Data for Children - UGANDA

Joint Diagnostic and Action Plan

Final Draft – April 2019

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About this report

In April 2017, UNICEF launched its 'Data for Children Strategic Framework'[1] based on its belief that 'smart demand, supply and use of data drives better results for children.' The framework sets out what UNICEF should do to deliver its mandate at global, regional and country levels in the context of ever-changing data ecosystems, including shifting the emphasis of some data work, improving capacity and deepening partnerships. The framework states that:

> *"All UNICEF country offices should engage in a deliberate, strategic process to determine their investments in data for children work and other evidence-related activities, starting with an analysis of the country's existing data priorities and ecosystem. Some countries will do this as a stand-alone exercise and others as part of mid-term reviews, strategic moments of reflection, or the development of their country programmes."*[2]

Development Initiatives (DI) was contracted to work with UNICEF Uganda to:

- analyse and diagnose how better qualitative and quantitative data could have the greatest impact on results for children in its priority areas (child survival and development, basic education and adolescent development, and child protection);
- map the data landscape in the country, consulting with relevant partners to identify current and planned investments, barriers, bottlenecks and enabling factors;
- develop a Strategic Action Plan (SAP) for data work and investment over a three to five-year period

Research in Uganda took place between 25 June and 13 July 2018, during which time the team received significant cooperation and goodwill from the UNICEF country office which coordinated section chiefs to set up meetings with government ministries, departments and agencies (MDAs). Particular thanks go to UNICEF Uganda's focal person Sarah Kabeija, as well as section chiefs and respondents in MDAs.

In total, interviews with 49 respondents were carried out,[3] which together with supporting documents provided invaluable insight into the workings of UNICEF Uganda and the nature and state of the country's data ecosystem.

This report combines the diagnostic, which sets out the challenges and opportunities in each sector and the cross-thematic dynamics affecting data for children in Uganda and a proposed plan of action which makes recommendations for UNICEF's data work and investment over a three to five-year period.

[1] https://data.unicef.org/wp-content/uploads/2017/04/Data-for-Children-Strategic-Framework-UNICEF.pdf
[2] ibid.
[3] See Appendix 1

Executive Summary

Uganda is at a data crossroads. Funding for data collection, aggregation, analysis and dissemination has always been inadequate - with inevitable consequences for reliable statistics - but at the same time the government is committed to a 'data revolution' using new technologies and encouraging open data.

Despite these challenges, Uganda has a comprehensive legal and policy framework for data with numerous laws, policies, frameworks and guidelines across all sectors at national, regional and local administrative levels. The gathering and use of data is also included in sectoral plans. Government ministries, departments and agencies (MDAs) all collect and disseminate statistics from a variety of different sources such as surveys, censuses and administrative data, using a range of methods and management information systems.

Therein lies much of the challenge - our research found multiple systems for data collection and management, many of them similar and coexisting in the same institution and in some cases funded by different donors with different priorities. There is an inevitable risk of duplication, poor coordination, and inconsistent indicators, and most of these systems are unable to talk to each other or share data. Furthermore, there are significant concerns about the quality of administrative data.

Data quality is negatively affected by several factors such as outdated or non-standardised tools for data collection, poorly trained data collectors, underfunding of information and M&E systems, inadequate understanding of technology and limited analytical capacity in most MDAs. Few offices outside of Kampala have adequate ICT infrastructure and equipment. Data is all too often still collected through paper questionnaires, which then have to be scanned or rekeyed to extract information.

There are some encouraging signs of progress. The National IT Authority (NITA) is developing a national data transmission backbone and e-government infrastructure and is also introducing district centres to narrow the digital divide in rural areas and improve access to online information. UBOS is leading the way towards an inclusive National Statistical System that embraces all producers and users of data.

UNICEF relies on accurate, high quality data to develop, implement and monitor the three main pillars of the Uganda Country Programme Action Plan (CPAP) - child survival and development, basic education and adolescent development, and child protection. The numerous gaps in data across all sectors and levels have serious implications for the government, and UNICEF, in their ability to have the impact they desire on development outcomes. Our diagnosis of these problems and priority recommendations for UNICEF to consider are set out in this paper.

Recommendations

The following table contains a summary of the recommendations made in this report divided into two sections:

- Priority UNICEF interventions
- Policies that UNICEF should support

Table 1 - Cross-referenced summary of recommendations

Report Section	Recommendation
Priority UNICEF interventions	
Governance of indicator frameworks	Play a catalytic role, in conjunction with all concerned stakeholders, in developing a globally consistent set of indicators for use by C4D programmes and surveys.
Governance of information systems	In conjunction with other development partners provide both technical and financial support to NITA-U and MDAs (notably MOH, MOGLSD and JLOS) engaged in strategies or initiatives to integrate systems or enhance the interoperability of systems.
Data for local decision making	Conduct a feasibility study for a major investment in the Community Information System to assist UBOS and MOLG to expand the programme to all districts and to support the coordination and capacity building of local level data collectors from different sectors
Data Use	Establish a facility to provide UBOS and MDAs with financial and technical support to make all official statistics open by default and support initiatives – from government, academia and civil society - that encourage the use and analysis of data to inform decision-making.
CRVS and National Identity	In conjunction with the World Bank extend UNICEF's existing commitments to NIRA and the CRVS system in general to streamlining the bureaucratic and technical links between birth registration and national identity.
Health	Continue to invest in the HMIS with an emphasis on the rationalisation of indicators and improvement of data quality. Similarly invest in the speediest possible development of the Electronic Health Record and its integration with the HMIS.
Water and Environment	Support NITA-U and MOWE to rationalise WASH information systems and to streamline the processes between data collection and database entry and use.
Education	Work with development partners, MOES, NITA-U and UBOS to champion the need for a sustainable EMIS that delivers timely, usable data at all levels from school to ministry.
JLOS and Social Development	In conjunction with other development partners provide both technical and financial support to NITA-U, MOGLSD and JLOS to integrate and/or enhance the interoperability of their systems. (This is a repeat of the general recommendation presented under Governance of information systems above)

Report Section	Recommendation
Policies that UNICEF should support	
Governance of indicator frameworks	Encourage UBOS and its MDA partners to review and update the National Standard Indicators Framework (NSIF) more regularly, drawing on a wider pool of stakeholders to reflect new data sources and new communities involved in both the production and use of data.
	Support the multi-stakeholder SDG indicator matrix process to ensure that the data ecosystem strengthening is targeted on meeting and monitoring the SDGs
Governance of information systems	Encourage UBOS and NITA-U, supported by the OPM. to adopt a joined-up approach to the governance of indicators and sources. This collaboration should be empowered to make recommendations on for interoperability, mergers and integration, and phasing out those systems which are no longer fit for purpose.
	Propose and lead the creation of an information systems financing subcommittee within the Local Development Partners Group (LDPG) in order to improve coordination.
ICT Infrastructures	UNICEF should advocate for coordinated efforts (from both government and the development partner community) in support of all policies and plans that lead to a national ICT infrastructure that enables all clinics, schools and local government offices to have access to electricity, internet and IT equipment.
Data Quality	Together with MDAs and development partners ensure that policies and programmes are in place for all officials at all levels of government who work with administrative systems to develop the capacities they require to produce consistent and accurate data.
Health	Ensure that all development partners adopt a consistent approach to supporting the National e-Health Strategy
	Urge donors, through the Local Development Partners Group, to improve their coordination to avoid duplication of effort and the funding of similar systems

Methodology

Terms of reference

The Terms of Reference laid out a three-step process for the work:

- **Step 1: Identifying key areas for potential investment**
  - Working with UNICEF Uganda country office staff and external partners, we would develop a clear understanding of UNICEF's and the Government of Uganda's priority areas of work for children over the next 3-5-year timeframe.
  - This would include a desk review of materials provided by the office and identification of other outside partners and documents for review.
- **Step 2: Mapping the country's data landscape**
  - Based on the provisional outline developed in Step 1, we would map the local data landscape in the identified priority areas. This should include identifying the major needs, existing initiatives, data gaps, intervention gaps and constraints; and new opportunities in data for children work in those areas.
  - The landscape diagnostic would identify current and potential data actors (including demanders, suppliers and users), existing data systems and capacities, (both of the government and major government partners), priorities of the government, the UN and the UNICEF country programme, and future plans, opportunities, and threats for child well-being.
  - The analysis would also take into consideration the data work of other major actors in the country as well as potential sources and users of data in the private and civil society sectors.
- **Step 3: Developing the strategic action plan**
  - Based on the results of the work in the first two steps and taking into account the parameters outlined above, we would work with the country office to develop a strategic action plan to guide the office's data for children actions and investments.
  - Grounded in country needs and contexts, priority issues for children, UNICEF's comparative advantages and opportunities on the horizon, the plan would identify:
    - The work that is already ongoing that should be continued, replicated and/or scaled up (both within UNICEF and what UNICEF should be supporting others to do);
    - The work that is already underway that should be phased out or transitioned to partners;
    - Any new work UNICEF should undertake (either directly or in support of others' work) in this area;
    - What capacities and resources are needed to undertake the recommended work; and
    - What partnerships UNICEF should pursue in order to undertake the work successfully.

Literature review

The consultants reviewed key government and UNICEF documents[4] – both those in the public domain as well as internal documents made available by the UNICEF CO. These included

- UNICEF strategic planning documents
- UN country strategic documents
- Government development plans
- Legal instruments
- Sector strategic plans

Mapping of data sources

Using methodology previously developed by Development Initiatives[5] - which focuses on data production at its point of collection rather than the more common approach of cataloguing statistical publications – the consultants mapped all known data sources in our priority areas and categorised each source according to the following classifications.

- Owner; Type (Registry, Administrative, Census, Survey); Sector/Area (Health, Education, etc)
- Frequency of data collection; Year of latest data collection
- Accessibility of data (public, government-wide, Institution-wide, restricted to authorised users, closed); Machine Readability: The quality of the datasets regarding formats: Is the data in paper form, book form, PDF or Excel, CSV, JSON, etc; U.R.L. Of data or metadata
- Geographic disaggregation (National, Provincial, District, Sub-district); Level of age disaggregation (10-year, 5-year, Year, None); Gender disaggregation; Disability disaggregation (Washington Group, Other, None); Income disaggregation (Quintile, Other, None)

The outcome of this mapping of 142 primary data sources can be accessed through a downloadable online database.[6]

Understanding the data landscape

The study paid attention to a number of issues underpinning Uganda's data ecosystem.

- **Uganda's legal and policy frameworks** relevant to data production and use, and how the different policies interlink. We analysed Uganda's development frameworks at macro and micro level, zeroing in on those policies that are skewed toward evidence generation and use, and examined how these relate to UNICEF's own internal working documents. These policies included the National Development Plan, the National Statistical strategies, Sector-specific strategic plans, UNICEF's country strategy and the UN country development framework.
- **Key stakeholders** including data producers, users, and their intermediaries. We sought to understand their roles and how they relate to each other; with a view of identifying common interests and convergences.

[4] See the References section for a list of public documents consulted
[5] http://devinit.org/post/development-data-assessment/
[6] http://bit.ly/2STUQ95

- **The state of domestic and international financing** for the national data ecosystem.
- **The state of the national ICT infrastructure**. We examined the coverage of the National ICT infrastructure in terms of reach, quality and accessibility.
- **The capacity to train sufficient personnel** to manage and develop the national data ecosystem.

Consultations and key informant Interviews

A total of 52 people were interviewed in the course of this assignment. These were section employees at the UNICEF country office, officials in key ministries, agencies and departments of the government, and other stakeholders within Uganda's wider data ecosystem.

These interactions focussed on understanding:

- The current context within they work and what priorities they need to undertake to be most effective regarding data and evidence for children work.
- Immediate data needs for monitoring progress towards the targets of the 2016-2020 NDPII, VISION 2040 and the 2016-2020 GoU-UNICEF Country Programme.
- Existing and planned data investments by UNICEF and selected partners
- Perceptions of the national data ecosystem by UNICEF and its partners, concerning the state of the ecosystem, key players, partnerships and challenges
- Opportunities and challenges of an expanded data leadership role by UNICEF and its partner organisations.
- Financial, technical and human resources to drive evidence-based work
- The timeliness, comprehensiveness and accuracy of data
- The accessibility and usability of data
- The usefulness of data for national, and subnational/district planning and service delivery
- Duplication of efforts by different or the same agencies
- Data gaps
- Opportunities for the integration and interoperability of systems
- Opportunities for building synergies within UNICEF and between UNICEF and its government partners, incentivizing partnerships and promoting data collaboratives within the whole National Statistical System.

