Information Flows in the Child Welfare Sector

Enabling and Constraining Factors Affecting Productiveness of Information Flows Within the SOS Children's Villages' Ecosystem in Ethiopia and South Africa

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Abstract

Quality information on vulnerable children is intrinsic for making evidence-based decisions at the macro, meso and micro level, impacting millions of children's personal development. However, a contemporary lack of information is one factor causing lacking investments in children. Providing information for tracking the progress of relevant targets in the Sustainable Development Goals, global planning and policy-making, as well as ensuring quality care on the ground, relies heavily on a good knowledge-base. Socio-technical information systems including human and non-human actors are part of this foundation, and information flows between the actors in such systems should be productive in such a way that they enable evidence-based decision making. SOS Children's Villages is one actor providing services to vulnerable children, youth and families and is an important non-governmental organization within the child welfare sector.

A qualitative case study has been conducted, including two African countries where SOS Children's Villages operates - Ethiopia and South Africa - in order to explore the SOS Children's Villages' ecosystem constituting internal and external actors and the factors affecting information flows within and between them.

Evidence shows that the productivity of both research countries' information flows is heavily impacted by infrastructural challenges, governmental turnovers, collaboration and trust, fragmentation, privacy issues, poor record-keeping and lack of data quality and use. Nevertheless, enabling conditions include efforts in infrastructural strengthening and governmental integration efforts, as well as the introduction of the SOS Children's Villages management information system - the Programme Database 2 - and respective features.

The authors recommend SOS to strengthen feedback mechanisms, capacity building, record-keeping and utilizing participatory methods in order to strengthen the utilization of digital systems like the Programme Database 2.

Further research should be steered towards deeper cultural engagement, investigating data values in terms of quality and use, general integration of the child welfare system with a focus on actor alignment, and information flows regarding vulnerable children not in the direct reach of NGOs like SOS Children's Villages.

Keywords: information flows, information systems, management information systems, case management, vulnerable children, developing countries, child welfare, child protection.

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Abbreviations

ACSO	Agency for Civil Society Organizations
DHIS2	District Health Information Software 2
DSD	Department of Social Development
HISP	Health Information Systems Programme
ICT	Information and Communications Technology
MoWC	Ministry of Women and Children Affairs
NGO	Non-governmental Organization
PDB	Programme Database
PDB2	Programme Database 2
SOS	SOS Children's Villages
SDGs	Sustainable Development Goals

I Introduction

"About 4,8 million children are vulnerable in Ethiopia. The government does not know the exact number." (SOS Ethiopia National Programme Director)

1 Introduction

Children without parental care can be defined as “All children not in the overnight care of at least one of their parents, for whatever reason and under whatever circumstances” (Lang-Holmen, 2016, p. 7). Typical for these children is the complex multitude of rights violations with a risk of further rights violations, where the children lose the potential for participating in- and being productive members of society (Lang-Holmen, 2016).

Different international agencies suggest that millions of children who live without parental care and protection are uncounted, therefore neglected from a chance to build a sustainable future. While there is no global number of children who temporarily or permanently live without parental care, estimates point to one in ten children living with neither biological parents (SOS Children’s Villages International, 2017, p. 4).

A study by UNICEF found that children living with people other than their parents fare worse in almost every outcome area compared to children living with their parents (UNICEF, 2014). These children have few prerequisites for growing up in a safe environment, enrolling for education, getting out of poverty and are at heightened risk of abuse, trafficking or child marriage. Furthermore, they risk becoming parents themselves at an early age when unable to provide proper care for their own children, nurturing a cycle of rights violations (SOS Children’s Villages International, 2017; Lang-Holmen, 2016). Investments in young people in sub-Saharan Africa could result in doubling the region's share of the global labor force by 2050, unlocking a better life for hundreds of millions of people (Gates, B. & Gates, M., 2019). Ensuring the nurturing and empowerment of children to participate in society is reliant on data on children living outside of parental care, enabling evidence-based decision making. Still, such information is lacking in a multitude of countries worldwide (Petrowski, Cappa & Gross, 2017; SOS Children’s Villages International, 2017, p. 3).

