



World Bank Support for Open Data

2012-2017

World Bank Support for Open Data

2012-2017



Contents

Foreword	V
Abstract	VI
Acknowledgements	VI
Acronyms	VII
Executive Summary	1
1. Introduction	2
1.1 Background	2
1.2 The benefits of Open Government Data	2
1.3 Funding of Open Data projects	5
2. Summary of Activities Undertaken by the World Bank in Support of Open Data Programs in Developing Countries	8
2.1 Open Data Readiness Assessments (ODRAs)	8
2.2 Implementation Support	8
2.3 Other Technical Assistance	11
2.4 Networks and Knowledge Sharing	11
2.5 Research and Analysis	14
3. Description of Key Open Data Activities	15
3.1 Open Data Toolkit: Guidance and knowledge products	15
3.2 ODRA emergence and development	15
3.3 Sector-specific assessment methodologies	16
3.3.1 Open Energy Data	16
3.3.2 Open Transport Data	17
3.3.3 Open Data for Business (OD4B)	17
3.3.4 Open Data for National Statistics Offices (NSOs)	18
3.4 Courses, E-Courses and Other Capacity Development Activities	20
3.4.1 Data literacy products and services	20
3.4.2 e-Learning Courses	21

3.5 The series of International Open Data conferences	22
3.6 Regional conferences	23
3.6.1 Condatos and AbreLatam	23
3.6.2 The first Africa Open Data Conference and Africa Open Data community of practice	23
3.6.3 Open Government conference in the Russian Federation	24
3.7 The Open Data for Development (OD4D) partnership	25
4. Lessons Learned and Recommendations	26
4.1 Common issues arising in ODRA reports	26
4.2 Lessons learned from the implementation of Open Data initiatives	32
4.3 Recommendations	34
Annex 1. Short Project Summaries	35
Annex 2. List of World Bank-Supported Projects	45
Annex 3. Countries in Figures	50
Annex 4. Scaling World Bank Data Literacy	52

Boxes

Box 1: Examples of benefits of Open Data	3
Box 2. Funding of Open Data Projects provided by other trust funds and partnerships	7
Box 3. Support for the Burkina Faso Open Data Initiative (BODI)	10
Box 4. Examples of sector specific initiatives	12
Box 5. ENERGYDATA.INFO	13
Box 6. The role of NSOs in implementing Open Data initiatives	19

Figures

Figure 1. Project Funding by Funding Source	5
Figure 2. Project Funding by Region and by Category	6

Foreword

When we launched the World Bank's open data initiative, we were convinced it was the right thing to do, but unsure what the results would be.

We soon saw that removing the technical and legal barriers to accessing our data triggered a 15-fold increase in its use. From carrying out economic analyses and highlighting gaps in our data, to creating news stories, data visualizations and games - more users, in more places were doing more things with our data than we'd ever seen before.

We have not been alone in this realization. Governments and organizations around the world recognize that opening up their data maximizes the return on the investments they have made in producing and managing it.

In the last five years, the World Bank has assisted over 50 low- and middle-income countries with advice and financing to run their own open data programs. We have worked to strengthen the open data community in every region of the world, and to make sure that poorer countries do not miss out on the benefits of new ways of managing digital public goods.

I'm pleased to introduce this synopsis of our work supporting the global open data agenda since 2012. It represents the Bank's work at its best - using a mix of financing, knowledge and partnerships to make long-term improvements that ultimately improve people's lives.

I look forward to seeing this work to continue, and would highlight this document's lessons learned section as essential reading for anybody working on open data inside or outside the World Bank.

Haishan Fu, Director
Development Data Group, World Bank

Abstract

This report summarizes the World Bank's activities to support the Open Data efforts of developing countries during the period 2012 - 2017. It is largely descriptive, but Chapter 4 includes key analysis and lessons learned. The main objectives of this report are to share information within the World Bank and with its partners and client countries, and to preserve the institutional memory and highlight the lessons learned as a way to improve the development effectiveness of Open Data.

June, 2017

Acknowledgements

The report has been produced by a team including Amparo Ballivian, Craig Hammer, Tim Herzog, Yulia Danilina, Alla Morrison, Roza Vasileva and Miguel Lanza, with significant contributions from Andrew Stott, Pierre Chrzanowski and many members of the World Bank Open Government Data Working Group. Ken Moreno-Sermeno provided administrative assistance. The report was edited by Linda Klinger and designed by Jomo Tariku.

Acronyms

AODC	Africa Open Data Conference
BB	Bank Budget
BODI	Burkina Faso Open Data Initiative
BRT	Bus Rapid Transit
CASA	Central Asia and South Asia
CENI	National Independent Electoral Commission (Burkina Faso)
CEO	Chief Executive Officer
CKAN	Comprehensive Knowledge Archive Network
COP	Communities of Practice
CSO	Chief Security Officer
CTO	Chief Technology Officer
DDI	Data Documentation Initiative
DFID	Department for International Development
DGF	Development Grant Facility
DOTC	Department of Transportation and Communications (The Philippines)
DRIVER	Data for Road Incident Visualization Evaluation and Reporting
EBP	Evidence Based Practice
EMIS	Education Management Information System
EUR	Euro (Currency)
GIS	Geographical Information System
GODAN	Global Open Data for Agriculture and Nutrition
GoM	Government of Moldova
GoMx	Government of Mexico
GoU	Government of Uganda
GPS	Global Positioning System
GPSA	Global Partnership for Social Accountability
GTFS	General Transit Feed Specification
IBRD	International Bank for Reconstruction and Development
ICT	Information and Communications Technologies
IDA	International Development Association
IDRC	International Development Research Centre
INEGI	Instituto Nacional de Estadística y Geografía
INSAE	Institut National de la Statistique et de l'Analyse Economique (Benin's National Statistical Institute)

IT	Information Technology
ITS	Intelligent Transport System
KGGTF	Korea Green Growth Trust Fund
KTF	Korean Trust Fund
LAC	Latin America and the Caribbean
LINZ	Land Information of New Zealand
MAMPU	Malaysian Administrative Modernization and Planning Unit
MinTIC	Ministry of ICT
NDP	National Development Plan
NGO	Non-Governmental Organization
NSO	National Statistical Office
OD4B	Open Data for Business
OD4D	Open Data for Development Partnership
ODI	Open Data Institute
ODRA	Open Data Readiness Assessment
OGD	Open Government Data
OGP	Open Government Partnership
OKF	Open Knowledge Foundation
PDF	Portable Document Format
PRSC	Poverty Reduction Support Credit
Q&A	Questions and Answers
RAS	Reimbursable Advisory Services
SDG	Sustainable Development Goals
SMS	Short Message Service
TA	Technical Assistance
TF	Trust Fund
TFSCB	Trust Fund for Statistical Capacity Building
UBOS	Uganda Bureau of Statistics
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Program
US	United States
USAID	United States Agency for International Development
WB	World Bank



MYTH

OPEN DATA MYTHS

Stealing of Gov data

Do not trust wo

is expensive

Solution

Executive Summary

In 2012, the World Bank began assisting low- and middle-income countries with opening government data. In the last five years, we provided technical assistance and funding to over 50 countries, co-founded the Open Data for Development Partnership (OD4D), supported over 15 Open Data-focused conferences (some of them annual) and led the creation of numerous knowledge products. As a result, Open Data policies were implemented in three countries (and three more are in draft, awaiting approval), thousands of datasets were opened as free digital public goods to all interested users and hundreds of data-driven products and services were developed. These outputs enabled more equitable access to information and digital data, led to more accountable and efficient public administration and contributed to economic growth.

Funding for Open Data projects and activities is conservatively estimated at more than \$50 million and has come from a variety of sources, such as the International Bank for Reconstruction and Development (IBRD), International Development Association (IDA), World Bank's own Bank Budget (BB), trust funds and bilateral donors. The Trust Fund for Statistical Capacity Building (TFSCB) has been the most important source of trust fund funding for Open Data initiatives in developing countries. Many Open Data activities were also co-sponsored by the governments of client countries. Provision of donor funding catalyzed longer-term investment projects, i.e., IBRD loans and IDA credits, with multi-million Open Data implementation components in at least 14 countries.

The World Bank supported a variety of Open Data projects. The vast majority of projects—about 70 percent—provided technical assistance to client countries, helping them design and implement a national, sub-national or city-level Open Data initiative. Other investment and advisory-related projects included Open Data as a complementary component to a wider development goal, such as digital infrastructure development, smart transport, e-government and digitization, public sector reform/modernization and citizen empowerment. A third group of projects helped build knowledge

and capacity by funding research, development of diagnostic methodologies, training, knowledge exchange and collaboration activities.

In response to countries' requests, the World Bank conducted or supported 45 Open Data Readiness Assessments (ODRAs), of which 27 were at national, 11 at sub-national and 7 at municipal levels. In addition, various development partners have used our [ODRA methodology](#) and other Open Data Toolkit resources in a number of other countries. These assessments, carried out jointly with designated government teams, helped them define priorities, build capacity and formulate roadmaps for implementation of Open Government Data initiatives. In some countries, governments requested that ODRAs focus on certain themes or sectors of high strategic importance, such as budget transparency, poverty reduction, or health, education and water. ODRA derivatives—i.e., “deep dive” assessments for energy and transport sectors and a supplemental Open Data for Business (OD4B) tool—were piloted in recent years and added to our [Open Data Toolkit](#).

Since 2012, the World Bank has had an active role as a global convener of Open Data thought leaders and practitioners from our client countries. We co-hosted and co-organized the first regional conferences in Latin America in 2013 and in Africa in 2015, as well as three International Open Government Data Conferences in Washington, DC (2012), Ottawa (2015) and Madrid (2016). The conference in Madrid brought together more than 1,000 representatives from 56 countries and featured over 80 sessions and 20 special events, attesting to the robust growth of the global Open Government Data movement.

Chapter 4 of this report presents the lessons we learned from our five years of experience conducting ODRAs and supporting implementation of Open Data initiatives, and offers recommendations for amplifying Open Data development impacts by a deeper integration into the World Bank's core investment and advisory operations.

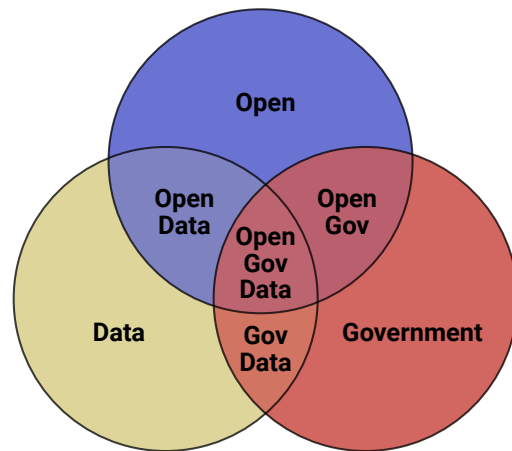
1 Introduction

1.1 Background

Open Data is data freely available online, in machine-readable format and covered by a legal license that allows anyone to use and re-use it for any purpose, including for commercial purposes¹. Open Government Data (OGD) is the data that governments collect and choose to release in open format to create wide social and economic impacts.

Since 2010, governments in many developed countries began introducing Open Data policies to facilitate this release, but this has not been the case in most developing countries. To help fill this gap and accelerate development of networks and communities of practice in developing countries, the World Bank began providing technical assistance and capacity building for developing countries' Open Data programs in 2012. In that same year, the Bank's OGD working group was formed.² The Working Group is an internal Bank collaborative with about 200 members from many different Bank units (e.g., governance, transport, ICT, statistics, energy, others). It is informal and based on working relations among its members rather than mandates. All members have specific sector expertise and use Open Data to support their sector's goals.

At the international level, the World Bank established in 2014 the Partnership for Open Data, along the Open Data Institute (ODI) and the Open Knowledge Foundation (OKF). Later that year, this Partnership was restructured to become the Open Data for Development Partnership (OD4D), and additional development partners joined, contributing their expertise and financial resources in support of the initiative.



Five years after the first grant for Open Data-related activities was awarded, over 70 projects in some 50 countries included Open Data activities and components, or had Open Data support as their main development goal. These activities took place at the regional, national, sub-national, agency and sector levels. Given this scope, the working group decided to take stock of the work that has been done to date, record the lessons learned and share this knowledge with colleagues, partners and client countries.

1.2 The benefits of Open Government Data

When you use a global positioning system (GPS) in your car to find the best route and step-by-step instructions to your destination, you are using Open Data. When you open a digital map to locate the nearest gas station or restaurant, you are using Open Data. When you open a weather app on your mobile phone, tablet, laptop or favorite digital device to find out if it will rain, if the temperature will drop or any weather information, you are using

¹ For more information on the concepts of "machine readability" and "open license," please visit [the World Bank Open Data Toolkit](#).

² The term "Government" was added to distinguish the activities of this working group in support of developing countries from the Bank's own Open Data program.

Open Data. When you use a real-state application (such as Zillow.com or Realtor.com) to help you search for a house or apartment to buy or rent, you are using Open Data. And when you use Medicare.gov's Hospital Compare to find the best doctor and hospital for your child's appendectomy, you are using Open Data. In fact, although most people who live in developed countries use Open Data all the time, they often don't know it, and there is no reason why they should. They only have to know the computer or mobile applications, charts and graphs embedded in digital news, data visualizations and millions of other applications that make data user friendly, thanks to Open Data.

The same cannot be said of people who live in developing countries, at least it could not be said at all in 2012, when the World Bank decided to do something to correct this imbalance. Today, some of these applications are available to citizens of developing countries, and new ones, developed in the global south and addressing specific problems of developing countries, are emerging. The Bank proudly joins many other international organizations, governments, NGOs, researchers and civil society organizations to make this possible.

Governments around the world are collecting and storing large amounts of data, which, if opened



Open Data being used to improve transparency in Ghana.

to the public as Open Data, can bring significant economic and social value. In the past few years, many developed nations have been introducing Open Data policies to unlock this potential. There is a growing body of evidence that the following four areas are where Open Data can have a significant impact: a) direct and indirect benefits to the economy, b) improved efficiency and effectiveness of public services, c) government transparency and accountability, and d) better information sharing and decision making within governments. Examples of each area are presented in Box 1.

Box 1: Examples of benefits of Open Data

A. Direct and indirect benefits to the economy

- Tech for Farmers (<http://www.ict4ras.org/rural-emarket/>) is an e-commerce application that allows the rural population in Madagascar to sell and buy agricultural produce. It provides information to farmers and facilitates exchange between consumers and producers, using agriculture and geospatial data from Madagascar's Department of Rural Development Policies and Ministry of Agriculture.
- District Metrics (<http://districtmetrics.com/>) is an online service that displays household consumers in India at a disaggregated level. It improves market research by estimating

income and business activity based on public data, using data from the Reserve Bank of India, the Ministry of Statistics of the Government of India, and demographic data from the Census of India. Researchers and marketing firms use these data to undertake manifold analyses, either for social good or profit.

- Zillow, an American company, links Open Data from a variety of sources in a single platform to provide real estate services. Users can search all houses or apartments that are for sale or rent and, for each property, find its cost, photos, location on a map, taxes, estimated mortgage costs, safety of its neighborhood, property price history, nearby schools, transportation options and other information. The site is free for

users; the company is financed mostly by advertisements. Its market valuation is over US\$ 6 billion. The company could not exist without Open Data.

B. Improved efficiency and effectiveness of public services

- When provided in open format, GPS data have multiple uses and are arguably the most-used Open Data around the world. Opening GPS data allows the creation of maps to visualize the physical location of streets, houses, hotels, schools, hospitals, pharmacies, etc., as well as providing navigation information to travel from one place to another.
- Weather data collected by government weather services are an invaluable resource for agricultural purposes, transportation planning, disaster risk management and multiple other institutional uses, as well as for individual decision making by citizens. When provided in open formats, this data is used by optimization software, visualizations and analyses that make their re-use easy, fast and cheap.
- Eduweb (<http://www.eduweb.co.ke>) is a centralized portal of open education data from schools, colleges and universities in Kenya, which allows parents, students, government education officials and donors to identify, locate and evaluate schools. It is based on Open Data provided by Kenya's Ministry of Education, and includes names of schools, locations, contacts, facilities and differentiating information.

C. Government transparency and accountability

- The Centre for Governance and Public Accountability (<http://www.c-gpa.org/>) is a civil society organization working for promotion of public accountability and good governance in Pakistan. It informs citizens on key governance issues and strengthens state response to citizens' grievances, using data from the education budgets of various districts in Pakistan, municipal budget data of Peshawar District, and education, health, police and legal data from Khyber Pakhtunkhwa District.
- Budget and government transparency in Moldova is being improved by Budget Stories (<http://www.budgetstories.md/>), which provides lay people with access to political analyses and tools about Moldova's budget and policies, using national budget data from Moldova's Ministry of Finance, and economic, energy and environment data from the National Bureau of Statistics, which is all taken

from Moldova's Open Data portal. The website's Budget Calendar and OpenSpending budget tree-map projects present this data visually, in ways that average citizens find more accessible.

- Budeshi (<http://www.budeshi.ug>), in Uganda, is a website that improves access to public procurement and budget information to help fight corruption and improve the effectiveness of public budgets. It uses procurement and budget data from Uganda's Ministry of Energy, Oil and Mineral Development and Ministry of Transport. The data is available in machine-readable format according to Open Contracting Data Standards (OCDS), so that public users can interact with it and make their own comparisons.
- Odekro (<http://www.odekro.org/>) is a platform that promotes transparency, government accountability and citizen participation by providing public access to bills, motions and parliamentary proceedings of Ghana's Congress, as well as election data. It also enables remote communities and marginalized populations to leverage this information to engage with government agencies.

D. Better information sharing and decision making within governments

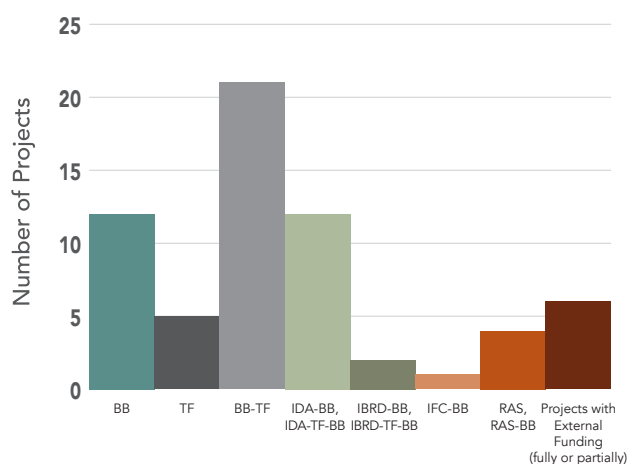
- To improve foreign aid, the U.S. Government needs to combine aid to various countries, based on the data from multiple datasets released by several agencies. Using an open visualization system (in this case, Google's visualizer), they extracted from each dataset a few pieces of relatively obvious data—dates, dollar amounts, country names, etc.—and used it to explore the subcategories and extend the ability to integrate more data. For example, they drilled further into the data, showing the particular aid categories from the various agencies, and created timelines showing the change in those categories over time.
- In 2015, Edo State in Nigeria (<http://data.edostate.gov.ng>) published an Open Dataset of **publicly recognized waste drop-off locations**. A developer in Benin City created an online visualization that showed the official drop-off sites and allowed anyone to add additional sites that were not officially recognized. The result was a citizen-generated dataset that provided a more complete and accurate picture of drop-off sites. Government planners could use the revised data to position drop-off sites more effectively and improve waste management services.

1.3 Funding of Open Data projects

Funding for Open Data projects and activities led by the World Bank came from a variety of sources (see Figure 1). These included IBRD³ and IDA⁴ lending, the Bank's own budget (BB),⁵ trust funds (TFs),⁶ reimbursable advisory services (RAS),⁷ Development Grant Facility (DGF)⁸ and external funding from the Department for International Development (DFID), the United Nations Development Program (UNDP), the Global Open Data for Agriculture and Nutrition (GODAN), the U.S. Agency for International Development (USAID), the ODI and others. Many Open Data activities were also co-sponsored by the governments of client countries - in monetary or in-kind form - but these contributions are difficult to estimate and are not included in Figure 1.