Developing an action plan

Based on the learnings of the literature review, mapping exercise and consultations a number of recommendations have been formulated and are presented in this report. The plan covers not only how UNICEF engages directly on data issues in the country, but how it can engage in a broader supportive and leadership role across the wider national data ecosystem.

Furthermore, the plan outlines efforts that the country office can take to support monitoring of children related SDGs, particularly those for which UNICEF is the responsible curator or co-curator.

In line with the terms of reference the recommendations aim to be grounded in the country's needs and context and to highlight UNICEF's comparative advantage. They identify, where appropriate and where possible:

- Work that is already ongoing that should be continued, replicated and/or scaled up (both within UNICEF and what UNICEF should be supporting others to do)
- Work that is already underway that should be phased out or transitioned to partners
- Any new work UNICEF should undertake (either directly or in support of others' work) in this area
- What capacities and resources are needed to undertake the recommended work
- What partnerships UNICEF should pursue in order to undertake the work successfully
- Indicative costs associated with the recommended UNICEF actions

Priority SDGs

UNICEF is the custodian of 7 SDG indicators[7] and co-custodian of a further 10. These are detailed in the table below. The recommendations take cognisance of the importance of these targets being met in Uganda, as evidence of UNICEF's commitment to the SDGs

Table 2 - UNICEF responsibilities for SDG Indicators

Custodian	Co-custodian
Under-5 mortality	Skilled attendance at birth
Neonatal mortality	Fully immunized children
Early childhood development	Sexual violence against women and girls, by intimate partner
Child marriage	Sexual violence against women and girls, by person other than intimate partner
Female genital mutilation	Safely managed water
Child discipline	Safely managed sanitation and handwashing
Sexual violence against children	Child labour
	Birth registration
	Stunting
	Wasting/overweight

Contract milestones

- An inception report was presented to the country office at the beginning of the mission, input sought and a final one submitted in September 2018.
- A progress report was presented to the country office midway through the mission in July 2018. This was to discuss emerging findings and solicit views from the CO stakeholders and other actors involved in the study, to identify any bottlenecks that might inhibit the study going forward.

[7] https://data.unicef.org/children-sustainable-development-goals/

- A validation workshop was held in February 2019, which brought together all participating institutions who provided input into the draft report to inform the finetuning of the final deliverables.

Legal and policy frameworks

For 20 years from the early 1990s, Uganda enjoyed high economic growth averaging 6% per annum. This was a result of the liberalisation approach adopted by the National Resistance Movement government under the aegis of the World Bank's Poverty Reduction Strategy Papers. Poverty reduced significantly from 56% in 1993 to 19% in 2016.

As a result, the government modified its previous focus on poverty eradication through *Poverty Eradication Action Plans*[8] (PEAPs), to a wider one on 'prosperity for all' and 'wealth creation' through its National Development Plans (NDPs). Whereas the PEAPs concentrated on investments in social sectors such as health, education and agriculture, the NDPs focussed on investments in infrastructure and energy. The benefits of growth were not shared by all and many people remained stuck in poverty. The government however did not change course, and the NDPs remain the country's guiding development strategic blueprints.

Uganda's current development focus therefore is one that emphasizes 'wealth creation' and infrastructure development. Notwithstanding these policies, Uganda's economic growth tapered from 2015 onwards to an average of 3-4% and the economy remains small (GDP $25bn) and heavily reliant on donor funding.

The proportion of Uganda's budget funded by international development aid has been falling (from around a third in 2009/10 to just under a fifth by 2014/15) as donors increasingly choose other channels of disbursing their aid rather than direct budget support. The share of government spending funded by international aid is just one possible measure of 'aid dependency'. Many donors are increasingly relying on the direct funding and implementation of projects or funding through NGOs.

With resources at its disposal tightening year by year, and reliance on debt to finance the budget increases, the government's priorities have also changed, with increased spending on service delivery edging out the funding of evidence gathering, monitoring and evaluation. This has had an effect on the amount of funding available for data infrastructures and statistics.

A lack of adequate financing notwithstanding, the government of Uganda has made substantial policy commitments towards transparency, accountability, evidence-based planning and decision making. A range of laws, policies, frameworks and guidelines underpin the national data ecosystem and associated governance and facilitating structures.

Some of these policies are enacted at national level, others at sector/ministry level, and others at subnational levels. The disconnect between budget and policy is one of the reasons behind the common refrain heard within the country's development ecosystem that Uganda has a lot of good policies but poorly implements them.

Nevertheless, as this section of the diagnostic highlights, the government of Uganda is making substantial efforts towards ensuring that credible evidence is available to drive decision-making and that the public sector can be held accountable for its actions.

[8] For example - http://siteresources.worldbank.org/INTPRS1/Resources/Country-Papers-and-JSAs/Uganda_IPRSP.pdf

National Development Plan II[9]

The government's main development strategy is the NDP II, an ambitious five-year rolling plan setting out key development priorities and how to achieve them. NDP II runs from 2015/2016 to 2019/2020, aiming to strengthen Uganda's competitiveness and thus create sustainable wealth, employment and inclusive growth. It focuses on agriculture, tourism, mineral extraction, oil and gas, infrastructure and human capital, with the goal of transforming Uganda into a Middle-Income Country (MIC) by 2020, although many donors - even some in the government - believe that is unrealistic.[10]

The NDP has an implementation strategy aimed at putting it into practice and determining how it meets its objectives. It also has an M&E strategy, results framework and a National Standards Indicator Framework, produced by the Uganda Bureau of Statistics (UBOS) to measure progress.

Monitoring and Evaluation

The 2011 National Policy on Public Sector Monitoring and Evaluation[11] focuses on better government M&E by strengthening the coverage, quality and usefulness of public policy and investment assessments. Produced by the Office of the Prime Minister (OPM), it proposes that M&E funding is clearly allocated in the national budget. It also aims to give policy, law and decision makers better access to reliable evidence, and to hold the public sector accountable for allocating and using resources.

The policy is intended to improve M&E coordination between public and private institutions and sets out the roles and responsibilities of different Ministries, Departments and Agencies (MDAs). In 2015, the OPM also enacted the National Coordination Policy, which spells out the national coordination framework, together with the roles and responsibilities of each MDA.

The National Partnership Policy of 2013 sets out the guiding principles and priorities for government relationships with external development partners. These include ensuring alignment, maximising impact, mutual accountability, value for money, transparency and predictability, reducing costs, inclusivity and coordination.

UBOS Strategic Plan

In 2013 UBOS developed a five-year blueprint for statistics development with the theme of 'Enhancing data quality and use'[12]. It has six strategic goals:

- Improve statistical coordination and management
- Undertake and improve data production and development
- Increase demand for and usability of statistics
- Enhance quality assurance
- Strengthen human resource development and management in statistical production
- Strengthen support services for statistical production

[9] http://npa.ug/wp-content/uploads/NDPII-Final.pdf
[10] http://businessfocus.co.ug/world-bank-explains-uganda-cant-achieve-middle-income-status-2020/
[11] https://usaidlearninglab.org/sites/default/files/resource/files/Attachment_J.15-_M%26E_Policy_Final_Draft.pdf
[12] https://www.ubos.org/wp-content/uploads/2018/03/UBOS-SSPS-2013-18.pdf

The strategy acknowledges, and aims to embrace, the data revolution, the changing nature of statistics and the impact of new technologies on the production, demand and use of statistics.

Designing the plan was a highly inclusive process involving national and local government, MDAs, Civil Society Organisations (CSOs), academia and donors. It aims to bring new sectors and local governments into the process; introduce new perspectives, issues and practices in statistical organisation and management (such as open access to data); broaden and deepen the statistical reforms that were started in 1990s; and establish a truly integrated NSS.

National Standards Indicator Framework[13]

UBOS brought together three key government agencies - the National Planning Authority (NPA), the Ministry of Finance, Planning and Economic Development (MoFPED) and the Office of the Prime Minister (OPM) - to develop a common set of indicators for use by MDAs and local government, in line with the NDP and development frameworks such as the Sustainable Development Goals (SDGs) and the African Union's Agenda 2063.

Uganda was one of the first countries to align its national planning to the SDGs as well as a range of other regional and international processes. The National Standards Indicator Framework (NSIF) is based on the overall goal and objectives of NDP II and the various regional and international development frameworks to which Uganda is a signatory. The NSIF is designed to be a tool to allow better performance measurement by the OPM; to inform planning led by the NPA; to inform resource allocation by MoFPED; and to guide UBOS on which data gaps to address and surveys to undertake. As the NSIF's overall aim is to produce consistent and comparable indicators, it is regularly reviewed to ensure it is up to date.

Uganda Bureau of Statistics Act

The *Uganda Bureau of Statistics Act of 1998*[14] established UBOS and defines the National Statistics System to include

> *… all agencies in Uganda, whether Government or not; under any enactment or otherwise; responsible for gathering statistical data through either surveys or administrative action.*

The act goes further to designate UBOS as the coordinator of the NSS and responsible for

> *promoting cooperation, coordination and rationalization among users and providers of statistics at national and local levels so as to avoid duplication of effort and ensure optimal utilization of scarce resources;*

On oversight, the law mandates UBOS to

[13] http://budget.go.ug/budget/sites/default/files/Annex%208a-National%20Standard%20Indicator%20Framework.pdf
[14] https://ulii.org/ug/legislation/consolidated-act/310

> *"review all initiatives to collect data at the national and local government levels and approve instruments developed for data collection including census frames, registers, sample designs and questionnaires."*

The act also requires the UBOS Executive Director to

> *"ensure that any statistical data collected, after appropriate processing and ascertaining its quality for accuracy, and also after ensuring confidentiality with respect to any individual who provided any statistical information to which section 19 relates is released for general dissemination."*

UN and UNICEF policy frameworks

The United Nations Development Assistance Framework for Uganda 2016-2020[15] provides the umbrella for UN agencies' partnerships with the Government of Uganda. While recognising improvements in evidence-based planning in the previous UNDAF period, the plan points out that

> *"challenges remain with regards to availability of reliable data for some key development indicators, quality of data (especially administrative data) and systematic quality assurance."*

The UNDAF programme of work makes a number of specific commitments to strengthen data infrastructures across a range outputs[16], including: data disaggregation in general; NDP and SDG monitoring; the integration of data on early childhood development into all relevant management information systems; the strengthening of health information systems; a consolidated database for social protection; a management information system covering gender based violence and violence against children; improvement of evidence-based decision-making on HIV & AIDS; climate change and disaster information early warning systems; and better data on employment.

The UNICEF Country Program Action Plan (CPAP)[17] aims to shift from a 'project approach' to a government-led, well-coordinated 'systems-approach' which builds sustainable and scalable programmes to improve basic services for children. A significant part of this is addressing critical shortcomings in monitoring and planning processes which hamper the achievement of outcomes. The promotion of evidence-based decision-making to drive advocacy and communications as well as planning, monitoring and evaluation features throughout the programme, as summarised in the following table.

