

# Significance of open data in Ethiopia

Theodros Alemu Tiruneh

*Dean, Faculty of Informatics, University of Gondar, Gondar, Ethiopia*

V. Rama Devi

*Assistant Professor, Department of Information Science, University of Gondar, Gondar, Ethiopia*

**Abstract-** The concept of open data is not new, but a formalized definition is relatively new. Open Data can be freely used, modified, and shared by anyone. Open data is the idea that some data should be freely available to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control. Open data is very important for the development of nation's economy. In this paper an attempt has been made to define what is 'Open data' and how it has its significant role in Ethiopian context. Collected the already existed data in relation to different fields of Ethiopia. The literature search has been done in deep level at present and for the future development. Used Knoema.com datasets in Ethiopia. Different sources have taken for the readers/researchers reference: Open data handbook, The Data Journalism handbook, Global Network, The Public Domain Review, Open Data Day, some of the Press releases relating to different aspects. Taken statistics of Ethiopia by Government National Statistics Office. Used Ethiopia data Portal. Discussed about Ethiopian economy, it's GDP per capita, [World Bank Ethiopia Economic update 2017 pdf and The National Open Data Policy of the Government of Ethiopia in detail](#). At the end recommendations given from most of the previous studies. In conclusion we can say that an open data policy alone will not steer Ethiopia towards the implementation of open data practice and the realization of the potential of open data for Ethiopia's citizens.

**Keywords:** Data portal, Data sets, Ethiopia, Handbook, Open data, Statistics.

## I. INTRODUCTION

The concept of open data is not new, but a formalized definition is relatively new. Open Data can be freely used, modified, and shared by anyone. Open data is the idea that some data should be freely available to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control. Conceptually, open data as a phenomenon denotes that governmental data should be available to anyone with a possibility of redistribution in any form without any copyright restriction. The term Open Data is very specific and covers two different aspects of openness: The data is legally open, which in practice generally means that the data is published under an open license and that the conditions for re-use are limited to attribution. The data is technically open, which means that the file is machine readable and non-proprietary where possible. In practice, this means that the data is free to access for everybody, and the file format and its content are not restricted to a particular non-open source software tool. Open data is data that can be freely used, re-used and redistributed by anyone - subject only, at most, to the requirement to attribute and share alike. The full Open Definition gives precise details as to what this means. According to open Knowledge Foundation - Open data is data that can be freely used, shared and built-on by anyone, anywhere, for any purpose. This is the summary of the full Open Definition which the Open Knowledge Foundation created in 2005 to provide both a succinct explanation and a detailed definition of open data.

According to Wikipedia Open data is the idea that some data should be freely available to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control. The goals of the open-source data movement are similar to those of other "open(-source)" movements such as open-source software, hardware, open content, open education, open educational resources, open government, open knowledge, open access, open science, and the open web. Paradoxically, the growth of the open data movement is paralleled by a rise in intellectual property rights. The philosophy behind open data has been long established but the term "open data" itself is recent, gaining popularity with the rise of the Internet and World Wide Web and, especially, with the launch of open-data government initiatives such as Data.gov, Data.gov.uk and Data.gov.in.

Open data can also be linked data; when it is, it is linked open data. One of the most important forms of open data is open government data (OGD), which is a form of open data created by ruling government institutions. Open government data's importance is borne from it being a part of citizens' everyday lives, down to the most routine/mundane tasks that are seemingly far removed from government. The Open data handbook defines Open data is data that can be freely used, re-used and redistributed by anyone - subject only, at most, to the requirement to attribute and share alike. The full Open Definition gives precise details as to what this means. The European data Portal defines Open data is that **anyone can access, use and share**. Governments, businesses and individuals can use open data to bring about social, economic and environmental benefits. Open data must be licensed. Its license must

permit people to use the data in any way they want, including transforming, combining and sharing it with others, even commercially. Without data we can't build information, and without information there is no new knowledge. Data is the raw material from which information and knowledge can be derived. Other definitions, including the [Open Data Institute's "Open data is data that anyone can access, use or share"](#), have an accessible short version of the definition but refer to the formal definition. Open data may include non-textual material such as [maps](#), [genomes](#), connectomes, [chemical compounds](#), mathematical and scientific formulae, medical data, and practice, bioscience and biodiversity. Problems often arise because these are commercially valuable or can be aggregated into works of value. Advocates of open data argue that these restrictions are against the common good and that these data should be made available without restriction or fee. In addition, it is important that the data are re-usable without requiring further permission, though the types of re-use (such as the creation of derivative works) may be controlled by a license.