The following chapter will introduce the motivation behind the research from both a societal and personal point of view: global incentives to ensure the rights of such children, the lack of- and importance of having information on them, and SOS Children’s Villages (SOS) in relation to the matter. Together with personal motivation, motivation for conducting research on information flows related to SOS is established. Subsequent sections provide an introduction to the research, including the scope, research question and objectives, before a brief description of the following chapters is provided.

1.1 Motivation

Children's wellbeing has gained more attention on an international basis, proven by the Sustainable Development Goals (SDGs) meant to be met by 2030 (United Nations, 2015). 14 out of the 17 goals and up to 143 targets directly or indirectly related to children's needs and rights (SOS Children's Villages International, 2017, p. 3). In 1989, the United Nations adopted the Convention on the Rights of the Child, guaranteeing and setting minimum standards for protecting the rights of children - everyone under the age of 18 - in all capacities. Nonetheless, after recognizing discrepancies between the rights described and the actual implementation of these, a set of international standards for giving guidance for implementing the convention were presented in 2009, namely the Guidelines for the Alternative Care of Children. General principles include that the family is the fundamental and natural environment for the protection of children and that every child and youth should live in a supportive, protective and caring environment promoting their full potential. Children and youth without adequate parental care or with no parental care, are at special risk of being denied such an environment (UNICEF, n.d. -a; General Assembly of the United Nations, 2010).

Despite efforts, a range of challenges makes it difficult to track whether goals are being met or not. Key challenges to the implementation of the United Nations Guidelines and adequate interventions include, amongst other things, low financial and human resources and lack of data and information to inform evidence-based planning and policy-making (Lang-Holmen, 2016).

> ...data and statistics available in national and international statistical systems are still limited or poor for over half of the child-related SDG global monitoring indicators, leaving governments without the necessary information to tackle the obstacles of vulnerable and marginalized children (...) Specifically, children and young people made vulnerable by the loss of parental care or by families at risk of abuse and neglect remain virtually invisible in official statistics (SOS Children's Villages International, 2017, p. 3).

In a study conducted by Petrowski et al. (2017), data on children in alternative care could not be identified in 55 of 197 countries analyzed. Similarly, in many countries, UNICEF found only a small fraction of children living in residential care and privately owned centers counted (UNICEF, 2017). When data is available, it is not fully used to inform child protection policy and services, showing the importance of not only collecting and sharing information, but using it as well (SOS Children's Villages International, 2017, pp. 3-4).

“Only with a good knowledge-base can the international development community provide adequate support to families at risk of breaking down and children who have lost parental care” (Lang-Holmen, 2016, p. 8). Accurate data is essential to enable governments and other actors to measure the reach of children without- or at risk of losing parental care. It is also essential to enable reflection on areas of improvement, in order to produce desired impact through policies, practices and funding (SOS Children’s Villages International, 2017, p. 6; Petrowski et al., 2017, p. 396). Lack of knowledge could lead to consequences like fragmented, uncoordinated and underfinanced legislation, making evidence-based planning and policy difficult, and interventions for children’s wellbeing that do take place might not have a great effect (Lang-Holmen, 2016). An urgent need to strengthen countries’ capacity to more accurately monitor, count and report on children in alternative care has thus been elicited (Petrowski et al., 2017, p. 396).

Operating in 136 countries worldwide, SOS is an international Non-Governmental Organization (NGO) “...committed to the welfare of children - often throughout the whole of their childhood - and to strengthening families and communities as a preventive measure in the fight against abandonment and social neglect” (SOS Children’s Villages, 2016, p. 2). Programmes implemented at operational levels might vary. However, two programmes are found to be central:

1. the *Family Based Care Programme* or *Alternative Care Programme,* providing children without parental care a home in alternative care options, including physical placement at an SOS village
2. the *Family Strengthening Programme*, supporting vulnerable families within their community, allowing young people to live with their family of origin.

Children, youth and families enrolled in SOS programmes are referred to as *beneficiaries*, and information related to them is included in information flows within and outside SOS. The information captured is used for everything from case management at lower levels, to global management, strategy and planning at higher levels.