[15] http://www.ug.undp.org/content/dam/uganda/docs/Uganda%20UNDAF%202016-2020.pdf
[16] See Appendix 3
[17] https://www.unicef.org/uganda/CPAP_2016-2020.pdf

Table 3 - UNICEF CPAP evidence-related interventions[18]

Sector	Intervention
Evidence-based advocacy and technical support to promote rights-based, equity-focused policies, laws and budgets for children	
MCH	Evidence-based advocacy to leverage resources to increase the coverage of the Integrated Community Case Management (ICCM), and provide support to improve technical and functional capacities of MoH in scaling up the approach nationwide
Nutrition	Evidence-based advocacy to increase budget allocation for Nutrition
WASH	Evidence-based advocacy to leverage resources for rural WASH, including scaling up innovations in WASH
ECD	Evidence-based policy advocacy and technical support to create an enabling environment for ECD (policy framework in place, norms and standards (incl. for young children with disabilities), ECD budget increased, targeting, institutional support, inter-sectoral coordination, M&E
Birth Registration	Support the government (NIRA) to develop and implement an evidence based and comprehensive Civil Registration Policy and costed national CRVS Strategic Plan
Evidence-based communication to promote social and behavioural change to support the realization of child rights	
HIV/AIDS	Evidence-based communication intensified to address low uptake
Nutrition	Nation-wide evidence-based communication to improve IYCF.
ECD	Evidence-based communication to improve parenting (C-IMNCI/Care for Development, building on existing facility and community structures)
Child Protection	Evidence-based national communication strategy to address social norms that perpetuate VAC
Birth Registration	Support development and implementation of a Communication strategy to increase the uptake of birth registration services nationally
Strengthening of national capacity in monitoring and evaluation, including decentralized evidence-based planning and monitoring, and the tracking and mapping of child poverty and disparities	
MCH	Decentralized evidence-based planning and monitoring linked to MOH RMNCH score cards and building on the m-health platforms
HIV/AIDS	HIV/AIDS integrated in RMNCH decentralized evidence-based monitoring and planning
Nutrition	Nutrition information system – develop and implement UNAP M&E

[18] Derived from UNICEF CPAP 2016-2020 https://www.unicef.org/uganda/CPAP_2016-2020.pdf

Sector	Intervention
	Decentralized evidence-based monitoring and planning –linkage with RMNCH system.
WASH	District and community capacity development for WASH (rural/ underserved areas), including monitoring and reporting.
Basic Education	Monitoring learning achievement (improved and rolled out to all districts)
	Decentralized evidence-based monitoring and planning to improve learning outcomes -linked to BRMS, EMIS and EduTrac.
Adolescents	Strengthened national capacity in data collection and analysis to inform policies and programmes to address adolescent specific issues
Child Protection	Development of a comprehensive and integrated Management Information System on VAC, linked to the National Child Helpline (NCHL) and the GBV MIS to be used to track cases of children entering the child protection system and strengthen accountability for results
Justice	Strengthened national capacity in monitoring and reporting on key child justice indictors in an Annual Child Justice Progress Report
Birth Registration	Provide technical and financial support to strengthen the national CRVS system through capacity development and equipping of NIRA, districts and health facilities.
Promotion of innovations, including those based on mobile information and communication technology to increase the effectiveness and efficiency of programme results	
MCH	eHealth used to support Maternal Death Audit
Birth Registration	Review and upgrade the scope and functionalities of Mobile VRS
	Scale up the use of Mobile VRS nationally, to notify and register births and deaths; support issuance of birth certificates; and ensure the interoperability with other relevant government systems in health, education and governance

Data Governance

Data governance is arguably the most critical cornerstone of a sustainable national data strategy. It should answer a number of questions.

- What data is needed to meet and monitor development goals?
- Of the required data what is currently collected and what is missing?
- What institutions and systems are responsible for the collection of data?
- How do these systems intersect with each other?
- How is the quality of data assured?
- Is the available data accessible and usable by those who need to it?

Governance of indicator frameworks

The National Standard Indicator Framework (NSIF) is a centralised, government-wide repository of metadata for all required official data. It is one of the best of its kind to be found in Africa. It is based on the overall goals of the second national development plan (NDP II), the Sustainable Development Goals (SDGs) and other regional and international development frameworks to which Uganda is a signatory.[19] It aims to ensure better OPM performance measurement, inform NPA planning and MOFPED resource allocation, and guide UBOS on its data collection and statistical production priorities.

The NSIF aspires to produce a comprehensive set of indicators that are responsive to the needs of all plans and the institutions that are tasked with meeting them. While consistency is essential for standards of this type there is a need for regular reviews and updates. An example of such a need is for the framework to be responsive to the emerging communication for development (C4D) standards relating to knowledge, attitudes, practices, values and beliefs.

The Government has also embarked on mapping and domesticating SDG indicators in more detail. UBOS, as lead agency of the SDG Data Technical Working Group (TWG), is engaging with MDAs, development partners, the private sector, and CSOs to develop a national SDG indicator matrix. This consultative process aims at identifying a realistic set of national SDG indicators to monitor SDG, and a national effort aimed at integrating all the SDG indicators into the national standard indicator framework. The ultimate goal is to have a national SDG indicator matrix aligned to the SDG targets which will help the government to track progress of attainment of the 17 Goals.

Recommendations

- **Priority UNICEF Interventions**
    - UNICEF should play a catalytic role, in conjunction with all stakeholders, in developing a globally consistent set of indicators for use by C4D programmes and surveys.

[19] Atai, Imelda: Presentation at National Data Forum, November 2017 www.ubos.org/onlinefiles/uploads/ubos/National%20Data%20Forum-NSI.ppt

- **Policies that UNICEF should support**

    - Encourage UBOS and its MDA partners to review and update the National Standard Indicators Framework (NSIF) more regularly, drawing on a wider pool of stakeholders to reflect new data sources and new communities involved in both the production and use of data.
    - Support the multi-stakeholder SDG indicator matrix process to ensure that the data ecosystem strengthening is targeted on meeting and monitoring the SDGs.

Governance of information systems

Our research found a number of duplicate systems for data collection and management, sometimes in the same institution and in some cases funded by different donors with different priorities. For instance:

- The Ministry of Gender, Labour and Social Development (MOGLSD) maintains a Case Management Information System which is very similar to its Orphans and Vulnerable Children Management Information System.
- The Ministry of Water maintains a Water Supply Database and Atlas, a District Rural Water and Sanitation Database, a Utility Performance Monitoring and Information System, and a Water Quality Database. There are substantial overlaps between these systems.

A 2017 report prepared for the OPM acknowledges the problem of

> *"multiple reporting frameworks, which lead to duplication of work processes and disjointed, unverifiable reports collected at different coordination points"* [20]

This report, which was prepared under the auspices of the Local Development Partners Group, makes numerous references to the need for coordinated funding of initiatives. It fails to mention, however, that many of the causes of duplication and lack of interoperability can be traced back to donor's taking blinkered approaches to their investments in information systems.

Beyond the straight duplication of effort mentioned above it is also unusual for systems that serve different purposes but share common roots or identifiers to be connected. In the real world the departments within the JLOS sector interacts with each other on numerous operational matters, but none of their systems are capable of 'talking' to each other.

NITA-U, which has a mandate to harmonise the government's digital estate is currently engaged in compiling a catalogue of government systems. It is also responsible for maintaining technical standards within systems.[21] There is, however, a disconnect between UBOS's work standardising data

[20] Strengthening the Coordination Function at the Office of the Prime Minister and Sector Working Groups https://www.ldpg.or.ug/wp-content/uploads/2017/05/SWG_OPM-Coordination-Assessment_3-May17.pdf

[21] Interview with NITA-U

and NITA-U's work rationalising systems. They would each benefit greatly from each other. In the words of a NITA-U analyst, "NITA-U is a car that requires UBOS to drive it."[22]

Notwithstanding the abovementioned challenges, the sector assessments later in this report document the strong aspirations held by the Ministry of Health (MOH), the Ministry of Gender, Labour and Social Development (MOGLSD) and the Justice Law and Order Sector (JLOS) to rationalise and integrate their systems. Interoperability is one of the keys to sustainable and cost-effective data infrastructures and deserves support from UNICEF.

Recommendations

- **Priority UNICEF Interventions**
    - In conjunction with other development partners provide both technical and financial support to NITA-U and MDAs (notably MOH, MOGLSD and JLOS) engaged in strategies or initiatives to integrate systems or enhance the interoperability of systems.

- **Policies that UNICEF should support**
    - Encourage UBOS and NITA-U, supported by the OPM. to adopt a joined-up approach to the governance of indicators and sources. This collaboration should be empowered to make recommendations on for interoperability, mergers and integration, and phasing out those systems which are no longer fit for purpose.
    - Propose and lead the creation of an information systems financing subcommittee within the Local Development Partners Group (LDPG) in order to improve coordination.

[22] Informal discussion with member of NITA-U staff

Cross-cutting Issues

Financial Resources

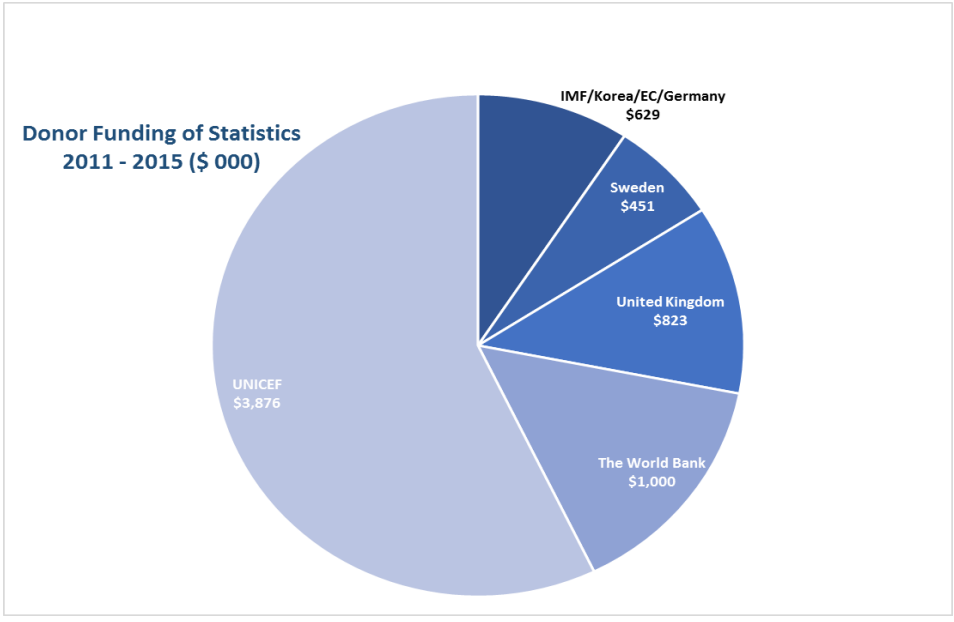
UBOS is mainly funded by the government, although it has generated additional revenue from consultancy services.[23] Funding varies from year to year according to different activities requested from the government. The majority of funding from 2013/14-2015/16, for example, was allocated to the 2014 national census. Despite rising average salaries, increased cost of living and the need for more staff, spending on wages declined from UGX11 billion in 2012/13 to UGX8 billion in 2015/16.

Spending on data, information and statistics units within MDAs is limited. For example, the Ministry of Agriculture, Animal Industry & Fisheries (MAAIF) allocated just 3.5% of its 2014/15 budget for statistical production activities and even less - 2.6% - for 2015/16. MoES was even lower at 0.11% in 2014/15.

Most data, statistics and M&E functions in MDAs are chronically underfunded. Consequently, they rely to a great extent on donor funding for their data and information systems. This is unsustainable in the long term and in the short term allows the government to avoid its responsibility to prioritise data financing and the development of the NSS. Donors fund the vast majority of data programmes, deciding where to allocate resources and prioritising which data to collect and analyse. However, when a donor withdraws, responsibility falls to the government, which is rarely able to continue funding at the same level, if at all. Gaps in staffing and systems inevitably follow.

Total disbursement from donors for statistics support between 2011 and 2015 amounted to US$ 6.779m[24] with UNICEF channelling the bulk of this (57%).

Figure 1 - Donor funding of statistics 2011 - 2015



[23] https://www.ubos.org/about-us/statistical-services/

[24] See Appendix 4

The PNSD identifies over-reliance on donors for statistics funding as a threat to the sustainable development of the NSS. Whilst fully acknowledging that government budgets are tight there is a need for the development partner community to join with UBOS in persuading the government that data is a crucial prerequisite for national development and should be funded as such.

