

HYPERLOCAL DATA FLOWS IN CÔTE D'IVOIRE

François van Schalkwyk, Idriss Kone & Adze Afi



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The United States President's Emergency Plan for AIDS Relief (PEPFAR) and the Millennium Challenge Corporation (MCC) have partnered to support innovative and country-led approaches that promote evidence-based decision-making for programs and policies that address HIV/AIDS, global health, gender equality, and economic growth in sub-Saharan Africa. The \$21.8 million Data Collaborative for Local Impact (Data Collaboratives) program was launched in April 2015 with funding from PEPFAR and oversight by MCC.

Data Collaborative projects are strengthening the availability and use of data to improve lives and empower citizens to hold governments and donors more accountable for results. The program aligns with broader U.S. government efforts to maximize the effectiveness of U.S. foreign assistance and with the Global Data Partnership's efforts to promote data collaboration to achieve the Sustainable Development Goals (SDGs).

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The Des Chiffres et des Jeunes (DCDJ) program aims to bolster the subnational supply and use of data for Ivorian citizens, engage youth as champions of these services, and fuel innovation to address rising data needs. The program's mainstay is the DCDJ Fellowship program, implemented together with one of our local partners SEJEN. The Fellowship program trains cohorts of young individuals equipped with different skill sets – unique perspectives,

different backgrounds, and valuable expertise – in data science. After 8 weeks of training at the Ecole Nationale Supérieure de Statistique et d'Economie Appliquée d'Abidjan (ENSEA) campus, the Fellows either return to their home organizations to apply lessons learned, or are placed within government and non-governmental organizations key to DCLI program objectives.



This report was produced by SBC4D as a member of the consortium implementing DCDJ with the responsibility for developing Côte d'Ivoire national open data ecosystem and for mapping data flows (the subject of this report).

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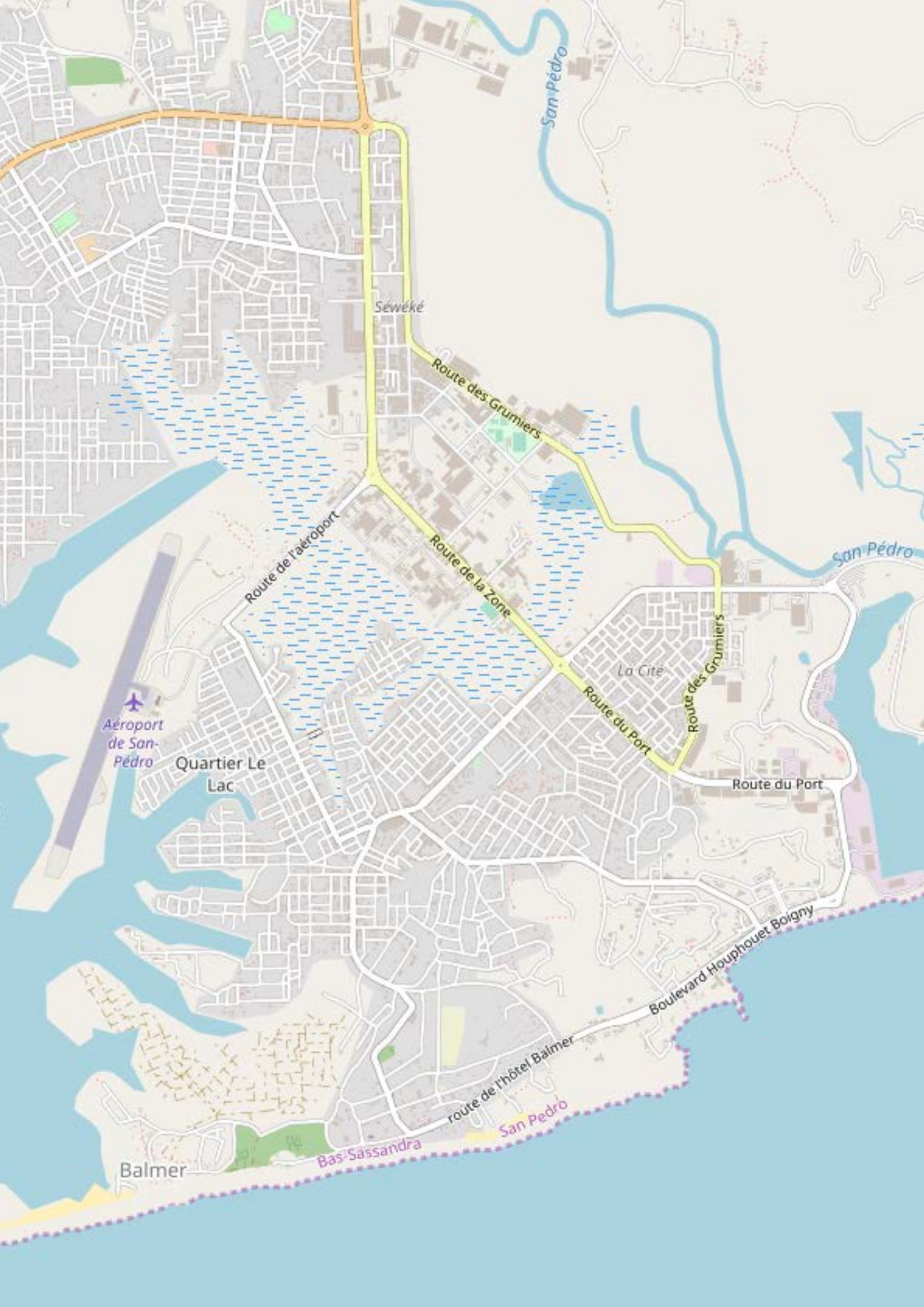
Cover photo of Abidjan by François van Schalkwyk



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1 Introduction

Background

The *Des Chiffres et des Jeunes* (DCDJ) project,¹ a project implemented by the Millennium Challenge Corporation (MCC) and funded by the President's Emergency Plan for Aids Relief (PEPFAR), seeks to develop and harness the skills and resources needed to support the data revolution in areas such as health, gender, economic growth and education in Côte d'Ivoire. The project aims to transform the data ecosystem in Côte d'Ivoire by increasing the availability and use of data to create healthier communities and more inclusive economic growth. The research project described in this report forms part of DCDJ's efforts at transforming the data ecosystem in Côte d'Ivoire by providing evidence on the flow of data in three key sectors.

Problem statement

African countries have pledged to achieve sustainable development and inclusive growth by adopting the 2030 Agenda for Sustainable Development and the Agenda 2063. At the same time, there are efforts across the continent to decentralise government administration in order to improve the allocation of resources and the delivery of government services by locating governance closer to the point of delivery (Khan Mohmand & Louriero 2017; Kasim & Agbola 2017).

Decentralisation is usually defined as a political and administrative management process and system by which the state grants to a structure or organisation the right to govern itself under the control and supervision of the state (Kouadio 2019). Under these conditions, the decentralised organs of

state can steer local development. Decentralisation reform in post civil war Côte d'Ivoire was implemented in 2011. Sub-national territorial bodies created in Côte d'Ivoire constitute five levels of administrative governance: (1) districts, (2) regions, (3) departments, (4) sub-prefectures and (5) communes. All territorial bodies created have as their main objective (i) the organisation of community life within the territorial body; (ii) the participation of citizens in the management of local affairs; (iii) the promotion and achievement of local development; (iv) the modernisation of rural environments; (v) the improvement of the living environment; (vi) and the management of the territories and the environment (Kouadio 2019).

However, structural decentralization reforms have not been thoroughly implemented both due to technical complexity but also due to political resistance of key actors within government (BTI 2018). Furthermore, while decentralisation reforms designed to empower local governance structures are stalled as, at the national level, governments are increasingly tied to foreign investment to support national development. By linking to the global community, African governments must subscribe to global commitments, not least of which is the achievement of the UN's Sustainable Development Goals (SDGs) which are now shaping the long-term national development plans of many African governments. While it could be argued that dependency should be decreasing as levels of development aid are declining (OECD 2019), it is also true that competition among developing countries for a shrinking pool of donor funding will increase and that this leaves developing countries with little choice but to subscribe to global development agendas if they wish to be eligible for donor funding.

¹ <https://www.dcdj.ci/>

SDG-linked development plans are spurring numerous legal, legislative and policy reforms aimed at improving the quality, timeliness, relevance, availability and accessibility of data needed to monitor and evaluate progress being made towards achieving the SDGs.

However, to remain consistent with the rationale for decentralisation reforms, data is not only needed for monitoring and evaluation at the national level; it is required for development planning and decision-making at sub-national levels of governance. Supporting fit-for-purpose data at the sub-national level requires an understanding of data availability and flows, as well as how to improve the perceived value of existing data and the capacity of communities to use data to solve local problems.

The DCDJ project seeks to achieve this by identifying the ‘levers’ that can be activated to realise data-driven outcomes in local communities. Such identification can be informed by research that maps the flow of data in relation to the local level in Côte d’Ivoire. The question posed by the research is therefore: How does data flow between the local and national level in Côte d’Ivoire? Understanding data flows at the hyperlocal level will inform future interventions that could increase the availability and use of data to create healthier communities and inclusive economic growth.

Conceptual framework

Data alone is not enough to drive development – equally important are the actors and technologies that catalyze the flow of data, in so doing connecting data to the policy- and decision-makers at all levels of government instrumental in the allocation and distribution of resources.

Data flows

Data flows are best understood with reference to the movement and exchange of raw and processed data between humans and machines located in complex socio-technical systems. This approach is consistent with those of others in its attempt to illuminate ‘the concrete ways in which evolving socio-cultural values and material factors cohere over time to create the socio-material conditions that frame activities of data production, processing and distribution and resultantly influence the form and use of data’ (Bates et al. 2016).