## II. PROPOSED METHODOLOGY

### *Scientific Data*

The concept of open access to scientific data was institutionally established with the formation of the [World Data Center](#) system, in preparation for the [International Geophysical Year](#) of 1957–1958. The International Council of Scientific Unions (now the [International Council for Science](#)) oversees several World Data Centers with the mandate to minimize the risk of data loss and to maximize data accessibility. While the open-science-data movement long predates the Internet, the availability of fast, ubiquitous networking has significantly changed the context of [Open science data](#), since publishing or obtaining data has become much less expensive and time-consuming. The [Human Genome Project](#) was a major initiative that exemplified the power of open data. More recent initiatives such as the Structural Genomics Consortium have illustrated that the open data approach can also be used productively within the context of industrial R&D. In 2004, the Science Ministers of all nations of the [Organization for Economic Co-operation and Development](#) (OECD), which includes most developed countries of the world, signed a declaration which essentially states that all publicly funded archive data should be made publicly available.

Examples of open data in science:

- The Data verse Network Project – archival repository software promoting data sharing, persistent data citation, and reproducible research<sup>[15]</sup>
- [Data.uni-muenster.de](#) – Open data about scientific artifacts from University of Muenster, Germany. Launched in 2011.
- [Linkedscience.org/data](#) – Open scientific datasets encoded as [Linked Data](#). Launched in 2011.

### **Open data resources: open data handbook**

The handbook introduces you to the **legal, social and technical aspects** of open data. It can be used by **anyone** but is especially useful for those working with government data. It discusses the **why, what and how** of open data —

### **why to go open, what open is, and the how to do open.**

The Data Journalism Handbook,  
Global Network,  
The Public Domain Review,  
Open Data Day,

Press releases on - A fair, free and open future- new chapter to celebrate Open Knowledge Foundation's anniversary; transparency scientific data; A fair, free and open future- new chapter to celebrate Open Knowledge Foundation's anniversary; UK party leaders challenged to back openness and transparency; Worldwide celebration of open data on 3 March 2018 and so on.

Knoema.com has described all the datasets in Ethiopia in alphabetical order. All datasets: 2 3 A B C D E F G H I J K L M N O P Q R S T U V W Y H I I C Ч of different fields.

Government National Statistics Office has given the following Statistics of Ethiopia:

President: Sahle-Work Zewde

Prime Minister: Abiy Ahmed Ali

Capital city: Addis Ababa

Languages: Oromo (official working language in the State of Oromiya) 33.8%, Amharic (official national language) 29.3%, Somali (official working language of the State of Sumale) 6.2%, Tigrigna (Tigrinya) (official working language of the State of Tigray) 5.9%, Sidamo 4%, Wolaytta 2.2%, Gurage 2%, Afar (official working language of the State of Afar) 1.7%, Hadiyya 1.7%, Gamo 1.5%, Gedeo 1.3%, Opuuo 1.2%, Kafa 1.1%, other 8.1%, English (major foreign language taught in schools), Arabic (2007 est.)

Population, persons: 109,224,559 (2018)

Area, sq. km: 1,000,000

GDP per capita, US\$: 772 (2018)

GDP, billion current US\$: 84.4 (2018)

GINI index: No data

Ease of Doing Business rank: 159

Knoema is the most comprehensive source of global decision-making data in the world. Our tools allow individuals and organizations to discover, visualize, model, and present their data and the world's data to facilitate better decisions and better outcomes.

ETHIOPIA DATA PORTAL: Search for data, Visualizations and statistics.