ICT Infrastructures

Adoption of new technologies across the national statistical system is a slow process. Only a few offices have adequate IT equipment and connectivity. Most sub-national statistics units suffer from very slow internet speeds, old computers and erratic power supplies. The technical capacity of staff is often inadequate – a challenge which is common in all sectors. National offices do have basic IT facilities and the necessary software, but statistical units in MDAs and UBOS regional offices still lack basic IT tools.[25]

Data is usually collected through questionnaires, which are scanned using automated data extraction technology - for example during the most recent population and housing census (2014)[26], which helped to deliver the final results on time. Currently, various digital devices are deployed to aid data collection, such as during the UNICEF supported U-Survey. UBOS' ten-year plan aims to increase automated data processes, implement an integrated NSS database and geo-statistical database and launch a functional NSS website.[27]

The National IT Authority (NITA) is developing the national data transmission backbone and e-government infrastructure,[28] with the aim of improving internet performance throughout Uganda. NITA is also introducing district centres[29] to narrow the digital divide in rural areas and improve access to online information. Unfortunately, efforts to connect various data portals[30] have had limited success because understanding is low, many digital systems do not talk to each other and they produce indicators at different times, for different governance levels and to different standards. Integrating all the databases and registers into one system managed by one unit of government is a priority.

Aerial photography, digital mapping, remote sensing and other geospatial technologies can be used to generate data such as population patterns, land use and climate change. UBOS' geographic information system (GIS) is responsible for driving uptake, but apart from the disaggregation of indicators by location, use has been minimal. The GIS division currently produces and disseminates digital thematic maps, a GIS database and census maps, as well as providing support with geospatial technologies such as GPS tools for survey data collection.

Mobile technology is used by several institutions across Uganda, but despite faster data collection and entry, limitations include poor data quality, the cost of mobile devices, and training and data

[25] UBOS, 2014a

[26] http://www.ubos.org/onlinefiles/uploads/ubos/NPHC/2014%20National%20Census%20Main%20Report.pdf

[27] UBOS, 2014b

[28] www.nita.go.ug/projects/national-backbone-infrastructure-project-nbiegi

[29] www.nita.go.ug/projects/dbics

[30] such as Countrystat Uganda; E-Compendium; GDDS/SDDS- Econ & Fin. Data; Integrated Management Information System; Data Archive; Uganda Info 7.0 and Open data Uganda

security.[31] Despite this, UBOS is committed to rolling out mobile data collection in all their surveys.[32] UNICEF Uganda supports U-Report, which sends questions via mobile to registered members who then text back their answers at no charge. However, sample sizes are small (just 6% in one survey[33]) meaning data cannot be extrapolated for national use.

The rapid recent growth in the use of mobile phones, mobile money and social media has opened up communication possibilities as never before. However, much of the data belongs to telcos and mobile operators, when it could be used for better public policy and decision making. Some progress is being made using big data - for example, UBOS, in collaboration with UN Global Pulse, is exploring how to use big data in official statistics[34] - for example, by measuring poverty with machine roof counting.[35]

UNICEF currently supports a number of innovative data projects in Uganda including Family Connect[36], which tracks pregnancies using village health teams, and U-Survey, which cuts data collection time and has been adopted by UBOS.[37] Uganda is better placed than some other countries in the region to enjoy a robust data ecosystem, but some systems - such as U-Report - are deemed to be expensive and inefficient.[38] There is a need for coordinated governance to select and promote priority digital innovations, and to encourage digital laggards to adopt new technologies.[39]

There are some fears that new technology could impact jobs and funding. NITA-U reports that some MDAs are reluctant to cooperate or share critical information, a scenario which suggests an organisational culture that discourages innovation or harmonising systems. Fear and scepticism for sudden changes is a characteristic of many organisations and UNICEF, beyond its existing support to NITA-U, is limited in how far it can influence partners to embrace change and new technology.

Recommendations

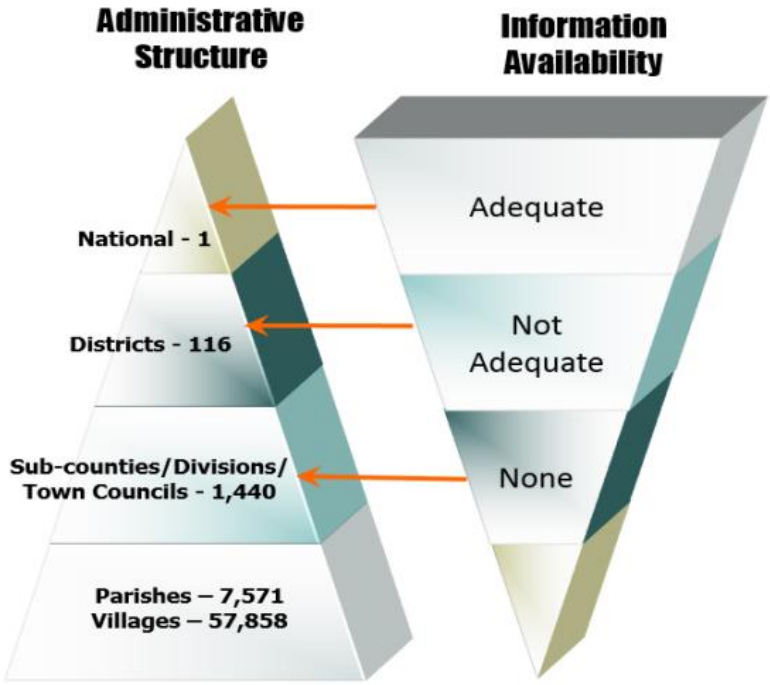
- **Policies that UNICEF should support**
    - UNICEF should advocate for coordinated efforts (from both government and the development partner community) in support of all policies and plans that lead to a national ICT infrastructure that enables all clinics, schools and local government offices to have access to electricity, internet and IT equipment.

[31] Trucano M (2014) Using mobile phones in data collection: Opportunities, issues and challenges. Retrieved from: http://blogs.worldbank.org/edutech/using-mobile-phones-data-collection-opportunities-issues-and-challenges
[32] UBOS, 2014b
[33] www.ureport.ug/poll/580/
[34] https://www.unglobalpulse.org/taxonomy/term/898
[35] www.unglobalpulse.org/projects/measuring-poverty-machine-roof-counting
[36] https://www.unicef.org/uganda/FamilyConnect_print.pdf
[37] Interview with Aguibou Ndiaye, Chief of IT, UNICEF Uganda
[38] ibid
[39] ibid

Data for local decision making

The call to leave no one behind lies at the heart of the 2030 agenda. However, most surveys produce poor district or community-level data for identifying those sections of the population most at risk, and for local planning. Inadequate community data systems and limited access to data are significant obstacles, even for those local leaders who champion data collection, and there is little feedback to those on the ground who actually collect the data. The following diagram shows how the availability of data gets less the more localised the administration.

Figure 2 - Availability of information at sub-district level[40]



Community data collection is fragmented - currently, for example, VHTs collect health data; community development officers collect social development data; parish chiefs and local committees collect information on informal justice, infrastructure and community relations; and extension workers collect agriculture data.

In 2005, as part of the Poverty Eradication Action Plan[41], UBOS piloted a Community Information System (CIS) which by 2014 covered half of the country's districts. The main objective of the CIS was:

[40] Source: UBOS CIS presentation at Cape Town World Data Forum January 17, 2017.
[41] Poverty Eradication Action Plan 2004/5 – 2007/8, MOFPED - https://www.unpei.org/sites/default/files/e_library_documents/UG-PEAP2005-2008.pdf

"... to empower communities to make informed decisions using readily available and up-to-date information. The system was also intended to enable community administrators to have regular and meaningful information about households and communities on which to base development planning, monitoring and evaluation of projects / programmes that are geared towards poverty alleviation. The specific objectives are:

- *To facilitate regular and sustainable monitoring of the effectiveness of Government, NGOs and other agency poverty reduction initiatives among communities and for policy and decision making.*
- *To enhance the use of reliable and accurate data among communities.*
- *To support participatory development planning at various levels of administration.*
- *To identify communities and households by their socio-economic characteristics and hence their needs."*[42]

The CIS district roll-out went from strength to strength until its funding was diverted for the 2014 census[43]. Despite another post-census surge during which a move from paper to tablet-based data capture was trialled there is unconfirmed evidence that the programme is heading towards redundancy. This would be a great pity, not only for Uganda but for the Leave No One Behind agenda as a whole. The system has the capacity to produce an annual census, delivering accurate data to local government far more cost effectively than 10-yearly censuses and 3-5 yearly household surveys.

Recommendations

- **Priority UNICEF Interventions**
    - Conduct a feasibility study for a major investment in the Community Information System to assist UBOS and MOLG to expand the programme to all districts and to support the coordination and capacity building of local level data collectors from different sectors

Data Quality

Administrative data is playing an increasingly important role in development decision-making yet the management information systems that it depends on face a shortfall in sustainable funding and capacity due to a lack of confidence in the quality of data in many of the systems. The UN Development Assistance Framework (UNDAF) notes that "challenges remain with regards to availability of reliable data for some key development indicators, quality of data (especially administrative data) and systematic quality assurance."[44]

Making administrative data both sustainable and accurate is a challenge in many countries. Some MDAs suffer from obsolete or non-standard data collection tools, poorly trained data collectors, under-investment, limited understanding of technology and lack of capacity to analyse data. The PNSD SWOT analysis of the NSS identified inadequate statistical infrastructure across most agencies.

[42] http://www.ubos.org/onlinefiles/uploads/ubos/Amolatar.pdf
[43] Interview with UBOS officials responsible for district statistics
[44] UNDAF, 2016-2020

UNICEF should continue its support of capacity building among relevant MDA officials in data collection and analysis.

Recommendations

- **Policies that UNICEF should support**
    - Together with MDAs and development partners ensure that policies and programmes are in place for all officials at all levels of government who work with administrative systems to develop the capacities they require to produce consistent and accurate data.

Data Use

Of the 142 primary data sources identified in this study, 90 (63%) make statistics available to the public. Access to the actual data is less forthcoming as Table 5 illustrates. (In the mapping work done for this study sources were assessed as to the scope of the availability of their microdata as well as the resulting, aggregated statistics.)

Numerous laws, government policies and guidelines - including the UBOS microdata dissemination policy - govern the use of data, which must be anonymised to maintain confidentiality. However, while the Ugandan constitution provides individuals with a right to privacy[45], it also gives citizens the right of access to information, resulting in potential ambiguity between what is private and what is public. For this reason, most microdata is currently inaccessible to the public although most datasets are published in summary form.

Some data producers express frustration that they create data which doesn't get used by policymakers. The PNSD found "limited appreciation of statistics and its role in economic and social development especially in HLGs [higher local government] and the general public." Other causes of poor data use identified by the PNSD include a failure to recruit enough statisticians; limited statistical awareness; a "persistent phobia for numbers by MDAs and the general public"; and undue bureaucratic restrictions in accessing data (especially raw- or micro-data).

[45] Article 27: Right to privacy of person, home and other property

Table 4 - Access to statistics and underlying data (selected sectors)[46]

Primary data sources by Sector	Confidential		Institution wide		Government wide		Public	
	Statistics	Data	Statistics	Data	Statistics	Data	Statistics	Data
Health	1	3	2	5	1	1	11	6
Environment			2	11	1	1	10	1
Political and other community activities	1	2	5	8	1		6	3
Population and migration		8	8	3	1		2	
Living conditions, poverty and social issues		3	2	5		1	8	1
Social protection		1	3	4	1	3	5	1
Education			1	4		1	6	2
Justice and crime		1	4	4	1		1	1
Labour		2		1	1	3	5	
Gender and special population groups				1	1	1	1	
Human settlements and housing			1	1				

A lot of data is produced but much of it goes unanalysed - for example, the majority of data produced by the Health Management Information System (HMIS) has remained unexploited. Regular, in-depth examination of datasets by academia, civil society organisations (CSOs), donors and other government agencies is also rare. With proper analysis this data can become more usefulould have been useful for a range of users.

Similarly, the national census and major surveys such as the Uganda Demographic and Health Survey (UDHS), Uganda National Household Survey (UNHS), Uganda National Panel Survey (UNPS), and the Service Delivery Survey (SDS) could all yield vital information if analysed properly. UNICEF sets an example in this regard by mining the UNHS for child poverty and national budget data to inform its poverty maps and public financing for children strategy.

Recommendations

- **Priority UNICEF Interventions**

    - Establish a facility to provide UBOS and MDAs with financial and technical support to make all official statistics open by default and support initiatives – from government, academia and civil society - that encourage the use and analysis of data to inform

[46] This is a summary of accessibility metrics from the mapping exercise conducted by this study. The statistics and underlying data for each data source (information system) are classified according to accessibility: Publicly available; available only to MDAs; available only within a single MDA; or Confidential. Source: Database of primary data sources - http://bit.ly/2STUQ95

decision-making.