1.1.1 Personal motivation

At a personal level, working with informatics in the context of its usefulness to society has been a motivation in its own, especially in regards to vulnerable societal groups. As the authors are from the Programming and Systems Architecture- and the Design, Use and Interaction Informatics master programmes, a research project embracing socio-technical matters seemed like a natural and intriguing path.

Being introduced to potential research projects, preliminary meetings with SOS Norway elicited current potential issues affecting the child welfare sector. Governmental actors lacking quality information on children in their care was a known phenomenon, making evidence-based decision making hard to conduct at national, regional and international level. Data gaps were identified as one constraining factor for tracking progress in terms of goals like the SDGs. The flow of information between actors was seen as a potential bottleneck. As such, this study aims to respond to the current lack of qualitative research on information flows within the child welfare sector.

SOS plays a great role in terms of providing programmes for children without or at risk of losing parental care, and it could be intrinsic that the information flowing within SOS and between SOS and other actors inform not only SOS, but external actors as well, contributing with information related to some of the vulnerable children. Productive information flows could provide the availability of quality information. This information could be useful not only at operational levels, but at national, regional and international as well, informing evidence-based decision making, helping to ensure proper care of children.

The European Commission (2015) defines integrated child protection systems as "the way in which all duty-bearers and system components work together across sectors and agencies sharing responsibilities to form a protective and empowering environment for all children" (p. 3). Research on SOS in regards to integration and collaboration with external actors could be one way of approaching this from an NGO perspective.

1.2 Research project

Based on a two-year case study, this thesis will discuss constraining and enabling factors currently affecting the productivity of information flows internally, and between actors related to the child welfare sector. More specifically, the aim of the thesis is twofold. Firstly, contributing to an overview of SOS as a key organization bundled in such work, and to map SOS - as the *internal actor* - and *external actors* relevant to SOS operations, further referred to as the *SOS ecosystem*. Secondly, from a technical and organizational perspective, it aims to provide an outline of constraining and enabling factors affecting the productivity of information flows internally at SOS and between the actors in the SOS ecosystem; mainly SOS, other NGOs and governmental actors. This study captures elements of socio-technical information systems and the information flows between the actors in such systems.

In the bigger picture, this preliminary research could contribute to complementary understandings of factors affecting the productivity of information flows within the child welfare sector. As such, it could contribute to a more coherent picture of the state of the sector and shortcomings thereof.

This thesis is the result of a joint effort between the Department of Informatics at the University of Oslo and SOS Norway. The research team consists of three master students affiliated with the Information Systems research group at the University of Oslo. Apart from the two authors of this thesis, a second thesis has been produced by the remaining research fellow, Hilton (2020).

1.3 Research context

The field study was conducted in two research countries - Ethiopia and South Africa - at a span of six weeks, in addition to a two-week preliminary visit to the latter.

Both SOS and other NGOs within the child welfare sector have been subject to the research. NGO types include Civil Society Organizations, a type commonly referred to in Ethiopia. In South Africa, Non-Profit Organizations were more commonly referred to. In some countries, NGOs and Non-Profit Organizations are the same, and for the sake of this thesis, the term “NGO” will be used throughout, embracing all three concepts.

SOS’ internal management information system, the Programme Database (PDB), plays an essential role in this study, as it is used throughout all levels of the organization to manage information on beneficiaries. At the time of this study, a new version - the Programme Database 2 (PDB2) - is under development and will also be showcased as some of the informants participated in a PDB2 pilot.

1.4 Research question

The following research question indicates the direction of inquiry in this research:

1. *What constraining and enabling factors affect the productivity of current information flows containing information related to SOS beneficiaries internally in SOS and between SOS and other actors within the identified SOS ecosystem, and how?*

1.5 Objectives

The objectives, thus the process for answering the research question, are the following:

1. *Identify relevant actors of the SOS ecosystem, and their relations and functions within the ecosystem.*
2. *Investigate the current information systems and information flows containing information related to beneficiaries within the identified ecosystem.*
3. *Discuss factors that might constrain or enable productivity of information flows, and how.*
4. *Provide recommendations for SOS based on the findings.*

1.6 Chapter Overview

Chapter 2 - Research Context provides a general overview of the research context in which the research took place: the research countries, as well as a brief overview of SOS at different hierarchical levels and in relation to the research countries.