The arrangement of actors, the process of exchange and the dynamic and changing properties of these systems have led many scholars to refer to these data systems as ‘ecosystems’ (Harrison et al. 2012; Heimstädt et al. 2014; Van Schalkwyk et al. 2016). Ecosystems consist of mutually interacting organisms; are complex in their arrangement; characterized by the interdependency of and between organisms and resources; are dynamic rather than static (seeking equilibrium through motion rather than stasis); populated by keystone species that play a critical role in facilitating exchange in the ecosystem thereby ensuring dynamism and constant movement; movement tends to be cyclical and reinforcing making the system resilient (adaptable and restorative) but ecosystems are also vulnerable to exogenous forces which may disrupt or destroy the ecosystem (Van Schalkwyk et al. 2016). While ecosystems are clearly complex, they can be mapped by identifying the components of the system and the relationships between those components.

The value of an ecosystem approach is it aligns with a network understanding of society. According to Castells (2009, 2010; Stalder 2006) the internet and communication technologies that have been developed to exploit real-time connectivity on a global scale has had profound effects on society. This is most evident in how society is being reorganized according to the programs of global networks, and the effects of this restructuring on the development of society (Castells & Himanen 2014). There are legitimate concerns that rather than making possible a more equitable distribution of resources, the network society is one in which exclusion is structurally manifest and the gap between rich and poor, the powerful and the marginalized, the metropolitan and the rural, is certain to widen (Castells & Himanen 2014; Ravallion 2016).

At the risk of oversimplification, Castells (2010) explains this structural binary divide as being attributable to a particular condition in the network society: the cleavage between two spaces – the space of flows and the space of places. The space of flows describes that placeless space where information is exchanged in real-time across global networks. The space of places describes the local, physical spaces in which social actors live and breathe; where they seek meaning and define who they are. The disconnect between these two spaces in the network society provides a useful framework for understanding the flow and usefulness of

information (and data) in advancing the development of local communities.

Connecting the hyperlocal

The hyperlocal level implies any level of governance that is more granular than the typically delineated “subnational” levels of governance such as the regional level (for example, provinces, states or counties) or the metropolitan level (for example, cities, towns or communes). It is at the hyperlocal level that data is collected and reported into subnational and/or national management information systems. It is also at the hyperlocal level that the same data can be most usefully applied to solve the problems faced by communities, and where the problems themselves are most salient. But this is also the level that is the furthest removed from ongoing national and supranational efforts to govern the collection and use of data for the purposes of development.

Data is routinely collected at the local level. These data are fed into state, national or federal management information systems for planning purposes which ultimately provide the basis for determining the distribution of resources (political agendas and corrupt practices notwithstanding). At the same time, the data feeds indicators of a nation’s financial health, including, for example, its

economic growth and the investment climate which, in turn, rely on data describing the social conditions and well-being of defined populations. This is vital data that, when circulating in global financial networks, determines the ability of the state to access (and provide) financial instruments in the globalized financial system. This is not only a matter of access to global financial networks, but one of nation states becoming inexorably integrated into the global financial system. According to Castells (2017), three major processes are changing the coordinates of the global political economy, one of which is that global financial markets are increasingly the core of national and international economies.

However, the primary data and those who inhabit the hyperlocal spaces from which primary data originate, typically remain disconnected. Research has confirmed a reliance on local experience and discretionary judgement over data for decision-making at the local level (Mori et al. 2014; Wickremasinghe et al. 2016). Custer et al. (2018) and others (Silaa & Van Schalkwyk 2018; Van Schalkwyk & Silaa 2018) argue that improvements in sub-national data collection will bring data closer to place-based decision-making. In sum, aggregated national-level data holds little value at the local level because that data’s purpose is not defined in local but in global terms.

2 Governance overview

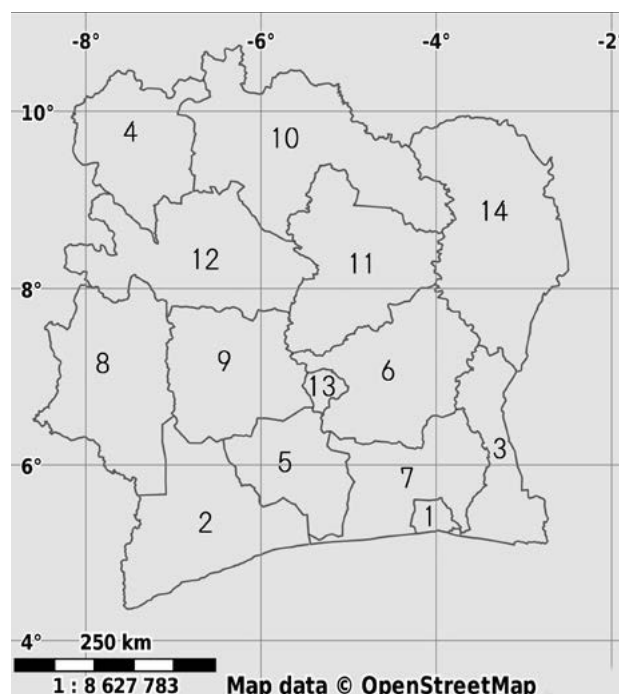
While governance structures across the world share many resemblances, there are also important local variations to consider that are often a combination of cultural and historical factors. It is important to understand the context-specific governance structures because it is within these structures that data collection is organised and the use of data for policy- and decision-making take place. This section therefore provides a short overview of the governance context in Côte d'Ivoire.

As shown in Figure 1, Côte d'Ivoire consists of 12 districts and 2 autonomous districts*: (1) Abidjan*; (2) Bas-Sassandra; (3) Comoe; (4) Denguele; (5) Goh-Djiboua; (6) Lacs; (7) Lagunes; (8) Montagnes; (9) Sassandra-Marahoue; (10) Savanes; (11) Vallée du Bandama; (12) Woroba; (13) Yamoussoukro*; (14) Zanzan.

Districts are divided into regions (31), regions into departments (108), and departments into sub-prefectures (510).² In some sub-prefectures, multiple villages are organised into communes (or municipalities). The 197 communes are the lowest and fifth level of administrative organisation. Figure 2 illustrates the multiple levels of administrative governance. Note that districts are omitted from the diagram because while the districts were created in 2011 as the highest level of sub-national administration,³ in practice they are not currently functioning as government entities.

The sub-prefecture is the fourth administrative level in the country. It is headed by a sub-prefect appointed by the Ministry of State, Interior and

FIGURE 1: Administrative districts in Côte d'Ivoire



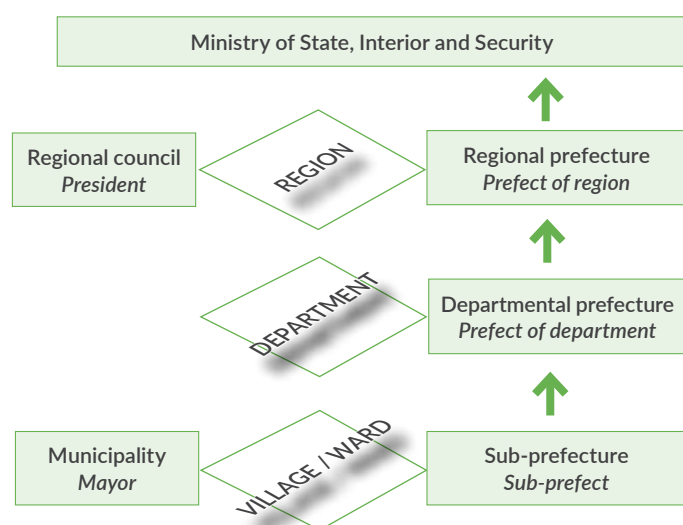
Security and is usually supported by a handful of staff. The sub-prefecture implements the programmes passed down by the department and works directly with the mayors and heads of villages to ensure cooperation and standardisation throughout the sub-prefecture.⁴ The sub-prefect convenes and chairs the Sub-Prefecture Committee. The sub-prefect is also responsible for security in the area and for providing selected administrative services to citizens (e.g. application and issuing of identity documents). As an intermediary between local communities and national government, the

² See Loi n° 2014-451 du 05 août 2014 portant orientation de l'organisation générale de l'Administration Territoriale. Available at <http://faolex.fao.org/docs/pdf/ivc146379.pdf>

³ Décret n° 2011-263 du 28 septembre 2011 portant organisation du territoire national en Districts et en Régions.

⁴ See Loi n° 2014-451 du 05 août 2014 portant orientation de l'organisation générale de l'Administration Territoriale. Available at <http://faolex.fao.org/docs/pdf/ivc146379.pdf>

FIGURE 2: Governance levels in Côte d'Ivoire



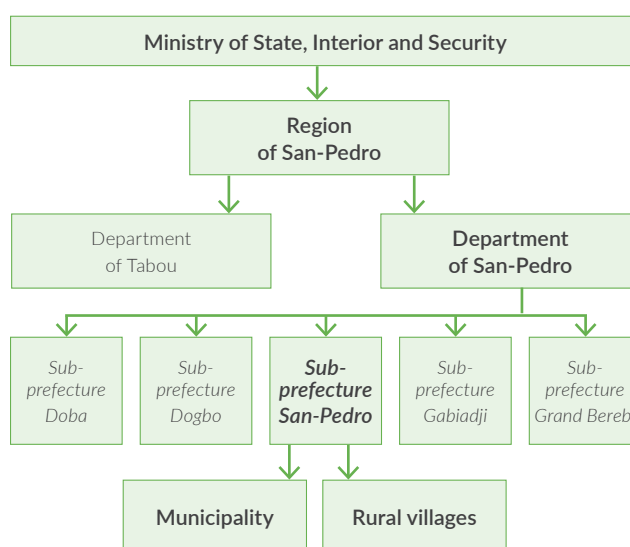
sub-prefect is required to report annually on the state of the sub-prefecture directly to the Ministry of State, Interior and Security. A copy of the report is also submitted to the Regional Council.

While all sub-national executives are appointed by national government, municipal councils are directly elected for five-year terms.

Decision-making at the sub-national level is concentrated at the regional level, with each region being responsible for the allocation of resources and the delivery of public services via its regional commissions of health, education, etc. The creation of regions arose from Act no. 95-892 of 27 October 1995 on the organisation of the Territorial Administration which recognised regions as a territorial authority. The organisation and rules of regions are set out in two Acts promulgated in 1998.⁵ However, it was only in 2013 that Decree no. 2013-294 of 2 May led to the classification of 31 administrative regions. Côte d'Ivoire's legislation gives no clear definition of regions, it simply presents under the terms of article 38 of the Act of 5 August 2014 that regions are territorial bodies composed of at least two departments.