CRVS and National Identity

Civil Registration and Vital Statistics (CRVS) is coordinated and managed by the National Identification Registration Authority (NIRA), an autonomous agency whose mandate includes not only registering births and deaths, but collecting, producing and disseminating data.[47] NIRA has created a statistics development framework and a joint committee with UBOS which is currently compiling an annual statistical abstract. Other key stakeholders include development partners (World Bank, Plan International and UNICEF), the CRVS technical working committee and the national task force on births and deaths.[48] UNICEF helped set up a mobile vital recording system (MRVS)[49] which is yielding promising results for notification of births and the CPAP already includes key interventions for birth registration and support to NIRA to deliver a fully functioning CVRS system. NIRA is also involved in several cross-sectoral initiatives and partnerships including MOES and MOH.[50]

Interoperability of CRVS data systems remains a challenge. The main IT system is not linked to births and deaths registries, the national database on births, deaths and marriages and the national ID system.[51] One of the main obstacles to an efficient CRVS system is the complex four-stage process for registering a child which includes birth notification, birth registration, birth certification and getting a national ID number and card at 16 years of age.[52] Other remaining challenges are that NIRA takes too long to give out national identification numbers (NINs) and ID cards, deaths are poorly registered, and the registration of births in rural areas is substantially lower than in urban areas.

There is an increasing acceptance amongst CRVS experts, notably from the CRVS[53] and ID4D[54] teams at the World Bank, that the integration of birth registration with national identity – including the issuance of a national identity number at birth – is one of the most effective ways to improve service delivery to those who need it most.[55] This is a worthy challenge.

Recommendations

- **Priority UNICEF Interventions**
    - In conjunction with the World Bank extend UNICEF's existing commitments to NIRA and the CRVS system in general to streamlining the bureaucratic and technical links between birth registration and national identity.

[47] NIRA was established by the Registration of Persons Act 2015 (ROPA), taking over responsibility from the Uganda Registration Services Bureau
[48] Meeting with NIRA and UNICEF on CRVS data
[49] www.mobilevrs.co.ug/home.php
[50] Meeting with NIRA and UNICEF on CRVS data
[51] Ibid
[52] Ibid
[53] http://www.worldbank.org/en/topic/health/publication/global-civil-registration-vital-statistics-scaling-up-investment
[54] http://id4d.worldbank.org/
[55] https://undataforum.org/WorldDataForum/sessions/ta3-18-integrating-civil-registration-and-digital-identity-emerging-best-practices/

Communication for Development

Communication for development (C4D) encompasses engagement on knowledge, attitudes and practices (KAPs), values and beliefs and has gained substantial traction across a number of MDAs.[56] UNICEF is already committed to strengthen national capacity "to implement evidence-based and well-coordinated communication strategies to protect child rights through positive behaviour and social change."[57] C4D indicators are being incorporated into programming, and UNICEF is currently developing an indicator framework to highlight gaps in quality data[58]. KAPs data can be challenging to measure and is rarely collected: for example, there is no national data on KAPs for adolescents and girls. In addition to existing commitments a recommendation is made in the *Governance of indicator frameworks* section above for UNICEF to lead work on C4D-related indicators

HIV / AIDS

The Uganda AIDS Commission (UAC) is responsible for coordinating, monitoring and evaluating response to AIDS activities across a number of MDAs,[59] using data gathered from multiple sources. The main data sources for HIV/AIDS include the National HIV Knowledge Management Portal (NADIC), M&E database for UAC, UAC stakeholder mapping database, Uganda AIDS indicator survey, Uganda Population HIV Impact Assessment (UPHIA 2016-2017) and electronic medical records.[60]

There are, however, challenges coordinating data (as well as activities) across departments, including for example, the collection of community data on orphans and vulnerable children (OVCs) and an inadequate OVC management information system.

Data management and use in this sector faces a number of challenges. Most data is still captured manually and is poorly disaggregated. Standard operating procedures and data flows are rarely followed. Data analysis is inadequate and is rarely used to influence policy.

There is clearly a need for the better coordination of data management, strengthening of data collection capacity and harmonisation of indicators in this sector. However, notwithstanding UNICEF's commitment to strengthening national capacity with regard to mother-to-child transmission of HIV (PMTCT), paediatric, maternal and adolescent AIDS/TB care and treatment services[61], the consultants are of the opinion that data issues are best handled by development partners – notably UNAIDS[62] and UNFPA – who specialise in this field.

[56] Interview with Communication team of UNICEF Uganda
[57] Output 4b.ii of 2016-20 CPAP - https://www.unicef.org/uganda/CPAP_2016-2020.pdf
[58] Interview with C4D staff
[59] http://www.aidsuganda.org/
[60] Interviews with Uganda Aids Commission
[61] Output 1.2 of 2016-20 CPAP - https://www.unicef.org/uganda/CPAP_2016-2020.pdf
[62] UNAIDS is custodian of SDG indicator 3.3.1

Sector assessments

Health

"Operationalisation of a more comprehensive health information system" is one of the seven key priorities in the *Health Sector Development Plan 2015/16 – 2019/20*[63].

> *"The sector needs to have clear and comprehensive strategies for data generation, validation, analysis, dissemination and use addressing systems of routine HMIS, vital statistics (birth / death and cause of death information), disease surveillance, research, and health surveys. At present, there are still many gaps in these various systems. Coordination therefore should be strengthened at national and sub national levels for routine HIS, disease surveillance including processes for data collection and validation and Civil Registration and Vital Statistics (CRVS)."*[64]

The interventions highlighted in the plan are listed in Table 6 below. The plan also calls for special focus "on establishing a functional *Community Information System*, including vital statistics in collaboration with UBOS." [65]

A key component of the sector development plan the *Uganda National eHealth Strategy 2017 - 2021*[66] *which* is an ambitious five-year plan with a proposed budget of US$ 8.5 million[67], the bulk being spent on eHealth Services, Information Sharing and Data Management[68]

> *The eHealth Services pillar focuses on putting in place the eHealth services and tools that address the priority business needs of patient/clients, healthcare providers, healthcare managers by improving efficiency, effectiveness, communication, community education, (e.g. immunization and other outreach programmes), information and practice sharing data management and utilization and cutting costs of doing business.*[69]

Table 5 - Key interventions to strengthen health information[70]

[63] http://health.go.ug/sites/default/files/Health%20Sector%20Development%20Plan%202015-16_2019-20.pdf
[64] Ibid
[65] Ibid. NB the recommendation made in the section on Data for local decision making above.
[66] http://health.go.ug/sites/default/files/National%20e_Health%20Strategy_0.pdf
[67] UGX 31 billion
[68] See Appendix 2
[69] http://health.go.ug/sites/default/files/National%20e_Health%20Strategy_0.pdf
[70] http://health.go.ug/sites/default/files/Health%20Sector%20Development%20Plan%202015-16_2019-20.pdf

Programme / Service area	Key Interventions
Routine HMIS	Develop a National Health Information System Framework (NHISF) to create a reliable and accessible environment for managing health data.
	Develop and scale up e-HMIS to incorporate the community HMIS and private service providers
	Strengthen the HR capacity of the RC to effectively manage the design, development and roll-out of HMIS tools and all related e-Health Solutions and Information Services.
Surveillance	Transform the current epidemiological and surveillance infrastructure into a National Public Health Agency with an EOC and effective laboratory capacity.
Vital statistics	Improve operational capacity for birth and death registration in collaboration with Uganda Registration Services Bureau
Health Research	Develop a knowledge translation framework to evaluate and manage research findings
	Strengthen national research organizations and institutes for enhanced innovations and inventions on health products and technologies
	Conduct operational research (for priority interventions (e.g. RMNCAH, HIV/AIDS, HSD Concept, etc) to inform the HSDP review process
Health Surveys	Conduct surveys for in depth information on the health system and impact trends for targeted diseases and conditions.
Innovative e-health solutions	Finalize the e-Health Policy and Strategy

Health Information Systems

The Health Sector in Uganda has the strongest information ecosystem of all sectors in Uganda. This is to a large extent due to the fact that the sector is the most prioritised by development partners who in partnership with the government have been executing systems strengthening initiatives for many years. A review of data published through the International Aid Transparency Initiative reveals that 45 development agencies, from large donor to small INGO, are working on health interventions with a total multi-year commitment of over US$ 2 billion.[71]

The health information ecosystem is being developed around two core systems:

- The **Health Management Information System** (HMIS), built on the open source DHIS2 platform[72], tracks and aggregates actions, outcomes and logistics for all health facilities. At a local level clinics currently submit monthly paper-based aggregated data to a district statistician who keys the data into the central system.
- A **patient-level health information system** that integrates an Electronic Medical Record (EMR) that contains in-patient medical notes and charts, an Electronic Health Record (EHR) that details the care history of each person, and a Patient Health Record (PHR) that is a user-

[71] Based on the following query on d-portal.org on 2 April 2019 - http://www.d-portal.org/ctrack.html?country=UG&sector_group=122|121#view=active
[72] https://www.dhis2.org/

friendly version of the EHR that patients can access. This system is in its early stage of development

The purpose of the EMR, EHR and PHR are to provide a comprehensive documentation of an individual's health information as he or she makes contact with the health care system. It provides information on services and treatment decisions to enable care coordination between care provider teams. The EMR, EHR and PHR are also used as a key information source for longitudinal and aggregated health information, in conjunction with other health sector data sets, to support more informed health care reporting and research.[73]

The day that a patient can attend a rural health clinic where the nurse or doctor can access their EHR is still a long way off. For the moment village health teams and clinics maintain paper records that are transported to the district office for monthly aggregated input into the HMIS.

Management of the HMIS entails data collection, storage, quality assurance, data flow, processing, analysis and use. The process is hierarchical and systematically flows through the health administrative structure. Data collection and reporting are done at all levels throughout the entire health system (see Figure 3 below). Despite it being one of Uganda's success stories it still faces challenges. There is a reported shortage of the standard paper-based HMIS tools; inadequate technical know-how on recording and reporting using the HMIS; high staff attrition despite investments in capacity building for health workers; and excessive data/reporting requirements that take up a lot of time for the staff responsible for HMIS recording.[74] Adjustments have also had to be made to cope with influx of refugees into the country.

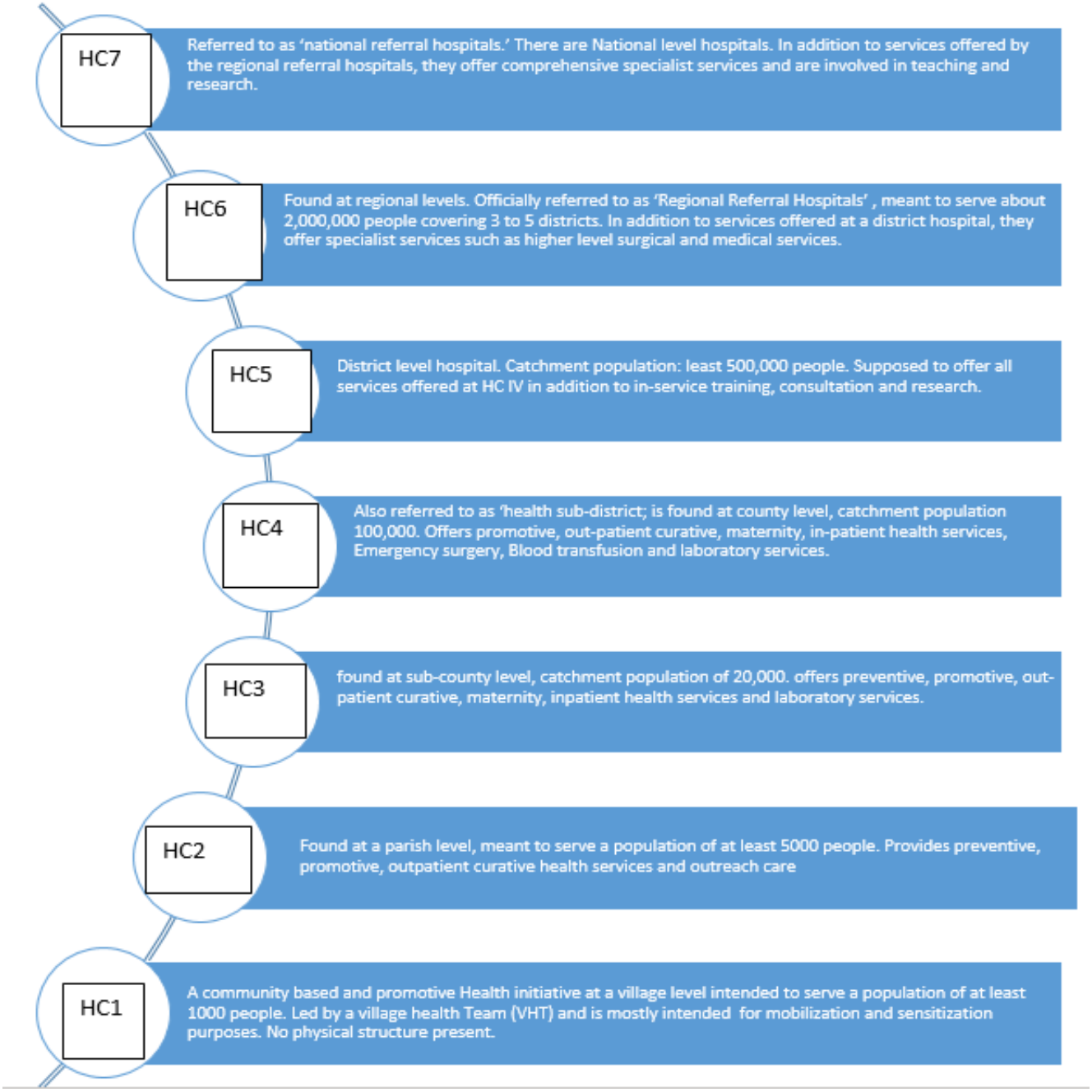
The Ministry of Health has instituted several measures geared towards addressing these challenges. These include health worker capacity building in data quality and use; regular HMIS trainings at district level; and data cleaning and data review meetings to enhance health data use.