One particular trust fund - the Trust Fund for Statistical Capacity Building (TFSCB) - has been the most important source of funding for Open Data initiatives in developing countries. Since 2012, when the first grant for Open Data was approved, the TFSCB has financed over 20 projects in 16 countries, as well as provided six grants for regional and

Figure 1 Project funding by funding source*

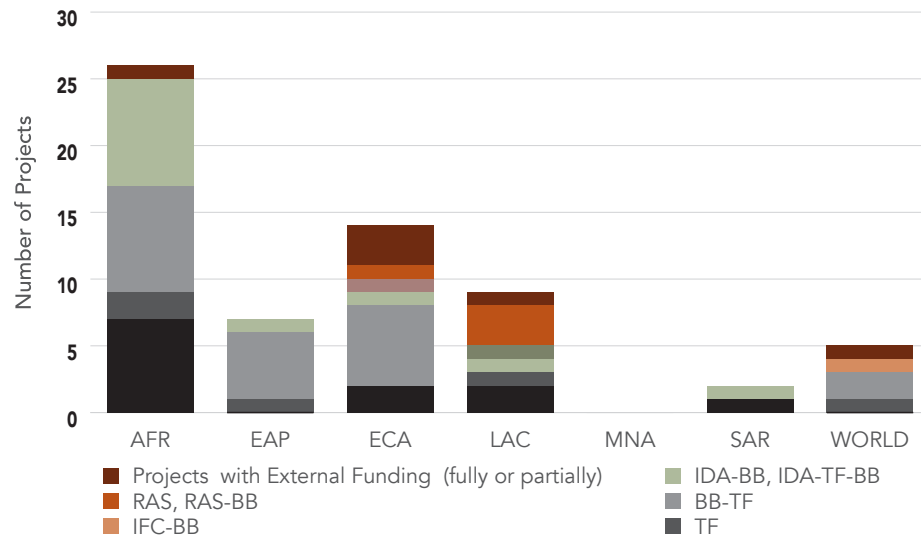


* A small number of projects with multiple or unknown sources of funding were not reported in this chart. For details see Annex 2.

global activities, thus allocating over \$3.9 million for Open Data (see Annex 2). TFSCB, a multi-donor TF, was established in 1999 by the Development Data Group of the World Bank to strengthen the capacity of statistical systems in developing countries. The Fund supports various types of statistical and data activities, including for innovations in development

- 3 The [International Bank for Reconstruction and Development \(IBRD\)](#) is a global development cooperative owned by 189 member countries. As the largest development bank in the world, the World Bank Group provides loans, guarantees, risk management products and advisory services to [middle-income and low-income countries](#), and contributes to international efforts to address regional and global development challenges.
- 4 The [International Development Association \(IDA\)](#) is the world's largest multilateral source of concessional financing for the poorest countries. It provides concessional development credits, grants and guarantees in support of these countries' efforts to increase economic growth, reduce poverty and improve the living conditions of the poor. In fiscal 2016, [77 countries](#) were eligible for IDA assistance.
- 5 World Bank's Administrative Budget (Bank Budget, or BB) is used along with other resources to support overall client services and the operational expenses of project preparation, supervision and analytical and advisory activities (AAA), including technical assistance (TA) and economic and sector work (ESW).
- 6 Trust funds (TFs) administered by the World Bank complement the IBRD and IDA funded operations. They allow scaling up of activities, notably in fragile and crisis-affected situations; enable the Bank to provide assistance when its own ability to lend is limited; provide immediate assistance in response to natural disasters and other emergencies; and pilot innovations that are later mainstreamed into the Bank's operations.
- 7 In response to specific requests, the World Bank provides a variety of RASs to clients beyond the analytic and advisory services that it can fund through its administrative budget or relevant TFs. Under a RAS agreement the client reimburses the bank the costs of the analytical and advisory services. Typically, RAS engagements are provided in addition to other WBG activities; for non-borrowing member clients, however, RAS may be the single instrument through which the WBG provides services.
- 8 The DGF was the World Bank's mechanism for providing grant financing for innovative partnerships that are of high value to World Bank clients, but cannot be adequately supported through the Bank's country operations, or through economic and sector work alone. The DGF has been discontinued.

Figure 2 Project funding by region and source*



* A small number of projects with multiple or unknown sources of funding were not reported in this chart. For details see Annex 2.

data, such as Open Data. In all types of project proposals, the recipients are required to demonstrate their commitment to the project by providing some contribution to the overall cost, which may be monetary or in-kind. Middle-income countries are expected to support a higher share of the total cost compared to low-income countries. Most TFSCB-funded projects operate at the national or sub-national level, but the trust fund can also support regional and global projects if a project has regional or global externalities.

Currently, the World Bank has 13 Open Data-related lending projects at different completion stages that are being financed, fully or partially, by one of the two lending windows of the World Bank, IBRD and IDA. Some of these projects also have a significant TF component; for example, almost all ODRA were financed by TFs, but the implementation of ODRA action plans is often a component of a bigger lending operation. Most of the Open Data-related projects were funded by IDA, while only two, Mexico and Russia, are using IBRD funding. IDA has supported, entirely or partially, 12 Open Data-related projects, 7 of them in Africa (see Figure 2 and annex 2). Importantly, in some countries, TF-sponsored projects helped reveal capacity gaps and informed the design of a lending operation.

BB resources were used in almost every project, with a few exceptions of TF-only funded activities. In some instances, however, BB covered only expenses related to project management, and amounts rarely exceeded \$150,000. In addition to BB, TFs also support these types of activities. BB, or a combination of BB and TF, was used in over 30 projects (see Figure 2).

In addition to TFSCB, several other TFs and external sources of funding were used to finance Open Data-related projects and activities. These included funds provided by the governments of Korea (Korea Trust Fund [KTF] and Korea Green Growth Trust Fund [KGGTF]), Australia and Great Britain, as well as the Global Partnership for Social Accountability (GPSA) and OD4D. Box 2, summarizes these contributions; OD4D activities are covered separately in Section 3.7.

In many projects, TF funding helped catalyze co-financing via collaboration among World Bank Global Practices and country management units (CMUs), as well as with external partners such as DFID, UNDP or ODI—which included monetary and in-kind contributions. In some cases, the amount of co-financing raised was double or more of the amount of the initial grant.

Box 2: Funding of Open Data Projects provided by other trust funds and partnerships*

Source	Amount for Open Data	Open Data: Main Activity / Component	Recipient Countries
KTF	***	Component	Russian Federation Tanzania Macedonia Global (analytical work, support for the expert community - HELP network - Open Data networks and events)
	***	Component	Nigeria
KGGTF	\$685,000	Main Activity	Philippines
	\$15,000	Main Activity	Ghana, Accra (Energy ODRA)
	\$20,000	Main Activity	Kenya, Nairobi (Energy ODRA)
	\$300,000	Main Activity	India, Tanzania, Kyrgyzstan; Global (Transport ODRA)
Australian - World Bank Philippines Development Trust Fund	***	Main Activity	Philippines
	***	Component	Philippines
The Partnership for Knowledge-based Poverty Reduction (Australia's DFAT is the main donor)	\$250,000	Component	Indonesia
GPSA	***	Component	Moldova
Dutch Multi-Donor Trust Fund	***	Component	Moldova
DFID funding	\$710,218	Main Activity	Caribbean: Jamaica, St. Lucia, Antigua & Barbuda
	\$3,035,000	Main Activity	Tanzania
	***	Component	Nigeria
* Amounts are provided for all the projects where the cost of the OD component is known. For many projects the cost of the OD component is not known because OD is not a separate component in which case we have not included the amount.			

2 Summary of Activities Undertaken by the World Bank in Support of Open Data Programs in Developing Countries

Most of the Open Data-related projects -about 70 percent- were TA, non-lending activities to help client countries evaluate, design and implement an Open Data initiative starting from very early stages. About 30 percent of projects, mainly big lending operations and RAS activities, included Open Data activities as complementary to a wider development goal such as digital infrastructure development, support for the Information and Communications Technologies (ICT) sector, green transport, government e-transformation and digitization and public sector reform and citizen empowerment, among others. The main activities supported by the World Bank over the study period included:

1. ODRA
2. Implementation support
3. Other technical assistance
4. Networks and knowledge sharing
5. Research and analysis

2.1 Open Data Readiness Assessments (ODRAs)

Conducting an assessment using the ODRA tool (see Section 3.2) is the first step many governments take at the very early stages of planning their OGD initiative. The World Bank has received multiple requests for ODRA assessments and has conducted or supported 45 of them to date. When an ODRA is conducted by the World Bank (and this is not always the case, as anyone can use the methodology and other institutions do), the process and the resulting action plan and report are always a joint product of the World Bank and government team.

Twenty-seven of the ODRA's conducted by the Bank were national in scope, but the Bank has also conducted 11 assessments at the sub-national level, including for states (Jalisco, Mexico and Andhra Pradesh, India), regions (Ulyanovsk Oblast, Russian Federation) and cities (Zapopan, Mexico; St. Petersburg, Russian Federation; Dar es Salaam, Tanzania; Mysore, India; Brasilia, Brazil; Nairobi, Kenya; and Accra, Ghana).

Some governments requested that the World Bank team focus the assessment on certain areas most pertinent to them. For instance, in Uganda, the focus was on budget transparency; in Tanzania, health, education and water data; and in the state of Jalisco, poverty reduction. Others were particularly interested in focusing on a specific feature of Open Data, such as an Open Data benefits assessment or a certain type of data. In most cases, the ODRA methodology is sufficiently flexible to accommodate these requirements. In addition, the World Bank has developed supplemental ODRA methodologies specifically for the energy and transport sectors, and created an OD4B tool that helps assess the private sector's current and potential use of OGD. All these methodologies were tested in pilot assessments in Ghana (Accra), Kenya (Nairobi), Russia (St. Petersburg), Tanzania (Dar es Salaam), India (Mysore) and Sierra Leone (see Section 3.3 for details), and are publicly available on the Open Government Data Toolkit.

As many countries wishing to adopt Open Data policies often require further clarification of the Open Data concept and the value it could bring, awareness-raising activities, such as workshops and individual conversations during interviews with stakeholders, became an essential part of delivery of the ODRA report and follow-up activities.

2.2 Implementation support

The action plan section of the ODRA provides specific recommendations for each country. These recommendations are based on what is needed to improve readiness in each of the eight main dimensions of the methodology and on the global best practice in moving forward with implementation. Particular attention is given to non-technical aspects, including the development and implementation of related policies and laws (such as for personal privacy) on the "supply" side, and the engagement of data users and other stakeholders



Sudanese women of all ages contribute to their society's Open Data efforts

on the “demand” side, to help create a sustainable Open Data “ecosystem.”

Most Open Data implementation projects are based on the findings of an ODRA assessment report and follow the actions outlined in its action plan. To date, about 17 countries, states and cities received—or will receive, in case of projects in early stages—World Bank implementation support for their Open Data initiatives. Depending on the country and its identified most immediate needs, these implementation activities included:

a) Support for Open Data policy development

The World Bank offers expert advice and training on Open Data strategy design and guidance on institutional governance structures and procedures, policy best practices, legal due diligence, data licensing and standards, and long-term action plans and performance indicators. These activities help clients create the enabling environment for the implementation of their OGD initiative.

b) Technical assistance in building an Open Data platform (portal), data collection and release

An Open Data platform is an essential element of any OGD initiative, as it provides the “front door” for users to access the Open Data catalog, as well as other tools for communication and feedback. TA to countries in building and launching their Open Data portal is one of the key elements of World Bank’s implementation support; over 15 countries, including Mexico, Colombia, Ethiopia, Kyrgyzstan, Mauritania, Moldova, Kenya and Jamaica, launched

their Open Data platforms using technical and financial support from the Bank.

The World Bank also provides advice and financial assistance for activities related to collecting data, curating it, and its digitization, reformatting, standardization, visualization, analysis and publication.

c) Training and capacity development activities

Capacity development activities for all stakeholders at different levels are crucial for ensuring the sustainability of a nascent OGD initiative. These activities help advance the general understanding of the main concepts around OGD, build the necessary technical skills and institutional capacities to re-use data, create links between data providers and users, and promote the culture of Open Data use and re-use. Thus, depending of the country context, almost every project supported some kind of capacity building initiative, including awareness-raising and knowledge-exchange workshops, technical training, roundtables with a variety of stakeholders and support for clients’ participation in specialized international events.

d) Activities stimulating the demand side of the Open Data ecosystem

Increasing re-use of Open Data in developing countries is one of the main goals of the Open Data engagements implemented by the World Bank and OD4D partners. The Bank has primarily focused on two approaches for capacity development for use and engagement with Open Data. The first approach has been to collaborate with civic hacker communities around opened data, including through an array of generally low-cost [hackathons](#) (including “hackable” questions in key development areas, such as [domestic violence](#), [water quality and access](#), and [sanitation](#)). There are highly innovative [News Innovation Challenges](#) and ever more [app development competitions](#), which are surfacing transformative ideas from around the globe to make Open Data usable and useful.

The second approach, which is more time and resource intensive, focuses on short-term “[Open Data bootcamps](#)” or long-term “[deep dive](#)” [Open Data training](#) efforts to institutionalize a culture of Open Data among government and non-government groups. This approach prioritizes the strengthening of sustainable, endemic (self-reinforcing)

capacity and use of Open Data up and down value chains without subsequent external support. Additional examples include efforts to integrate teaching curricula on Open Data into university environments and to catalyze integration of Open Data into private sector [business models](#).

There is a growing appreciation for [embedding technologists directly into government](#) to deploy coding skills for improved public services and, excitingly, [into media and civil society organizations](#) to support the creation of data-driven content, products and services for mass public consumption.

Box 3: Support for the Burkina Faso Open Data Initiative (BODI)

In 2012, the *Agence Nationale de Promotion des TIC*, Burkina Faso's National Agency of ICT Promotion under the Ministry of Digital Economy, asked the World Bank for assistance in developing the country's Open Data program. Burkina Faso was the first Francophone sub-Saharan country to implement an Open Data initiative.

Following the country diagnostic process, which included ODRA in 2014 and another country diagnostic study conducted in 2013, several grant-funded projects supported the government in the implementation of the initiative. Mentoring and capacity building activities have been a major component of this support, addressing key institutional, policy and skills challenges identified in the two diagnostics.

A core BODI (Burkina Faso Open Data Initiative) team was trained at the counterpart Ministry of Digital Economy, and this team trained other officials within other ministries. Several Open Data "champions" were also identified to ensure sustainability of the initiative and support its expansion throughout the government. With the support of the World Bank team and the Open Data Institute (ODI), the core team developed a pilot version of the Open Data platform (data.gov.bf) with over 50 government datasets published on it; this number later grew to over 180 datasets. To show practical benefits of Open Data, the BODI used the Ministry of Education's data to develop an app called NENDO (http://nendo.data.gov.bf/appli_accueil.php) that combines geospatial data on location of schools and kindergartens with the information about them. A number of stakeholders, including government representatives, chief security officers (CSOs) and local tech communities, were participating in the development of the app via a series of workshops and boot camps organized at the ANPTIC headquarters. For example, the ODI conducted a 10-hour "visualization sprint," where participants from the government and civil society, including data journalists, created visualizations using the NENDO data to see relationships among different variables. The workshop was designed to demonstrate to a diverse group of stakeholders the ways to use a variety of

tools (e.g., Mapbox, Open Street Map) to create stories and online materials based on Open Data.

The BODI team's early steps coincided with the turbulent time of uprising, followed by a period of political transition. The transitional government increased the support of the ANPTIC and the Open Data team grew to six staff members. The expanded team received additional funds and created a number of other platforms and applications, including a government procurement database (ViMap, vimap.data.gov.bf), the location of water points and small dams (<http://carteau.gov.bf/index.html>) and near-real-time data on the results of the elections that took place in November 2015 (<http://www.burkina2015.bf/>). Each of these projects served as an opportunity to provide training that increased data literacy as well as the technical and project management skills of the BODI team and other stakeholders. Topics included Open Data licensing; change management aspects of Open Data in the government; Open Data project assessment, strategy design and action planning; and standards and technical best practices in specific areas, such as geographical information systems (GISs), agriculture, election data and partnership management. The engagement helped train more than 200 developers and government staff working on data collection and management.

The government of Burkina Faso sowed strong and consistent leadership for Open Data, taking every opportunity to learn and build internal capacity. The BODI team took advantage of international knowledge exchange events and shared their experience at a variety of international forums. As a result, Burkina Faso emerged as a leader of the Francophone Open Data community and one of the Open Data leaders in Africa. The country also joined international partnerships, such as the Open Government Partnership (OGP) and GODAN to take advantage of extended knowledge networks. In June 2017, Burkina Faso hosted the First Francophone Open Data Conference that will take place in Ouagadougou, with financial and technical assistance from the World Bank, OD4D and Open Knowledge International.

2.3 Other technical assistance

In some countries, implementation activities followed national commitments under the Open Government Action Plan (Indonesia, Philippines) or national/state policy priorities (Kenya, Edo State). Most of these activities followed the basic steps that an ODRA action plan would recommend, including policy support, capacity building, portal development and activities stimulating the demand for Open Data. Several countries requested support for sector-specific platforms in, for example, education (Moldova, Philippines) and transport (Philippines) sectors, as well as for public spending and compliance digital accountability platforms (Moldova, Philippines).

2.4 Networks and knowledge sharing

The World Bank finances and organizes a wide array of activities that support knowledge sharing and

dissemination, facilitate the emergence of innovative networks and promote inter-institutional collaboration. These activities can be national, regional or global in scope and are complementary in terms of format and content. The three main approaches include: support for global partnerships; support for specialized conferences that facilitate knowledge sharing and promote networks on global, regional and national levels; and creation of Open Data tools and platforms for the use and benefit of everyone.

a) Global partnerships

Open Data for Development (OD4D) is a global partnership of more than 65 bilaterals, multilaterals, foundations, and NGOs eager to advance the creation of locally driven and sustainable Open Data ecosystems in developing countries. It focuses on increasing the supply of quality Open Data and improving the use of that data by leaders in

Box 4: Examples of sector-specific initiatives

The Philippines

Green Transport: The World Bank team worked with the Department of Transport (DOTr) to establish an integrated service information database for Metro Manila based on Open Data protocols, and helped update and maintain a suite of open source tools. The DOTr created an Open Data page on their website (<http://www.dotc.gov.ph>) and ran a highly publicized **app competition** with broad national participation. New consumer applications were developed and are currently in use. In addition, DOTr also used the transit database to prepare the first route rationalization plan in 50 years, which, if fully implemented, would reduce the annual greenhouse gas emissions by 23 percent.

Road Safety: Another platform, called Data for Road Incident Visualization, Evaluation and Reporting (DRIVER) (<http://www.roadsafety.gov.ph>), was piloted by the Cebu City Traffic Operations Unit and the Metro Manila Development Authority, with World Bank's technical support. The system links multiple agencies involved in recording road-crash data (i.e., local government units, police, and health system) in three cities, Manila, Cebu and Dipolog; standardizes terms and definitions for reporting; provides analytical tools to support evidence-based investments and policies; and monitors the impact of interventions. Due to the pilot's success, the DOTr, together with the Road

Safety Management team, scaled up the platform for nationwide implementation. The government is also organizing a road safety hackathon to promote the use of DRIVER by both government and the general public and build a registry of local developers who will provide technical support for the platform.

Tanzania

Education, Health and Water: Aligned with the Big Results Now in Tanzania, the initial focus of the national Tanzania Open Data Initiative (TODI) was on education, health and water sectors. The World Bank developed sector-specific dashboards on the Open Data portal for these priority themes. A suite of operational dashboards demonstrates the power of linking different Open Datasets for results monitoring. These current dashboards are considered living tools, a version 1.0 that can evolve according to user feedback and available datasets and inspire others to make their own dashboards for other sectors or indicators. Government appreciation for dashboards has increased, stoking demand for more data supply and raising awareness of the value of timely datasets and clean, quality data. The government also requested from the World Bank support for additional dashboard systems for monitoring sustainable development goals, local government data services and budgeting tools across all sectors, in addition to extending functions of existing dashboards. High demand from government users of the

Open Data dashboards is welcome recognition of the value of Open Data for government efficiency and transparency, and is an excellent demonstration of the use of the portal.