Addis Ababa Benishangal Gumz Harare SSNPR Afar Dhir Dawa Oramiya  
Tigre Amara Gambella Somali

It has given statistical data on literacy, Secondary School, Net attendance ratio, education and total fertility children per woman. Source: Demographic and health Survey, 2011-2014, Ethiopia.

- Demographics
  - Population
  - Male Population
  - Female Population
  - Total fertility rate
- Consumer price index (CPI)
  - Food
  - Non-Food
- Land Use
  - Agricultural area irrigated
  - Fallow land
  - Forest area / woodland
  - Grazing Land
  - Other land
  - Permanent crops
  - Tempo\_crops irrigated
  - Temporary crops

- Education
  - Literacy Rate\_Female (%)
  - Literacy Rate\_Male (%)
  - No education\_Female (%)
  - No education\_Male (%)
  - Primary Education\_Female (%)
  - Primary Education\_Male (%)
  - Secondary Education\_Female (%)
  - Secondary Education\_Male (%)
  - Primary School gross attendance ratio
  - Secondary School gross attendance ratio
- Labour
  - Child Labour
  - Unemployment rate\_Female
  - Unemployment rate\_Male
  - Employed in Agriculture\_Female
  - Employed in Agriculture\_Male
  - Employed in Sales and services\_Female
  - Employed in Sales and services\_Male

- Health
  - Child mortality
  - Infant mortality
  - Home Place of delivery
  - % delivered in a health facility
  - polio vaccination given at birth
  - No vaccinations
  - Mosquito nets per household
- Living conditions
  - Firewood for cooking\_Urban
  - Firewood for cooking\_Rural
  - Lamps for lighting
  - Households owning TV
  - Waste Disposal Dump in River

---

### [Ethiopia GDP per Capita](#)

### [World Bank Ethiopia Economic update 2017](#)

The Gross Domestic Product (GDP) in Ethiopia was worth 84.36 billion US dollars in 2018. The GDP value of Ethiopia represents 0.14 percent of the world economy. GDP in Ethiopia averaged 22.09 USD Billion from 1981 until 2018, reaching an all-time high of 84.36 USD Billion in 2018 and a record low of 6.93 USD Billion in 1994.

Searches related to Ethiopia data:

[Ethiopia poverty statistics](#)

[Ethiopia gdp](#)

[Ethiopia gdp 2018](#)

[Ethiopia database](#)

[Ethiopia gdp 2019](#)

[Ethiopia chart](#)

[Ethiopian economy 2018 & 2019](#)

**Related searches:** [Ethiopia data](#)/ People also search for

[Sudan gross domestic product](#)

[Somalia gross domestic product](#)

[Eritrea gross domestic product](#)

[Ethiopia gdp per capita](#)

### The National Open Data Policy of the Government of Ethiopia

The Government of Federal Democratic Republic of Ethiopia took the first steps towards harnessing the benefits of Open Data by conducting the Open Data Readiness Assessment (ODRA) Study in June 2014. The findings of the ODRA revealed that Ethiopia had fulfilled many requirements to integrate open data principles across the Government of Federal Democratic Republic of Ethiopia took the first steps towards harnessing the benefits of Open Data by conducting the Open Data Readiness Assessment (ODRA) Study in June 2014. The findings of the ODRA revealed that Ethiopia had fulfilled many requirements to integrate open data principles across the public sector and, subsequently, an action plan with details on next steps was drafted. The implementation of a national open data policy will require coordinated contributions from a range of stakeholders, key among them in government is the Central Statistics Agency (CSA), and the National Planning Commission (NPC). Such

coordinated contribution will require leadership and structures provided with a strong mandate to ensure the publication, curation and use of open data in Ethiopia.

*National Technology and Skills Infrastructure:*

Technological infrastructure provides a platform for accessing, sharing, analyzing and usage of data. The infrastructure that includes availability of physical communication networks, devices, ICT skills (for both technical and non-technical users), internet access and affordability increase the chances of success to Open Data Initiatives.