MDAs also complain that while there is a good quantity of data emanating from the HMIS there is insufficient analysis. MOH data analysts tend to be economists or computer scientists, not biostatisticians, and they struggle with the task. This is compounded by a high staff turnover. Efforts are being made to address this, including workshops on the basic principles of health informatics and a Masters degree course at Makerere University School of Public Health which is proving popular.

From the MOH point of view MDAs often don't use data properly and there is a lack of consistent donor support and alignment with government projects.[75]

[73] http://health.go.ug/sites/default/files/National%20e_Health%20Strategy_0.pdf
[74] Interview with MoH official
[75] Interviews with Ministry of Health and Uganda Aids Commission

Figure 3 - Levels of health service delivery



Maternal Health

Although the MOH has made progress in improving maternal health, there are challenges that remain in tracking maternal mortality and associated care indicators variables.

While the UDHS provides rough estimates on mortality, this data is of little use to the management of services at district level and below. Without the capture of accurate cause of death data in a robust and widely used registry of deaths, the health service will battle to plan with any accuracy.

Building upon existing district health systems, for example, and training VHTs to identify and report deaths of women of reproductive age in their locales can improve reporting especially by capturing deaths that occur outside hospital settings, given that a significant number of births still occur outside of health facilities.

A WHO-supported pilot, the Saving Mothers, Giving Life (SMGL)[76] initiative demonstrated the efficacy of this complementary reporting. Over 4,000 village health teams (VHTs) were trained, one for each 100-300 households, to identify any deaths of women of reproductive age (WRA) through routine monthly monitoring visits.

The HMIS is the only system that consistently tracks mother and child care, but challenges still remain with regard to data capture, as outlined above, and it has been suggested that the mother and child-related indicators captured by the HMIS should be reviewed, also taking C4D needs into account.[77]

Nutrition

Nutrition data in Uganda comes mainly from food security and nutrition surveys conducted by FAO and WFP, HMIS[78], the National Information Platform on Nutrition (NIPN)[79] and other national initiatives such as the Demographic and Health Survey (DHS). There are significant gaps in nutrition statistics because some ministries such as MOGLSD and MAAIF no longer collect or publish relevant data. Furthermore, there is no comprehensive data for sedentary lifestyle, food safety or early childhood development. Ministries tend to work in silos, making the work of the multi-sectoral committee on nutrition even more challenging.[80]

Nutrition involves up to eight ministries, with implications for coordination and interoperability. The recently-launched national information platform on nutrition (NIPN) aims to coordinate data issues in the nutrition sector, with UBOS managing data and OPM responsible for policy.

Community-level data collection, reporting and referral is disconnected from the parallel health processes. There is also a significant lack of nutritional data relating to food security, sedentary lifestyle, food safety and child care. Generally, nutrition data management faces similar challenges similar to those mentioned under the general health data management above.

Nutrition information systems themselves are fragmented with limited data flow or data re-use between them resulting in the lack of a consolidated view of nutrition statistics to inform policy changes, planning and decision making. The NIPN initiative, if successfully executed, has potential to address some of these issues through achieving the set objectives. A significant effort towards inclusion of improved nutrition indicators in the HMIS is also underway, and an addendum on nutrition was added to the UDHS in 2015.

[76] https://www.who.int/maternal_child_adolescent/epidemiology/maternal-death-surveillance/case-studies/uganda/en/
[77] Interview with MOH officials
[78] HMIS forms capture most outcome indicators, especially those relating to diseases.
[79] http://www.nipn-nutrition-platforms.org/Uganda-13
[80] Interview with Charles Asiimwe, Programme Officer, OPM Nutrition Coordination Unit

Recommendations

UNICEF is custodian of the SDG indicators on neonatal and under-5 mortality. It is co-custodian of the indicators on skilled attendance at birth, immunisation, stunting and birth registration. It thus has a special interest and responsibility in the delivery of primary health care, particularly in areas where children are most vulnerable.

UNICEF currently supports the Ministry of Health to improve data management and overall health information system improvement. It has supported several activities relating to the HMIS and patient records systems. It has supported the training and equipping of VHTs, and currently the design and development of the scorecard, bottleneck analysis, and dashboard for the HMIS.

- **Priority UNICEF Interventions**
    - Continue to invest in the HMIS with an emphasis on the rationalisation of indicators and improvement of data quality. Similarly invest in the speediest possible development of the Electronic Health Record and its integration with the HMIS.
- **Policies that UNICEF should support**
    - Ensure all development partners adopt a consistent approach to supporting the National e-Health Strategy
    - See the recommendation relating to ICT infrastructures above.

Water and Environment

The Water and Environment Sector Development Plan (2015/16-2019/20)[81] commits responsible directorates, departments and agencies (DDAs) to "monitor and inspect progress providing data for the required corrective and decision-making actions. The data is consolidated and analysed to generate quarterly and annual progress reports as well as in the preparation of the Government (semi) Annual Performance Report (GAPR) reviewed by Cabinet and Parliament every year."

Because of the cross-cutting nature of the sectoral issues handled by the ministry, MOWE works closely with the ministries of health, agriculture, education, trade and others. For example, the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) is the lead agency for water use and management for agricultural development. The mandate of the Ministry of Trade, Tourism and Industry (MTTI) covers water use and management in industries, commerce, wildlife and tourism. The mandate of the Ministry of Energy and Mineral Development (MEMD) is water use and management for hydropower generation.[82]

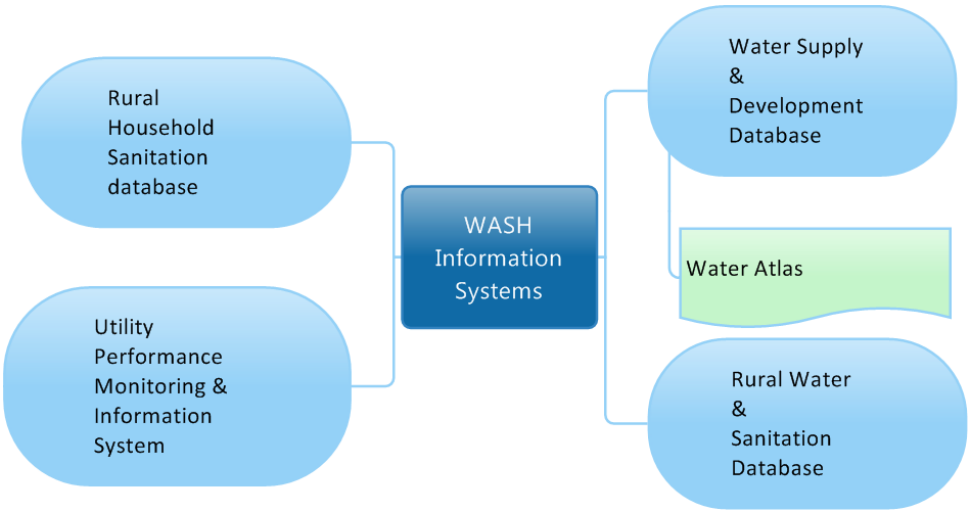
This has implications on how data collection and management is handled. MOWE currently uses several disjointed data systems, principally the Water Supply and Development database (from

[81] http://npa.ug/wp-content/uploads/2018/01/Water-and-Environment-Sector-Development-Plan-2020new.pdf
[82] Meetings MOWE officials.

which data for the Water Supply Atlas is generated)[83] which holds data on water points, water sources per village, access to safe water, water functionality, distribution, and water user committees (WUCs). Data is collected on paper by extension workers[84], sent to the district, amalgamated at the ministry's regional technical support units[85], and then sent to MOWE where it is entered into the system. While data is captured daily, most of the databases are only updated quarterly.

Other water data comes from multiple databases with inevitable consequences for coordination and interoperability. These include the Rural Water and Sanitation database (RUWAS)[86]; Utility Performance Monitoring and Information System (UPMIS)[87]; Rural Household Sanitation database (under development); and various other administrative data sources.[88]

Figure 4 - Overlapping WASH information systems



Some WASH challenges are also similar to those in other sectors:[89] Poor quality data, infrequent data captured on paper; inaccurate coverage estimates and barely functioning Water User Committees (WUCs). In addition, while databases are publicly accessible, there are frequent system faults that take them offline, and there is no common platform for regular data sharing other than an annual report generated out of the databases.

[83] http://wateruganda.com/

[84] Extension workers are community level officials, mostly volunteers who perform cross-sectoral functions on behalf of the different sectors including health, education, Agriculture, etc. These might include Agricultural extension workers, Community based health workers or Village health teams, and even members of local NGOs.

[85] The TSU is a regional office of the Directorate of Water Development under the MWE which oversees technical aspects of water supply in a collection of districts in a particular region.

[86] http://154.72.195.82/ruwas

[87] http://upmis.geocodis.com/

[88] Public sanitation, water quality, water management resources compliance, ground water, wetlands, forests, climate change and water for production.

[89] Meetings with MWE officials.

Recommendations

- **Priority UNICEF Interventions**
    - Support NITA-U and MOWE to rationalise WASH information systems and to streamline the processes between data collection and database entry and use.

Education

The *Education and Sports Sector Strategic Plan 2017/18 – 2019/20*[90] points out "key strategic priorities and bottlenecks that must be overcome such as inadequate school inspection which creates room for ghost pupils, teachers and even ghost schools and/or absenteeism of both teachers and learners"[91]. While recognising, in passing, the importance of promoting "e-learning and computer literacy in Secondary and Tertiary Education" and the "need for an ICT Policy for the Sector" it pays scant attention to data investments in comparison with the health sector. It does commit to strengthening the Education Management Information System but without any details of what this might entail.