Serbia

Pharmaceuticals: In Serbia, the national Open Data Initiative is in its early stages, but several ministries are already publishing their data in machine-readable format. One example is the Agency for Medicines and Medical Devices. Within two weeks after publishing their data on market-admissible medicines, a Slovenian company [released an app](#) allowing users to check the availability of a medicine or alternatives on the Serbian market. Another Serbian pharmaceutical company used the data to speed up internal processes, which eliminated the need to exchange paper-based information with the agency.

Burkina Faso

Democracy: In December 2015, Burkina Faso released the results of its presidential election as Open Data, in almost real time, and became the first country in Africa to do so, contributing to the peaceful transition process and receiving significant international

media coverage for this initiative. The project was led by the BODI in cooperation with the National Independent Electoral Commission (CENI).

Education: The BODI signed a partnership with the local research institute, Institut des Science des Sociétés (INSS) to extend and open their school's dataset, including GPS data, in the country's two largest cities, Ouagadougou and Bobo-Dioulasso. The results were released as Open Data and integrated with the online service, "Our Schools, Our Data" (<http://nendo.data.gov.bf/>) to provide school-level education indicators. The NENDO application is being developed and improved exclusively by local developers. The next step of the project includes collaboration with the Ministry of Education to improve its data collection mechanisms and provide up-to-date education performance data at school levels as Open Data.

Agriculture and Water: Following a series of workshops with the Agricultural and Water sectors, the BODI developed an online service (<http://carteau.gov.bf/index.html>) to release and provide water points information in the country. The Open Data team also joined the Global Open Data Partnership on Agriculture and Nutrition (GODAN) where it will benefit from international support in the sector.

government, civil society, the media and business to further public interest and improve people's lives. Funded by the International Development Research Centre (IDRC), the World Bank, Global Affairs Canada and the U.K. Department for International Development (DFID), OD4D works with leading Open Data organizations to create knowledge and inform policies, standards, innovation and research in Latin America, the Caribbean, Eastern Europe, Africa and Asia. OD4D's focus in 2014 -16 was on helping governments, entrepreneurs and civil society in developing countries harness Open Data for development and manage national data initiatives. OD4D supports the creation of Open Data standards, guidelines and solution-driven applications, and explores the relationship between Open Data initiatives and socio-economic development. Its Open Data Barometer research on data availability covers more than 90 countries and 50 cities. OD4D supported the creation of the [Open Data Impact Map](#) which has more than 2,000 cases of data use. OD4D has hosted the International Open Data Conferences (IODCs) since 2014 (see Section 3.5).

In addition to OD4D, the World Bank is also a member, but not always a leader, of other global groups that work on Open Data for development, such as

the Open Data Working Group of the OGP, Open Contracting Data Partnership, Global Partnership for Sustainable Development Data and others.

b) Support for conferences and intra-institutional knowledge sharing

At the global level, the World Bank has been a primary sponsor of the last three IODCs—Washington (2012), Ottawa (2015) and Madrid (2016)—and has committed to sponsor the next, in Argentina (2018). These are major worldwide events for the exchange of experience, learning and establishing connections and partnerships between developing countries and those that are more advanced in this agenda. The conferences also connect countries, international organizations, private sector companies, NGOs, academia, media and civil society organizations (see Section 3.5). The IODC provides funding to participants from developing countries to cover travel expenses; for example, in 2015, 129 people from developing countries were funded.

Both directly and through OD4D, the Bank also sponsors regional conferences, such as [ConDatos](#) (an official conference) and [AbreLatam](#) (an unconference) in Latin America and [Africa Open Data](#)

conferences, as well as other regions that host developing countries (see Section 3.6).

Finally, the World Bank organized, co-organized and participated in a number of knowledge-sharing events, including internal World Bank events and external conferences and workshops hosted by client countries and other partners, to raise awareness about Open Data benefits, share best practices, and discuss emerging evidence of impacts.

c) Open Data tools and platforms

The Bank publishes and continually updates an [Open Data Toolkit](#) (see Section 3.1). Some tools were developed by the World Bank, but most

were developed by other institutions. One of the most important tools in the toolkit is the [ODRA](#). It receives about 2,000 visits a month, and has been available in Spanish and French since July 2017.

The World Bank also builds platforms that provide access to the Bank's own data as well as datasets and data analytics that are relevant to a particular sector. Presently, [the World Bank's Open Data catalogue](#) contains over 200 datasets and 16,000 development indicators. Examples of recent sector-specific Open Data initiatives include the [Climate Change Knowledge Portal](#), or ENERGYDATA.INFO, a partnership-driven one-stop shop for open energy data and analytical tools that provide global support for clean energy developments (see Box 5).

Box 5: ENERGYDATA.INFO

[ENERGYDATA.INFO](#) is an open data platform providing access to datasets and data analytics that are relevant to the energy sector. The platform has been created for governments, companies, development organizations, and others working to accelerate affordable, reliable, sustainable and modern energy for all. With more than 270+ datasets, 7 apps and 15 partner organizations, the growing platform is a place to both share and make use of energy-relevant data and analytics. Among the governments and organizations that use ENERGYDATA.INFO to publish their data are the Nigerian Rural Electrification Agency and the ECREEE (part of the ECOWAS) and its 15 member states. The partners jointly are fueling the data revolution needed to achieve the United Nations' Sustainable Development Goal (SDG) 7 for a more sustainable energy future.

ENERGYDATA.INFO provides a one-stop shop for easily finding and sharing energy data and analytics. Its' users can access electricity network maps to better plan renewable plant locations and off-grid solutions deployments, technical and commercial performances of African utilities to better assess investment risks, time-series maps of renewable measurement sites to facilitate large-scale renewable feasibility studies, and high-resolution population and settlement geospatial datasets to plan energy projects for greater impact.

Beyond datasets, ENERGYDATA.INFO features [data analytics](#) that allow users to:

- Assess the [potential market for off-grid energy solutions](#)

- Determine solar power potential and solar plant prospective electricity outputs for any given location with the new [Global Solar Atlas](#)
- [Monitor rural electrification progress](#) from nightlight satellite imagery data
- Generate [universal electrification scenarios](#)
- Compare [sustainable energy policies and regulations](#) globally.

The team has experience using these tools to engage with African planners, and many of the tools are focused on that demographic.

Examples of energy sector tools

In addition to the availability of Open Data, developing countries also require a greater capacity in data analytics. The World Bank Group Energy and Extractives Open Data and Analytics Program recognizes this need, and it invests and partners towards further developing open source analytics specifically tailored to developing countries' needs. A number of advanced analytics tools have been developed and made available on [ENERGYDATA.INFO](#), of which the most recent and advanced are:

[WB-ESMAP Electrification Paths](#) - a GIS-based application that allows users to navigate through least-cost electrification scenarios for each settlement at a one-by-one km resolution. Electrification Paths is a country-level electrification strategy, helping

planners target development programs and choose between grid extension, mini-grid systems or solar home systems.

IFC Off-Grid Market opportunities tool - an open source application to estimate market opportunities for off-grid energy services in every country in sub-Saharan Africa. The tool helps developers and investors in developing countries find markets for off-grid electricity access services.

The team has received positive feedback on the tools from government agencies, businesses and development professionals. “This is a great tool!” said Moya Connelly, vice president of Deutsche Bank Trust Company Americas. Alicia de Guzman, from the Rural Electrification Administration and Management Division of Philippines Department of Energy, said, “Thanks so much for this! In fact, this came at the right time, when we are developing our own rural electrification planning tool. This surely could contribute to the work we are doing.”

2.5 Research and analysis

To advance understanding of the technical and practical implications of Open Data, the World Bank supports—directly and via **OD4D**—research and analytical work on a wide array of topics, including:

- The role of Open Data in achieving the Sustainable Development Goals (SDGs)
- Economic impacts of Open Data, at the global and national levels (with country examples, such as Russia)
- Use of Open Data by businesses in developing countries
- Monitoring and evaluation of the impact of Open Data initiatives in developing countries (including country case studies via OD4D and Partnership for Open Data, such as Mexico, Moldova, Macedonia, Burkina Faso, and the Philippines, and via the Open Data Barometer and the Open Data Index)
- Open data technology options
- Open data challenges and opportunities for National Statistical Offices (NSOs)
- Open data platforms for NSOs
- A methodology for leadership support and peer networks for Open Data implementation and use
- The role of Open Data in achieving sustainable energy
- Development of an open transit service data standard

Much of this research is available online, serving clients, staff, other development organizations and the general public.

3 Description of Key Open Data Activities

3.1 Open Data Toolkit: guidance and knowledge products

The World Bank's [Open Government Data Toolkit](#) is a collection of tools and knowledge that governments can use to help develop and implement Open Data strategies, and users can use to better understand and take advantage of Open Data. The toolkit is an online "living" document that includes links to hundreds of resources available from the World Bank and other organizations. It has become an essential reference for the community to learn about the evolving Open Data ecosystem.

The toolkit is comprised of seven sections:

- **Open Data Essentials** is a brief orientation to the toolkit, including what Open Data is, how it is used and examples of Open Data initiatives at different levels.
- **Starting an Open Data** Initiative provides some of the tools that governments need to take the first steps in an Open Data initiative.
- **Technology Options** summarizes key technical issues in Open Data catalog development.
- **Demand & Engagement** provides guidance on how to build communities of data users and promote Open Data literacy in local, national and regional stakeholders; and how to advance Open

Data concepts through partnerships, media and others.

- **Supply & Quality of Data** includes guidance on how to manage datasets, locate data and ensure data quality, timeliness and accuracy.
- **Readiness Assessment Tool** is the online home of the Bank's ODRA tool and methodology. This section includes the ODRA tool and documentation, sectoral tools and published reports.
- **Technical Assistance and Funding** provides a list of technical assistance and funding resources from the World Bank and other organizations.

The Open Data Toolkit has been online since December 2012, and is updated frequently as new information becomes available. It currently receives about 2,000 visits a month, and became available in Spanish and French in July 2017.

3.2 ODRA emergence and development

In 2012, Open Data was a relatively new concept in development circles. Governments wishing to adopt an OGD initiative often had very little understanding of what such an initiative should involve and how to approach it. To address this challenge, the World Bank's Open Government Data Working Group led the development of an ODRA methodological tool. Several institutions participated in the design of the tool, starting with defining the major areas and key questions that should be included during a co-creation workshop held during the second IODC. After design was completed, a beta version was opened worldwide for comments from the various international Open Data communities. Those comments were incorporated into version 1, published in late 2012. After a year of using the methodology, new modifications and additions were suggested and incorporated in version 2. Considerable thought was given to how to use the study time to the best effect



Archives of a National Statistical Office in a developing country

and, in addition to the assessment framework itself, version 3 included a User Guide that captures best practices in applying the methodology.

The ODRA evaluates readiness based on eight dimensions considered essential for an Open Data initiative that builds a sustainable Open Data ecosystem. These dimensions cover the larger environment for Open Data including “supply-side” issues, like the policy or legal framework and data existing within government and infrastructure (including standards), as well as “demand-side” issues, like citizen engagement mechanisms and demand for government data among user communities (such as developers, the media and government agencies). The ODRA can be used to conduct an assessment of the readiness of a national or sub-national government, or an individual government agency, to establish an Open Data initiative. The ODRA is not a rating tool; it is an action-oriented process to assess the feasibility of a successful Open Data program and develop recommendations for key strategic actions. The recommendations are based on experience and global best practices, while also incorporating the needs and experiences of the client country.

Within each dimension, the assessment considers a set of primary questions, and for each question, notes evidence that favors or disfavors readiness. The evaluation of each dimension and primary question is color-coded:

- Green **G** means there is clear evidence of readiness
- Yellow **Y** means that evidence of readiness is less clear
- Red **R** means there is an absence of evidence for readiness
- Grey **O** means there is insufficient information to assess readiness

The original deployment model for the ODRA was as a World Bank assessment using World Bank staff and international consultants. The World Bank sought extensive external input into the design of the tool, however, and “open sourced” the methodology and its user guide for others to use. In



Mauritius: Meeting between Chief Information Officer and young entrepreneurs.

addition to the World Bank’s own use, the methodology has been successfully deployed by:

- Other development partners, such as the UN Development Program
- Independent consultants in Asia
- Governments, to assess themselves (such as in Kazakhstan)

3.3 Sector-specific assessment methodologies

3.3.1 Open Energy Data

The Open Energy Data Assessments contributed to the Negawatt Challenge in Accra and Nairobi by assessing the availability of relevant energy datasets requested by participants to both design and implement their projects. The World Bank Negawatt Challenge was an iterative six-phase process leveraging open innovation and design thinking methodologies in four cities. Winners of the challenge include Sun Shade Energy from Ghana, a solution that captures solar energy from windows, stores it and uses the captured energy for powering basic lighting and other green appliances, and Plugin Pulse, an online service that provides analytics for engagement and insight and focuses on utilities and independent power producers.

In the context of the Vision 2030 national strategy, and following the Open Energy Data Assessment, the National Lands Commission released future electricity lines locations as Open Data to notify those affected by the infrastructure project. Datasets include details on electricity transmission lines

to be implemented by the Kenya Electricity Transmission Company.

3.3.2 Open Transport Data

In June 2013, a World Bank team of ICT and transport specialists for the first time applied the ODRA methodology to the transport sector, in the context of a lending project in St. Petersburg, Russia. The team reviewed data collection, use and sharing practices by various city agencies. They also met with local data users—businesses, software developers and students—to understand what transport problems they were seeking to solve by using data. Recommendations were then offered for opening high-value datasets, including those generated by the passenger information systems and parking payment systems as part of the future investment project. Details can be found in the report, [Opportunities and Strategies for Mainstreaming Open Data in Transport Projects in St. Petersburg](#). This work was funded by TFSCB and the World Bank.

In 2015, a formal Transport Data Readiness Assessment methodology was developed as part of the “Data Innovations for Smarter Urban Transport and Greener Growth” project, funded by the Korean Green Growth Trust Fund (KGGTF). The methodology builds on ODRA’s ecosystem approach by emphasizing that a successful open transport data initiative draws on key dimensions like leadership, policy or legal framework, institutions and infrastructure, as well as the state and needs of the user communities. The focus, however, is on each city’s specific transport problems, and recommendations for prioritizing datasets to be opened are based on global examples of data-driven solutions that can help address common challenges like congestion, pollution and road safety.

In 2016, the team carried out two pilot assessments in sub-Saharan Africa and South Asia. The first, in Dar es Salaam, recommended that the country’s Open Data initiative include the transport sector in addition to the three sectors it was already covering, and made suggestions to Dar es Salaam authorities for the development of road safety and accessibility and parking tools. Data on the new Bus Rapid Transit (BRT) routes, informal daladala routes and road crashes, which was produced by the team in machine-readable formats, General Transit Feed Specification (GTFS), GIS and geo-coded

comma-separated values (CSV), respectively, have also been used to produce a number of analytics products, including an accessibility analysis and a hotspot analysis. World Bank transport experts based in Dar es Salaam commended the report for giving them the much-needed arguments to advocate for improvements in the collection and use of Tanzania’s transport data to government counterparts. The report’s recommendations were also taken into account in the design of a new lending project. Senior Transport Specialist Yonas E. Mchomvu said: “The ODRA for Tanzania Transport was a very useful tool for us as it informed the design of the Dar es Salaam Urban Transport Improvement Project that was approved by the Board on March 8, 2017. The sub-component C.5 of the Project uses the ODRA to further implement the recommendations for public benefit.” This sub-component will provide US\$2 million in funding for ICT innovation and piloting Open Data solutions, including digital mapping of formal and informal transport routes using “open transport principles” and systems for mapping accidents along the BRT corridors and reporting gender-based violence.

The focus of the second pilot, in Mysore, India, was to assist an existing World Bank client, a public transport corporation, with a framework to enable it to open its real-time bus location data. The data was being generated by the Intelligent Transport System (ITS), installed with the funding of a World Bank lending project. As Mysore is close to Bangalore and sometimes referred to as the Silicon Valley of India, it has a large number of highly capable local software developers who have been asking for access to the data. While the client believed that sharing data would enable potential benefits to the public, in the absence of a state-wide Open Data policy, he was unclear how to best approach data sharing. The team provided just-in-time customized assistance to what was to become one of the first examples of open urban transport data in India. We hope to see many creative solutions come from this work.

3.3.3 Open Data for Business (OD4B)

By 2013, a few years after launching their Open Data initiatives, the U.S., UK and other pioneers of the Open Data movement witnessed an emergence of companies with new types of Open Data-fueled business models. As companies like Zillow and The

Climate Corporation were raising hundreds of millions of dollars in the markets, hiring hundreds of people and creating new digital products and services, it became evident that in addition to transparency and accountability, Open Data held massive economic benefits. It was unclear at the time, however, whether the same or similar models would also work in lower-income countries, or whether the socio-economic differences in the countries' environments would prevent local companies from using Open Data for business purposes. And if Open Data indeed held the global potential of adding significant economic value, what could the World Bank do to catalyze this development?

These were the questions the World Bank's Open Finances team had in mind as it set out to bring together Open Data entrepreneurs and local venture capital investors from across Latin America for an [Open Data Business Models workshop](#) in Uruguay in June 2013 in the context of the first CONDATOS Conference. Work presented by participants from Mexico, Peru and Argentina demonstrated that Open Data use by businesses was not limited to developed countries. With this evidence in hand, the team launched a market survey of Open Data use by businesses in Asia, Africa and Latin America. The [survey findings](#) published in 2014 show that, at that time, Open Data was still a very nascent concept in emerging markets, and only a few entrepreneurs and investors were aware of its potential uses and how its opportunities could be monetized. Businesses struggled with deficient data quality, and even profitable startups with data-driven business models suffered from poor access to early-stage financing. Despite the challenges, however, in countries like Mexico, Chile, Brazil, India and Indonesia, quite a number of companies were already offering new types of Open Data-fueled products and services in healthcare, agriculture, transport and other sectors.

To help address these difficulties with data quality and access to financing, the World Bank [proposed an Open Fund](#) and partnered with [The Center for Open Data Enterprise](#) to develop a methodology for identifying and overcoming barriers to wider business use of Open Data. Thanks to support from TFSCB, the [Open Data for Business \(OD4B\) Assessment and Engagement tool](#) was released in early 2016. The OD4B tool helps governments systematically identify and address barriers to private sector use in their local context, and assist them with setting up a sustainable path to catalyzing

private sector use of Open Data, an increasingly valuable asset in today's digital economy. It was designed with low- and middle-income countries in mind, drawing on the experience of countries that are further ahead in the process of opening up their data. The tool consists of an introductory briefing on Open Data for business, a questionnaire for businesses, a roundtable engagement guide, as well as a scoring sheet to evaluate questionnaire responses. Questions focus on how businesses use government data, its importance to their business models, identifies barriers and asks how they interact with the government to get the data they need and share feedback.

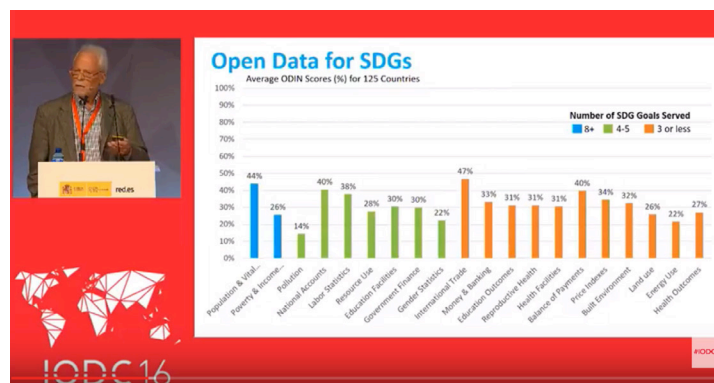
Since its release, the tool was successfully used in countries like Sierra Leone, Kazakhstan and Serbia to facilitate an Open Data dialogue between the governments and companies, help release high business value datasets and set forth action plans for further private-public collaboration. Unfortunately, the reality is such that, without meaningful engagement with business users, countries risk missing out on the economic benefits of their investments in Open Data policy and infrastructure.

