevance of data, there is a lag in publication of data, usually of at least 2-3 years. In social sector data, there are large gaps between multiple rounds. For example, surveys such as National Family Health Survey (NFHS), HDI reports of states. Even when the states did submit these reports, multiple states used different methodologies and their reports are not comparable with each other. Even when data is published, one does not know if it is valid, useful etc. There is of course an issue of coordination amongst different agencies to ensure consistency of data.

As the RTI is becoming a popular tool for data requisitions, the government is gradually removing data from their websites and encouraging people to submit RTIs. A lot of data is also presented for parliamentary questions which is not made available otherwise.

In the petroleum sector, the Petroleum Planning and Analysis Cell (PPAC) has two links – historic and current. On historic, they are giving data up to 2011-12 and the current data provides 2013 - 14 so 2012-13 data is missing.

The coal sector is very opaque in terms of data accessibility. In terms of resources and reserves of coal, the terms have been used interchangeably as per willingness by institutions such as the CMPDI. The coal Directory figures have been same for several years implying no extraction has happened.

Researchers in both the sectors find it difficult to do any time series analysis due to lack of continuous data.

Based on these categories, there are various implications for public policy –

- Weak policy formulation – policy making in the country could have serious social, financial, environmental implications since the basis of these policies may be incorrect. Energy policy in particular needs objective information because decisions have long term implications.
- Lack of institutional accountability without publicly available data.
- Research results are faulty and questionable if based on unreliable data.
- These inconsistencies create erroneous international perceptions as well

Some of the suggestions for improving data availability include the formation of a nodal agency – housed in the planning commission or PMO – which would not be limited by a ministry's jurisdiction. The agency could be tasked with collecting, cleaning and reconciling data from multiple sources to inform energy related policy formulation and create better coordination between multiple agencies. The effective implementation of National Knowledge Network (NKN) can also be one of the important supports for policy formulation.

Within the current system, there is a need for standardized, frequent data collection across multiple agencies along with online publication of data in easily accessible formats to ensure transparency, accountability and reduction in research costs.

From government to citizens: Suppliers' perspectives

The third session was focused on the challenges faced by suppliers of data or data providers in making government data open and accessible. There are policies such as the National Data Sharing and Accessibility Policy (NDSAP) in place which is based on the premise that all government departments, ministries and agencies should release their data in an open format using the platform. NDSAP also provides for government department to come up with a negative list which lists data that is prohibited from sharing under any of the prevalent law. India does not have a privacy law as such but there is an understanding that private citizen's information is not to be released. State governments have also been advised to adopt this policy and release their data.

As a data provider, NIC has been given the responsibility of setting up the platform and setting some standards etc. for different kinds of data. This platform will not remove any data thereby making it possible to do a time-series analysis even if the nodal department is maintaining a yearly data. Data once provided in this portal is archived for the time to come. Any data set entered goes through two stages of moderation. First, approval by the data controller/manager at the nodal department/ministry; Second, PMU at NIC which looks at format related issues.

On the data.gov.in portal, data users can download, explore, visualize data etc. it is meant to be a platform to facilitate dialogue between data users and suppliers and NIC tries and mediates between the two. Data users can place requests for data; can point out errors, rate

the dataset, comment on quality, publicize on social networking sites and within sectoral communities as well.

The portal provides details of the person who has provided the data and users can write to that data controller directly. A user can request for a dataset. After 100 endorsements, NIC approaches the nodal ministry to release that data. In our study sectors, there are 12 datasets from Ministry of Petroleum and Natural gas (MoPNG) while Ministry of Coal has not contributed any dataset to the portal.

While datasets are important, promoting the use of data is also needed. Citizens should also make use of data. Towards this efforts are being made towards making such data available on phone through community contribution applications.