> *"Strengthen the Education Management and Information System (EMIS) to collect and process more accurate and timely data for use by decision makers. EMIS should be linked to NIRA (by giving pupils/students a national identification number) and the Inspection Information System"*[92]

The ministry also expounds on the importance it attaches to data in its other policy documents, such that the Education Factbook:

> *"The MoES being the overall coordinator, formulator, and implementer of education policies, attaches a big importance to availability of accurate, timely, and reliable information for informed decision-making, planning, monitoring, and evaluation of progress according to set goals and objectives."*

The **Education Management Information System (EMIS)** was, until recently, the major system for the collection, integration, processing, maintenance and dissemination of education data and information by Uganda's ministry of Education.[93] Due to underfunding and substantial shortcomings[94] however, it has been replaced by an annual **School Census**.[95]

[90] http://www.education.go.ug/files/downloads/EDUCATION%20AND%20SPORTS%20SECTOR%20STRATEGIC%20PLAN.pdf
[91] Ibid
[92] http://www.education.go.ug/files/downloads/EDUCATION%20AND%20SPORTS%20SECTOR%20STRATEGIC%20PLAN.pdf
[93] https://www.aurecongroup.com/projects/government/uganda-education-management-information-system-sustainability
[94] Interview with Ministry of Education
[95] http://education.go.ug/data/smenu/2/EMIS%20Statistics.html

While the census covers a wide range of indicators the lack of timely data (not only is it annual but the most recent data that is publicly available is for 2016[96]) provides little help to the MOES in its month-by-month management of schools. Furthermore, the introduction to the 2016 census itself complains about: the lack of cooperation from private schools; poor record keeping by education institutions; low response rate; misreporting of the age disaggregated pupils/students' information; and lack of commitment from some local government officials and head teachers due to personal issues (like other personal commitments, low facilitation and socio-economic factors).[97]

Other education data comes from UBOS surveys, the National Assessments on Progress in Schools in Education (NAPE)[98] and the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ).

The Integrated Inspection System (IIS) allows school assessors (inspectors) to collect school data using computer tablets and upload it onto the IIS. The system automatically analyses the data and generates school reports to enhance real time reporting and consistent reporting. Initially piloted in 46 districts across different regions of the country[99], the system was put in place to curtail problems of manual inspections which were bedevilled by problems including: delayed reporting of inspection findings; inconsistent focus and poor analysis of inspection findings; transport problems; excessive paperwork; and the inability of the data to be cross-checked with the EMIS/census data.

IIS engages trained 'associate assessors' to collect school inspection data. It automatically generates school, district, regional and national level inspection reports on topics such as teaching effectiveness, teacher planning, use of resources, record keeping. UNICEF's SMS-based data capture tool, **EduTrac,**[100] first used to support the EMIS, has also been integrated into IIS.

Yet as creative and trailblazing as this IT-based school inspection programmes is, a national report[101] by the MOES on the competency of the IIS found several challenges including: the lack of technical infrastructure; the limited IT competencies of the assessors; the complexity of the data capture tool; and a lack of robust quality assurance.

The **UNEB eRegistration** system allows schools to register for UNEB examinations online in a simple and easy to use portal. The system also has a results section where students and candidates can check for their examination results by logging in their registration details. This has greatly reduced the time school administrators have to spend on travel to submit registrations and receive results.

The system also makes it easy to analyse school performances trends by region, sex, etc at an aggregate level, thereby providing insight into the quality of education and other indicators.

The **BTVET portal** 'provides Information about Business, Technical, Vocational Education and Training (BTVET) training delivered through a network of more than 110 government training centres,

[96] http://education.go.ug/files/downloads/The%20Education%20Statistical%20Abstract%202016.pdf
[97] Ibid
[98] http://nada.uis.unesco.org/nada/en/index.php/catalogue/103
[99] https://www.globalpartnership.org/news-and-media/news/uganda-introduces-electronic-inspection-system
[100] https://www.unicef.org/uganda/Edutrac_print.pdf
[101] MOES 2018: "National School Inspection Report: Leveraging Mobile Technology" http://www.education.go.ug/files/downloads/First%20Draft%20National%20IIS%20report%20Apr-Mar%202018%20Inspection.pdf

schools, institutes and polytechnics'.[102] It is a basic website that bills itself as 'a single-entry point for Uganda's vocational training system that operates as a directory of individuals and organisations participating in or with an interest in the training of persons for jobs' and provides a means of disseminating cross cutting information such as that related to Occupational Profiles and Certificates and Diplomas using the common language of the Ugandan Vocational Qualifications Framework.

This portal aims at providing a platform for companies and training providers to work closely together in the development and delivery of training. Has features such as job search and course search, to enable those persons seeking jobs to easily identify the training required for those jobs and where to get that training."

Recommendations

The MOES has faced substantial data management challenges over the past few years. Our research suggests a culture of siloed working at MOES, with managers unwilling to share budgets or information for fear of losing power and influence, exacerbated by multiple incompatible information systems.

MOES is currently working on a new EMIS policy and are collaborating with UBOS to develop a unified data sampling framework covering the entire education system from ECD to tertiary, and with the Ministry of ICT to harmonise data and information systems. In the longer term, NIRA have been asked to support the MOES by providing unique identifiers to all students.

Just as the HMIS sits at the heart of the health system, Uganda desperately needs a functioning EMIS that not only provides monitoring results to the MOES but allows school and districts to access their own data on a timely basis. While development partners are currently investing over US $1 billion[103] in the education sector, very little is going towards improving data infrastructures. Whether this is a priority area for UNICEF[104] is questionable. In the consultants' view the priority should be to mobilise other members of the development community to take responsibility in this sector.

- **Priority UNICEF Interventions**
    - Work with development partners, MOES, NITA-U and UBOS to champion the need for a sustainable EMIS that delivers timely, usable data at all levels from school to ministry.

[102] http://www.btvet-uganda.org/
[103] This is the total multi-year commitment on all current activities in education in Uganda as published to the IATI standard and downloaded from d-portal.org on 3 April 2019 - http://www.d-portal.org/ctrack.html?country=UG&sector_group=112|111|114|113#view=main
[104] Much of the required investment goes way beyond ECD and primary education

JLOS and Social Development

The Justice Law and Order Sector (JLOS) is a sector wide approach that brings together 18 institutions[105] responsible for administering justice, maintaining law and order and promoting the observance of human rights. Through a sector wide approach, the sector brings together state and non-state actors who play complementary roles in planning, budgeting, programme implementation, monitoring and evaluation. Most of the 18 participating institutions maintain substantial information systems, some of which are dealt with elsewhere in this diagnostic. The importance of the sector approach is to establish common standards across these systems.

The *JLOS 4th Strategic Development Plan (SDP IV) 2017-2020*[106] is the current guiding document and focuses on the integration of services across departments, particularly at district level. This integration includes the alignment of data collection efforts, driven through the development of a monitoring and evaluation system

> *"The Sector M&E system will draw on a number of information sources. These include:*
>
> *existing data gathered and included in the Sector and Institutional data bases under JLOS SIP III[107]; specially designed qualitative and quantitative user surveys; extended data gathering related to specific JLOS SIP Outputs; existing national surveys carried out by UBOS in collaboration with other government and non-government institutions/sectors that gather data directly relevant to this M&E system.*
>
> *Where possible JLOS will seek the collaboration of UBOS, OPM, IGG and other relevant bodies to add to the existing survey data instruments and data collection procedures in order to meet the Sector M&E needs. This approach is aimed at creating synergy between various related data gathering and survey efforts."* [108]

Each of the JLOS institutions maintains their own, separate information systems.[109] These include the Police Crime Records Management System[110]; Prosecution Case Management Information System (PROCAMIS)[111]; Prisoner Management Information System[112]; and an Integrated Case Management

Other challenges include limited data use and access due to sensitivity issues (especially disaggregated microdata on crimes involving minors, domestic violence, and other sensitive issues); insufficiently trained, hence insufficiently data literate staff; inconsistent use of terminology leading to inaccurate and contradictory entries; obsolete manual data capture; low (quarterly) frequency of

[105] http://www.jlos.go.ug/index.php/about-jlos/member-institutions
[106] https://drive.google.com/file/d/1qUN29_ZPC-tXM888SCJ9PQbHQVkSDqBO/view
[107] The previous sector development report.
[108] https://drive.google.com/file/d/1qUN29_ZPC-tXM888SCJ9PQbHQVkSDqBO/view
[109] Interview with JLOS secretariat team
[110] https://www.upf.go.ug/police-develops-crime-records-management-system/
[111] www.dpp.go.ug/index.php/component/k2/item/22-the-launching-of-the-office-of-the-dpp-computerised-prosecution-case-management-system-procamis
[112] https://www.newvision.co.ug/digital_assets/2bbba2a8-a78a-410b-b1e1-1359adcdb2d4/38-Uganda-Prisons.pdf

aggregation; and undocumented informal justice proceedings.[113] For example, the Ministry of Gender, Labour and Social Development (MOGLSD) alone maintains several data systems[114], leading to coordination and management issues, lack of capacity, and poor reporting and tracking of child protection statistical indicators, gender-based and child violence cases.[115] Many of these weaknesses impact on Child Protection programmes

The lack of an integrated management system makes it difficult to track cases and suspects, allocate resources, manage staff and deal with recidivism. To address this, and in line with the 2017 'E-Justice for all' initiative[116], JLOS plans an integrated information system, which will also greatly reduce the huge costs of procuring, implementing and developing separate systems.[117]

The Social Development Sector, the responsibility of the MOGLSD, is charged with the development and implementation of the Social Development Investment Plan (SDIP) with the mandate to empower communities to harness their potential through cultural growth, skills development and Labour productivity for sustainable and gender responsive development. The sector promotes issues of social protection, gender equality, equity, human rights, culture, decent work conditions and empowerment for different groups such as women, children, the unemployed youth, internally displaced persons, the older persons and persons with disabilities.

One of the objectives of the Social Development Sector Plan (SDSP)[118] 2015/16-2019/20 is to "strengthen coordination and M&E, by developing a comprehensive M&E Plan to track progress along the key performance indicators and results against planned targets." The plan further states that "Monitoring and Evaluation will be achieved through staff capacity building in M&E, creation of functional statistics, monitoring and evaluation system to capture achievements of SDS interventions and improving coordination mechanism among SDS actors."

The SDSP aims to create an integrated "web–enabled Management Information System (SDS–MIS) to generate, manage and store data and statistics for the sector"[119] and acknowledges the problem of multiple systems by stating that:

> *"Existing MIS sub-systems (Orphans and other Vulnerable Children MIS, National Adult Literacy MIS, Gender Based Violence MIS, Labour Market MIS, Occupation Safety and Health MIS, Social Assistance Grants for Empowerment MIS, Youth Livelihood Programme MIS, Uganda Women Entrepreneurship Programme MIS, Community Based Rehabilitation MIS, Community Information System, and Child Help Line MIS) shall be strengthened and harmonised to feed into the comprehensive sector MIS."*

[113] ibid
[114] Government Procurement Portal (GPP) database; Uganda child helpline; case MIS; orphans and vulnerable children MIS and remand homes/juveniles MIS
[115] Interview with MOGLSD team
[116] https://judiciary.go.ug/files/downloads/Judiciary%20ICT%20Strategy%20FY2015-2016%20-%20FY2019-2020.pdf
[117] Interview with JLOS secretariat team
[118] http://www.mglsd.go.ug/Plans/SOCIAL%20DEVELOPMENT%20SECTOR%20PLAN.pdf
[119] Ibid

The Ministry's 2018 "Issues Paper On Strengthening The Production, Development And Dissemination Of Statistics" states that the Social Development Sector needs an efficient statistical system to effectively handle sector data that will meet the demands of the various Stakeholders.

The same paper however notes several problems in the sector's data ecosystem, including: a low profile of Statistics within the Sector (i.e. the role and importance of statistics is yet to be fully appreciated) in the Social Development Sector (SDS) where Some decision makers, and administrators do not appreciate the role of statistics in promoting good governance and management of public affairs); limited statistical advocacy due to lack of financial resources; poor coordination and Information sharing between data users and producers; limited skills for data production and entry (for example GBV data collected from the Districts is entered by CSOs who are not trained and supervised by the Ministry); untimely data; data gaps on gender, employment, unemployment (by sex and gender), rights, community empowerment, orphans and other vulnerable children, ethnic minorities, youth, women, elderly and disabled persons (by sex), other people in difficult circumstances, occupational safety and health, and culture statistics and other variables.