3.3.4 Open Data for National Statistics Offices (NSOs)

National Statistics Offices (NSOs) are nearly always the agencies charged with production and distribution of official statistics. The National Statistical Development Strategies (NSDS) of many countries identify greater dissemination and use of official statistics as key priorities. These objectives overlap strongly with basic Open Data principles, and NSOs thus should have a strong natural interest in the continued development of Open Data. Despite this apparent alignment of interests, the Bank has observed that NSOs often do not feature prominently in government-led Open Data programs. This should not come as a surprise, since statisticians are not usually trained in the technical or legal aspects of Open Data. Since 2012, and with TFSCB support, the Bank has convened a working group of NSO representatives to investigate the challenges and opportunities that Open Data offers to NSOs, including the question of the most appropriate roles for NSOs in a national Open Data program. The findings of the NSO working group are summarized in the paper "[Open Data: Challenges and Opportunities for National Statistical Offices](#)," published in the Open Data Toolkit.

One of the objections stated by several NSOs to Bank teams was that the computer systems that they use are not well aligned to publish Open Data and, conversely, Open Data software packages cannot handle the type of data that is produced by NSOs. To study this issue, the Bank convened an expert study “[Technical Assessment of Open Data Platforms for National Statistical Organizations](#),” also published in the Toolkit. One of the findings was that most common Open Data software platforms did not have modules for metadata. To address this, the Bank commissioned the production of the [DDI Importer extension](#) to CKAN (Comprehensive Knowledge Archive Network), the leading open source platform for Open Data portals. The DDI (Data Documentation Initiative)⁹ extension provides support for the DDI metadata standard, including harvesting of metadata from microdata catalogs.

More recently, these efforts have been boosted by the work of the Open Data Watch, which designed a rating tool for NSO openness.¹⁰ This ranking has worked very nicely to incentivize a healthy competition among NSOs to provide more data in Open Data formats.



9 The Data Documentation Initiative (DDI) is an international standard for describing the data produced by surveys and other observational methods in the social, behavioral, economic, and health sciences.

10 This rating tool needs to be interpreted carefully when examining the Open Data ranking of an NSO. The methodology for the index includes a ranking for openness and a ranking for metadata quality, which combined give the total ranking. If the intention is to examine only the NSO openness, only the ranking corresponding to this part of the index should be considered.

Box 6: The role of NSOs in implementing Open Data initiatives

Mexico’s Instituto Nacional de Estadística y Geografía (INEGI). Open Data in Mexico gained significant momentum with the launch of the country’s National Digital Strategy in 2013, which included Open Data principles to catalyze an expanded digital economy, improve health and education services and other goals. The Open Data program was led by the Office of the President, with INEGI playing a fairly limited role. As Open Data has grown to include not only federal- but state-level data, however, the need for standards and coordination has become more important. This plays to INEGI’s natural strengths, and as a result, it has gradually assumed an oversight and leadership role of Mexico’s Open Data program by providing Open Data standards that must be used by all government agencies that provide data to the national portal.

Uganda Bureau of Statistics (UBOS). Uganda’s Open Data initiative was officially announced in 2015 following the completion of its ODRA, but the program remains in a prolonged startup phase. Nonetheless, UBOS has played an important role in encouraging the Open Data agenda and laying the foundation for moving forward. UBOS has unusually strong inter-ministerial working relationships with nearly all other

federal ministries, on which it relies to produce official statistics. It convenes working groups on geospatial data and statistical products that meet regularly to share experiences and innovative practices, and shares personnel with other ministries for data issues. These working groups and relationships have been very helpful in raising awareness of Open Data and addressing technical implementation issues. As a result, while UBOS is not expected to lead the Open Data program in a political sense, it will surely play an essential role in implementation, data management and standards oversight.

Stats NZ. New Zealand is the rare case where the NSO provides both technical and primary political leadership for Open Data, but this was not always the case. In the early days of New Zealand’s Open Data program, it was supervised by the Land Information of New Zealand (LINZ) Ministry, which specializes in geospatial data. As the program gained momentum, however, it became clear that LINZ did not have the capacity to continue leadership. Stats NZ assumed this responsibility in 2016, owing to its role in official statistics, affiliations with the international community and vision to move government agencies to a culture of “open by default.”

Owing to their production and dissemination of official statistics, NSOs have extensive experience in data curation, the application of standards and provision of metadata. Hence, NSOs have a clear role to play in providing technical expertise and guidance to other agencies in publishing their own data. Furthermore, as members of the international statistics community, NSOs are in a good position to ensure that Open Data initiatives are well aligned with the efforts of other countries and international organizations, and follow internationally agreed standards. Successful Open Data programs require political as well as technical leadership, however. The NSO working group found that NSOs are usually not well positioned to provide political leadership, particularly in the early stages of an Open Data program. This may be due to a variety of reasons, including a lack of political prominence relative to other ministries, or a desire by NSOs to stress political independence to safeguard the integrity of official statistics.

As Open Data initiatives around the world have evolved and matured, it has become clear that while NSO involvement is essential, the exact roles that NSOs play vary according to country-specific circumstances. Box 6 summarizes examples of roles that NSOs are playing today.

3.4 Courses, e-courses and other capacity-development activities

3.4.1 Data literacy products and services

The World Bank's Open Data engagements have also focused on how to catalyze and strengthen

Open Data-driven decision making by government and non-government actors (e.g., mass media, civil society, academia). To these ends, the World Bank has worked with counterparts across regions and contexts to create a modular, customizable data literacy capacity development program to build technical skills building and support a culture of Open Data use in client countries. The World Bank has accordingly developed a sizeable program team of WB staff, consultants and in-kind partners who can provide regular support over long-time horizons. Our trainers have discerned that focusing on producers and consumers of data can influence decision making indirectly, and is far less contentious than direct advocacy. This has enabled the full team to engage a cross-section of decision makers to emphasize the role and utility of data-driven decision making in a range of countries.

Data literacy capacity development is approached as a process to ensure relevance and maximize sustainability. This process often includes one or more of the following activities:

- a) **Baseline Skills Gaps Survey.** To get a clear idea of the skills landscape and enable us to customize the modular content to maximize relevance, we begin by delivering an in-person or virtual "[Data Literacy Skills Gaps Survey](#)".
- b) **Awareness Raising and Priority Setting.** Stakeholder consultations and expectations management meetings, called "[Data Clinics](#)," are held to identify demand and entry points for deeper engagements. These clinics also



Data Literacy training course in Moldova.

help stakeholders answer the “data literacy for what” question.

c) Gatekeeper Roundtables. Presentations and roundtables are scheduled with government and non-government decision makers to discuss the value and business case for data-driven decision-making. This often helps open opportunities for participants to join “deep-dive training” programs. Examples of participants include ministry/government representatives, university presidents and department heads, media owners/editors-in-chief, civil society representatives, private sector CEOs and chief technology officers (CTO)s.

d) Fellowships. The program competitively selects, vets and embeds data-literate technologists directly into government, newsrooms and civil society to help enable capacity development from within. For examples, see [CodeforAfrica](#), [CodeforIndia](#), [CodeforPakistan](#).

e) Capacity Development. The program offers a mixed pedagogy, to keep engagements interesting and cater to stakeholder availability and interest. Events include *boot camps*: days-long, and hands-on, intense primers on data literacy; and have been deployed in [South Sudan](#), [Bolivia](#), [Ethiopia](#), [Ghana](#), [Jordan](#), [Nepal](#), [Malawi](#), [Moldova](#), [South Africa](#), [Tanzania](#), [Tunisia](#), [Venezuela](#), [Uruguay](#) and other places. Other events include:

- *Master Classes*: weeks-long certificate courses on data literacy, typically thematic workshops such as health data, education data, gender data, etc.
- *Deep Dive*: months-long certificate courses on data literacy, e.g. the 10-month [data literacy program](#) for data producers and users in [Sudan](#).
- *E-Learning*: self-guided, interactive data literacy e-learning.

f) Acceleration Funding and Competitions. The program collaborates with donor-funded data literacy project grant competitions for which trainees are eligible, including the [InnovateAFRICA competition](#), [Africa News](#)

[Innovation Challenge](#), [Hacks Labs Media Challenge in LAC](#) and others.

g) Community of Practice Development. The program offers continuing in-person or virtual mentorship and support through existing grassroots communities in each country to maximize sustainability, continuity and networking opportunities. This includes aligning participants with OD4D nodes, Google Developer Groups, hacks/hackers chapters and similar groups, for continuing support and engagement.

h) Institutionalization of Skills in Universities by embedding the World Bank’s [data literacy curriculum](#) into universities in client countries.

i) Back-end Architecture is created or supported to enable grassroots partners to fill key market gaps with free, open source, locally managed support architecture, such as “free parking” for scraped data ([AfricaOpenData](#)) for data literacy engagements (free to all).

3.4.2 e-Learning courses

The World Bank is producing a series of e-learning courses to provide knowledge and skills to practitioners and users of Open Data. This e-learning series is designed to support the Bank’s technical assistance to governments and citizens—with a primary focus on those in developing countries—who want to initiate or expand the use of Open Data, particularly coming from national and sub-national governments. The series will be available online on the Bank’s Open Learning Campus, along with a standalone version that can be run offline on a personal computer. The three-course series is scheduled for publication in the summer of 2017.

The Open Data e-learning series is organized as follows:

Course 1: Open Data for Data Producers is targeted to individuals involved in the production of data, primarily in government. Its objective is to provide government actors with the vocabulary and tools to successfully initiate or contribute to Open Data initiatives.

Course 2: Open Data for Data Users is intended for individuals in both the public and private sectors.

Its objective is to provide the vocabulary and tools for users to successfully utilize Open Data.

Course 3: Open Data for Policymakers is intended for senior staff and high-level managers and policymakers. It is a much shorter synthesis of the concepts presented in Courses 1 and 2.

The e-learning series is designed to:

- Provide a free, easy-to-access alternative or complement to in-person training for Open Data
- Provide training focused on the needs and circumstances of developing countries
- Provide all materials in a modular, open source package that can be combined or integrated with other training materials
- Include online lesson- and course-level testing to measure comprehension

3.5 The series of international Open Data conferences

In 2010, the U.S. Government launched the [inaugural International Open Government Data Conference](#) as a forum to explore how data published by governments can help citizens make better decisions and underpin new economic growth opportunities. It was a milestone for the growing international Open Data community and provided one of the earliest forums focused on open government data in particular, to enable a spectrum of participants and contributors -from Open Data experts and practitioners to those who had never encountered Open Data before- to meet, share insights and devise Open Data-driven development solutions.



The [2nd International Open Government Data Conference](#) (2012) was co-hosted by the U.S. Government and the World Bank. It convened more than 400 technologists, government officials, civil society

organizations and private sector representatives in Washington, DC from 40 countries. More than 100 speakers shared their experiences, discussed new ideas and demonstrated the practical power of putting Open Data to work for development. The conference was broadcast online and attracted over 3,800 live online viewers and 2,500 live blog participants, with thousands of tweets about the event (#IOGDC). World Bank president Jim Yong Kim, World Bank managing director Caroline Anstey and former U.S. CIO Steven Van Roekel opened the conference and welcomed the audience, conveying the importance of Open Data for global development.



The [3rd International Open Data Conference \(IODC\)](#)—with a newly truncated title—was held in Ottawa in May 2015, and themed, “Enabling the Data Revolution.” It was co-organized by the Government of Canada, IDRC, Open Data for Development program and World Bank, and comprised a full week of Open Data-focused events, including the first [Open Data Research Symposium](#), the [Open Data Unconference](#) and the [Canadian Open Data Summit](#), among others. The IODC events brought together over 1,000 attendees, including senior government officials, policymakers and Open Data advocates who discussed and shared the challenges, opportunities, best practices and future of Open Data. Treasury Board president Tony Clement spoke about the future of Open Data, highlighting its value as a largely untapped, yet priceless commodity that can lead to increased innovation, job creation and economic expansion.

To further accelerate collaboration and increase the impact of Open Data activities globally, the Government of Spain, World Bank, IDRC and Open Data for Development Network hosted the [4th IODC](#) in October 2016 in Madrid, Spain. With the theme, “Global Goals, Local Impact,” the event reconvened an ever-expanding Open Data community to showcase best practices, confront shared challenges and deepen global and regional collaboration in an effort to maximize the impact of Open

Data. This most recent IODC brought together more than 1,000 representatives from 56 countries. A [full online archive](#) of over 80 sessions and 20 special events held before and during the IODC is available, along with an [IODC Open Data Roadmap and Conference Report](#), reflecting the discussions and debates that took place, as well as the information shared on a wide range of vibrant global initiatives to map the road ahead, strengthen cohesion among existing efforts and explore new ways to use Open Data to drive social and economic inclusion around the world. The World Bank will co-host the next (5th) [International Open Data Conference](#), to be held in Buenos Aires, Argentina in 2018.

3.6 Regional conferences

3.6.1 Condatos and AbreLatam



In January 2013, a group of international agencies supporting Open Data in developing countries—including the World Bank, IDRC, W3C-Brasil, Omidyar Network and World Wide Web

Foundation—met in Santiago, Chile and agreed to join forces to co-organize the first Latin American Open Data conference. The conference would enable a focused discussion about the role of Open Data for Latin America and exchange best practices. The first host was the Government of Uruguay, and the conference was called Condatos (“with data”). Since 2013, Condatos conferences have become a regular annual event, held in different countries each year: Mexico (2014), Chile (2015) and Colombia (2016). The next Condatos will be in Costa Rica on August 16 and 17, 2017.



Typically, Condatos conferences convene around 1,000 participants, including Open Data experts, government and civil society representatives, journalists and coders for structured plenaries, panel presentations and Q&As on a range of Open Data topics.

Conferences are also an opportunity to organize training sessions, hackathons and similar events. The most recent [Condatos agenda and speakers list](#) are available online, with a Youtube channel featuring key Condatos sessions. Both regional events enable participants to explore new ideas and best practices, seek out opportunities for collaboration and identify entry points for more and better use of Open Data to strengthen social and economic development.

The official Condatos conference is preceded by an “unconference” organized by civil society organizations. The series of unconferences, called AbreLatam (“Open Latin America”), provide an opportunity for participants (chiefly government, civil society and other Open Data experts) to discuss topics relevant to the role, challenges and opportunities for civil society arising from Open Data in an unstructured, organic way, using pre-identified themes as a starting point for discussion.

3.6.2 The first Africa Open Data Conference and Africa Open Data community of practice

In 2015, in recognition of the need for a regional Open Data dialogue, the Government of Tanzania and the World Bank organized the first [Africa Open Data Conference \(AODC\)](#).

It was held September 4 – 5 at the Julius Nyerere International Convention Center in Dar es Salaam, with pre-conference events September 2 – 3. A diverse group of 450 participants gathered from 39 nations, including government representatives, private industry, civil society, the development community and international organizations committed to promoting or supporting Open Data and open government.



**AFRICA
OPEN DATA
CONFERENCE**
DAR ES SALAAM • 4-5 SEPTEMBER 2015

AODC was established to combine training, seminars and interactive panels and workshops. The pre-conference event included activities for technical training, sessions on open innovation to promote the production and use of Open Data in Africa, and thematic and sector tracks. At the main conference, an Africa Open Data Expo was set up to showcase local and global examples of



Tanzanian President Dr. Jakaya Kikwete (left) welcomes attendees to the 2015 African Open Data Conference. Tanzania Country Director Bella Bird (right) stated, "Without the measurements that data make possible, designing effective public policies is difficult."

Open Data production, publishing, visualization and capture. Twelve African countries, which is 22 percent of all African nations, shared their experiences and lessons learned from the Open Data work they had done.

The Conference received affirmation and support at the highest national level: Dr. Jakaya Mrisho Kikwete, the fourth president of Tanzania, officially opened the conference and spent two hours speaking with participants and attending the Expo. A world-class roster of 89 speakers and leading Open Data experts delivered 135 talks, contributing to a substantial transfer of knowledge and helping catalyze a productive conversation about the ways Open Data potential could be expanded in the region.

One of the key goals of the conference was to facilitate the establishment of the Open Data community of practice in the region to ensure sustainability of knowledge sharing after the event. In preparation for the first AODC, the World Bank launched an [Africa Open Data Facebook Group](#), which now has over 900 members. An international [Africa Open Data Meet Up Group](#) also serves as an outlet for a monthly teleconference where participants share ongoing news and events. An AODC website (<http://www.africaopendata.net>), Twitter account (@Data-4Africa) and hashtag (#africaopendata) were created for the conference and continue to be active.

The conference served as a forum where new partnerships and collaborations were launched and out

of which new business ideas emerged. Thus, members of the OD4D network set up the [Africa Open Data Collaboration Fund](#) to support new projects that carry on the work of the AODC in building the Open Data ecosystem, while Code for Africa allocated US\$1.1 million for new fellowships across Africa. Partnerships for agriculture, championed by the GODAN initiative, were formed for mapping data in Africa, and a partnership between universities in Kenya and United States is under way.

The first AODC was followed by a series of regional follow-up events in 2016 in Sierra Leone, Cape Town and Nairobi, organized with the World Bank's support. These events further supported the African Open Data ecosystem, shared knowledge, catalyzed partnerships and focused the conversation on the role of Open Data in advancing SDGs. The second AODC took place in Ghana, Accra, on July 17 - 21, 2017.

3.6.3 Open Government conference in the Russian Federation

In 2012, upon request from the Office of the Minister for Open Government of Russia, the World Bank provided expert support for Open Government initiatives in the Russian Federation, including the organization of the International Open Government Conference, which took place in Moscow on December 12 - 13, 2012. The conference was organized by the Minister of the Russian Federation for Open Government, Moscow Government and the Russian Government's Expert Council, with the World Bank as a knowledge partner. The World Bank Country Director and the Minister for Open Government opened the conference and spoke about international and Russian experience with open government. Prime Minister Dmitry Medvedev and Chris Vein, former Senior Manager with the World Bank's ICT unit, addressed the participants in a closing high-level plenary session.

The conference facilitated consultations on Russia's plan for Open Government and enabled discussions on the implementation of Open Government initiatives among Russia's regions and the key role of Open Data. The event served as a forum for sharing international and local best practices with over 400 participants, chiefly senior government officials, from Moscow and other Russian regions and

cities. Distinguished international experts, including the former Director for Transparency and Digital Engagement for the UK Government and at least six other internationally recognized experts, delivered talks and master-class sessions on open government ecosystems and Open Data global practices.

One of the hallmarks of the International Open Government Conference in Russia was signing of an agreement between the World Bank and the Government of the Ulyanovsk Oblast to promote open government in this region involving, in particular, support for release and re-use by private sector and civil society of Open Government Data. This agreement resulted in the first ODRA conducted by the World Bank.

3.7 The Open Data for Development (OD4D) partnership

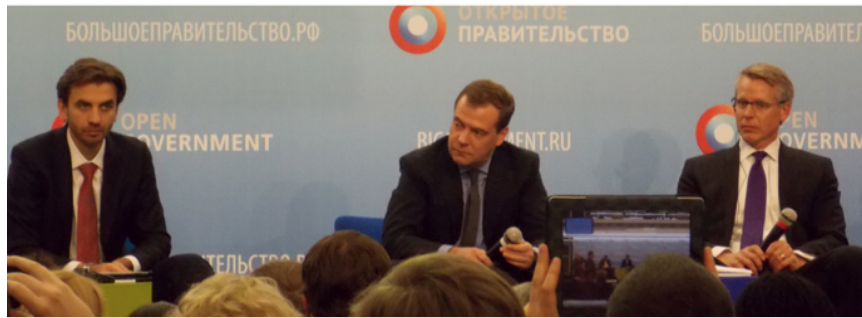
The OD4D program of activities provides comprehensive support for Open Data efforts, encompassing both data supply and demand, implemented across different agencies, jurisdictions and economic sectors. Activities include targeted training; mentoring and research; developing sector-specific data tools and standards; and accelerating the growth of nascent national and regional networks to become lasting nodes in the global Open Data community. All activities and projects address important challenges that prevent many developing countries from benefiting from Open Government Data the way that developed nations do. For example:

Challenge: Lack of capacity and leadership in governments and civil society to enable use and re-use of data.