The PPAC collects data on behalf of the MOPNG and has been making data available to public since 2003-04 even before the NDSAP came into existence. PPAC hosts most data on downstream of the sector with little data on the upstream. Data is collected from all the oil companies, which is already a processed data coming from their auditing system. Mostly data is authentic, as it comes from the ERP system of the companies. There is no human intervention. However, if there is any inconsistency PPAC approaches the companies. Then the data is compiled and collated; verified and authenticated; report is prepared and uploaded on the PPAC website. Most of the data is uploaded on a monthly basis. Even when it is provisional, it is uploaded every month.

From a suppliers' perspective, some of the issues identified by a speaker are as follows –

Issues	
Clarity on Need & Purpose	Generally not specified & not in sync with intended stakeholders' requirements
Mandation	At not times not legally supported (Unlike PPAC, which has a clear mandate; Pvt sector does not have that kind of a mandate) (No obligation on private agencies to share data)
Multiplicity of Agencies	Same data tends to get repeated & many a times is required to be re-submitted several times at different levels (Excuse: all the data is available at customs port too; so users asked to take data from there)
Resource Allocation in Data mining & submission	Separate allocation of Resources required at Suppliers' end
Level Playing Field	Generally PSUs' are made to comply- Private entities may not have obligation to share data
Commercial sensitivity	At times, data submission leads to sharing of commercially sensitive information/ data
Data integrity & updation by collecting agency	Very often not done in time & loses its very purpose- becomes a dis-incentive; Industry experts can be involved for this
Fear that Data Analysis may	Incorrect analysis leads to misconceptions & may hurt business

not be meaningful	interest
Data Integrity Checking mechanisms not present	Industry Experts can only disseminate data & make meaningful comparisons. Very often novices are involved in collection & analysis
Formats for data collection not scientifically designed & not appropriately communicated	Focus on purpose is lost; Request is sent to the head. By the time it trickles down to the relevant department, the meaning, purpose is lost

It is difficult to get complete business data from private companies as it may contain some business sensitive information too. PPAC does not share their business confidential data but it takes time to build that trust with the companies. One has to make sure that data is not costing as much in terms of time and money. Timeliness of data has to be ensured once it is decided that data will be uploaded on a monthly basis. Most of the data enlargement has also happened in response to RTI applications received.

There is a need to demystify prices but some of the contracts also state that information is not to be shared in the public domain. But there is information that can be shared, for example, in the case of spot prices which is not given even at the end of the year. There are issues that are entrenched into the sector like users' resistance and monopoly. Competition law is the solution here to clarify what should be commercially sensitive and what should be brought in public space.

Illustrations		
Data on capacity in Pipelines & Re-gasification Terminals	<ul style="list-style-type: none"> ✓ No clarity on <ul style="list-style-type: none"> ▪ which is the right agency legally mandated for its collection ▪ the purpose of its intended usage ▪ Periodicity of its updation ✓ Data is already available online with Customs & Excise authorities 	<ul style="list-style-type: none"> ▪ PNGRB is legally mandated agency since 2006 ▪ Purpose is to determine & make shippers know of Common Carrier Capacity available for booking ▪ No common platform for data sharing exist on PNGRB website
Data on demand of POL Products	<ul style="list-style-type: none"> ✓ Bare minimum information is put on public portals by collecting agencies, very often late 	Basis & Assumptions not shared making Data integrity & timely analysis meaningless; Sectoral experts can help in this respect
Data on All-India LPG customer base	Consistent & common basis across industry was successful in weeding out multiple domestic LPG connections & diversion	<i>Became Possible</i> since GoI mandated oil PSUs' to check unintended subsidies & share database with each other; This is where a shared database has made a difference

Some suggestions from the suppliers' side include the creations of a mandated single point national repository of databases with industry experts which will identify purpose of data collection based on stakeholders' requirements; maintain scientific methods & consistency in approach in collection, analysis & dissemination; continuously examine data integrity; create

an interface with users & suppliers & balance their perspectives; and use latest technology in data collection, analysis & dissemination processes. Such an agency would require power to impose penalty and even undertake periodic independent audit of data availability and fulfillment.