All sub-national administrative levels report to the Ministry of State, Interior and Security. Within the Ministry, the General Directorate of

FIGURE 3: Levels of governance using San-Pedro sub-prefecture as a reference



Decentralization and Local Development is responsible for local governments' financial support, capacity building and technical support, as well as supervision over planning and development at the local level. The Directorate is also responsible for the monitoring and evaluation of the devolution from the state.

For the purpose of effective governance, the Ministry of Health has divided the country into health regions and districts (Figure 4). The health regions are equivalent in size to the administrative districts but do not always follow the same boundaries. The health districts are equivalent to departments, follow more closely the existing administrative boundaries for departments, but may consist of one or more administrative departments. In other words, health territories do not correspond directly with the administrative territories in Côte d'Ivoire.

To illustrate, San-Pédro is an administrative department and a health district with common boundaries. Neighbouring Tabou to the west is also both a health district and an administrative department. Soubre health district to the north consists of three administrative departments (Buyo, Méagui and Soubré) which are combined with Guéyo to form the Nawa administrative region. In the case of Bouaké, it is not clear whether the departmental and health district territorial boundaries do in fact overlap, although the Gbeke administrative boundaries and Bouaké health

⁵ Act no. 98-485 of 4 September 1998 on the organisation of regions and Act no. 98-486 of the 4 September on regional electoral legislation.

district boundaries are shared. These two simple examples highlight the complexities of matching administrative and health territories.

This may not present challenges when data are aggregated at the national level but it does introduce complications when making cross-sectoral comparisons between sub-national administrative territories.

In the case of education, there are 36 regional directorates of national education (DREN) (as

shown in Figure 5) and 5 departmental directorates of national education (DDEN), all of which fall under the Ministry of National Education.⁶

It is apparent from the two maps showing the composition of health and educational administrative regions in Côte d'Ivoire (Figures 4 and 5) that the regions for health and education do not correspond. This makes difficult cross-sectoral comparisons and analysis at the sub-national level.

FIGURE 4: Health regions and districts in Côte d'Ivoire

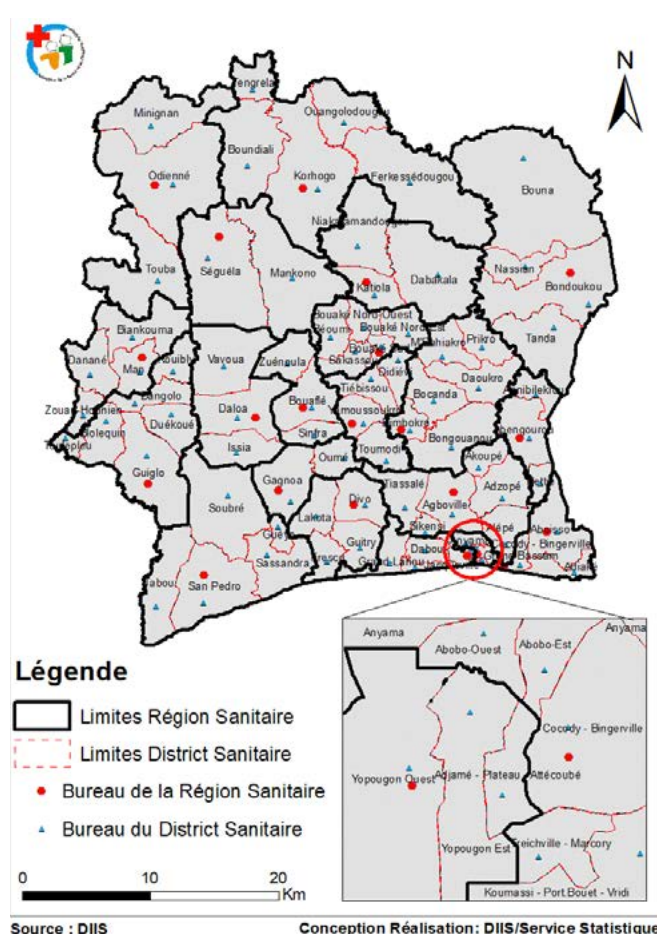


FIGURE 5: Education regions in Côte d'Ivoire



6 <http://www.education.gouv.ci/>

3 Methodology

The methods adopted consist of three steps: (i) selection of indicators; (ii) selection of the study sites; and (iii) approach to data flow mapping.

Selection of indicators

In order to operationalise the research question and to undertake a thorough mapping of data flows within the available time and resources, it was necessary to focus on only the most relevant indicators. Relevance in this case refers to the extent to which the indicators align with the priority areas of those funding the research as well as global development priorities. Indicators were therefore purposively selected based on the Sustainable Development Goals and the MCC/PEPFAR priority areas of health, education and economic growth.

The research focused on three types of data aligned with the three priority areas: (1) health data; (2) education data; and (3) trade data. The three data types consist of a host of sub-types. For example, education data can be subdivided by educational level – pre-primary, primary, secondary and tertiary – and health data can be subdivided by disease type

– HIV/Aids, malaria, TB, polio, etc. – often corresponding with vertical national health programmes. At each sub-level there are also a multitude of possible indicators depending on whether the focus is on inputs, outputs, performance or impact – enrolments, graduates, success rates, staff, number of schools, etc. in the case of education; incidence of infection, patients treated, number of health workers, number of hospitals and hospital beds, etc. for health; and GDP, per capita income, export volumes, etc. for economic growth. Mapping the data flows for all of these subtypes would be a large undertaking and the complexity of the data flows is likely to obfuscate the ‘levers’ in the data flows that can be activated to improve data use at the hyperlocal level.

The research therefore focused on a specific subset for each of the three data types, that is: (1) HIV/Aids data for health, (2) secondary school education data for education, and (3) regional export data for economic growth. Data subsets are further refined by aligning them with the MCC/PEPFAR priority area of gender, and with the SDG indicators. The final subsets selected are provided in Table 1 in the column “4th order”.

TABLE 1: Indicator data selected for data flow mapping

1st order	2nd order	3rd order	4th order	SDG Indicator
Health	HIV/Aids	No. of females with HIV	No. of females with HIV by sub-prefecture	3.3.1 Number of new HIV infections per 1,000 uninfected population, by sex, age and key populations
Education	Secondary education	No. of female graduates at lower secondary school level	No. of female graduates at lower secondary school level by sub-prefecture	4.1.1 Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex
Economic growth	Trade	Volume of regional exports by air	Volume of exports from local airport	9.1.2 Passenger and freight volumes, by mode of transport

Selection of study sites

Given the resources available, the research focused on the sub-prefecture level in two locations to gain in-depth insights into the flow of data at the local level. Their selection was, as far as possible, representative of the overall in-country context. At the same time, the support of local government in providing information on data flows and access to public facilities was an important consideration. The reason for selecting the fourth-level sub-prefecture rather than the lowest, fifth level of the administrative organisation in Côte d'Ivoire, is the fact that not all of the 510 sub-prefectures contain one of the 197 communes (municipalities). The level of the sub-prefecture is therefore both the most granular and generalisable of the governance levels in the country.

Two sub-prefectures were selected: Bouaké (in Bouaké Department in the Gbêkê Region of the Vallée du Bandama District) and San-Pédro (in the San-Pédro Department of San-Pédro Region of the Bas-Sassandra District). Both locations are also the seats of regional, departmental and municipal governance.

The selection of San-Pédro and Bouaké sub-prefectures makes the study site small enough to allow for a thorough mapping of data flows and large enough to facilitate inter-subprefecture comparisons of observations.

San-Pédro

San-Pédro sub-prefecture, home to San-Pédro city, is located in south-western Côte d'Ivoire. It is home to the nation's second largest port and the seat of Bas-Sassandra District and San-Pédro Region. In 2014, the city had a population of 261 616 making it the sixth-largest city in the country.

Following rapid urbanisation in Côte d'Ivoire, the population of San-Pédro sub-prefecture reside mostly (70%⁷) in San-Pédro city and its suburbs. This situation can be explained by the attraction of San-Pédro's port and the employment opportunities that it provides. The port is the world's biggest exporter of cocoa beans.

Despite the economic opportunities, poverty remains significant in San-Pédro sub-prefecture. This is most visible in the "Le Bardot", the largest slum in West Africa. It is inhabited by individuals from all parts of the country, as well as by

FIGURE 6: San-Pedro sub-prefecture



migrants from neighboring countries (Burkina Faso, Mali, etc.) who seek employment on the cocoa farms.

San-Pédro sub-prefecture has been the site of various large-scale data collection efforts, especially related to HIV/Aids pandemic, child labour and poverty.

In terms of connectivity, San-Pédro region is difficult to access by road due to the poor condition of the coastal road that links it to Abidjan. The presence of San-Pédro airport makes for easier access to the sub-prefecture.

In terms of health care and education facilities in the sub-prefecture, 22 health facilities were listed in 2010 by the Ministry of Health,⁸ and 29 general secondary schools were counted in 2016.⁹

Bouaké

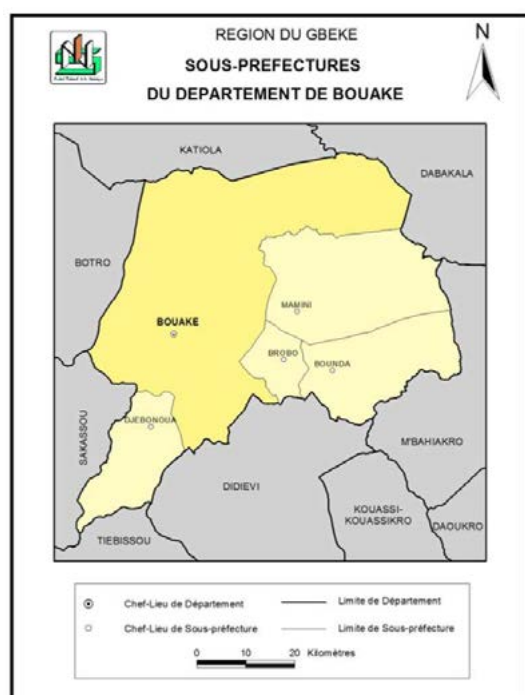
The sub-prefecture of Bouaké is the biggest of the sub-prefectures of the Gbêkê region and home to Bouaké City. Bouaké City is the second-largest city in Côte d'Ivoire with a population of 536 189 according to the 2014 census. According to Mr Yapo

⁸ <https://dipe.info/index.php/fr/component/jdownloads/send/17-documents/7-repertoire-des-structures-sanitaires-publiques-et-privées?Itemid=0>

⁹ <https://men-dpes.org/regional.php>

⁷ <http://www.ins.ci/n/documents/rgph/SANPEDRO.pdf>

FIGURE 7: Bouaké sub-prefecture



Arsène, the main secretary of the sub-prefecture, the sub-prefecture of Bouaké currently has a population of 542 000 inhabitants.