Solution activities include:

- Launch of the [Open Data Leaders Network](#)
- Support for GovCamps in Latin America
- Training programs for public servants and civil society

Challenge: Lack of quality of data released by governments.



Russian Prime Minister Dmitry Medvedev (center), Minister for Open Government Mikhail Abyzov (left), and former Senior Manager with the World Bank's ICT unit, Chris Vein (right) discuss Open Data at a high-level plenary session of the Open Government Conference in Moscow, 2012.

Solution activities include:

- Development of the International Open Data Charter
- Research on data standards in specific areas, such as malaria control and anti-corruption
- Replicating apps and platforms
- Development of mechanisms to expand data literacy

Challenge: Lack of sufficient research on the socio-economic impact of Open Data.

Solution activities include:

- Support for the [Open Data Barometer](#) and [Open Data Index](#)
- Sectoral studies mapping Open Data ecosystems in Latin America, the Caribbean, Africa, Asia and Eastern Europe
- Support for the creation of the [Open Data Impact Map](#)

The results and achievements of OD4D are many and too long for the scope of this paper. Further information is accessible at <http://www.data4sdgs.org/dc-open-data-for-development/>.

4 Lessons Learned and Recommendations

4.1 Common issues arising in ODRA reports

This section captures the main lessons learned from conducting ODRA reports and assisting countries with their implementation. It follows the structure of the eight dimensions of the ODRA methodology: Political Commitment and Leadership, Policy Issues, Institutional Issues, Data Supply, Demand for Data, Civic Engagement, Finance and National Infrastructure.

Political commitment and leadership

- a) The original model of the ODRA advocated for a very senior sponsor from the client government. This would ensure that the assessment team gained the necessary access, and indicate there was sufficient top-level will to take Open Data forward and make investing in the assessment worthwhile. In the first round of ODRA reports, this was strongly present; sponsors included the Deputy Governor of Ulyanovsk and the relevant minister in Antigua. In a few ODRA reports, however, client sponsorship was weaker or at a more operational level. Although this rarely led to serious shortcomings in access during the assessment itself, it did lead to problems in translating the ODRA report into action, as more technical ministers have more limited political influence to persuade other ministries to release data. In one case, there was a change of authority after the ODRA report was completed, with the new authority being less committed to Open Data.
- b) In many ODRA reports, it has been possible to find general statements supporting transparency from top political leadership, but it is rare to find these specific to data. Although such statements exist, it is important to note that they are often not communicated within the public service and relevant officials do not use them to develop detailed data policies. It is more unusual to find the same sort of statements in relation to the digital economy or the economic use of data.
- c) Some countries where ODRA reports have been conducted are members of the Open Government

Partnership (OGP). Many OGP action plans include commitments on Open Data, either in general terms or on opening specific data, such as contract, budget or extractive industries data. In some cases, the ODRA itself is the “action” in the OGP action plan. In other countries, however, there seems to be a disconnect between the action plan communicated internationally and action within the government itself; plans have been committed internationally without matching implementation plans within government, or without communicating the international commitment within government at all. In some cases, OGP actions on Open Data or transparency did not seem to be clearly assigned or resourced within government.

Policy issues

- a) Many developing countries taking part in ODRA reports had not yet enacted and implemented the full range of relevant legislation and policies for Open Data, including freedom of information, access to information and data protection acts. Many have stated intentions to do so, but the legislation has not been considered by the legislature or, even if it is on the statute book, has not been implemented in practice with appointed officers in each ministry, training for relevant staff and the appointment of independent commissioners where laws require it. Although the existence of a Freedom of Information Act or similar legislation is not a pre-condition for a successful Open Data program, its presence undoubtedly has many advantages.
- b) In many countries, there was a lack of clarity about who could authorize the release of data. This often applied to requests for data under existing arrangements; sometimes officials felt the need to get approval from top ministry officials to release data because they thought they would be criticized, or even lose their jobs, if they made the wrong decision.
- c) Many Commonwealth countries have inherited an “Official Secrets Act” from their British

past. The original British Official Secrets Act was enacted during a spy scare shortly before the First World War. Although this legislation has been significantly amended in the UK, other countries still have it in its original draconian form. This not only makes it difficult or risky for individual officials to authorize the release of data, but also engenders a culture of official secrecy.

d) In some countries that come from a tradition of central control, national security legislation can be very restrictive regarding the release of government data.

e) Fee policies have often been found to be inconsistent and have unclear objectives. Common findings have included:

- Many ministries find it difficult to explain the rationale for charging for data, or the basis on which prices have been set. In many cases, the charges have not been regularly reviewed.
- Charges for information previously provided on paper are often also being applied to providing information in digital form, even though the costs of distributing the information are very different.
- The requirement to collect charges and the difficulty of collecting charges electronically, sometimes mean that data users need to visit the ministry in person to pay the charge and collect a machine-readable version of the data.
- In most cases, any charges collected are remitted directly to the Ministry of Finance and do not cover the actual costs of the data-owning ministry to distribute the information and collect the charges. As a result, the greater the demand for paid-for data, the greater the administrative burden on the ministry.
- In most cases, fees collected each year for sale of data are less than one percent of the total budget of the ministry or agency concerned. This has often been found to be the case even in functions, such as mapping and meteorology, which in developed countries

have historically been largely on a cost-recovery basis.

- In some cases, fees do not even cover the costs of fee collection, even when viewed in terms of government finances as a whole. In such cases, the fee does not make fiscal sense, although in at least one case the Ministry of Finance considered that the fee nevertheless served a “gatekeeper” function.
- Some Ministries of Finance are considering asking their ministries, departments and agencies to do more cost recovery and charge more for supplying data. This was the direction of policy in Europe in the 1980s and 1990s, and has subsequently been seen as sub-optimal in terms of overall economic and social value; European countries are now moving to eliminate charges for information supplied electronically. NSOs, in particular, have been known for charging for data and even donors have recommended this practice as a way to ensure larger budgets for statistical production.

f) Most countries and individual ministries have not given much consideration to policies of copyright and licensing of government information; their websites often have only a simple copyright notice. This is rarely in the form required by the Berne Convention, however, and has often been inserted by the website developer rather than as considered policy by the ministry itself. The notation, “All Rights Reserved,” is often displayed on websites, even where data is provided for download. For data supplied on request, many ministries, departments and agencies require those requesting data to state how it will be used, so there may be implicit or explicit permission to use it for the purposes originally proposed, but restrictions on data re-use.

g) Some ministries, departments and agencies are concerned about an individual or company profiting from using data supplied by a government free of charge. The concern is often one of equity, i.e., that the data provider should share in the profits generated from data re-use. The economic reasoning -that total national welfare is maximized if government data is distributed at the marginal cost

of distribution- is perceived as a less certain mechanism for sharing the benefits.

- h) One reason for the underdevelopment of policy is that, before Open Data and the “data revolution,” data may not have been regarded by the government as a valuable or vital resource, so information-related issues do not have an established “home” within the structure of government. For instance, in one country, the attorney general’s legislative drafting unit had started preparing an access to information law, but there was no clear “client” ministry developing the regulations for the law or planning its implementation. The International Open Data Charter, established in 2015, has proved to be a useful checklist for the development of Open Data policies, complementing the Bank advice on the subject.¹¹
- i) Implementation support has been used to assess draft Open Data policies and suggest areas where the client government should further develop their proposals. The prospect of compliance with an international standard has proved a valuable incentive towards the adoption of good Open Data policies.

Institutional issues

- a) Countries with the most successful Open Data initiatives have had not only political leadership from the highest level, but also institutional leadership from the center of government. In the Ulyanovsk Region of Russia, the ODRA counterpart was an adviser to the governor, who was in a position to ensure effective follow-up action that led to Ulyanovsk becoming the leading region on Open Data. In Indonesia, the Open Data initiative was led by the president’s “Delivery Unit” and its influential minister, who had an extensive record of success putting cross-government policies into practice. Mexico’s Open Data program stalled for several years until it was moved to the President’s office. In these countries, the ICT ministry did not play a leadership role.

For most ODRA, however, the ministry of ICT or a similar body has often been the most interested and knowledgeable ministry, has

led the Open Data program, and in most cases was designated as the counterpart team to support the ODRA. In part this is because many developing countries centralize ICT responsibilities more often than countries at a later stage of development and ICT staff are more likely to be aware of the latest technological developments in data management. These groups seem, therefore, as the logical choice to coordinate what is seen as a technical initiative. In a few countries, the ICT ministry has made progress when there is clear political sponsorship from the office of the president or equivalent, or from an influential minister. There is a risk that ministerial changes can lead to a loss of this sponsorship, however, which happened in a couple of Caribbean countries. So, while ICT ministries have a key role to play in the technical implementation of Open Data initiatives and in improving data management in general, many do not have the necessary skills or experience in cross-government, non-technical policy formulation, or do not alone have the authority to ensure implementation in other ministries.

- b) In at least one country, the Open Data program was entrusted to the agency created by the freedom of information law and charged with leading its implementation. But its staff did not have the technical skills to understand the concept of Open Data and confused it with making data public. A few years later, a new government was elected and the president transferred the national Open Data program to the president’s office, where it took off in very little time.
- c) It was initially expected that NSOs would often take leadership and ownership of Open Data initiatives because, in developing countries, their own data was some of the most valuable and, in the course of their work, they would already have developed capacity in important skills such as data management, metadata and anonymization. Tanzania’s National Bureau of Statistics, for example, is indeed one of the leading agencies in the Open Data Task Force. While most NSOs have been supportive and in some cases, such as Jamaica, Saint Lucia, Uganda and Mauritius, very keen to improve

11 “Briefing on Open Data Policy Declarations” at <http://opendatatoolkit.worldbank.org/en/starting.html>.

the publication of their own data, there has been less enthusiasm than expected among NSOs to take leadership of Open Data initiatives (see Box 6 on page 18).

- d) Many senior-level officials at Ministries of Finance have supported greater budget transparency and wider transparency of the Open Data agenda. This was observed in countries such as Saint Lucia, Jamaica and Trinidad, where top officials in the Ministry of Finance engaged directly in the ODRA.

Data supply and release of data

- a) Before the ODRA program started, there was an expectation that most data in developing countries would not exist in digitized form. Yet, in fact, a surprising amount of current government information in the countries assessed was found to be digitized; although information may be collected in paper form, it is often entered into spreadsheets or simple databases for analysis at the level of national ministries. Many countries have projects to extend data gathering to the point of creation, including the use of Short Message Service (SMS), where Internet connection is not possible. For instance, the Society for the Elimination of Rural Poverty in Hyderabad, India, implemented a multi-technology data capture system, including SMS, for their field workers. Digitization of potential valuable data is also happening as part of administrative modernization, such as the process of moving to computer-based business registration systems or collecting survey and census data using tablets.

- b) In most countries, senior-level ministry staff do not have a full appreciation of the data already collected and held by government. In one country, the top official in charge of educational reform bemoaned the lack of disaggregated school-by-school data, unaware that the data was actually collected and digitized at that level by his own ministry before being aggregated into national education statistics. Conversely, in other countries, some individual leaders were driving the collection of better data. For instance, in Trinidad and Tobago the Minister of Education had initiated a new data

collection system to provide detailed, up-to-date data about individual schools.

- c) In relation to b) above, it was discovered that, in some countries, senior officials may not have a full appreciation of the data already published. In one country, the head of the Education Ministry was reluctant, on confidentiality grounds, to publish Open Data down to the level of individual schools, not realizing that the data was already published annually in an education digest.

- d) Because many historical records have not been digitized and many ministries, departments and agencies have no intention of doing so, older statistical reports may only be available in paper form. Where digitization has been done, it is usually only for the extent needed for internal operational purposes, such as digitizing only the past 20 to 30 years of weather observations. While a few applications would ideally require a longer historical record (e.g., insurance against extreme natural events), most of the value in Open Data is with current or recent data; ODRA's have not normally found the digitization of very old records to be a priority.

- e) That being said, in some cases there is very old data still in use. One example is topographic maps where there is typically relatively little change in natural features over decades. Some countries are making progress in digitizing and updating their maps, some as part of wider National Spatial Data Infrastructure initiatives. But in others, only paper maps based on old surveys, or raster scans of those paper maps, are currently available. Given that, in the EU, about 30 to 50 percent of the total value of Open Data was in geospatial data, and that geospatial data is one of the key datasets most frequently requested during ODRA's, recommendations have been made not only to release the data but also to invest in collecting and digitizing it where it does not currently exist in digital form. Such an investment is also likely to have value for the public sector.

- f) Often data is published in Portable Document Format (PDFs), even when the original data is

in machine-readable form, such as a spreadsheet or database, for a number of reasons:

- The PDF file may be produced during the production process, leading to a paper report. Putting the same PDF file online is a simple process and does not require additional work by the content owner.
- Publication of the data in paper or PDF form is seen as meeting the need for transparency. There is often little appreciation of how people would use large amounts of information for enhanced transparency purposes -for instance, sorting and searching a 1,100-page annual budget book- and no appreciation of how much more useful re-usable data would be.¹²
- Some data owners claim that the main reason for using PDFs is to ensure that the data is not changed. This is a particular concern of NSOs, election commissions and those where accuracy of the information has wider national importance. None of these PDFs, however, have been found to be digitally signed with a verifiable key nor accompanied by verification instructions, so the way PDFs are being used does not meet this policy requirement, nor require a simple reference back to authoritative data, as a secure government website would do. Further, nothing prevents an agency from publishing its data both in PDF and machine-readable formats, with a tag line indicating that the PDF version is the authoritative one.

Demand for data

- a) Most countries assessed had both activists and developers from civil society that were very interested in obtaining government data and using it, at least in simple ways. Where data was available in reusable form, there was often evidence of it being turned into simple applications, such as agricultural market price information systems. But there was little evidence from ODRAs that civil society was prepared to invest the effort required¹³ to make large PDFs analyzable. For instance,

budget books published as PDFs were not being recoded to be used in “Where Does My Money Go” models.

- b) Where data was not available, some local developers had been innovative in obtaining non-government data by other techniques such as crowdsourcing.
- c) In many developing countries where ODRAs have been done, academics were more important Open Data users and stakeholders than in more developed countries. This is largely because, in the countries involved, detailed statistical information and supporting administrative data was not readily available to researchers. In some countries, some information was available on request and if the proposed research was approved, but this was seen as a time-consuming and cumbersome process. Academics were also involved in both civil society and business uses of data. For instance, the University of the West Indies was developing agricultural applications in both Jamaica and Trinidad and Tobago.
- d) Journalists were, in principle, interested in Open Data, but in many countries they lacked a throughout understanding of the concept or reported that staffing and economic pressures militated against the development of analytical and investigative stories. There were, however, some individual independent journalists with data and programming skills who were pursuing data-driven stories, and in some cases with large impact (see <https://hbr.org/2013/03/open-data-has-little-value-if>).
- e) In most countries, businesses reported a lack of the basic data they needed to optimize their businesses and develop new market opportunities. Often the information required was detailed statistical information on trade, labor market and demographics. There were also indications in some countries that the lack of certain data was inhibiting the development of business-to-business services needed to support growing business models. For instance, a lack of geospatial data could inhibit the development of a cost-effective retail logistics

¹² A cynic might say that publication in PDF form was designed to frustrate meaningful accountability, but there is little evidence of that motivation.

¹³ La Nacion in Buenos Aires and Fair Play Alliance in Slovakia have used crowdsourcing techniques to turn large collections of PDFs into processable data. This takes considerable organizational skills.

sector, and in turn inhibit the development of e-commerce.

Civic engagement

- a) In most cases, there was little evidence that ministries, departments and agencies engaged with the actual or potential users of their data -even data that was already published. In one case, the NSO told the ODRA team that no users had been consulted in the preparation of its new strategy.
- b) Most ministries, departments and agencies did not have data on how much existing data was used. Although they believed that information on the number of downloads from their website could be produced and had the information at hand, it usually proved impossible to obtain it within ODRA's timeframe. Similarly, most ministries, departments and agencies did not know how many requests for information they received or how many were met.
- c) Nevertheless, many ministries did seem to sincerely believe that they were open to requests for data, which was very different from the perception of their stakeholders.
- d) Many ministries had websites, but the data were often incomplete and/or out-of-date; for instance, they did not reflect government organizational changes. In some cases, websites were not operational for prolonged periods or were reported by Google as having been hacked. The best websites were often those where there was a cross-government content management system and common content structures for each ministry.
- e) Only a small number of countries were actively using social media -mainly Facebook- to communicate with the public. Where this was being done, it was largely to "push" announcements or news, and there was little follow-up engagement or conversations with the audience.

Finance

- a) Open Data initiatives seem to fall uncomfortably between being small enough to be funded out of existing business-as-usual allocations and large enough to justify a separate

project-funding stream. Moreover, many of the costs arise in additional responsibilities for staff in individual ministries who need to extract and transform data and authorize it for publication as part of their work.

- b) Similar issues have been found for the choice of World Bank funding instrument, since Open Data programs are too inexpensive to justify a stand-alone project, and TF funding can be adequate for the initial stages, but not enough in amount and time to ensure sustainability. The model where TF funding is used for an ODRA and its initial implementation and subsequent implementation is picked-up as a component of an investment lending project has worked best.
- c) In addition to commitment to secure funding for tangible and central costs, such as the central team and the Open Data portal, regular operating costs can sometimes be secured by amending job descriptions of related roles (e.g., Access to Information officers in ministries) and let the financial consequences be resolved in the annual budget round.
- d) A further consideration is how to ensure that Open Data funding moves from project-based to a sustainable, business-as-usual basis. While there is rarely an opportunity within the ODRA to explore how this should be done, it should be an action for the ministry owning the initiative to solve before project funding expires. This is particularly important where the project is funded by a donor, and therefore outside the normal budgetary mechanisms during the setup and initial operation phases.

National infrastructure

The ODRA methodology asks about the national infrastructure of telecommunications, including Internet users, mobile subscriptions, broadband coverage and smartphone ownership. While these are important in some applications, the lack of advanced telecommunications infrastructure is sometimes regarded by both government and stakeholders as a reason why Open Data should not be a priority at this stage in a country's development. In such cases, ODRA teams have pointed to cases where economic and social value has been obtained despite technological limitations,

including the use of SMS-based applications for farmers in Africa, and blackboards in the main square of Monrovia, Liberia, to engage the community in budgetary figures.

4.2 Lessons learned from the implementation of Open Data initiatives

Mobilization of implementation

- a) It almost always takes a number of months for Open Data implementation to gain momentum and deliver initial results. This was found even in the United States, where in 2009, it took about 240 days to gain agreement for a plan that the new president had requested to be done in 120 days, and in the UK, where an initiative announced in June 2009 did not launch its portal until January 2010. In Ulyanovsk, even with the governor's support, it similarly took six to nine months before momentum was established. There seems to be an inevitable time lag while decisions and political acceptance is established, resources are allocated, teams are recruited and formed, policies and processes are developed and agreement to them is secured.
- b) In many situations, the immediate drive has been to create an Open Data portal. This is understandable, in that a portal is a practical manifestation of an Open Data initiative. Creating or procuring a new computer system is also something that an ICT ministry, if they are in the lead, know how to do. There is a risk, however, that the portal will be technically delivered without sufficient Open Data to make it credible and at the expense of other, less-tangible tasks to ensure its sustainability. For instance, the Kenya Open Data initiative had a well-received early launch in 2011, but then it had to be relaunched in 2014, and there is still work to do to transition to business as usual. Generally, there is a risk that the portal will itself be declared as a "success" and the necessary policy development and institutionalization of Open Data as business as usual will never follow.
- c) The experiences of some Caribbean countries, where the World Bank provided implementation support as part of a DFID-funded project, was that the implementation of an Open Data

portal and the extraction and transformation of initial datasets were not on the critical path of the Open Data projects, and that development and securing agreement to policies and responsibilities took much longer.