Chapter 3 - Literature Review introduces relevant theoretical literature to provide an understanding of 1) child welfare and protection, 2) case management, 3) information, 4) information flows, 5) information systems, 6) data quality, data use and capacity building, 7) integration of information systems and 8) related work on the child welfare sector. Analysis and discussion of the empirical findings will be based upon the understanding derived from these concepts.

Chapter 4 - Ethical Considerations is dedicated to confronting ethical aspects of this study as well as a discussion on cultural factors possibly affecting findings and the validity of the research. Analysis and discussion of the empirical findings will to a limited extent be based upon the understanding derived from these reflections.

Chapter 5 - Research Approach provides a description of how this study was conducted, including the methods and philosophical foundation.

Chapter 6 - Empirical Findings provides findings from the field study based upon the thematic- and document analysis described in the research approach chapter. The findings will provide context as a prerequisite for discussing enabling and constraining factors.

Chapter 7 - Enabling and constraining factors draws on the literature found in chapter 3 (literature review) and 4 (ethical considerations), discussing enabling and constraining factors affecting the productivity of information flows within the ecosystem based on the analysis and findings chapter.

Chapter 8 - Conclusion and future work summarizes the discussion of the research question, provides recommendations to SOS, reflections on the research conducted, and lastly, provide proposals for future research.

II Research Context

“In theory the internet is there, in reality it is very difficult to access”

(HISP South Africa Team Member)

2 Research Context

The following chapter will provide information on the research context. Firstly, an overview of the research countries, Ethiopia and South Africa (Figure 2.1), will be given, followed by a summary and statistical comparison. Lastly, a brief introduction to SOS ICTs, relevant hierarchical levels and SOS' operations in the research countries will be provided.

Figure 2.1 - Map over the research countries

2.1 Overview of Ethiopia

Ethiopia is a landlocked federal democratic republic in Eastern Africa, bordering Somalia, Djibouti, Eritrea, Sudan, South Sudan and Kenya (Figure 2.2). Except for a five-year Italian occupation from 1936, the country has never been under colonial rule. The capital of Ethiopia is Addis Abeba (Central Intelligence Agency, 2020a).

Ethiopia has a 2020 population estimate of 108 million people, speaking several languages including Amharic, Oromo and Somali. The country has a young population, with a median age at 19.8 years. Furthermore, life expectancy is at 67.5 years, and with a birth rate of 31.6 births to 5.9 deaths per 1000 (Central Intelligence Agency, 2020a). As a fairly rural country, about 80% of the population is living in communities outside urban cities (The World Bank, 2018a).

Figure 2.2 - Map over Ethiopia

Ethiopia currently ranks 44th in the Numbeo Crime Index, where the crime rate is mostly sustained by opportunistic and non-violent petty crimes (Numbeo, 2020; Macrotrends, 2015; Overseas Security Advisory Council, 2019). The Happiness Index is at 26.7, ranking Ethiopia 66th out of 140 in regards to life expectancy, wellbeing, ecological footprint and inequality (Happy Planet Index, n.d.).

2.1.1 Infrastructure and resources

Although being one of the poorest countries in the world, Ethiopia still has the lowest level of income-inequality in Africa, as well as one of the lowest levels globally. Furthermore, the government has set a goal to become a middle-income country by 2025, currently being one of the fastest growing economies in the world. Nevertheless, a big part of the population is formally unemployed and the level of literacy in the country is low (Central Intelligence Agency, 2020a; UNICEF, 2018; USAID, 2020; The World Bank, 2019).

Ethiopia has 59 mobile subscriptions per 100 inhabitants, with numbers increasing. The government is currently maintaining the only telecompany in the country, Ethio Telecom (Central Intelligence Agency, 2020a). The telecom market will, nonetheless, be opened up to foreign actors. As such, efforts on improving the network might arise, exemplified by the governmental plan to install 4G networks in several locations (Reuters, 2019a). Access to the internet is controlled by the government, and as of 2016, only 15.4% of the population was using the internet (Central Intelligence Agency, 2020a).