*Government Open Data Portal*

Individual government departments, ministries and agencies are publishing data on their respective websites although predominantly in an in ad hoc manner. CSA remains the custodian of all government data. From an open data perspective, government has made strides in realizing the benefits of Open Data. As recommended in the action plan drafted following the ODRA in 2014, a beta version of the Ethiopian National Open Data Portal ([www.data.gov.et](http://www.data.gov.et)) has been developed. Evidence-based planning to steer socio-economic development relies on quality data. There is a general need to facilitate the sharing and use of the large amounts of data generated and held by the Government of Ethiopia. Government institutions such as Ministry of Communication and Information Technology (MCIT), the Central Statistics Agency (CSA), the National Planning Commission (NPC), the Ministry of Public Service and Human Resource Development (MPSHRD) and the Office of the Ombudsman are all having different mandates and priorities when it comes to publishing and sharing data. However, there is no overall lead institution with a policy mandate to implement the National Open Data Initiative. By seeing all the need Government of Ethiopia has taken decision to levy a National Policy on Open data.

### III. RESULT

*Policy Objective*

To encourage and facilitate the publication of data across all government departments and Agencies while taking into consideration differences in the data collected. The Government of Ethiopia has

1. Set up Open Data Implementation Teams to source, extract, prepare and publish government datasets on the National Open Data Portal. The Team has taken decision on existing datasets that are readily available on the website of government ministries and agencies, and on executing approved requests received by the Open Data Steering Committee or by individual departments and ministries for the release of open data.
2. Mobilize two separate Implementation Teams: one to focus exclusively on data that fall under the mandate of the CSA, and a second that focuses on data from government entities (e.g. education data; budget data; economic data; map data; etc.).
3. Locate the non-CSA implementation team within the NPC in order to provide

The Government of Ethiopia has set up Open Data Implementation Teams to source, extract, prepare and publish Government datasets on the National Open Data Portal. The Team will focus on existing Datasets that are readily available on the website of government ministries and agencies, and on executing approved requests received by the Open Data Steering Committee or by individual departments and ministries for the release of open data.

Mobilize two separate Implementation Teams: one to focus exclusively on data that fall under the mandate of the CSA, and a second that focuses on data from government entities (e.g. education data; budget data; economic data; map data; etc.).

Locate the non-CSA implementation team within the NPC in order to provide it with legitimacy and to work in an integrated with the NPC as key data user in the Ethiopian government data ecosystem. The Steering Committee of National Policy on Open data has taken decision relating to the Standards of government open data from each government department with regard to Format, Timeliness, License and Metadata.

*Policy Issue*

By recognizing the importance of open by design / default, the government I ensured that data is open and published at source. Due consideration has given to restricted data, sensitive data and sharable data. The success of the administration, implementation and sustainability of the Ethiopian Open Data Initiative depends on the availability of adequate human and financial resources. Currently, respective government departments and agencies cover the costs of any Open Data activity undertaken. The success of the administration, implementation and sustainability of the Ethiopian Open Data Initiative depends on the availability of adequate human and financial resources. Currently, respective government departments and agencies cover the costs of any Open Data activity undertaken. Collection of data and measurement against these indicators should be conducted on an annual basis with each government department and agency conducting its own annual evaluation that is submitted to the Open Data Steering

Committee. The Open Data Steering Committee will conduct its own annual evaluation, and will review the evaluations

Completed by the government departments and agencies. Consultation on the Recommendations and Working Text of the National Open Data Policy of The Government of Ethiopia depends upon Resources:

1. Description of any resources (human and financial) made available to support the Open data initiative.
2. Dedicated agency-level committee, unit or team in place to oversee data initiative --Names of members.
3. Data use - Number of document use cases.

#### IV. RECOMMENDATIONS AND CONCLUSION

The recommendations are structured in three parts. The first part outlines important conditions identified by those interviewed that will enable the effective implementation of an open government data initiative. The second part lists those recommendations that emerged during the interviews and that are predominantly recommendations on in-principle statements to include in the open data policy. The third part provides for the consideration of the Ethiopian government options to follow in order to advance and sustain its open data initiative. The options are split into those that are executable in the short term and those that are more achievable over the medium and longer terms.