- d) As a related issue to c), actions recommended in Odra reports inevitably tend to be front loaded with many actions that could be taken at an early stage and without dependencies. This can present the Open Data team with a daunting agenda for the first six months, at a time when they are still setting themselves up and establishing their influence and authority across government. This means that, almost inevitably, the team will fall behind schedule in the report.
- e) One of the reasons for requiring a "counterpart team" was to help develop knowledge and understanding during the Odra process among those who would then take on the mobilization and leadership of the implementation. Where this happened (e.g., in Mexico, Ulyanovsk and Saint Lucia), the project leader had a good understanding of what needed to be done, beyond the words in the Odra report. By contrast, where the prospective leader of the Open Data initiative did not personally take part in the Odra process, it was harder to achieve early momentum.

Continued engagement of external stakeholders

Engagement with external stakeholders is an important part of the Odra process, but the pause for mobilization can mean that continuity of engagement is lost. The most successful Open Data teams work both within government and with the users of their data and other external stakeholders. External stakeholders, unfettered by the constraints of official practice, can sometime be powerful allies in lobbying for action, and it is the use of data by users that can best demonstrate the value of an Open Data initiative.

The importance of agile sector-focused initiatives

- a) While setting in place technical and institutional infrastructure for a national Open Data initiative, several countries found it beneficial to initiate individual programs in one or more

sectors to put Open Data into practical use and deliver quick wins on a smaller scale. For example, the Philippine government, with World Bank assistance, integrated several digital accountability platforms that were disparate islands of existing government data to streamline reporting, oversight and communication of information. In Burkina Faso, the BODI team organized an [open elections project](#) to bring greater transparency to their upcoming elections. In Kyrgyzstan, several similar projects are under preparation.

- b) Crucially, in the Philippines and Burkina Faso, sectoral initiatives were aligned with broader political reforms and the government's push for greater transparency and accountability, which helped galvanize political commitment, dedicated resources and buy-in across agencies. The projects built on the strengths and capacities already present in the government due to the ongoing Open Data work, and provided an opportunity to build project-specific expertise that can be used down the road. They contributed to unprecedented opening up of government data in a variety of sectors, and marshaled a compelling case for the benefits of greater openness and formation of norms that make openness the new default.
- c) Yet, while providing a powerful demonstration effect, sectoral projects -like Open Data portals- should not distract public servants and civil society from making progress on more difficult systemic reforms, of which these projects were a part.

From quick wins to medium- and long-term sustainability of Open Data initiatives

- a) Even in most successful Open Data initiatives where World Bank and its partners provided initial implementation support (e.g., Burkina Faso, Kyrgyzstan, Moldova, Mexico), there was a need for a sustainable medium-term approach with resources and a dedicated team within government, which would ideally be crystallized in a longer-term engagement (e.g., project). In Burkina Faso, where initial implementation support was financed with a series of grants, the government realized the need for a wider e-government operation with an integrated Open Data component, which is

currently [being implemented](#). In Kyrgyzstan, TFSCB-funded ODRA and implementation support will be complemented by the efforts of other donors, such as USAID and the Soros Foundation, as well as a regional World Bank investment project, [Digital CASA](#), with ambitious goals of digital transformation and regional integration. In Moldova, where Open Data activities were initially part of a five-year governance e-transformation project, the government committed to further advancement of the e-transformation agenda through a new World Bank-financed project, [Modernization of Government Services](#). In the Philippines, Open Data activities were part of a programmatic governance reform facility to support the government in the implementation of its "Social Contract with the Filipino People" reform.

- b) To bring about the expected benefits, Open Data activities should be integrated with cross-cutting national reform efforts that focus high-level attention, resources and commitment. International commitments, like OGP membership, are also beneficial for sustainability.
- c) In many developing countries, Open Data initiatives often remain supply driven, with the initiative coming almost exclusively from reform-minded champions in the government. Thus, the goals of long-term sustained efforts are to secure a broader base of open government data supporters and users across government, civil society and the private sector, and integrate data use into the day-to-day activities of the government, from the national to the local levels (i.e., dedicated teams, budgets, clear policy guidance and incentives). Via communication, outreach, capacity building and other activities, they should work to spur change in norms and behaviors and inaugurate the culture of "openness" and data use.

The role of knowledge networks

- a) In the course of supporting client countries in their ambitious Open Data and e-transformation projects (where Open Data was a component), the World Bank used a wide variety of knowledge-sharing formats and approaches in a mutually reinforcing manner. As explained in

section 2.4, these included large international and regional conferences with many networking and learning opportunities; national knowledge-exchange events where client countries were exposed to the cutting-edge expertise of countries like Korea, Singapore, Canada, UK, U.S. and Estonia, as well as the experience of developing countries that faced similar challenges and constraints; small group engagements in the form of expert visits and study tours; virtual, formal and informal peer-to-peer learning via expert and leader networks (such as the Open Data Leaders Network supported by the OD4D program); and multiple networks in social media. This variety proved beneficial to many countries, helping them shape their reform agenda and mobilize support for social change, from awareness raising and coalition development to policy formation and project implementation. They also reduced “transaction costs” associated with professional network development, benefiting from the World Bank’s convening power.

b) Intensive learning and local capacity building helped countries like Moldova, Mexico, Kenya and Burkina Faso gain international recognition for their Open Data initiatives. Some countries that were beneficiaries of World Bank assistance became knowledge providers and frequently contributed with speakers at various national and international venues.

Participation and co-creation of interventions

While technology provides solutions, it is still crucial that every stakeholder is involved in the planning, development and implementation to ensure that efforts are sustainable and accepted at all levels, from national to local. For example, the success of the ODRA methodology was to a large degree determined by the participatory manner in which it was created: people trusted the methodology and had a chance to shape it. The same was true for project design and tailoring delivery to meet the needs, priorities and context of a country’s or individual agency’s Open Data initiative.

4.3 Recommendations

Based on five years of experience implementing the Open Data activities summarized in this report, the following recommendations, specific to the World Bank, can be made:

1. Adopt a World Bank Open Data policy, signaling strong commitment to the use of Open Data for development purposes, and adopting the principle of open by default in Bank projects.
2. Continue to support Open Data efforts of developing countries, using the ODRA methodology in countries at an early stage and emphasizing demand-side aspects of Open Data in countries that are beyond the initial stage.
3. Incorporate Open Data activities in the Country Partnership Frameworks (CPFs) in all client countries.
4. Mainstream Open Data throughout the project portfolio for each country, since Open Data can be used to advance sectoral goals in all Global Practices.
5. Address the need for greater capacity and investments in analytics and data applications in developing countries so they can generate actionable insights and benefits from Open Data.
6. Develop relevant monitoring and evaluation criteria for Open Data investments, particularly for Bank-supported activities.
7. Continue to improve knowledge and capacity of Bank staff, both at headquarters and country offices, and of other stakeholders, to increase the release and re-use of OGD, including statistical and core reference data.
8. Review procurement specifications for WB-financed projects that produce data to facilitate Open Data by default principles.

Annex 1. Short Project Summaries

Afghanistan

At the request of the government of the Islamic Republic of Afghanistan (GoIRA), the World Bank conducted an ODRA to assess the ecosystem for future implementation of an Open Data portal. Based on the ODRA findings, the team also developed an action plan with a proposed set of actions for an Open Data program in Afghanistan. The report is planned for dissemination in fiscal year 2017 (FY17) and will be made public.

This activity pertains to the first phase of the Afghanistan Open Development initiative. The report's findings and recommendations will be used as a basis for further dialogue with the client about the potential feasible steps within the ODRA action plan that can be pursued in FY17, including a) development of an interactive Open Data portal, b) support for capacity building in ministries to sustain the Open Data initiative, first in selected ministries, then increasing the scope to other ministries over the long term, and c) development of a plan to engage with stakeholders.

Benin

As part of the Development Policy Operation PRSC-9 and PRSC-10, the objective of the World Bank's Open Data engagement in Benin was to strengthen governance by increasing access to government data and the data of Benin's National Statistical Institute (INSAE).

As part of PRSC-10, several databases were made available on INSAE's website (<http://www.insae-bj.org/bases-donnees.html>). Unfortunately, in moving on to PRSC-11, which was eventually cancelled, and now in preparing subsequent operations, the Open Data measures have been dropped, as INSAE did not seem particularly motivated to establish an Open Data website or pursue an Open Data initiative.

Brasil, Brasília

An ODRA was conducted by the OKF in the framework of the OD4D Partnership.

Burkina Faso

The Government of Burkina Faso requested technical assistance from the World Bank to implement an Open Data initiative to improve intergovernmental efficiency, increase citizen engagement and strengthen the country's broader innovation ecosystem with the principal objectives of promoting job creation and fostering foreign investment. The World Bank team conducted an ODRA assessment, created an action plan and provided capacity building and implementation support activities for the Open Data Initiative in Burkina Faso.

Thanks to the ODRA exercise, the Right to Access Information Law was passed in August 2015. A core Open Data team, BODI, under the National Agency of ICT Promotion, was established and trained. This team developed the national Open Data portal (<http://data.gov.bf>) and published 189 datasets from 31 public sector organizations. BODI also created several applications to publish geo-referenced data on schools (NENDO, <http://nendo.data.gov.bf/>), location of water points (CartEau, <http://carteau.gov.bf/index.html>), information on procurement processes (ViMap, <http://vimap.data.gov.bf>) and, most notably, election results in near-real time during the elections of December 2015.

Burkina Faso was the first Francophone sub-Saharan country to launch an Open Data initiative; it became a recognized leader in West Africa, received several awards and, most recently, joined the Open Government Partnership.

Currently active e-Burkina projects will continue supporting the Open Data Initiative in Burkina Faso in a wider framework of e-government support.

Caribbean

The World Bank conducted ODRA's in Jamaica, Saint Lucia and Antigua and supported the development of the Open Data portals in Jamaica (<http://data.gov.jm/>) and Saint Lucia (<http://data.govt.lc/>). The task team held Open Data workshops in each country during the assessment period and on

delivery of the ODRA findings. Training programs were implemented in Jamaica and Saint Lucia, including training for Open Street Map, Open Data portal administration, Open Data portal content contribution and Open Budget Data visualization.

Colombia

In Colombia, the World Bank led a technical assistance program that supported the Ministry of ICT (MinTIC) in the areas of e-government and Open Data to streamline collaboration between the government and the local ICT ecosystem. The goal of the Open Data component was to revamp the Colombia Open Data Initiative. The World Bank team conducted an ODRA assessment that provided a thorough overview of the current status of Colombia's Open Data initiative and proposed an action plan with more than 200 actions that MinTIC is already implementing. The team also developed a communication plan for Open Data and conducted a series of capacity building activities and presentations in stakeholder workshops.

As a result, Colombia has revamped its national Open Data initiative by launching a new portal following international standards, and adopted best practices by shifting the focus from just the supply of Open Data to the broader ecosystem, which includes data demand, strengthening the linkages between Open Data and the key sectors under the Colombian National Development Plan (NDP). Special emphasis was given to the six sectors Colombia's NDP identifies as key, and in particular, a deep-dive assessment was done about the readiness of the education sector for Open Data. The ODRA and action plan also contributed with diagnostic and roadmap inputs to Colombia's Big Data Strategy prepared by the National Planning Department in collaboration with MinTIC.

Dominican Republic

In Dominican Republic, the World Bank conducted an ODRA assessment and workshop. The big landing operation, the Caribbean Regional Communications Infrastructure Program, was not signed by the counterpart, however, and no further implementation activities followed.

Ethiopia

In Ethiopia, the World Bank conducted an ODRA assessment and proposed an action plan for implementation of the Open Data initiative. The ongoing engagement provides implementation support in accordance with recommendations outlined in the action plan, which include improvements to the legal and institutional frameworks and capacity building activities. The World Bank team trained technical staff from the Ministry of Communication and Information Technology, sector ministries and civil society organizations on Open Data, including maintenance, management and use. An awareness-raising and information-sharing workshop was conducted on the national Open Data guidelines and mobile services to be offered to users.

These activities helped improve access to government Open Data as the government launched the national Open Data portal in March 2016 (<http://www.data.gov.et>). In addition, Central Statistics Agency and the Ministry of Communication and Information Technology signed a memorandum of understanding to guide their responsibilities in initiating the opening of government data to the public. The United Nations E-Government Index ranked Ethiopia 91 out of 193 countries in e-participation in 2016, compared to its ranking of 122 in 2014. The survey acknowledged Ethiopia as one of the five countries in Africa that provide datasets in open standards in five or more sectors; the others were Kenya, Malawi, Senegal and Uganda.

The project is still active, so all results are not yet fully available.

Ghana

In Ghana, Open Data-related activities are part of the big e-transform project to improve the efficiency and coverage of government services using ICT-enabled services. The project is at an early stage; the goal is to support policies and regulations for Open Data and introduce innovative analytics methods, such as big data analytics, to help develop government capacity to gain insights and intelligence from public data. The project resources will also support current government Open Data initiatives by a) supporting the release of additional

datasets, b) upgrading any shared facilities, such as portal and related applications and c) providing institutional capacity building.

Ghana, Accra

In Accra, the World Bank conducted an Open Energy Data Assessment, which contributed to the Negawatt Challenge—an iterative six-phase competition that leveraged open innovation and design thinking to tackle urban energy inefficiencies in four cities: Accra, Dar es Salaam, Nairobi and Rio de Janeiro. The energy data methodology adapted the established World Bank ODRA methodology and was used to assess the availability of relevant energy datasets that were requested by participants in the Challenge to design and implement their projects.

The assessment helped sensitize various government actors to the idea of opening and using energy data for policymaking and engagement with local IT sectors and civil society, and also helped engage SNV Ghana, a non-governmental organization and important primary energy data holder, to publish their data in the open format. Currently, these data are being transferred to [ENERGYDATA.INFO](#). In addition, this engagement built capacity of the National Open Data Initiative to source relevant energy sector datasets and facilitate their release.

Haiti

The World Bank conducted an ODRA assessment in partnership with Haiti's Centre de Facilitation des Investissements (CFI), an investment facilitation agency. The assessment was an important stepping stone for Open Data in Haiti: it helped introduce the subject, its benefits and requirements to many government institutions, and also incited interest among more people, on both the demand and supply sides, to work towards Open Data in their respective institutions. The report made many recommendations at legal and capacity building levels and identified a set of interesting pilot projects in the education, health and agriculture sectors that, even if at a small scale, can prove to be transformative.

In the unstable political environment, with weak interest in Open Data from the government, the

team decided to focus the implementation phase (currently under preparation) on small-scale projects in specific sectors that can demonstrate the value of Open Data, rather than on a nationwide portal.

India, Andhra Pradesh

In Andhra Pradesh, the team conducted an ODRA that was focused on rural inclusive growth. The assessment helped a large IDA-funded Rural Inclusive Growth Project better achieve results. In addition to informing project design and activities, the team conducted a workshop introducing local stakeholders, including the government and civil society members, to the concept of Open Data and its potential benefits in rural areas.

India, Mysore

In the city of Mysore, the World Bank's team conducted a pilot transport ODRA assessment using the Transport Data Readiness Assessment methodology that was developed in 2015. The assessment helped the client—a public transport corporation—establish a framework for publishing in open format its real-time bus location data in the absence of a state-wide Open Data policy. This project became one of the first examples of open urban transport data in India, and the team expects many creative solutions from the large and highly capable local developer community.

Indonesia

The objective of the support was to assist the Government of Indonesia in planning and beginning prompt implementation of a sustainable Open Government Data program that would increase transparency, improve evidence-based policymaking and stimulate economic and social innovation in Indonesia. The support was requested from the Bank as Indonesia as it was taking over as Lead Chair of the OGP for 2013-2014, and the government intended to launch a national Open Government Data initiative under its Open Government Action Plan.

As part of this activity, the World Bank provided advice on an Indonesian Open Data Policy. It also helped draft a blueprint and create a roadmap for

the OGD initiative, provide technical assistance for designing and developing the national Open Data platform, train government officials and conduct demand-side engagement events. TA was also provided to Open Data initiatives in sub-national governments through the President's Delivery Unit for Development Monitoring and Oversight (UKP4), namely Jakarta province (<http://data.jakarta.go.id>; a Gubernatorial Decree), Bandung city (<http://data.bandung.go.id>) and Bojonegoro regency (on the national data portal).

The Government of Indonesia publicly launched the Open Data initiative in September 2014, along with the national Open Data portal (<http://data.go.id>). While the Bank is no longer providing technical support, the current administration is moving to institutionalize the initiative by appointing the Development Planning Ministry (Bappenas) as the lead agency for the "One Data" initiative, which includes an Open Data component, and also preparing a presidential decree on "One Data."

Kenya

The World Bank supported Kenya's Open Data Initiative (KODI), which was officially launched by the President of Kenya in 2011. The support included an online portal (<http://www.opendata.go.ke/>)—a clarifying policy and legal framework that ensures a consistent supply of diverse and credible datasets, and a series of demand-driven engagement and co-creation activities. There are currently over 945 datasets and 93 digital maps from more than 81 departments and agencies available on the portal. In the 2015 *Open Data Barometer*, Kenya is ranked the highest among sub-Saharan countries—42nd out of 92—although there are some persistent issues with the openness of the available data.

The Bank also supported the expansion of Open Data initiatives to Kenyan counties. In Phase I, in 2015, an Open County portal (<http://www.kenya.opencounty.org>) was built and made available online (but not yet officially launched). Access to county-level data is the main challenge. In Phase II, the project will make available a PDF, downloadable version and a cell phone app.

Kenya, Nairobi

In Nairobi, the World Bank conducted an Open Energy Data Assessment, which contributed to the Negawatt Challenge (for details about the Challenge, see the "Ghana, Accra" project description). Through interviews and meetings with key stakeholders, the team undertook an exercise to open and surface energy datasets, as well as datasets that could be used to triangulate energy data where no data, or poor quality data, exist. In the context of the Vision 2030 National Strategy and following the assessment, the National Lands Commission released future electricity line locations as Open Data to notify those affected by the infrastructure project. Datasets include details on electricity transmission lines to be implemented by the Kenya Electricity Transmission Company.

Kyrgyzstan

In Kyrgyzstan, Open Data activities were conducted as part of the implementation effort of the national Program on Introducing Electronic Governance at the government agencies of executive branch and local governments of the Kyrgyz Republic from 2014 - 2017. In March 2015, an Open Data Working Group was established, which supported the UNDP in conducting an ODRA. The team at the E-Government Center of the Kyrgyz Republic, which was established in May 2015, is responsible for Open Data development within government agencies. The Kyrgyz Software and Service Developers Association created the Open Data Portal (<http://www.opendata.kg/>) in May 2015 and several government agencies and nongovernmental organizations published 76 data sets on this portal.

In 2014 and 2015, the World Bank, in partnership with UNDP and others, supported the government in organizing several Open Data-related events. To help launch the Open Data initiative and raise awareness of its benefits, Kyrgyz Open Data Days were organized in November 2014. The two-day event included high-level roundtable discussions and workshops with representatives of government agencies, the business community, public organizations, as well as software developers and international experts.

Open Data Training Days for the heads and CIOs of government agencies and the Open Data Hackathon took place in June 2015. The winner of the Hackathon was the project Open Parliament <http://kenesh.opendata-hackathon.com>. Open Government Innovation Week was held in November 2015. After the ODRA findings were presented, participants discussed the results and open government policy. Several Open Data applications were developed with help from local developers, the Ministries of Justice, Education and Health, and the National Statistic Committee.

As the next step, the team received a TFSCB grant to continue supporting Open Data implementation activities in the country. Local donors in Kyrgyzstan also successfully integrated the Open Data Initiative in their activities and mobilized their own resources for its further expansion; particularly, UNDP, Soros Foundation Kyrgyzstan, Internews, Internet Society and local NGOs have funded several hackathons and mobile apps built around Open Data.