Recommendations

- **Priority UNICEF Interventions**
    - In conjunction with other development partners provide both technical and financial support to NITA-U, MOGLSD and JLOS to integrate and/or enhance the interoperability of their systems. (This is a repeat of the general recommendation presented under Governance of information systems above)
- **Policies that UNICEF should support**
    - Urge donors, through the Local Development Partners Group, to improve their coordination to avoid duplication of effort and the funding of similar systems

Appendices

Appendix 1: Interviewees and respondents

UNICEF	
Jaya Murthy	Head of Communications
Mandi Chikombero	Communication for Development (C4D) Specialist
Ndeye Djigal Sall	Chief, Planning, Monitoring & Evaluation (PME)
George Ebong	Planning Specialist
Shiva Singh	WASH Manager
Cecilia De Bustos	Nutrition Manager
Dr Steve Okokwu	HIV Manager
Alex Muhereza	Health Specialist, Health Information Systems
Birgithe Lund-Henriksen	Chief, Child Protection (CP)
Augustine Wassago	CP Specialist, Identification and Registration
Harriet Akullu	CP Specialist
Nabendra Dahal	Chief, Basic Education & Adolescent Development
Rosemary Rugamba-Rwanyange	Education Specialist
Aguibou Ndiaye	ICT Manager
Diclerk Asiimwe	Child Protection Officer
Diego Angemi Sarah Kabaija	Chief of Social Policy, UNICEF Uganda Head of M&E
GOVERNMENT OF UGANDA	
Caroline Kyozira	Acting Commissioner, Health Information Systems, MOH
Ahmed Sentumbwe	Acting Commissioner, Infrastructure, Operation and Maintenance, MOWE
Asiimwe Loy	MIS Officer, MOWE
Martha Naigaga	Sanitation Coordinator, MOWE
Martin Akonya	Environmental Health Officer, MOWE
Dr Nelson Musoba	Director General, Uganda AIDS Commission (UAC)
Dr Peter Wakooba	Head M&E, UAC
Charles Otai	M&E Officer, UAC
Susan Candiru	Coordinator, Information Resources, UAC
Matyama Fredrick	Commissioner, Education Planning and Policy Analysis, MOE
Mulyalyo Cuthbert	SDGs Focal Person, MOE
Francis Katamba	Assistant Commissioner, Planning, MOGLSD
Benon Kigenyi	Undersecretary, Finance and Admin, MOGLSD
Lydia Najjemba Wasula	National Coordinator OVC, MOGLSD
Wabwire John	Head Planning and statistics, NIRA
Sacdi Adda	ICT Manager, NIRA
Arafha Akurut	Senior Registration Officer, NIRA
Florence Akol	Senior Registration Officer, NIRA
Sam Rogers Wairagala	Deputy Technical Advisor, M&E, JLOS Secretariat
Caroline Akello	Assistant National Coordinator, Justice for Children Programme, JLOS Secretariat

Lucy Ladira	Advisor, Access to Justice, JLOS Secretariat
Charles Asiimwe	Programme Officer, OPM Nutrition Coordination Unit
Julian Rweju	Senior Business Analyst, Directorate of E-Gov Services, NITA-U
Imelda Atai Musana	Deputy ED, UBOS
Norah Madaya	Director, Statistical Services, UBOS
UN SDG WORKING GROUP	
Amanda Tabifor,	Deputy Representative, UNFPA
Florence Tagoola	Programme Specialist, M&E, UNFPA
Tonny Muhumuza	National Economist, UNDP
Simon Peter Nsereko	Analyst, UNDP
Howard Ayo	UNHCR

Appendix 2: eHealth Services, Information Sharing and Data Management: Strategic Objectives

- Establish a unique, standardized, comprehensive and comprehensible Electronic Medical Record (EMR), Electronic Health Records (EHR) and Personal Health Record (PHR).
- Establish comprehensive health facility, provider, and patient/client registries with complete and up-to-date information that meets stakeholders' needs.
- Enable electronic healthcare planning and financial management to ensure effective collection, allocation, and use of health financial resources at all levels in accordance with health plan priorities.
- Strengthen healthcare professionals' human resource management to ensure effective information management, assignment, development and accountable use of health human resources at all levels in accordance with health plan priorities.
- Strengthen the National electronic Logistics and Supplies Management Information System (LSMIS) to ensure adequate quality and quantities of health commodities are always available at the point of service to meet patient demand
- Enable electronic delivery and interventions of health services in line with the universal access to the Uganda National Minimum Health Care Package (UNMHCP) which includes promotive, preventative, curative, rehabilitative and palliative care.
- Strengthen the electronic health management information system (HMIS) to support evidence-based health care and decision making
- Establish telehealth services to enable electronic delivery of quality health care to individuals in remote areas lacking needed expertise.
- Establish mHealth services to enable electronic delivery of quality health, reduce isolation, amplify the voices of the disadvantaged, and provide means to individuals to influence health systems.
- Enable an electronic communication and information sharing mechanism (for the referral system) to improve quality of service.
- Strengthen disease prevention, surveillance, and control by using hybrid ICT solutions to facilitate early detection and rapid reporting and response.

- Establish Intelligent and integrated Health facility management systems that monitors and manages diverse building management systems in a Health Facility in real time.
- Establish an eHealth Data, Information and Knowledge Management, Analysis and Utilization System.

Source: Uganda National eHealth Strategy 2017 - 2021[120]

Appendix 3: UNDAF commitments to strengthening data information systems

Outcome	Output	[121]Planned Interventions [or indicator][122]
1.3. Institutional Development, Transparency and Accountability	1.3.3. Monitoring & Reporting capacity By end 2020, UBOS and targeted MDAs (URSB, JLOS, MGLSD, etc.) have adequate technical capacity and technologically updated tools for context-appropriate data collection, management and use at local, district and national level.	Strengthen the functional, financial and technical capacity of UBOS to coordinate and support MDAS and LGs to generate, analyse, disseminate and harmonize disaggregated data in adherence to international and national guidelines and standards, and data strategies
		Strengthen capacity of MDAs and LGs to build systems for production of quality data and effective monitoring of NDP II and Sustainable Development Goals indicators
2.1. Learning and Skills Development	2.1.1. Early Childhood Development By end 2020, Government and partners have adequate technical and financial capacity to operationalize and scale-up inclusive, innovative, multisectoral and community-based early childhood development care and development intervention.	[Number of target sectors (MoES, MoH, MGLSD, MAAIF, MoLG, MWE) that integrate ECD into planning, budgeting & Management Information Systems]
2.2. Health	2.2.1. Effective and responsive health system By end 2020, the MoH, LGs and partners with improved capacity to plan and operationalize innovative, effective, efficient, equitable, decentralized and sustainable: 1) health financing system; 2) revitalized community health system; 3) health information and accountability systems 4) Quality and number of Health work force; 5) essential commodities and drugs supply system	Provide technical and financial support to MoH to implement appropriate and innovative evidence- based strategies for the health workforce for the delivery of quality health services
		Strengthen the technical functional, financial capacity of MoH for effective coordination of partnerships, knowledge management for relevant, timely and quality data for evidence-based decision making
		Strengthen the technical and functional capacity of the MOH and NMS Procurement and supply chain management system for improved effectiveness, efficiency and accountability
2.3. Social Protection	2.3.1. Policy & Strategies By end 2020, MGLSD & partners with strengthened technical and financial capacity to develop a comprehensive social protection policy and strategies that promote national ownership and sustainability	[Existence of a consolidated database for social protection (e.g. Social Protection-MIS)]

[120] http://health.go.ug/sites/default/files/National%20e_Health%20Strategy_0.pdf

[121]

[122] Items in [square brackets] refer to output indicators, rather than planned interventions.

2.4. Addressing GBV and Violence Against Children (VAC)	2.4.3. Capacity for coordination and Information Management By end 2020, the MGLSD and LGs have adequate technical capacities to coordinate and lead an integrated knowledge and information management system on prevention and response programming on GBV and violence against children.	Provide technical, functional and financial assistance to MGLSD, LGs and relevant MDAs to develop and manage a comprehensive and integrated Management information System on GBV and VAC
2.5. HIV & AIDS Response	2.5.1. Planning, coordination, financing and accountability mechanisms By end 2020, UAC supported by line ministries have technical and institutional capacity to coordinate, develop, implement and monitor a human rights & gender-focused national AIDS strategic plan supported by increased sustainable and accountable domestic financing and informed by the investment framework for HIV and mechanism for efficient resource management	Strengthen the technical functional, financial capacity of MoH and UAC for effective coordination of partnerships, knowledge management for relevant, timely and quality data for evidence-based decision making
3.1. Natural Resource Management and Climate Change Resilience	3.1.3. Forecasting & Progress Tracking Capacity By end 2020, targeted institutions with adequate technical and operational capacity to put in place systems and procedures to analyse environmental and climate-related threats, anticipate their impact for purpose of guiding preventive responses and development of related progress tracking tools	Strengthen technical and functional capacity of OPM, MAAIF, MTWA, UWA, UTB, MWE and UNMA for improved climate change and disaster information and early warning systems
3.2. Infrastructure, Production & Trade	3.2.5. Access to Inclusive Financial and Market Services By 2020, targeted MDAs with adequate technical and functional capacities to work with the private sector to provide appropriate products and services for inclusive finance and market information that addresses the needs of MSMEs and the urban and rural poor	Provide technical and functional support to MTIC for the development and strengthening of inclusive and innovative ICT-enabled market information products and services
3.3. Employment	3.3.3. Monitoring Capacity and System By end 2020, targeted MDAs with adequate technical and functional capacity to work with Private sector to develop effective and efficient information systems to track progress in labour market growth, youth- and women led business enterprises development, labour externalization, as well as in compliance to employment regulations.	Strengthen the functional and technical capacity of MGLSD, UBOS, NPA and the private sector to coordinate the generation, analysis, dissemination and harmonization of labour market data Provide functional, technical and financial support to MGLSD, NPA and selected districts for evidence-based employment planning at national and district levels

Source: United Nations Development Assistance Framework for Uganda 2016-2020[123]

[123] http://www.ug.undp.org/content/dam/uganda/docs/Uganda%20UNDAF%202016-2020.pdf

Appendix 4: Donor funding of statistics 2011 - 2015

Year	Donor	Program Name	Amount US $ 000s
2011	Germany	STATISTICAL TRAINING MANAGEMENT FOR IMPROVED POLICY DEVELOPMENT IN CENTRAL AND SOUTHERN AFRICA	21
2011	UNICEF	IR 2.1 ENABLING LEARNING ENVIRONMENT	23
2011	UNICEF	IR 4.2: PLANNING & STRATEGIC INFORMATION	54
2011	UNICEF	IR 3.2 BIRTH REGISTRATION	85
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Source: PARIS21 PRESS 2017 Country Factsheets - Uganda[124]

[124] https://tian-y.github.io/PRESS2017Maps/PRESS_2017_UGA.htm

Appendix 5: Acronyms

BTVET	Business Technical Vocational Education Training
CIS	Community Information System
CPAP	Country Programme Action Plan
CPD	Country Programme Document
CSD	Child Survival and Development
CRVS	Civil Registration and Vital Statistics
DHIS	District Health Information Software
DI	Development Initiatives
ECD	Early Childhood Development
EHIMS	Electronic Health Information System
EMIS	Education Management Information System
EMR	Electronic Medical Record
EPMIS	Electronic Patient Management Information System
GPP	Government Procurement Portal
HMIS	Health Management Information System
JLOS	Justice Law and Order sector
KAPS	Knowledge Attitudes and Practices
LDPG	Local Development Partners Group
MDAs	Ministries, Departments and Agencies
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MOES	Ministry of Education and Sports
MOFPED	Ministry of Finance, Planning and Economic Development
MOGLSD	Ministry of Gender, Labour and Social Development
MOH	Ministry of Health
MOWE	Ministry of Water and Environment
NDP	National Development Plan
NECOC	National Emergency Coordination and Operations Centre
NIN	National Identification Number
NIPN	National Information Platform for Nutrition
NIRA	National Identification Registration Authority
NITA-U	National Information Technology Authority Uganda
NPA	National Planning Authority
NSIF	National Standards Indicator Framework
NSS	National Statistical System
ODA	Official Development Assistance
OPM	Office of the Prime Minister
OP	Office of the President
PME	Planning, Monitoring and Evaluation
PNSD	Plan for National Statistics Development
Re-HOPE	Refugee and Host Population Empowerment
UBOS	Uganda Bureau of Statistics
UDHS	Uganda Demographic and Health Survey
UNDAF	United Nations Development Assistance Framework for Uganda
UNFPA	United Nations Population Fund

UNHS	Uganda National Household Survey
UNPS	Uganda National Panel Survey