The sub-prefecture is located in the central part of the country about 50 km north-east of Lake Kossou, the country's largest lake, and 350 km north of Abidjan.

The city grew in the 1970s after the construction of the power station at Lake Kossou flooded land to the west of the city. The economy was shaken during rebel rule that started in 2002. Many companies either shut down or relocated to Abidjan. This resulted in a 60% reduction in formal employment. Economic recovery was slow until the early 2010s. After the government took back control of Bouaké after the 2010–2011 election, the economy moved into a phase of reconstruction and is beginning to return to its original state before the rebel conflict.

The economy is based on the cotton industry. Bouaké is known for its large carnival and market and for St. Michael's Cathedral.

The sub-prefecture is the seat of one regional health directorate, three health districts (north west, east and south) and two directorates of education (DREN1 and DREN2). There are 31 official health centers (public and private), more than 25

private dispensaries and infirmaries in Bouaké sub-prefecture. In terms of public schools, there are 134 pre-primary schools, 721 primary schools, and 16 colleges and high schools. In the private education sector, Bouaké is home to 53 pre-primary schools, 102 primary schools, and 38 colleges and high schools. There is one airport serving Bouaké located to the north-west of the sub-prefecture.

Approach to data flow mapping

The approach adopted to mapping data flows comprised two main data collection methods: (i) desk review of relevant documents and (ii) key informant interviews.

The desk review was done to identify the primary sources of health, education and trade data, and to determine whether these sources contained current and disaggregated data required for the three hyperlocal indicators. Desk review was also done to identify and describe secondary sources of data for the same three indicators.

Interviews with key informants were done in April and June 2019 to understand the actual flow of data at the hyperlocal level, and to identify and confirm interventions that could improve data flows and use at the hyperlocal level.

The key informants interviewed were purposively selected through referral sampling. For education and health data, data collection was completed in two steps. First, structured interviews were conducted with the heads of the regional directorates of education (DRENs) and of health, and with the sub-prefect. Second, interviewees were asked to provide introductions to secondary schools and health facilities for further interviews to be conducted. Based on their introductions, a structured questionnaire was administered to principals and/or educators of public secondary schools and to health facility managers.

In addition, structured interviews were conducted with the heads of local governance structures such as the local office of the National Company of Exploitation and Airport Development, Aeronautics and Meteorology; the regional department of the National Institute of Statistics (INS); the customs regional department; and the regional council.

Osman Mensah and Benjamin Addo developed a data flow matrix for the mapping of data flows as part of a development project implemented by GIZ-Ghana. The data flow matrix captures six data

management processes, i.e. data sourcing, collection, collation, analysis, reporting and use. It also captures the key actors involved, capacities required, and data validation, among others. The mapping of data flows tracks the data management process along a continuum starting with the primary data source and culminating with the expected end-user for each indicator.

The data flow matrix provided the basis for many of the questions in the interview instruments developed by the research team and for capturing the interview data in an organised and structured manner by following the logic of the matrix.

Research team

The research team consisted of three researchers. The first was based in Abidjan and undertook most of the data collection at the national level and the fieldwork in San-Pedro. The second researcher was based in Bouaké and was responsible for conducting interviews in Bouaké sub-prefecture. Both Ivorian researchers were supported by a third researcher based in Cape Town, South Africa. All three researchers were involved in the writing of this report.

4 Findings

Findings are presented in three sections. The first section presents the findings on the availability of up-to-date and timely disaggregated data for the three indicators selected (i.e. number female lower-secondary school graduates; number of HIV-infected females; and the volume of freight exported from the local airport to the economic capital, Abidjan). The second section presents findings on secondary sources of data for the three indicators. The third section presents findings on the flow of data between the hyperlocal, regional and national levels for each of the three indicators.

Availability of indicator data

Health

In the case of data on HIV/Aids prevalence, research focused primarily on Ministry of Health (*Ministère de la sante et de l'hygiene publique* or MSHP) datasets as this ministry is in charge of HIV/Aids prevention and treatment in Côte d'Ivoire.

The annual report on the state of the health sector (*Rapport annuel sur la situation sanitaire* 2016) contains data for 2016 and was published online on 20 November 2017. The 2018 report (*Rapport annuel sur la situation sanitaire* 2018) contains data for 2017 and was published on 26 March 2019. Similar reports are available as far back as 2007 and, with the exception of 2013, a full set of reports is available. The reports are published by the national Ministry of Health on the website of the Directorate of Informatics and Health Information (*Direction de l'Informatique et de l'Information Sanitaire* or DIIS).¹⁰

¹⁰ <https://dipe.info/index.php/fr/component/jdownloads/category/6-rapport-annuel-sur-la-situation-sanitaire?Itemid=1267>

The reports are made available in PDF format.

The most recent 2018 report includes data on the number of treated HIV-infected individuals by region and health district, and are disaggregated by age group (between 0 and 14 years, older than 14) and gender (see Table 51 on page 298 and Table 52 on page 308 of the 2018 report).

Data are not disaggregated beyond the health district to the level of departments or sub-prefectures.

Education

The Directorate of Strategy, Planning and Statistics (*Direction des Stratégies, de la Planification et des Statistiques* or DSPS) in the Ministry of National Education, Technical Education and Vocational Training (*Ministère de l'Education Nationale, de l'Enseignement Technique et de la Formation Professionnelle* or MENET-FP) publishes annual data on the performance of the school education system in Côte d'Ivoire.

Data are published in an annual report, the most recent of which is *Statistiques Scolaires de Poche* 2018-2019¹¹ which presents data for 2018. The reports are published on the ministry's website¹² in PDF format. Data are available as far back as 2008-2009, with missing data for the periods 2009-2010 and 2010-2011. All reports are published in French and the most recent report is also available in English.¹³

¹¹ http://www.men-dpes.org/FILES/pdf/stats/poche/poche_20182019_fr.pdf

¹² <http://www.men-dpes.org/poche.php>

¹³ http://www.men-dpes.org/FILES/pdf/stats/poche/poche_20182019_en.pdf

TABLE 2a: Bouaké: Total number of HIV positive patients who received HIV care at the health facility & HIV positive patients receiving ARVs in 2017 (*Nombre total de patients VIH positif ayant reçu les soins VIH dans l'établissement sanitaire et Patients VIH + sous traitement ARV 2017*)

HEALTH DISTRICT	PVVIH ayant reçu les soins				File Active				Total file Active Enfants	Total file Active Adultes	Total file Active
	Garçons (0-14 ans)	Hommes	Filles (0-14 ans)	Femmes	Garçons (0-14 ans)	Hommes	Filles (0-14 ans)	Femmes			
BOUAKÉ NORD-EST	34	287	46	1 013	29	241	43	1 089	72	1 330	1 402
BOUAKÉ NORD-OUEST	255	1 582	258	4 339	293	1 430	253	4 145	546	5 575	6 121
BOUAKÉ SUD	62	1 039	83	2 876	50	872	61	2 702	111	3 574	3 685

Source: Ministry of Health, Rapport annuel sur la situation sanitaire 2018

TABLE 2b: San-Pédro: Total number of HIV positive patients who received HIV care at the health facility & HIV positive patients receiving ARVs in 2017 (*Nombre total de patients VIH positif ayant reçu les soins VIH dans l'établissement sanitaire et Patients VIH + sous traitement ARV 2017*)

HEALTH DISTRICT	PVVIH ayant reçu les soins				File Active				Total file Active Enfants	Total file Active Adultes	Total file Active
	Garçons (0-14 ans)	Hommes	Filles (0-14 ans)	Femmes	Garçons (0-14 ans)	Hommes	Filles (0-14 ans)	Femmes			
SAN-PÉDRO	141	1 713	161	4 218	136	1 750	150	1 750	286	6 150	6 436

Source: Ministry of Health, Rapport annuel sur la situation sanitaire 2018

TABLE 3: San-Pédro & Bouaké: Admissions to BEPC by sex and by administrative region in 2018

ADMINISTRATIVE REGION	PRESENTED [SAT THE EXAMINATIONS]			ADMITTED [PASSED]		
	girls	boys	Total	girls	boys	Total
SAN-PEDRO	4 706	5 987	10 693	2 951	3 775	6 726
BOUAKÉ 1	3 199	3 729	6 928	1 631	1 865	3 496
BOUAKÉ 2	5 236	7 287	12 523	2 503	3 336	5 839

Source: Ministry of National Education, Technical Education and Vocational Training, School Statistics 2018–2019

The data are disaggregated to the level of educational region and by gender (see Table 63 on page 95 of the 2018–2019 report).

Trade

Data on the volume of regional exports from the San-Pédro and Bouake airports are published on the website of the national civil aviation authority, *Autorité Nationale de l'Aviation Civile* (ANAC).¹⁴ The data are published bi-annually in PDF format.¹⁵ Two editions of *Le bulletin d'informations statistiques du trafic aerien* have been published to-date, the most recent of which is the July 2018 edition which reports on all air traffic statistics for 2017.

Freight data are published by weight measured in kilograms (see Table IV.1.3 on page 22 of the July edition of *Le bulletin d'informations statistiques du trafic aerien*).