Macedonia

To inform decision making of the Government of FYR Macedonia, the World Bank conducted an Open Data Benefits Assessment that was based on the ODRA methodology, but focused on the impacts of opening government data on gross domestic product (GDP) and job creation. The benefits assessment found that the economic benefits of FYR Macedonia's Open Data could be approximately EUR40 million and would contribute to the creation of 400 jobs. Discussions with the Minister of Information Society and Administration and key government Open Data focal points revealed the government's readiness to act on WB Open Data recommendations if deemed feasible by the government. Furthermore, this activity informed the preparation of a new investment lending operation, "Digital Macedonia."

Malaysia

The Malaysian Administrative Modernization and Planning Unit (MAMPU) requested the World Bank's technical support to advance the country's Open Data efforts. As a first step, the World Bank team conducted an ODRA assessment and provided initial training on the benefits of Open Data for

better governance and service delivery to around 300 government officials and representatives from academia, civil society organizations, private sector and media that participated in an Open Data seminar. The ODRA report is currently being prepared for dissemination. As a next step, the World Bank will support MAMPU with the implementation of some key recommendations, with more outcomes to emerge later on.

Mauritania

In Mauritania, the World Bank conducted an ODRA and prepared an action plan to help the government progress towards Open Data, aligned with the ambitions of the National ICT strategy. The results of the assessment were presented twice in Mauritania. The most immediate outcomes were a) full ownership of the report and action plan by the public stakeholders, and b) improved capacity and knowledge of key government officials in charge of developing the Open Data agenda in Mauritania. Aligned with the ODRA recommendation, an Open Data portal will be developed and managed by the Ministry of ICTs, and is expected to be operational by September 2017.

Mauritius

In Mauritius the World Bank team conducted an ODRA assessment and two informal workshops on Open Data and the ODRA for government officials and civil society stakeholders. In 2016, the government of Mauritius passed an Open Data policy. The team is currently providing implementation support for an Open Data portal and other activities outlined in the action plan.

Mexico

The World Bank supported Mexico's Open Government commitments within the framework of a bigger project that assisted the Government of Mexico (GoMx) in the development of the IT industry. The project supported activities for the initiation of Mexico in the Open Data agenda as a tool to promote innovation, efficiency, transparency and better public services. The Bank's ODRA, carried out under the project, provided a diagnosis and action plan that set the groundwork for Mexico's National Open Data Strategy. The project also funded the

development of the National Open Data Portal (datos.gob.mx), development of an Open Data Decree and identification of Open Data as one of the five enablers of the national Digital Strategy (*Estrategia Digital Nacional*). Recently, the GoMx identified Open Data as a strategic priority. As a result, Mexico established itself as an emerging Open Data leader in the region. The National Open Data Strategy was issued in January 2014, together with the Open Government Action Plan. In 2015, Mexico hosted the Latin America and Caribbean Open Data Regional Congress, convening Open Data initiatives across the region.

Mexico, Jalisco (state)

In Jalisco, the World Bank team worked with the State Institute of Statistical and Geographical Information (IIEG) to improve the state's statistical and geographical information systems to facilitate results-based management and the subsequent improvement of public policy, with a specific focus on poverty reduction. The team conducted an ODRA that revealed Jalisco's solid foundations to carry out an impactful Open Data initiative in the short term. The results were presented to the main stakeholders, i.e., about 30 public servants engaged in Open Data at the state level. As a result of this TA, Open Data was integrated into the Jalisco Digital Strategy 2014 - 2020 as a key component to boost digital innovation. The ODRA recommendations and coordination among institutions reinforced existing efforts to make data accessible to the public, and in July 2015, the state-level data portal (<https://datos.jalisco.gob.mx/>) was launched, with over 100 datasets. Eighty-six datasets were uploaded on the federal-level data portal (datos.gob.mx), making Jalisco the state with the highest number of datasets published on the national portal.

Mexico, Zapopan (municipality)

An ODRA was conducted in Zapopan to undertake an action-oriented analysis of the readiness of the municipality to evaluate, design and implement an Open Data initiative. The evaluation findings confirmed the potential impact of a holistic Open Data program as evidenced by the initial steps taken by the municipal government. On the other hand, it also revealed the need to strengthen the

municipality's Open Data initiative with a mid- or long-term policy approach to transcend isolated efforts. Finally, the ODRA exercise validated the existence of a skilled demand-side interest in having a systematic access to municipal Open Government Data.

The support for Jalisco and Zapopan's Open Data programs went beyond the ODRA reports and included awareness-raising and capacity building activities. In addition to disseminating the ODRA findings, the WB participated in the Campus Party 2015, one of the largest events in the region for the technology and entrepreneurship community. During the Campus Party, the WB gave a presentation to raise awareness about Open Data benefits and a panel discussion about Open Data relevance in the Jalisco region. Additionally, the team organized two workshops for government officials and developers on the use and re-use of Open Data, Open Data-driven innovation and data-enabled business models.

Moldova, National Level

In Moldova, the World Bank helped develop the Open Government Data Framework as a component of a larger government e-transformation effort to transform selected public services using ICT. The project helped create the enabling environment for and improve management of Open Data, and supported the launch of an Open Government Data portal (<http://www.date.gov.md>) and establishment of the Open Contracting initiative. The government's Chief Information Office—the e-government center—was established as a public entity under the State Chancellery to implement all aspects of the e-transformation agenda, including Open Data. In 2014, the Government of Moldova (GoM) adopted an Open Data policy and mandated each ministry to publish three datasets per month. More than 50 central public authorities and agencies appointed 45 Open Data focal points. In 2012, Moldova joined the Open Government Partnership bolstering the country's commitment to Open Data.

The first Open Data portal, was launched in 2011 and upgraded in 2014, which offered more autonomy to public institutions in managing their data. By the end of 2016, there were 937 datasets published by 48 public entities on the portal and almost 2.5

million data downloads. Twenty-five applications based on these data were developed.

Moldova moved from 46th place in 2015 to 22nd in 2016 in the Global Open Data Index. The opening of corporate data contributed to Moldova's top 10 ranking on the Open Company Data Index.

Moldova, Education Sector

An external partner (Expert-Group) conducted an ODRA of the Moldovan education sector as part of World Bank's "Empowered Citizens Enhancing Accountability of the Education Reform and Quality of Education in Moldova" project. The project had the strategic goal to empower citizens to engage with local, regional and national authorities in evidence-based policy and budget dialogues regarding the educational reform, quality of services and development priorities of schools. The report is available at <http://www.expert-grup.org/en/biblioteca/item/1047-odra>.

Another World Bank grant is supporting ongoing education reforms by strengthening capacity of the Ministry of Education authorities and schools, helping them make full use of the newly created Education Management Information System (EMIS). The goal is to promote evidence-based education decision making, quality of education statistics, monitoring of reforms, openness and accessibility of the data, and accountability of education services providers. The World Bank will revise statistical operations and procedures, and conduct training on data collection and analysis for 500 employees in the Ministry of Education who will use the EMIS.

Mongolia

In Mongolia, Open Data is a component in an active SMART Government project that uses information and communication technologies to improve accessibility, transparency and efficiency of public service in Mongolia. Open Data work in this country is at an early stage. The WB team conducted an ODRA and assisted in the development of a data standards framework and an Open Data platform (<http://data.ulaanbaatar.mn/>). More than 20 government entities have released their data. As the project is still active, key results and outcomes will be assessed in the upcoming year.

Nigeria

In Nigeria, the World Bank conducted Open Data-related activities as part of "Open Government Technology Framework" projects. Deliverables included an ODRA assessment and action plan and recommendations were presented at an Open Data workshop.

Nigeria, Edo State

The WB team worked with the Government of Edo State and a wider stakeholder community to create an Open Government policy framework and action plan, which in turn led to the creation of an Open Data portal. Launched September 2013, it was the first Open Data portal in West Africa and the first by a sub-national government in all of Africa (<http://data.edostate.gov.ng/Home/index.html>). Edo's ICT agency set up two special units: a data digitization and a GIS unit. The first team subsequently evolved into the Open Data management team that oversaw the portal content, created data visualizations and led the implementation of the initiative. The second team later became the core of the newly formed Ministry of Urban Development & Housing.

The WB also conducted technical training and workshops to develop capacity and skill sets around data cleaning, analysis and visualization; geo-referenced information collection; and management and oversight of the initiative's activities. Manuals and guidelines for portal maintenance were created for future reference.

Peru

In Peru, the World Bank conducted an ODRA and produced a roadmap for the design of the Open Data initiative in the country. The assessment served as input for the open government policy framework, which the government was preparing to fulfill its commitments as a member of the Open Government Partnership. OD4D partners organized a GovCamp training in Open Data policy development.

Philippines, National Open Data Initiative

The World Bank was asked to support the Philippines in the implementation of its Open

Government Partnership National Action Plan focusing on the OGD initiative, which forms part of a key set of instruments under the Philippines Good Governance Anti-Corruption Cluster Plan for improved governance, transparency and innovation. The Bank proposed to provide support for legislation and implementation, including freedom of information, ICT and Open Data policies, Open Data as a tool for improving service delivery, and investing in the capacity of information intermediaries, transparency and accountability in key social sectors. Open Data support is part of a broader programmatic approach to governance that the World Bank is leading, with the ultimate goal of supporting a more enabling environment for good governance at the country and local levels.

To date, the World Bank supported and financed the following activities: a) launch of data.gov.ph with over 700 government datasets, including budget, procurement, customs and transport data; b) development of five Social Accountability Platforms (i.e., OpenARMM to monitor the performance of schools in one region; OpenReconstruction.gov.ph to help track and disclose information on post-disaster relief efforts after the 2013 Bohol earthquake and typhoon Yolanda; OpenBUB (<http://openbub.gov.ph>) to disclose and publish timely information on approved Bottom-up Budgeting projects from budget through implementation; OpenRoads (openroads.gov.ph) to show the location, finances and physical status of every local road to review and track public investments in the local road network; and SinTax Open Data Dashboard (dof.gov.ph) to provide weekly updates on cigarette pricing and track compliance in the application of the required “tax stamp”) and production of a [report](#) that evaluates the efficiency and effectiveness of the platforms and proposes a framework for analyzing the ability of technology-enabled open government initiatives to strengthen accountability, reduce information asymmetries and spark constructive dialogue about service delivery priorities and results; c) provision of capacity building and training for journalists, CSOs, government agencies and departments across the Philippines; d) production of an ODRA assessment; and e) creation of an [analytical report](#) summarizing the progress of Open Data reform in the Philippines.

Philippines, Transport Sector

The World Bank built an Open Data platform called DRIVER that links multiple agencies involved in recording road crash data (i.e., local government units, the police, and the health system), standardizes terms and definitions for reporting and provides analytical tools to support evidence-based investments and policies and monitor the impact of interventions. The main objective is to reduce road crashes in accordance with United Nations’ Decade of Action for Road Safety, as well as SDG #11. DRIVER compiles crash data that can be used effectively to increase targeted and effective measures to mitigate road crashes.

The pilot platform was developed with the city of Cebu and later included data from Manila and Diplog (<http://www.roadsafety.gov.ph>). Due to the pilot’s success, national transport authorities decided to scale it up and are now finalizing the institutional arrangement for national implementation. The government is also organizing a road safety hackathon to promote the use of DRIVER by both government and the general public and build a registry of local developers who will provide technical support for the platform.

The platform’s code is open source and available for re-use at <https://github.com/WorldBank-Transport/DRIVER>.

The World Bank team collaborated with the Department of Transportation and Communications in the Philippines to: a) establish an integrated transport service information database for Metro Manila based on Open Data protocols and using the heavily documented and clearly defined open source data standard, GTFS; b) support development of government and consumer-based applications that utilize the database and can be replicated in other cities using the same protocols; and c) provide materials and training to transport agency staff to allow them to leverage low-cost ICT solutions to support improved transport data collection and management practices.

In support of the project development objectives, the project produced the following outputs: a) a GTFS database hosted by the Philippines national government; b) open source mobile and web-based tools for maintaining and updating the

database, also hosted locally; c) a national transit app competition to introduce the local ICT community to the database and available open source tools; and d) training and workshops for government participants. Pending funding availability, the project will also support the development of an additional open source application that uses GTFS data to support planning analyses, to be piloted in a country outside of the Philippines.

The major project outcomes included: a) GTFS databases developed through the program have helped the Philippines DOTC provide integrated transit service information to the public at a low cost. The DOTC created an Open Data page on their website (<http://www.dotc.gov.ph>, with more than 14,000 page views and downloads to date). b) DOTC provided a wider range of services through the GTFS-based transit apps created by local developers. c) In mid-2014, the Philippines DOTC completed a jeepney and bus route reorganization plan, drawing on its GTFS database and leveraging an open source mobile phone application for collecting en route passenger surveys and count data for GTFS routes. The plan resulted in a 90 percent reduction in the total number of routes and reduced annual greenhouse gas emissions by 23 percent, from 2.16 million to 1.66 million tons. Total route reduction will have a substantial impact on traffic congestion, and this benefit will be monitored through an ancillary project led by the project team.

Regional (African Open Data Regional Conference and Community Development)

After the first AODC (2015) in Dar es Salaam, Tanzania, the conference was followed by a series of regional follow-up events in Sierra Leone, Cape Town and Nairobi, organized with the World Bank's support in 2016 (<http://africaopendata.net/>). The project also helped establish an online community of practice for Open Data professionals working in Africa by creating a Facebook group and monthly Meetup Group (<http://africaopendata.net/index.php/about-aodc/>).

Regional (Caribbean - Jamaica, St. Lucia, Antigua & Barbuda)

The World Bank conducted ODRA in three countries—Jamaica, St. Lucia and Antigua and Barbuda—and an Open Budget Readiness diagnostic

in Jamaica and St. Lucia. The task team also held workshops in each country during the assessment period and upon delivery of the ODRA findings. Several training programs for government officials were implemented in Jamaica and St. Lucia, including Open Street Map training, Open Data Portal content contribution and Open Budget Data visualization. A total of 230 officials were trained.

In the second phase of support, the World Bank is assisting selected countries in the Organization of Eastern Caribbean States and Jamaica in their efforts to enhance transparency, create economic value and facilitate data-driven policymaking by promoting data sharing within government and opening non-sensitive government datasets.

Russian Federation

From 2012 to 2015, the World Bank delivered a set of activities to provide expert support to the Government of Russian Federation in its Open Data efforts. Activities included support for a high-level Open Government Conference; a series of analytical notes on the future of Open Data in Russia, Open Data for economic growth, and mainstreaming Open Data in the transport projects and broader Russia portfolio; organization of roundtables and workshops for public officials and the expert community presenting the reports; and participation in high-level sessions and roundtables at the St. Petersburg, Sochi, Krasnoyarsk and other forums.

Russian Federation, and the Ulyanovsk Oblast, specifically, was the first client to express interest in conducting an ODRA using the Bank's new ODRA methodology. Ulyanovsk Oblast launched an Open Data portal (<http://data.ulgov.ru/>) and quickly established itself as an Open Data leader in the country. The region's experience was recognized around the world, leading to economic development opportunities, including the opening of a WeGo office in Ulyanovsk.

Rwanda

The World Bank conducted an ODRA in partnership with the Government of Rwanda. Following the ODRA report, the government requested World Bank's support in Open Data policy development and created a cross-government Open Data team

led by the Office of the Prime Minister and Ministry of Youth and Information and Communications Technologies. This team was tasked to draft an Open Data policy that will be submitted to the Office of the Prime Minister for transmission to the Cabinet for consideration.

The World Bank also helped organize the Transform Africa Summit 2013, where heads of several African states endorsed the Smart Africa Manifesto. Team members participated in the summit and presented on a variety of topics, including Open Data. The government and the World Bank jointly presented the key findings from the Rwanda ODRA at the Open Data session, which was dedicated to setting priorities and targets for Open Data in Africa.

Serbia

In Serbia, the World Bank conducted an ODRA, created an action plan based on its findings and provided initial training to the national Open Data Working Group, helping its agencies and members to create individual as well as collective action plans for the coming 18 months. As a result of the ODRA, the Serbian Ministry for Education and other agencies have started publishing Open Data. Currently, eight institutions have published their data, more than 170 datasets are available to the public, and local companies are using these data. Numerous institutions and local municipalities have expressed interest in participation.

The World Bank is now supporting implementation of the action plan, which will help facilitate the growth of an Open Data ecosystem in Serbia. These activities are aligned with the country's Strategy for e-Government Development and the Strategy of Official Statistics Development 2016 - 2020. The central Open Data portal is being prepared (at <http://data.gov.rs/>) and will be launched soon.

Tanzania

The World Bank supported Tanzania's Open Data initiative with the objective of improving the quality

and access to national statistics in health, education and water sectors, as well as supporting the development of a national policy on Open Data and an ecosystem of data users. The team conducted a general ODRA in 2013, as well as a transport ODRA in Dar es Salaam in 2016; conducted 11 government data-wrangling workshops in health, education, water and local government and transport data; organized infomediary training and an online Learn Data curriculum; organized an international conference focused on Open Data in Africa issues (AODC); conducted capacity building technical training for the e-government agency (including on CKAN [Comprehensive Knowledge Archive Network] software, mobile apps, dashboards, application programming interfaces [APIs] and an Open Data fellows program).

The Government of Tanzania established an Open Data Task Force that drafted a National Open Data policy (a cabinet decision is scheduled for mid-2017). A National Open Data Portal (<http://www.opendata.go.tz/>) was built by Tanzania's e-government agency and supplied by health, education and water data, with more than 160 datasets. Three government-run sector dashboards were created to view data in an organized manner. The project is still ongoing, and more results will materialize later in the year.

Uganda

In Uganda, the World Bank conducted an ODRA with a focus on budget transparency in the project framework that supported implementation of policy reforms to enhance fiscal decentralization and improve governance and service delivery. Government of Uganda (GoU) established a working group and is now implementing the action plan recommendations. The initiative built on the skills and capacity already present in civil society; there was a civil society-driven Open Data program that preceded GoU's interest. As a result, NSO plays a strong role in providing data expertise, technical leadership in the working group and enthusiasm.