Annexure III: Summary of Proceedings of Dissemination and Deliberation workshop on OGD and Resources

Date: 8 July 2013: Time: 10:00 – 13:30

The Energy and Resources Institute (TERI), with support from the World Wide Web Foundation and the International Development Research Centre (IDRC) organized a dissemination workshop on '**Open Government Data and Resources**' on 8th July 2014 at TERI, India Habitat Centre, New Delhi.

The workshop sought to share the findings of TERI's study on 'Open Government Data for Regulation of Energy Resources'. The focus of this yearlong study was on the upstream coal and oil & gas sectors India in India. It identified governance challenges in the two sectors and examined the status of availability and accessibility of data towards improving the working of these sectors. This workshop brought together stakeholders from the government, industry, academia, think tanks and civil society. The stakeholders enriched the study with their views and experience, particularly with respect to the government policy on open data and issues in data collection within the government, the linkages between Right to Information and Open Data, data issues in the upstream energy, particularly on aspects that impact communities, and suggestions on improving data availability and quality.

In the opening session, the importance of open government data as a tool, not only for good governance but also for economic development was discussed. It was emphasised that for data to be meaningful, it needs to be authentic, reliable, updated and relevant. The objective of setting up the 'Open Data Research Network' was discussed as a means to 'connect researchers from across the world to explore the implementation and impact of open data initiatives'. The research network through its various projects is expected to help understand the availability and quality of open data in developing countries and how open data can be strengthened in these countries. The Open Government Partnership was also discussed. This partnership was launched in 2011 to provide an international platform for more open, accountable, and responsive governments to citizens and has grown from 8 countries to 64 participating countries. Under OGP, governments and civil society are actively involved and are working together towards implementing open government reforms and online release of government data.

The first session discussed initiatives for opening up government including the Right to Information Act, 2005 and the recent OGD initiative. The TERI presentation in the first session on '**Road to OGD in India**' introduced the context of open government data, its history and trajectory in India and worldwide. This presentation discussed the Right to Information (RTI) Act, 2005 and discussed the similarities and differences between RTI and the OGD initiative. The presentation also delved into how RTI and OGD can complement each other. The open data portal of the government of India and the National Data Sharing and Accessibility Policy, 2012 was also discussed to understand both the utility and limitations of these initiatives in

improving data availability in the country. As an example of international initiatives, the Revenue Watch's Resource Governance Index, 2013 was discussed which examined India's gas sector on parameters of transparency.

To set the context of open government data initiative in India, the Planning Commission informed the participants that open government data was part of India's larger e-governance plan and that 'it aimed at not only dissemination of data but also rendering service related to use and utilization of data at affordable price'. In case of natural resources, amongst other things, the focus of the government is on sharing GIS related information between different government departments and agencies. Towards this, the role of Planning Commission is to facilitate necessary convergence between all the government departments with the National Informatics Centre (NIC) providing front end support. In the Planning Commission's view, open government data is expected to 'enable transparency, accountability and timely delivery of information to public that in turn will contribute in fostering innovation'.

The session focussed on some of the concerns regarding quality and reliability of data in India. For instance, the issue of underestimations of the total gas reserves was discussed. In India, the revised estimates suggest that the gas reserves were significantly higher than the initial estimates. There are issues of inadequate reporting also. For example, countries like USA, Germany and South Africa, have average reported cognizable crimes of 7000 per 100000 populations, while in India, the estimates are less than 200. These examples clearly suggest that data in India is 'unreliable, often fudged and wrong and there are errors while aggregating data'. Some of the other concerns with data include the issues of multiplicity of data sources and multiplicity of departments with different data sets. For instance, in case of data on sanitation and expenditure on MNREGA, multiple and varying figures are available. There is also a need to improve the capacity of people, especially in data collection and data provision. There are concerns relating to the cumbersome process of data collection and interpretation. The participants opined that India needs to adopt practices whereby data can be collected automatically without much human intervention. There is a need to set up a better MIS structure at grass root level with improved and transparent methods for collection of data at source. OGD can succeed only if there is an effective and timely MIS system for end-to-end delivery of information. Overall, it was agreed that while India has come a long way in the last ten years in terms of access and availability of information on government activities to general public, there is still a long way to go way.