Secondary data sources

Based on desk research (which also drew on knowledge from previous research projects on data flows), several secondary sources of data at the national and supranational levels on education, health and trade were identified. Each source was analysed and included for further analysis if it included data relevant to the indicators chosen for this study. Further analysis involved determining the granularity of the available data. In other words, datasets were assessed to determine whether data were available for regions, departments or sub-prefects. The tables in Appendix 2 show the outcome of the analysis done.

In most cases, data were aggregated at the country level while in some cases data disaggregated to the level of regions was available. In none of the secondary datasets was data disaggregated to the administrative level of the sub-prefecture. It is worth noting the number of secondary sources of health data relative to those for education and trade, perhaps a reflection of the level of interest and investment in the health sector in Cote d'Ivoire on the part of the international community.

¹⁴ <http://www.anac.ci/anac/web/>

¹⁵ <http://www.anac.ci/anac/web/Traffic-Aerien/vue>

Data flows¹⁶

Health

The focus of the health data mapping was on patients in San-Pedro and Bouake sub-prefectures receiving HIV treatment. Figure 8 shows the data flows graphically.

Following consultations with health professionals at any of the medical facilities in the sub-prefecture and on receipt of a script, patients proceed to collect HIV medication from local pharmacies. Patient prescriptions are forwarded to health facility data managers who capture the prescription data into the Patient Electronic Record Management System or SIGDEP. SIGDEP is standalone software installed on the computer of each data manager. Prescription data are collated on a monthly basis for reporting to the Monitoring and Evaluation Team of the Health District. At the Health District, data from the SIGDEP reports are entered into the national health management information system, dhis2 (District Health Information System). dhis2 is used in more than 60 countries and is an open source software platform for reporting, analysis and dissemination of data for all health programmes, developed by the Health Information Systems Programme.

The CHR and CHUs enter their aggregate data directly into dhis2 and the corresponding health district is responsible for checking the consistency of this data. According to the national ministry, dhis2 is not deployed at other health centres due to technical constraints related to the availability of electricity, computers and internet access. Nevertheless, there is a plan for the deployment of dhis2 in urban health centres and health facilities, and the ministry expressed a need for training and materials to carry out this project.

SIGDEP data are captured and/or collated at the District Health Office. This enables the M&E team to create district-level dashboards that include the number of HIV patients in the health district. Dashboard reports are sent by email from the District Health Office to the Regional Health Office.

A notable inefficiency is therefore the existence of two separate data systems. Integration of SIGDEP into dhis2 at an earlier point in the process is possible from a technical point of view.

A recent pilot initiated by several agencies to improve efficiencies in the collection and sharing of SIGDEP data has illustrated one approach to improving data flows between parallel systems. The pilot developed solutions for SIGDEP data to be processed and centralised on a daily basis. However, centralisation was only partial. The project partners did not agree to the centralisation of all SIGDEP data; instead they insisted on keeping the data from their respective health programmes separate and partners were only able to access their own programme's data. Nor were the partners prepared to share the data with the national health ministry for fear of losing control over and access to their data.

According to the Ministry of Health, a web version of SIGDEP has been developed by the Ministry and is being tested in the Tonkpi region in the west of Côte d'Ivoire. The intention is to integrate SIGDEP into dhis2 once testing has been completed.

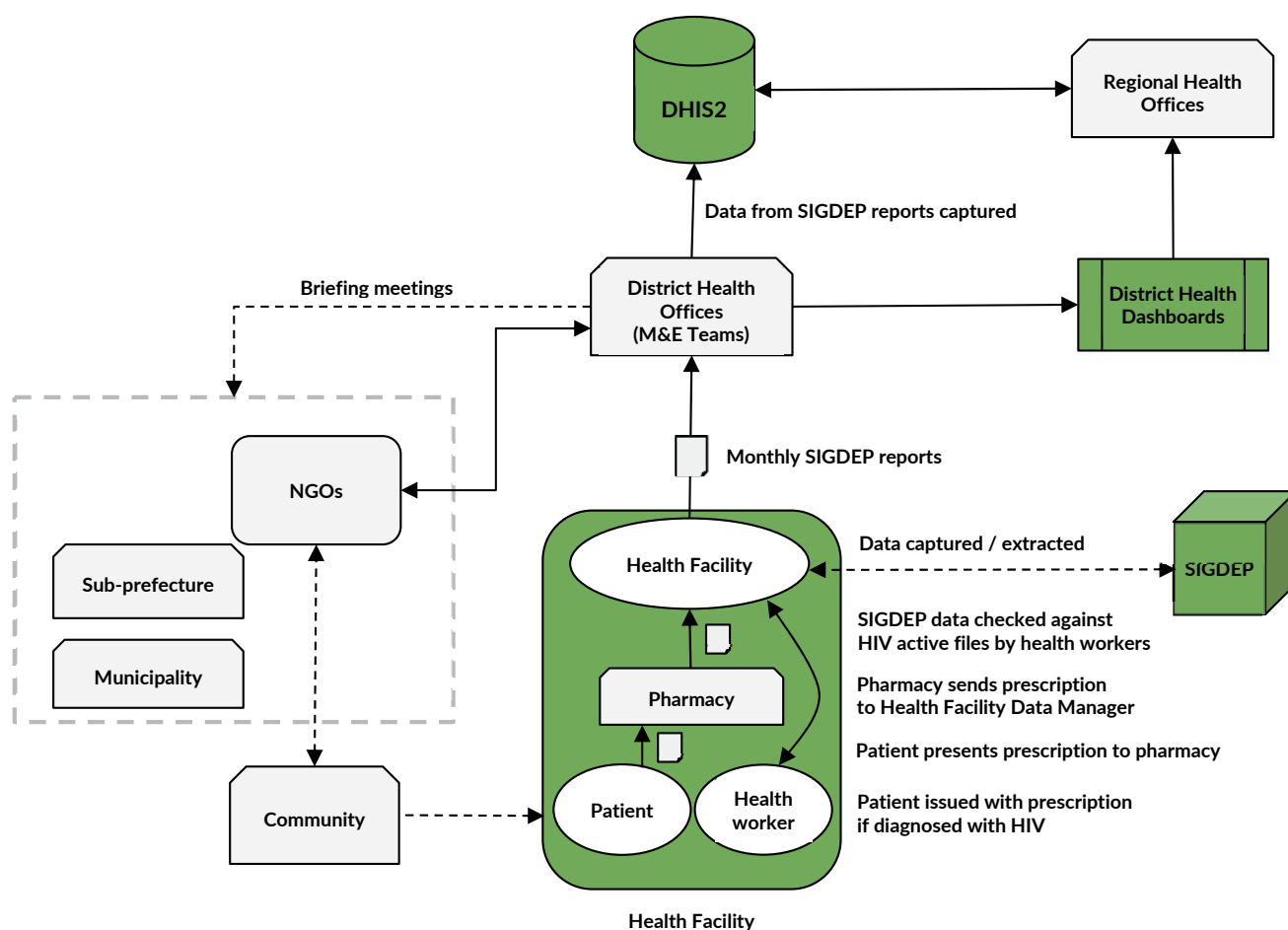
In terms of downward flows of health data, regional and university hospitals can access dhis2 data while other health facilities do not have access to dhis2.

The sharing of HIV incidence data with local health centres and other stakeholders mainly takes place in meetings convened by the Health District offices. Two types of meetings are convened for sharing health information, including HIV incidence: (1) monthly meetings at which the District Health office presents on the performance of each of the health centers to representatives from health centres; (2) quarterly meetings at which doctors from health centres grouped by sub-prefecture present data from their respective structures. During these meetings, all the partners are present (e.g. representatives from regional social services) as well as external stakeholders including municipalities, NGOs, sub-prefects and others. The main health problems of the district are presented, and possible solutions explored.

The meetings convened by the Health District offices also provide an opportunity for health centres to share experiences and to learn from each other's data. These meetings appear to be the only instance of direct data flows from the public health system to external stakeholders active at the local level.

¹⁶ Detailed data flow tables for each sub-prefecture can be accessed here: SAN-PÉDRO: <https://drive.google.com/file/d/1pZFLl5TRsKbLMNRsUFCiQ5W51V3qpHiX/view?usp=sharing> & BOUAKE: <https://drive.google.com/open?id=19bTbIMpmDn6i1PkQhSIJ5QlZpWCgBPLd>

FIGURE 8: Flow of HIV prevalence data



No other formal mechanisms are in place for local health facilities to share data with one another although interviews indicated that informal information exchange mechanisms do exist.

Several NGOs are active in the health sector and, more specifically, in San Pedro sub-prefecture. These include APROSAM, Charité Vie, Elan d'amour and Mocam Côte d'Ivoire. Interviews with APROSAM confirmed that the NGOs share data from their programme activities and facilities with the district health office. NGOs do not have access to dhis2 but do submit requests for data to the district health office when planning health programmes and interventions.

The findings show that some mechanisms are in place to ensure data quality. Prior to the submission of monthly reports by data managers to the District Health Office, SIGDEP data are checked and verified against the HIV Active File by a nurse at the health facility. However, there are currently no mechanisms in place to prevent double counting of patients presenting at different pharmacies or

health facilities due to a lack of a unique identifier system combined with the fact that instances of SIGDEP are not connected. This creates cases of unverifiable inaccuracies in the number of HIV patients receiving treatment. An additional concern is that there are no systems in place to prevent the loss of data at each of the SIGDEP instances. Data loss was reported by the company SENJEN when conducting a pilot project to digitise and centralise SIGDEP data.