Annex 2. List of World Bank-Supported Projects***

Country/State/ City and Sector (if applicable)	Region	Project Status / Year	P-number	Project Title	TTL	Funding Sources of the Project	Amount for the OD Activity/ Component
Afghanistan	SAR	Closed, 2016	P151074	Afghanistan Open Development	Yousif Elmahdi, Atiqullah Ahmadzi	BB	\$56,920.27
Benin	AFR	Closed, 2014	P132786	BJ PRSC Ninth Poverty Reduction Support Cdt. (DPL)	David Cal MacWilliam	IDA-53890 + BB + TF	***
Benin	AFR	Closed, 2016	P146665	Tenth Poverty Reduction Support Credit (DPL)	David Cal MacWilliam	IDA-55970, IDA-53890 + BB	***
Brazil - Brasilia	LAC	-	-	ODRA	Daniella Mattern (OKF)	OD4D (P144927)	***
Burkina Faso	AFR	-	-	ODRA	Samia Melhem, Axel Rifon Perez	TFSCB (TF016651) + BB	***
Burkina Faso	AFR	Closed, 2015	P152063	Burkina Faso- Support for Open Data	Samia Melhem, Axel Rifon Perez	BB	\$55,236.35
Burkina Faso	AFR	Closed, 2016	P151740	Supporting Burkina Faso Open Data Initiative and addressing drought risks by introducing innovative use of data & Open Data solution	Samia Melhem	TFSCB (TF017898) + BB	TF = \$281,962.4 BB=***
Burkina Faso	AFR	Closed	P147093	Burkina Faso - Institutional Capacity Building for Open Data	Samia Melhem	BB	\$67,209.10
Burkina Faso	AFR	Active	P155645	Burkina-Faso eGovernment Project	Samia Melhem	IDA-59430 + BB	***
Colombia (national) + Education Sector	LAC	Closed	P153593	Colombia: Support to eGovernment unit in Ministry of Information and Communication Technologies	Eva Clemente	RAS + BB	RAS = \$902,000 BB = \$80,500
Dominican Republic	LAC	Closed, 2015	-	Open Government Data Program	Elena Gasol Ramos, Rocio Sanchez Vigueras	TFSCB (TF016651) + other sources	***
Ethiopia	AFR	Closed, 2016	P143859	Ethiopia Public Sector and Governance Dialogue	Elsa Araya	BB + TFSCB (P133276)	***
Ethiopia	AFR	Active	P156400	Ethiopia: Supporting Open Data Initiative	Elsa Araya	TFSCB (TF0A1329) + BB	TF = \$300,000 BB = ***

Country/State/ City and Sector (if applicable)	Region	Project Status / Year	P-number	Project Title	TTL	Funding Sources of the Project	Amount for the OD Activity/ Component
Ghana - Accra (Energy Sector)	AFR	Closed, 2015	P152261	Negawatt Challenge for Energy Efficiency	Anna Lerner	KGGTF (TF018221)	\$15,000
Ghana	AFR	Active	P144140	GH eTransform Ghana	Zaid Safdar	IDA-53040 + BB	***
Haiti	LAC	Closed	P157531 and P133276	Strengthening Haiti's National Statistical Capacity Through the Census	Marolla Haddad	TFSCB (TF0A0968) + other sources	\$26,546
India - Andhra Pradesh (Rural Sector Development)	SAR	Active	P152210	India: Andhra Pradesh Rural Inclusive Growth Project; Open Government Data Program	Parmesh Shah	TFSCB (TF016651) + other sources	***
Indonesia	EAP	Active	P146895	Supporting Indonesia's Open Government Initiative and Enhancing Data Quality and Accessibility for Evidence-Based Policy Making	Noriko Toyoda	TF015672 under the Partnership for Knowledge- Based Poverty Reduction (PKPR) + BB	TF = \$250,000 BB = \$25,000
Kenya	AFR	Closed, 2012, 2016	P127380 and P094103	Kenya Transparency and Communications Infrastructure Project (KTCIP)	Arleen Cannata Seed, Jennifer Gui	IDA + BB	IDA = \$6,610,000 BB = ***
Kenya	AFR	Active	P149129	Kenya Devolution Support Project	Abdu Muwonge, Jane Wangui Kiringai	IDA-57650 + BB	***
Kenya - Nairobi (Energy sector)	AFR	Closed, 2015	P152261	Open energy data assessment for Nairobi	Oleg Petrov/ Anna Lerner	KGGTF + P152261 (also funded by KGGTF)	\$20,000
Kyrgyzstan	ECA	Closed, 2015	-	-	Oleg Petrov	TFSCB (TF16651 and TF017791) + external	***
Kyrgyzstan	ECA	Under preparation	-	-	Oleg Petrov	TFSCB	\$450,000
Macedonia	ECA	Closed	P147029	Macedonia ICT TA	Deepak T. Bhatia	BB + TFSCB (TF016651)	***
Malaysia	EAP	Active	P133276 and P159634	Malaysia ODRA	Jana Kunicova	BB + TFSCB (TF0A0968)	BB = \$60,000 TF = \$30,000
Mauritania	AFR	Active	P157222	Senegal - ICT Policy dialogue	Arthur Denis Pascal Foch	BB + TFSCB (TF0A0968)	BB = \$24,000 TF = \$30,000
Mauritius	AFR	Closed, 2017	P152729	Mauritius Open Data Technical Assistance	Anat Lewin	BB	\$37,038.31
Mauritius	AFR	Active	P161878	Mauritius Data-Driven Development and ICT Policy Technical Assistance	Anat Lewin	BB	***

Country/State/ City and Sector (if applicable)	Region	Project Status / Year	P-number	Project Title	TTL	Funding Sources of the Project	Amount for the OD Activity/ Component
Mexico	LAC	Closed, 2015	P106589	Mexico - Information Technology (IT) Industry Development	Arturo Muenta Kunigami	IBRD +BB + TF	***
Mexico - Jalisco (State)	LAC	Active	P146483	Jalisco RAS - Improving Evidence Based Policy Making	Alejandro Medina Giopp, Jonna Maria Lundvall	RAS + BB	***
Mexico- Zapopan (City)	LAC	Active	P149267	Support to the Government of Mexico on ICT	Arturo Muenta Kunigami/ Eva Clemente Miranda	BB	***
Moldova	ECA	Closed, 2016	P121231	Governance eTransformation Project	Sandra Sargent	IDA-50000 +TF- 11741 (Dutch MDTF) + BB	***
Moldova	ECA	Closed, 2012	P130160	Moldova - Catalyzing Open Data Innovations for Accountable and Transparent Governance	Oleg Petrov	BB (Innovation Fund)	\$98,289.05
Moldova (Education Sector)	ECA	Active	P147607	Empowered citizens enhancing accountability of Edu reform and quality	Irina Oleinik	TF015859 (GPSA-funded) + BB	***
Moldova (Education Sector)	ECA	Active	P154541	Strengthening capacity - EMIS	Anna Olefir	TFSCB (TF019354) + BB	TF = \$365,000 BB = \$15,000
Mongolia	EAP	Active	P130891	MN: SMART Government	Altantsetseg Shiilegmaa, Peter Silarszky	IDA-54830 + BB + TF	IDA = \$4,600,000 BB + TF = \$56,000
Nigeria (national level), Edo State	AFR	Closed, 2015	P131750	Increased Citizen Voice and Inclusion	Paula Andrea Rossiasco Uscategui	GPF (Government Partnership Facility) TF (DFID) + BB	***
Nigeria (national level), Edo State	AFR	Closed, 2014	P128058	Nigeria: ICT for Social Accountability	Paula Andrea Rossiasco Uscategui	BB	***
Nigeria	AFR	Closed, 2013	P131415	Open Gov Technology Framework	Doyle Gallegos	BB + Korea TF	***
Peru	LAC	Closed, 2014	P146908	Peru - ODRA	Arturo Muenta Kunigami	TF	\$23,000
Philippines	EAP	Active	P132063	Public Sector Governance Reform	Kai-Alexander Kaiser	BB + TF (Australian Aid)	***
Philippines	EAP	Closed, 2016	P145127, Subtask of P132063	eGovernment Transformation	Kai-Alexander Kaiser	BB + TF (Australian Aid)	BB = \$473,866.02 TF = \$320,244.82

Country/State/ City and Sector (if applicable)	Region	Project Status / Year	P-number	Project Title	TTL	Funding Sources of the Project	Amount for the OD Activity/ Component
Philippines	EAP	Closed, 2016	P154297, Subtask of P132063	Philippines Open Government Support, Phase II	Kai-Alexander Kaiser	BB + TF (Australian Aid)	***
Philippines	EAP	Closed, 2015	P130346	Urban Transport and ICT Capacity Building	Holly Krambeck	TF (Australian Aid)	\$350,000
Philippines	EAP	Active	P149499	Green Transport ICT	Holly Krambeck	KGGTF (TF017652)	\$685,000
Regional: Africa	AFR	Closed 2016	-	African Open Data Regional Conference and Community Development	Edward Charles Anderson, Oleg Petrov	TFSCB (TF0A0080) + external	TF = \$200,000 External = ***
Regional: Caribbean - Jamaica, St. Lucia, Antigua & Barbuda; Phase 1	LAC	Closed, 2016	P148056	Caribbean Open Data	Anat Lewin	DFID EFO	\$710,218.90
Regional: OECS, Jamaica Phase 2	LAC	Active	P163223	OECS, Jamaica Data-Driven Development and Digital Governance	Anat Lewin	-	***
Russian Federation	ECA	Closed, 2012	-	Support for Open Government Summit	Oleg Petrov	BB + TF	***
Russian Federation	ECA	Closed, 2015	P154554	Russia ICT & Open Data Program	Oleg Petrov	BB	***
Russia - St. Petersburg (Transport Sector)	ECA	Pipeline	P133201	Improvement of Urban Transport Systems Project	Jung Eun Oh, Oleg Petrov	IBRD + BB + TFSCB (TF016651)	***
Russia - Ulyanovsk	ECA	Closed, 2013	P143094	Catalyzing Open Data Initiative in Ulyanovsk Oblast	Oleg Petrov	RAS + TFSCB (TF016651)	RAS = \$30,000 TF = ***
Rwanda	AFR	Closed, 2013	-		Oleg Petrov	-	***
Rwanda	AFR	Closed, 2014	P147487	Rwanda Open Data Workshop and Transform Africa Summit	Oleg Petrov	BB	\$24,655.95
Serbia	ECA	Closed, 2015	-		Oleg Petrov	UNDP + BB	***
Serbia	ECA	Active	P162777	Implementing Open Data Plan for Serbia	Svetlana Vukanovic, Juan Navas- Sabater	TFSCB (TF0A4983) + BB	TF = \$305,000 BB = ***
Sierra Leone	AFR	Closed, 2015	-		Daniel Nogueira	TFSCB (TF017791) + BB	***
Tajikistan	ECA	Closed, 2015	-			-	***
Tanzania	AFR	Active	P150543	Support to Open Data in Tanzania	Edward Charles Anderson	TF (DFID)	\$3,035,000

Country/State/ City and Sector (if applicable)	Region	Project Status / Year	P-number	Project Title	TTL	Funding Sources of the Project	Amount for the OD Activity/ Component
Tanzania – Dar es Salaam	AFR	Active	P150937	Dar es Salaam Urban Transport Improvement	Yonas Eliesikia Mchomvu	IDA + BB + TF	***
Trinidad and Tobago	LAC	Active	P144407	TT RAS Broadband for Development - Phase 2	Doyle Gallegos	RAS	\$250,000
Uganda	AFR	Closed, 2015	P155393	UG Fiscal Decentralization, Governance, and Service Delivery DPO 1	Barbara Kasura Magezi Ndamira	TFSCB (TF017791) + BB	***
Ukraine	ECA	-	-		Carried out by the UNDP	UNDP	-
World		Closed	-	Leveraging High-Level Experts, Leaders and Practitioners (HELP) for e-Transformation	Oleg V. Petrov	Korea TF (TF537008)	***
World		Active	P161394	OGE – WBG Energy & Extractives Open Data and Analytics	Yann Loic Tanvez	IFC + BB	IFC = \$150,000 BB = \$375,000
World		Active	P144927	Open Data Partnership for Development	Amparo Ballivian	BB (DGF) + external	\$2,500,000 external (IDRC + DFID) = \$3,510,000
World		Active	P133276	Open Data literacy e-learning program	Amparo Ballivian/Tim Herzog	TFSCB: TF013725, TF018096, TF0A0968 + BB	\$500,000 \$274,500 \$450,000 BB = ***
World		Closed	-	TFSCB Grants for Open Data	Oleg Petrov	TFSCB: TF016651 TF017791 +BB	\$350,000 \$350,00 BB + ***
World		Active	P133406	Open Government Data Program: Unlocking Data Innovations for Smarter Urban Transport	Alla Morrison, Oleg Petrov	KGGTF (TF0A1544)	\$300,000

*** Amounts are provided for all the projects where the cost of the OD component and the sources of funding are known. For many projects the cost of the OD component is not known, either because OD is not a separate component or because the project is policy lending. For some projects the cost of the OD component is known, but the sources of funding are not clear. In the last two cases, we have not included the amounts.

For many TFSCB- and KGGTF- funded projects, while the exact amounts were difficult to establish, the TFs that funded them were earmarked only for OD activities; in these cases, the full grant amounts are listed in the table under “World”.

Annex 3. Countries in Figures

Country/ State/City	Year of the ODRA report and Sector (if applicable)	OD Policy: YEAR PASSED / DRAFT(year expected to be passed) / NO	OD Portal – YEAR LAUNCHED / NO	Number of datasets	OD Index Ranking (2013- 2016)**	OD Barometer Ranking (2013- 2016)***	Member of OGP: YEAR OF BECOMING A MEMBER / NO	Adopted International OD Charter: YEAR OF ADOPTION / NO
Afghanistan	2015	NO	NO	-	-	-	2016	NO
Antigua and Barbuda	2013	NO	NO	-	NA - 92	NA	NO	NO
Benin	-	NO	NO	-	92* - NA	67 - 76	NO	NO
Botswana	2014	NO	NO	-	88* - 87	55 - 78	NO	NO
Brazil/Brasilia	2014	NO	NO	-	-	-	-	NO
Burkina Faso	2014	DRAFT	2014	189	44 - NA	67 - 67	2016	NO
Colombia	2015	2016	2016	over 3,000	12* - 12	40 - 24	2011	2016
Dominican Republic	2014	NO	2015	319	NA - 59	NA - 50	2011	NO
Ethiopia	2014	NO	2016	5	NA	66 - 81	NO	NO
Ghana	-	NO	2012	133	-	46* - 59	NO	NO
Ghana/Accra	2015 - Energy Sector	NO	NO	-	-	-	-	NO
Haiti	2016	NO	NO	-	NA	85* - 104	NO	NO
India - Andhra Pradesh	2013 (Rural Sector Development)	NO	NO	-	-	-	-	NO
Indonesia	-	NO	2014	1,874	38 - 56	52 - 38	2011	NO
Jamaica	2014	NO	2016	32	45* - 62	46 - 40	2016	NO
Kenya	-	NO	2011	308	59 - 71	22 - 35	2011	NO
Kenya - Nairobi	2015 (Energy Sector)	NO	NO	-	-	-	-	NO
Kosovo	-	NO	2014	-	31* - 56	NA	NO	NO
Kyrgyzstan	2015	NO	2015	-	NA	NA - 87	NO	NO
Macedonia	2014 (Economic Benefits)	2014	2012	154	NA	NA - 48	2011	NO
Malaysia	2016	NO	2016	1,946	NA - 83	41* - 53	NO	NO
Mauritania	2016	NO	NO, Expected 2017	-	NA	NA	NO	NO
Mauritius	2015	2016	NO	-	NA	42 - 59	NO	NO
Mexico	2013	2015	2014	18,500	26 - 16	25 - 11	2011	2016

Country/ State/City	Year of the ODRA report and Sector (if applicable)	OD Policy: YEAR PASSED / DRAFT (year expected to be passed) / NO	OD Portal – YEAR LAUNCHED / NO	Number of datasets	OD Index Ranking (2013- 2016)**	OD Barometer Ranking (2013- 2016)***	Member of OGP: YEAR OF BECOMING A MEMBER / NO	Adopted International OD Charter: YEAR OF ADOPTION / NO
Mexico - Jalisco (State)	2014	NO	2015	over 200	-	-	YES - Member of the Subnational Government Pilot Program	NO
Mexico - Zapopan (City)	2014	NO	NO, Expected 2017	-	-	-	-	NO
Moldova	2014	2014	2011	966	19 - NA	NA - 31	2012	NO
Mongolia	-	NO	NO	-	NA	NA	2013	NO
Nigeria	2014	NO	NO	-	55 - NA	75 - 70	2016	NO
Nigeria - Edo (State)	-	NO	2013	235	-	-	-	-
Peru	2013	2014	NO	-	NA - 56	47 - 48	2011	NO
Philippines	2013	NO	2014	923	71* - 53	53* - 22	2011	2015
Russian Federation	-	NO	2014	13,426	32 - 35	20 - 25	NO	NO
Russia - St. Petersburg	2014 (Transport Sector)	NO	2014	166	-	-	-	-
Russia - Ulyanovsk Oblast	2013	NO	2013	664	-	-	-	-
Rwanda	2013	NO	NO	-	NA	45 - 71	NO	NO
Saint Lucia	2014	DRAFT	2015	29	NA - 71	NA - 87	NO	NO
Serbia	2015	NO	NO	-	48* - 39	NA - 65	2012	NO
Sierra Leone	2015	NO	2015	16	NA	78* - 100	2013	2016
Tajikistan	2015	NO	NO	-	NA	NA - 97	NO	NO
Tanzania	2013	DRAFT (June 2017)	2015	152	88* - 74	58 - 67	2011	NO
Trinidad and Tobago	2015	NO	2015	30	NA - 66	NA - 77	2012	NO
Uganda	2015	NO	2014 (budget data)	-	NA	55 - 90	NO	NO
Ukraine	2015	NO	2015	over 14,000	NA - 24	55* - 44	2011	2016

* Data is available only starting from 2014

** Open Data Index 2013 includes 60 countries, while 2016 – 94. The methodology has changed significantly between 2015 and 2016. For this reason, the results are not directly comparable.

*** Open Data Barometer 2013 includes 77, while 2016 – 115. For this reason, the results are not directly comparable.

Annex 4. Scaling World Bank Data Literacy

The World Bank's data literacy pedagogies, curricular materials and e-learning are being distributed for free, in raw customizable formats, and are already being used across regions by a range of counterparts, including:

Peru - The Peruvian National Press Council (*Consejo de la Prensa Peruana*) is presently translating the full WB Data Literacy curriculum into Spanish to embed it into national universities and colleges of journalism. Also, on May 27 - 28, 2016, [WB data literacy modules were used to collaboratively deliver a non-statistician data literacy workshop](#) (called an "Open Data Cooking Show") to launch this national Data Literacy initiative.

Sierra Leone - Grassroots Sierra Leone NGOs and the Government, through the Right to Access Information Commission, collaboratively [delivered a range of WB Statistics and Data Literacy modules](#) as part of a [6-week West African Open Data Festival](#).

Kenya - The grassroots Kenyan NGO, the Open Institute, delivered the Evidence-Based Practice Data Literacy e-learning program, together with facilitated capacity building, toward growing awareness of the grassroots-level implications of the SDGs and started a process to localize data-driven decision making for rural Kenyans in Lanet Umoja, Kenya (see summary of [Day 1](#) and [Day 2](#)).

Tanzania - [World Bank Statistics and Data Literacy modules have been adapted into Tanzania 'Open Data Dive' training](#) to build capacity among statisticians and non-statisticians and augment institution-strengthening activities under the ongoing Tanzania Open Data initiative.

Africa Region - The first [Africa Open Data Conference](#) (September 2015) made use of WB data literacy modules as part of a [Regional "Data Literacy" capacity building program](#) linked to the conference. A second conference is under development and WB data literacy modules will similarly be used to inform linked capacity building workshops.

Egypt - InfoTimes in [Egypt is integrating WB modules into their data journalism certificate program](#).

Argentina - The Buenos Aires Hacks/Hackers community of practice is [adapting WB 'Data Literacy' modules for use in a large regional capacity development initiative called the 'Media Party'](#).

Cameroon - The grassroots (regional) African NGO, CodeforAfrica, is preparing to deliver WB Data Literacy modules as part of a Data Literacy Boot Camp in Yaoundé, Cameroon in mid-2017.

Guatemala - Grassroots School of Data Fellows in Guatemala will deliver WB Data Literacy modules as part of the USAID-funded Internews Central America Investigative Journalism Project.

El Salvador - Similar to Guatemala, grassroots School of Data Fellows in El Salvador will deliver WB modules as part of the same Internews project.

Central Europe - UNDP's Regional Bureau for Europe and CIS have [adapted WB modules \(and translated into Russian\)](#) for integration into its University Journalism Faculty Strengthening Program.

Pakistan - The U.S. State Department (Bureau of Democracy, Human Rights and Labor) is collaborating with Internews to adapt WB Data Literacy modules to improve media coverage of public service delivery in Pakistan.

Communities of Practice (COP) - WB modules are used and adapted by a range of existing COP across regions, including:

- a) [CodeforAfrica](#), including its country-level chapters, such as [CodeforGhana](#) and [CodeforSouth-Africa](#), including [using EBP modules as the basis of its new Code Academy training initiative](#).
- b) [Hacks/Hackers](#), including both regional, such as [Hacks/Hackers Africa](#), and country-level chapters, such as the world's largest [Hacks/Hackers chapter in Buenos Aires, Argentina](#).
- c) [Data Meet](#), including communities across [Bangalore, Delhi, Mumbai, Ahmedabad, and Pune](#).
- d) [School of Data Fellows](#), including Fellows across Latin America, Africa and the Middle East.
- e) [Knight Foundation Fellows](#), including Fellows across Africa and Latin America.
- f) COP message boards, including [DataQuest](#), [NakedData](#), [ANCIR Investigations](#), and [Civic TechLab](#).