The debate on open data is still going. The best open government applications seek to empower citizens, to help small businesses, or to create value in some other positive, constructive way. Opening government data is only a way-point on the road to improving education, improving government, and building tools to solve other real world problems.

An open data policy alone will not steer Ethiopia towards the implementation of open data practice and the realization of the potential of open data for Ethiopia's citizens. Inculcating a culture of openness across government ministries will take time as institutionalized norms and values are challenged by new preaches and thinking. Leadership, institutional entrepreneurs (or 'champions'), changes in incentive structures and innovative training approaches can all contribute to changing institutionalized practices. However, there are also certain practical steps that government can take to support the effective transition to open data practice, all of which were changing institutionalized practices.

These include: 1. Improving ICT infrastructure to enable fast and reliable sharing of digital content both within government and between government and external stakeholders. Many ministries bemoaned slow and unreliable internet connections. 2. Supporting the transition from paper-based to digital systems. In many cases, reporting systems are still paper-based making it difficult for government ministries to share data more broadly using available technologies and platforms. 3. Educating government employees on the value of machine-readable formats (e.g. csv, MS Excel) over human-readable formats (e.g. PDFs). Too much government data is 'locked up' in PDFs placing restrictions on the reuse of the data contained in the PDFs. A key message to get across to public servants is that open data does not mean that all government data must be in the public domain. This was a common misconception encountered during the interviews. Open data applies only to that data that do not contravene the privacy rights of individuals, jeopardize state security, etc. Engaging on a regular basis with external stakeholders (such as researchers, private sector companies, entrepreneurs, CSOs, etc.) to establish what their data needs are.

#### REFERENCES

- [1] Government of India, Department of Science & Technology in the Ministry of Science & Technology (2012) National Data Sharing and Accessibility Policy-2012 (NDSAP-2012). Retrieved on 9/11/2019 <https://nsdiindia.gov.in/nsdi/nsdiportal/meetings/NDSAP-30jan2012>.
- [2] Joint Minds Consult (August 2017) Summary Minutes of the Meeting between Professor Masresha – Executive Director (Ethiopian Academy of Sciences) and Dr. Mwelwa – Senior Partner (Joint Minds Consult) & Technical Advisory Board Member – Africa Open Science Platform. Retrieved on 2/12/2019 <https://www.nrf.ac.za/media-room/news/momentum-african-open-sci...>
- [3] National Data Sharing and Accessibility Policy-2012 (NDSAP-2012). Retrieved on 11/10/2019 <https://nsdiindia.gov.in/nsdi/nsdiportal/meetings/NDSAP-30jan2012>
- [4] Perspectives on Open Data: Ethiopia - Local Development Research Institute (LDRI) Local Development Research Institute, 12/21/2019. Retrieved on 2/12/2019 <https://www.developlocal.org/blog>.
- [5] Solomon Mconon. 2016. Open Knowledge Ethiopia. Retrieved on 2/12/2019. <https://okfn.org/network/ethiopia>
- [7] Stephane Boyera, François van Schalkwyk and Aman Grewal. Open Data in Ethiopia: Report on the Open Data Landscape of Ethiopia prepared in support of the development of the National policy and the Guidelines for the implementation open data in Ethiopia.
- [8] Retrieved on 14/11/2019. [https://www.academia.edu/Open\\_Data\\_in\\_Ethiopia](https://www.academia.edu/Open_Data_in_Ethiopia)
- [9] Open Data Charter (September 2015) International Open Data Charter. Retrieved on 2/10/2019.
- [10] World Bank (March 2014) Open Data Readiness Assessment: Prepared for the Government of Ethiopia. Washington DC: World Bank. Retrieved on 2/11/2019. [documents.worldbank.org/curated/pdf/Open-Data-Readiness-Assessme](https://documents.worldbank.org/curated/pdf/Open-Data-Readiness-Assessme).