Education

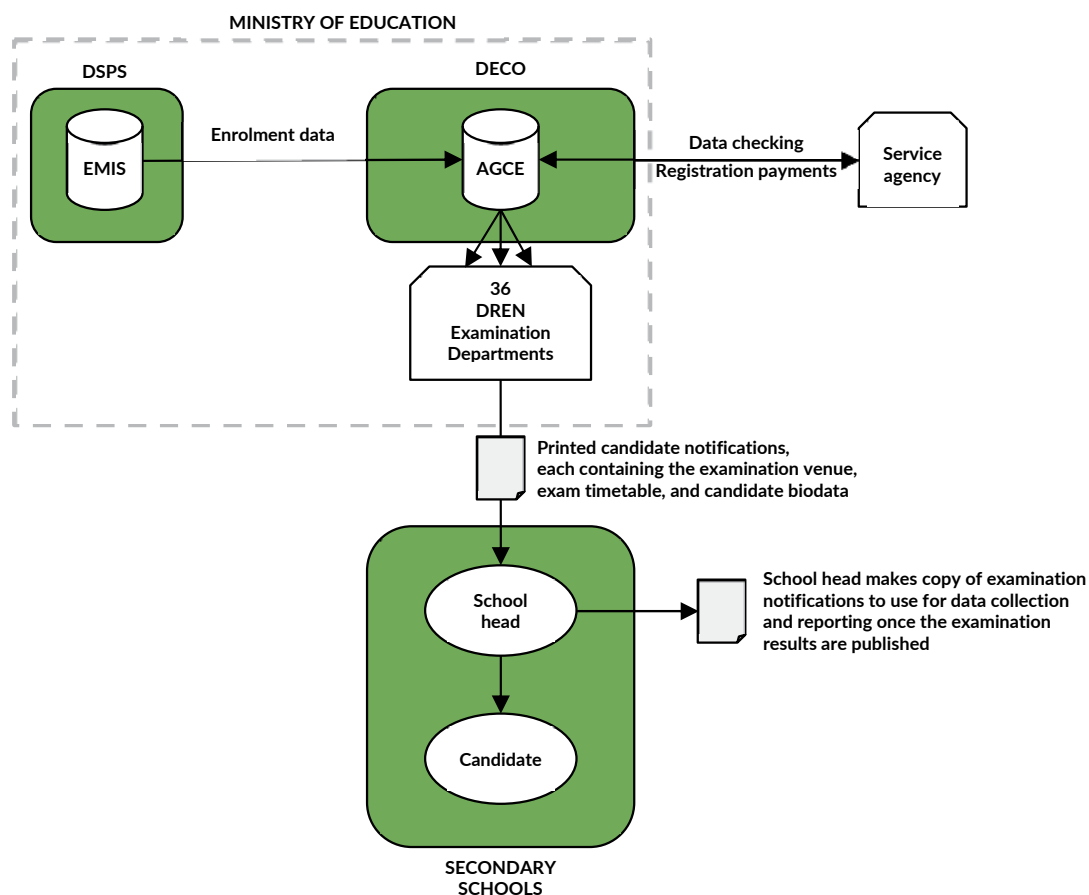
The flow of lower secondary school examination results is managed by the *Direction des Examens et Concours* (DECO) in the Ministry of Education.

Examination data arises from three phases: preparation, collection, and dissemination. Figures 9.1–9.3 show the data flows for each of the three phases.

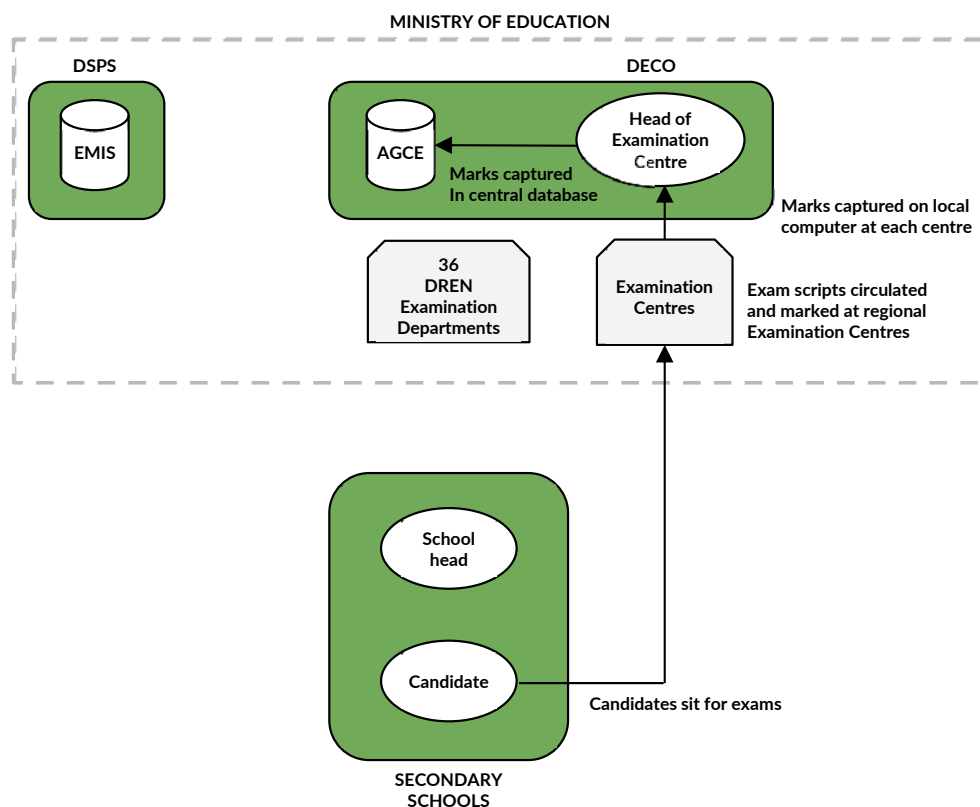
In the preparation phase, the DECO's Competition and Examination Management Application (AGCE)

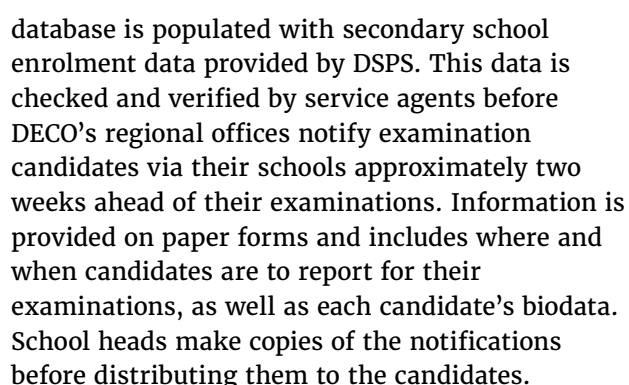
FIGURE 9: Flow of secondary school examination data

9.1 Preparation phase



9.2 Collection phase





are submitted according to a strict deadline to the central DECO database.

Once marks are finalised and approved by DECO, the dissemination phase of the process commences. The process starts with the HoEs printing out and signing the examination results sheets for their examination centre. Results are read out to candidates, and the results sheets are posted on noticeboards at the examination centres. DECO also calls a press conference to announce publicly the examination results.

To access the examination results data, heads of schools (or school educators) must visit examination centres and, using the copies made of the exam notifications, record manually the exam results of their students. In some cases, interviewees reported that it was possible to obtain copies of the results lists directly from the heads of the examination centres. Either way, heads of schools require the examination results data to

measure the performance of their schools as well as for their template-driven annual reports that are submitted annually to the regional directors of education by a set date (usually in August of each year).

Candidates, their parents, teachers and other stakeholders have no other means to access examination results, for example, online, in the press or from schools. At the secondary schools interviewed, data on the previous school year's results are shared with teachers and the COGES (*Comité de Gestion des Établissements Scolaires* School Management Committee) at the annual back-to-school meetings.

Regional education offices (DRENs) are also not able to access the examination results data in the DECO database. They rely on the annual reports submitted by the schools. Government entities such as the statistics office and the sub-prefect must submit requests to the regional education office for examination results (and other education) data.

Trade

The capturing of data on freight being transported by air from San-Pedro and Bouake airports follows a relatively simple system consisting mainly of capturing data in spreadsheets and sharing completed spreadsheets via email.

The process starts with the ground crew at each airport transferring data from the freight airway bills into an MS Excel template provided by Air Côte d'Ivoire, the only commercial airline operating at both San-Pédro and Bouaké airports. Data is stored on a computer at the airline's office, and is validated by the head of the ground crew before being sent by email to the local director of the airline company. From there, the data is sent to the Air Côte d'Ivoire head office in Abidjan before being sent on to the National Authority of Civil Aviation (ANAC). Data are then transferred to a computer at the national Ministry of Transport.

ANAC publishes freight data twice annually in its online newsletter.

Data access and use by the sub-prefect

As an intermediary between their local communities and the national government, the sub-prefect plays an important role in connecting the hyperlocal and national administrative levels.

The sub-prefect is required to report annually on the state of the sub-prefecture to the Ministry of State, Interior and Security. The reports of the sub-prefects are transmitted directly to the General Directorate of Territorial Administration within the Ministry. The Directorate then collates all 510 reports into a single summary report that is transmitted to the Minister of the Interior who forwards the summary report the President of the Republic.

The contents of this report is unknown as the reports submitted annually by the sub-prefect are not made public. In fact, the reports are seen as containing highly sensitive information because they are important instruments for providing the national executive of government with intelligence on the security situation at the hyperlocal level.

A copy of the sub-prefect's annual report is also submitted to the relevant Regional Council. It is not clear why the direct reporting line is to the national level when the regional level of governance is closer to and more likely to be in tune with the needs of local communities.

The sharing of local data within sub-prefectures is carried out within formal frameworks of collaboration between administrative structures. For example, the School Map Commission is chaired by the sub-prefect, within which school statistics are shared by the Regional Directorates of National Education (DRENs). In addition, the monthly data presentations organised by the health district provide an opportunity to share the district's health statistics with partners, other stakeholders and the sub-prefects. Outside of these frameworks, very little data sharing takes place.

To complicate matters, Bouke sub-prefecture's records archives were destroyed in 2002 during the civil war in Côte d'Ivoire. The sub-prefect has attempted to reconstitute its archives but was dealt a further setback following the vandalism of its premises in 2016.

The regional office of the National Institute of Statistics occupies a special position in the data landscape. It obtains data from other local administrative structures through regular queries. However, there is no systematic approach to publishing local data. These are generally recorded in administrative reports that are not accessible to the sub-prefect or the general public. The requirement for fees to be paid to access data (in digital or print formats) constitutes a major

constraint in the access to data by citizens and sub-prefectures alike. To illustrate, interviews with the sub-prefect of Bouaké revealed that he does not have a map of the area and the only possible way to obtain a map is to purchase one from the national mapping agency (CNTIG).