The session also discussed the Right to Information Act and how it differs from the OGD initiative. It was reiterated that the RTI works as an enabler that can provide a supportive environment to initiatives like OGD to be implemented in India. However, RTI is much wider in scope and it enables people to get access to information which is not available through OGD. OGD on the other hand can help reduce the need for using RTI to get access to data. One of the limitations of OGD, however, is that it is not supported by a statute. Therefore, while disclosure of information under RTI is mandatory, it is not the case in open government data.

The experience and challenges in implementation of Right to Information Act, 2005 was discussed in detailed. These challenges, it was felt, are likely to affect the open government data initiative too. For instance, implementing agencies are not well versed with rules and

guidelines that should be followed in dissemination of information. While NIC has formulated elaborate guidelines on uploading data on internet, in practice these guidelines are seldom understood or followed. Although RTI supports proactive dissemination of information, government departments are not clear on the relevant sections of the RTI Act. [Section 4 (1) (a) and Section 4(1) (b)] It is essential that the government departments classify available information into 'positive' and 'negative' class, whereby information in positive class should be disclosed to public by the concerned department. A major challenge in developing OGD platform in India would be the multiplicity of information and data sources. This is exacerbated by a lack of coordination, with different departments working in isolation from each other. For users it is often difficult to understand which data is more accurate or relevant.

The second session focussed on open government data with respect to the identified sectors – coal and oil & gas. The TERI presentation on 'Open Government Data and Energy Resources' discussed in detail the study finding on actors and agents involved in data in the coal and oil & gas sector, the state of data in these sectors (classified as economic, physical, environment and social), and the gaps in data including issues of quality, timeliness, accuracy, etc. The presentation discussed stakeholder views on issues in use of data and also views on challenges in opening up government data. The study recommended emphasised the need for greater transparency in the working of government, and suggested steps to improve the quality of data in the energy sector. Further, the study also recommended some steps to improve the open data portal of India.

It was agreed that a lot of data in the natural resource sector does not exist. Mapping of several basins has not been done. Even where such data exists, it is not easily accessible. The situation is gradually changing, as informed by the Geological Survey of India (GSI), with more geospatial data being made available to public. Giving effect to the proactive disclosure requirement of RTI Act, GSI came out with its dissemination policy for published/unpublished reports/maps data in 2009.

Participants also felt that coal sector faces several governance challenges which also impact the availability of quality data on this sector. Significant amount of data has to be provided by public sector and private sector companies. However, companies are often reluctant to share certain kinds of data. This finally affects the quality and reliability of the aggregate numbers shared openly through the coal statistics or through the data portal. There are no standard formats for putting out data. There is therefore a need for standardization of formats for any data sharing by these companies. Within the government, there are concerns as to what data should be shared in the public domain and what should not be shared.

Some challenges of the of the research community in engaging with energy related data was also discussed. There are many public and private agencies that are providing firm specific data. However, there are significant variations across these sources and consequently, reliability of data becomes a key issue. Further, data on certain variables are provided at much aggregated levels making research using data at disaggregated level difficult. Due to unavailability of relevant data, researchers often take the route of filing RTI. However, experience of researchers shows that often there are several impediments in receiving data through RTI.

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This session also discussed the specific data needs for community's perspective. Where significant population will be impacted, it is necessary to take community interests and impacts into consideration and more importantly the rationale behind the various mitigation decisions outlined in the environmental impact assessment reports need to be made public. Mine plan, mine restoration/ rehabilitation plan, progress and compliance therein must be reported publicly and in a regular manner. It was reiterated that if the above concerns are addressed properly through open data, then OGD will be useful in better conservation and management of natural resources, with lesser environmental and social externalities.

While data can be a useful tool for improving governance in energy sector, it is not sufficient. It was felt that unless norms and networks of social engagement change; Open Government Data is not likely to make a big impact. Thus, improved governance and better data go hand in hand.



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