Discussions with the various entities revealed that the data produced at the level of the sub-prefecture are mainly used to measure the performance of services and to report to line authorities and central services within the respective line ministries. Data for reporting purposes are accessed by making requests in writing to the relevant department, agency or ministry. The sub-prefect of Bouaké confirmed that he has, in the past, requested and received the following information from the relevant government departments or agencies:

- Number of pregnancies over time
- Mortality rates over time
- The state of road infrastructure
- Road traffic and safety data

In the case of Bouaké sub-prefecture, all these reports reach the sub-prefecture in paper format because there is no software or online platform through which to access data, nor is an internet connection available.

San-Pédro sub-prefecture was found to be in a relatively better position in terms of access to data.

The sub-prefecture had at his disposal a printed map of the sub-prefecture. The office was equipped with computers and a connection to the internet was in place.

The sub-prefect of San-Pédro indicated that he had access to data on the number of schools in his sub-prefecture as well as the performance of those schools as measured by examination results. However, as was the case in Bouaké sub-prefecture, when asked about access to data on the number of health facilities and number of HIV-infected women in his sub-prefecture, the sub-prefect of San-Pédro indicated that he did not have access to health data. The sub-prefect shared with his colleague in Bouaké a need for data on transport and infrastructure.

Although municipalities were not the focus of this study, they were interviewed because of this similarity in their proximity to local communities. Interviews with key informants at San-Pédro Municipality revealed that the municipality had computers for use by technical managers but that the municipality did not provide internet access. The municipality has at its disposal a digital map that provides the municipality with data about the location of lots and the use of public lots. However, the municipality voiced frustration in terms of its isolation in terms of access to government data on education, health, transport, climate, security, etc. This despite being clear about what its data needs are.

5 Discussion

At least four general observations can be made with regard to data flows between different levels in Cote d'Ivoire; observations that cut across all three cases:

1 Data exists and is disaggregated by gender

The first is that in all cases, data exists, and may be collected either electronically or using paper forms but are at some point in the process converted and stored in digital formats. Data for all three indicators are available online, and data for the most recent reporting period are available which greatly enhances the usefulness of the data. It also indicates the presence of efficient data collection and sharing, at least as it pertains to sharing data as PDFs via the web.

In the case of health and education indicator data, the findings also show that data were available for reporting periods going as far back as 10 years.

In all relevant cases, data collected and published were disaggregated by gender.

2 Greater support for upward data flows

In all cases, resources, infrastructure and processes have been put in place to support the efficient upward flow of data from the hyperlocal level to the national level. There is less investment in the dissemination of the data collected, both horizontally between government agencies and vertically to the lower administrative levels.

For example, in the case of examination results data, the 'upward' flow of data is highly

systematised, deadline-driven and digitised in part to ensure rapid and reliable flows from local examination centres to DECO at the national level. Human resources are deployed across the country to manage data collection, computers and programmes are supplied, and a database is in place to centralise data collection.

The 'downward' flow of data is far less efficient. DECO relies on paper print-outs of results posted on examination centre noticeboards to share disaggregated examination results data. Candidates, their parents, heads of schools, government agencies, NGOs and other stakeholders have no other way of accessing examination results data. Heads of schools copy exam results from the noticeboards to produce data needed for their annual reports submitted to the same government ministry that houses the agency that manages the collection of examination results data. It is clear that while data collection by the responsible government agency is efficient, digital and centralised, the sharing of examination results data remains inefficient.

The result is that data sharing and dissemination are poor when compared with collection; poor in the sense that data are published in formats that hamper reuse and in the sense that only data disaggregated to the regional or district levels are published.

Despite the digitisation of data collection processes, institutionalised practises are hindering the dissemination and sharing of data. This is most vividly illustrated in the case of examination results being posted on notice boards at examination centres but is also evident in other

cases such as the adherence to stand-alone data collection software that could be incorporated into dhis2 with relative ease.

Furthermore, there are very few cases in which data are used for direct decision-making at the hyperlocal level. This situation is most likely explained by the fact that decision-making is not decentralized despite the governance structures put in place to support decentralisation. Indeed, in the current configuration of the Ivorian public administration, the sub-prefecture level lacks decision-making power. This power is still generally conferred on central, national authorities or, in some cases, regional authorities, despite efforts at decentralisation. The consequence of neutered decision-making at the local level is that data is collected for the sole purpose of reporting up the chain of command.

The relationship between the nexus of decision-making and data use is most clearly illustrated in the differences between data access and use when comparing the sub-prefecture with the municipality in San Pedro. The sub-prefect, with no real decision-making power, has greater access to data via formal channels but confines his 'use' of data to production of a report submitted annually to the national government. The sub-prefect does not share data with the community, with public facilities or with village chiefs in the sub-prefecture. The municipality, by comparison, has greater autonomy and decision-making power. It articulated several data needs. And yet the municipality in San Pedro receives less support from the national government and struggles to access data from government sources.

3 Poor coordination

The third general observation is that data systems and processes are typically owned by single directorates or agencies, and there is little coordination with others who are likely to benefit from direct access to the data.

This observation extends to directorates or agencies within the same ministry. For example, DECO and DSPS are both located in the Ministry of Education. It also extends to coordination between government and NGOs. In the case of HIV prevalence data, NGOs coordinated among themselves to improve the efficiency of data collection, but they were loath to share data with

one another and they were equally reluctant to share data with the ministry of health.

The result of a lack of coordination is that data collection systems and processes, while independently effective and efficient for the task at hand, are not interconnected.

Based on the interviews conducted, the reason for a lack of self-initiated coordination appears to be a lack of trust between parties. Why levels of trust are low would need to be explored further. Reasons for a lack of managed coordination are also unclear although one explanation could be a lack of incentives for improving coordination; an explanation explored in greater detail below.

4 Opportunities for improved data sharing and use

The fourth general observation is that in all cases, there are clear opportunities to improve data sharing with local communities and across national and regional administrative levels.

In the case of examination results data, there are opportunities to improve the flow of data to schools, parents, students, as well as to other agencies in the ministry of education. This would require DECO to invest in systems and processes that make data held in the AGCE platform more accessible.

In the case of health, there are opportunities to improve access to HIV data captured in SIGDEP by integrating it into the national health management information system. It is, however, noted that a pilot project to improve data flows of SIGDEP data have not been successful in the sense that while it improved safekeeping and centralisation of data, it did not improve data flows between stakeholders. The pilot project did not include the Ministry of Health as a partner, nor did it explore the integration of SIGDEP into dhis2.

A second opportunity in the case of health data is to improve the sharing of health data between health facilities, as well as with other stakeholders in the health sector (such as NGOs). Given that an informal data exchange framework between rural health centres already exists (in the form of data exchange exchange for the preparation of presentations to be made at the quarterly coordination meetings hosted by the health district

office), this could provide the basis for more formal and systematic data sharing practices.

In the case of trade data, or more specifically, data on regional exports by air, there are opportunities to centralise data capturing and retrieval as freight volumes, shipping frequencies, and companies carrying air freight increase.

Disconnected spaces

Data originate from the hyperlocal level; it is at schools, health centres and regional airports where data is collected and they constitute the space of places.

As data flow to sub-national administrative hubs, it is checked, aggregated and submitted further up the governance hierarchy until it reaches the national level where data are analysed, interpreted and presented to ministers and the highest representative organs of the state such as parliament. Data are also shared with supranational agencies such as the World Bank, IMF, UN agencies and others. Data are again used for decision-making and monitoring at the supranational level. In the case of monitoring, the SDGs provide the strongest upward pull for national-level data. At this level, data is flowing in the global communication networks that constitute the space of flows.

At the national level, data are also used for performance monitoring and planning purposes. Data, along with political considerations, determine the allocation and distribution of public resources.

In countries promoting programmes of decentralised governance, resources are allocated to sub-national governance structures.

As this research project has shown, data in Côte d'Ivoire flows relatively efficiently upward to the national level. And data also flows to the supranational level. At these levels, dislocated from the places from which the data originate, data flows mostly in aggregate. Return, downward flows of disaggregated data to the sub-national and hyperlocal administrative levels do not exist, leaving decision-makers in the space of places with only the aggregated data circulating in the space of flows; data that is of little value to them.

There is therefore a clear disconnect between the space of places and the space of flows.

This research project did not investigate why this may be the case. It is, however, probably fairly safe to assume that the incentives for investing in upward data flows outweigh those for downward flows. National governments in developing countries, either dependent on or keen to attract foreign investment and donor funds, are co-opted into providing national performance data in order to participate in global networks. Despite any rhetoric in support of decentralisation, national governments in these countries have less of an incentive to invest in the dissemination of data for decision-making at local levels. A situation further compounded by a lack of local public or civil society structures with sufficient power to unlock data flows that are of value.

6 Conclusions and recommendations

This study set out to identify the ‘levers’ that can be activated to realise data-driven outcomes in local communities by undertaking research that maps the flow of data in relation to the local level in Côte d’Ivoire. Three indicators linked to the SDGs and the priorities of the project were selected for data flow mapping.

The study showed that data exists for all three indicators in the health, education and trade sectors. Where relevant, data are available in gender-disaggregated formats. Data flows are, however, mainly upward in their trajectory, flowing from local public facilities to agencies and departments within the national government. The downward flow of data is uncommon, and the data needs of the lower administrative levels (such as sub-prefectures and municipalities) are not taken into account in the reports and publications of the central authorities. It was suggested the dominance of needs and programmes of national and supranational actors in the flow of data (in the space of flows) over those at lower administrative levels (the space of places) accounts for relatively efficient upward flows and weak return (or downward) flows of data in the Ivorian data ecosystem.

Coordination between government structures at the national level was found to be poor and is seen as a contributing factor to blockages in data sharing. As is the fact that despite moves towards greater decentralisation, lower levels of administration are not endowed with decision-making powers that could necessitate access to and encourage the use of data.

Nevertheless, there are opportunities to improve

the accessibility, dissemination and use of relevant data at the local level. It should however be noted that, unlike the sub-prefecture administrative level, the municipality of San Pedro was found to constitute a better structure for future interventions related to data use based on the observation that the municipality is more autonomous and empowered to take decisions that affect local outcomes, more clearly articulated its data needs, has the necessary human resources in place, and has a clearer development mission than that of the sub-prefecture.

Several interventions could be designed and implemented at different levels to realise these improvements:

At the local level:

- Promote and support local authorities to design and implement a formal framework for sharing local data between multiple stakeholders, for example between municipalities, sub-prefects and district-level units providing public services. Such a data sharing framework should focus on the data most needed by local authorities, where such need is collectively defined by the stakeholders. The formal framework should make clear implementable mechanisms for sharing data given local realities in terms of capacity, infrastructure and connectivity.
- Sensitize decentralized administrations to the wide dissemination of their reports containing statistics and data relating to their missions and activities.

At the central or national level:

- Advocate with ministries for the establishment of a sub-prefecture-wide decision-making process based on local data.
- Promote the systematic collection, separation and accessibility of data disaggregated by sub-prefecture in national reports. In other words, disaggregation should be maintained in the upward flow of data to make possible access to disaggregated data in downward flows.
- Advocate for dissemination of national reports in the sub-prefecture.

At international level:

- Sensitize the main technical and financial partners on the need to make the free provision of local data a criterion for triggering funding for data collection campaigns.

Appendix 1: Interviews

San-Pedro

Organisation	Name of person interviewed	Position	Date of interview
SOUS PREFECTURE	Kone Kapié	Sous Prefet	05 April 2019
DREN-DSPS	Koua Oued Jules	SG chargé de la Statistique	04 April 2019
LYCEE MODERNE NAGOYI	Ouattara Daouda	Proviseur	04 April 2019
COLLEGE LE CLASSIQUE	Mme Diarrasouba Fatoumata	Directrice des études	04 April 2019
DISTRICT SANITAIRE	Mme Djedje	Suivi Evaluation	05 April 2019
AEROPORT SAN PEDRO	Pama Roland	Directeur Air Côte d'Ivoire	05 April 2019
SSSU-SAJ	Kone Seydou	Infirmier Major	05 April 2019
INS	Francois Dodo	Chef de service	04 April 2019
HOPE HEALTH CENTRE APROSAM	GARDEE FRANCK MICKAEL	Data Manager	09 July 2019
HEALTH DISTRICT SAN PEDRO	Madame DJEDJE	Monitoring and Evaluation Officer	09 July 2019
DREN SAN PEDRO	Money SEKA	Secretary General: Examinations	08 July 2019
DREN SAN PEDRO	KOUAKOU Kouame Frederic	Examination Officer	08 July 2019
DREN SAN PEDRO	KONE Mamadou	Examination Officer	08 July 2019
APROSAM	Soh Kouame	Program Manager	08 July 2019
KSW LOWER SECONDARY SCHOOL	OKA Ahipeaud Marie	Principal	08 July 2019
KSW LOWER SECONDARY SCHOOL	DIAPONON Marcellin	Financial Affairs Officer	08 July 2019
KSW LOWER SECONDARY SCHOOL	ATTA Assamoah	Educator	08 July 2019
ADJAMENE RURAL HEALTH CENTRE	BORA Adama	Nurse	09 July 2019
ADJAMENE RURAL HEALTH CENTRE	SEKONGO Dena	Nurse	09 July 2019
ADJAMENE RURAL HEALTH CENTRE	DIARRASOUBA Assiata	Midwife	09 July 2019
HOPE HEALTH CENTRE APROSAM	DOSSO Rita	Monitoring and Evaluation Officer	09 July 2019
SAN PEDRO MUNICIPALITY	Monsieur GOUANOU	Deputy Technical Director	10 July 2019
SAN PEDRO MUNICIPALITY	Dr KOUADIO N'da	Deputy Mayor	10 July 2019
SAN PEDRO MUNICIPALITY	Dr TOURE Nantarie	Deputy Mayor	10 July 2019

Bouake

Organisation	Name of person interviewed	Position	Date of interview
Sub-prefecture	M. YAPO ARSENE	Principal secretary	02/12/19
Chamber of commerce	M. NDAH ERIC	Regional coordinator	02/18/19
Regional directorate of transportation	M. SACKO	Regional director	02/20/19
PREFECTURE	M. KOUADIO JULES	Head of cabinet	02/20/19
Health district Bouaké north east	M. KOUAKOU K. EMMANUEL	Monitoring and Evaluation manager	02/22/19 02/26/19
Health district Bouaké north west	M. TRAORE SOUALOU	Monitoring and Evaluation manager	02/22/19
Health district Bouaké south	Ms. YAO ANNA	Monitoring and Evaluation manager	02/22/19
SODEXAM	M. MBRA MATHURIN	Commandant	02/26/19
DREN2	M. BARRO BAZOUMANA	General inspector	02/28/19
DREN2	M. KOFFI	GENERAL SECRETARY	02/28/19
DREN2	M. DJACK	Informatician (public secondary schools)	02/28/19
DREN2	M. KOUADIO YAO DIDIER	Informatician (private secondary schools)	02/28/19
DREN2	M. KINIMO BERTIN	Informatician (primary schools)	02/28/19
(private) College Adventiste de Bouaké	M. NGUESSAN MICHAEL	Director of the school	03/07/19
(private) Ecole Primaire Adventiste de Bouaké	M. AZO	Director of the school	03/07/19
(public) Ecole Primaire Annexe 3	M. KALOU FOFANA	Director of the school	03/08/19
(public) Ecole Primaire Annexe 3	M. KOFFI MARCEL	Teacher	03/08/19
(public) Lycée classique Bouaké	M. ASSIELOU AMBROISE	In charge of school supervision	03/08/19
(public) Lycée classique Bouaké	M. SAMASSI	Censor	03/08/19
CHU Bouaké	M. MAHAMOUD KALIL	AMD	03/11/19
MATERNITE NIMBO	Ms KOFFI AHOUE EDITH	AMD	03/11/19
NGO watominou/Clinique Sarelle	M. YAO KOFFI ERARD	Coordinator of activities	03/11/19
PolyClinic CEMENA	Dr KOUADIO GYSLAIN	Doctor (HIV focal point)	03/11/19
APFCB1	M. SORO KASSINABIN	DIRECTOR	03/12/19
APFCB2	M. YAHAYA DIABI	Inspector/coordinator	03/12/19
Regional health directorate	Dr KOUDOU OUREGA JULES	Deputy director	03/12/19
Regional health directorate	Dr ASSEMIAN	Coordinator of the pharmacies	03/12/19
DREN1	M. ABOUDRAMANE	Program manager	03/13/19

Appendix 2: Secondary data sources

Health

NAME OF DATASET	ORGANISATION	LEVEL	GRANULARITY	MOST RECENT	URL
Open Data for Africa	African Development Bank	Supranational	Country	2017	http://dataportal.opendataforafrica.org/apps/atlas/C%3Cb4te-divoire/Prevalence-of-HIV-female-percent-of-ages-15-24
Country factsheets	UNAIDS	Supranational	Country	2018	https://www.unaids.org/fr/regionscountries/countries/ctedivoire
World Bank Open Data	World Bank Group	Supranational	Country	2017	https://data.worldbank.org/indicator/SH.HIV.1524.FE.ZS?locations=CI
Global Health Observatory	WHO	Supranational	Country	2015	http://apps.who.int/gho/data/node.country.country-CIV
Demographic and Health Surveys	USAID	Supranational	Region	2016	https://dhsprogram.com/pubs/pdf/FR272/FR272.pdf
Multiple Indicator Cluster Survey	UNICEF	Supranational	Region	2016	http://mics.unicef.org/surveys
UNICEF Data	UNICEF	Supranational	Country	2016	https://data.unicef.org/country/civ/
Global Health Data Exchange	The Institute for Health Metrics and Evaluation (IHME)	Supranational	Country	2018	http://ghdx.healthdata.org/geography/c%3CB4te-divoire
OpenAfrica	Code for Africa	Supranational	Country	2015	https://africaopendata.org/dataset?q=Côte+d%27Ivoire
Humanitarian Data Exchange	OCHA	Supranational	Country / Sub- Country	2018	https://data.humdata.org/dataset/who-data-for-cote-divoire
Global Urban Indicators	UN-HABITAT	Supranational	Country	2009	http://mirror.unhabitat.org/downloads/docs/global_urban_indicators.pdf
Demographic and Health Surveys	USAID	Supranational	Region	2016	https://dhsprogram.com/pubs/pdf/FR272/FR272.pdf
Pepfar Panorama Spotlight	PEPFAR	Supranational	Country / Sub- Country	2016	https://data.pepfar.gov/additionalData
Demographic and Health Surveys	IPUMS DHS	Supranational	Country	2011	https://www.idhsdata.org
Humanitarian Data Exchange	OCHA	Supranational	Country / Sub- Country	2018	https://data.humdata.org/dataset/who-data-for-cote-divoire

Education

NAME OF DATASET	ORGANISATION	LEVEL	GRANULARITY	MOST RECENT	URL
World Inequality Database on Education	UNESCO/IUS UNESCO	Supranational	Country	2016	https://www.education-inequalities.org/countries/cote-divoire/indicators/comp_lowsec_v2#?dimension=all&group=all&age_group=comp_lowsec_v2&year=2016
World Bank Open Data	World Bank Group	Supranational	Country	2017	https://data.worldbank.org/indicator/SE.SEC.CUAT.UP.FE.ZS?locations=CI
Public Entities Repository	CAIDP	National	Region	2016	http://www.caidp.ci/uploads/c24371e7a4efab0e339dc780e19c547b.pdf
Open Data Portal	CICG	National	Region	2016	https://data.gouv.ci/uploads/ressources/OD_statistiques_nationales-BEPC_session_2016.xlsx

Trade

NAME OF DATASET	ORGANISATION	LEVEL	GRANULARITY	MOST RECENT	URL
ICAO DATA+	International Civil Aviation Organization (ICAO)	Supranational	Country/ Commercial Air Carriers	2019	https://data.icao.int/newdataplus/
Cargo Country Stats	IATA	Supranational	Country	2019	https://go.updates.iata.org/I/123902/2019-02-26/82wzwh?ga=2.23820479.489937207.1563815391-704637687.1563815391

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