The distribution of electricity is state-owned as well, with an average access rate of 40% (Central Intelligence Agency, 2020a). Access to electricity is markedly lower in rural areas than in urban areas and it is estimated that 12.6 million households are without electricity (USAID, 2020). Rationing electricity due to water shortages and lack of capacity has led to several blackouts and load sheddings (Reuters 2019b, 2019c; Astatike, 2019). Continuous blackouts, governmental blocked websites and slow internet speed have made maintaining connection and communication challenging (Lonely Planet, 2020; Amnesty, 2016).

2.1.2 Governmental child protection structures

Ethiopia has ratified the United Nations Conventions on the Rights of the Child and endorsed the 2030 Sustainable Development Agenda (UNICEF, n.d. -b).

The Ministry of Women and Children Affairs (MoWC) is "the government body mandated to coordinate child rights and child protection and responsible for the overarching child protection system and services" (UNICEF, 2018a, p. 63). Their duties include, but are not limited to collecting, compiling and disseminating information on the objective realities faced by children to all stakeholders, coordinating stakeholders and conducting regular monitoring and evaluation (Ministry of Women and Children Affairs, 2020a, 2020b).

The governmental organ responsible for collecting information on Ethiopian NGO projects - like SOS projects - is the Agency for Civil Society Organizations (ACSO). As NGOs provide the ACSO with yearly plans, it is the responsibility of the ACSO to evaluate this plan and give feedback, while following up and assisting them in their projects (Council on Foundations, 2019; Agency for Civil Society Organizations, 2020a, 2020b).

2.1.3 The state of the children

Out of the Ethiopian population, 47 million are under the age of 19 (UNICEF, 2018b, p. 1). It is estimated that 4.5 million of these are orphans. However, the majority of vulnerable children in need of care and support globally are not orphans, making the number of potential beneficiaries greater (Tessema, 2018; Lang-Holmen, 2016, pp. 4 & 11). According to UNICEF, "nearly 36 million children in Ethiopia are poor and lack access to basic social services" (UNICEF, 2019a). With a worldwide average at 0.57, The Human Capital Index, measuring how much capital each country loses through lack of education and health, is for Ethiopia at 0.39. As a result, children born today are, by the age of 18, expected to have reduced human capital influencing their level of productivity for the next generation of workers (The World Bank, 2019). Relating to child labor, 85% of children aged 5-17 were in 2001

engaged in non-economic housekeeping activities or economically active, few attending schools (International Labour Organization, 2020). Ethiopian children's multidimensional poverty and deprivation are at 90%, meaning most children in the country are deprived of some of the identified dimensions, like nutrition, health, water, housing and education (UNICEF, 2018c; CSA & UNICEF Ethiopia, 2018).

Ethiopia has one of the highest rates of child marriage in the world, and one out of four girls are giving birth by 18, risking maternal injuries. HIV prevalence in Ethiopia is low relative to the rest of Eastern Africa. However, more than one million people are estimated to be living with HIV, and few utilize voluntary testing (Organisation for Economic Co-operation and Development, 2014). Many children living with HIV are not identified or linked with treatment, and many are orphaned due to AIDS (Pegurri et al., 2015). HIV is still a big taboo in many affected countries, and children infected are at risk of being stigmatized and neglected from society. Furthermore, HIV status can affect placement opportunities for the affected child (SOS Children's Villages USA, 2019; Freeman & Nkomo, 2007).

Infectious diseases can disrupt children's environments and lead to negative consequences for their wellbeing, development and protection (UNICEF, 2020a). The current COVID-19 crisis challenges advance towards the achievement of the SDGs and might affect Ethiopian children disproportionately as schools are closed, disrupting schooling and early childhood nutrition. Worsening of multidimensional child poverty could moreover be experienced (UNICEF, 2020b).

2.1.4 Child information and statistics

Birth registration is an essential factor for legal authentication, access to social services and protection, and avoiding the risk of being stateless, and is a right described in the United Nations Convention of the Rights of the Child (UNICEF, 2019b, n.d. -c, p. 4). Birth registration in Ethiopia is low, with only 3% of children under the age of five registered (UNICEF, 2018c).

Several postponed conductions of the national census leave statistical gaps, meaning lack of updated information regarding the Ethiopian population, including the children. At the Central Statistical Agency responsible for national statistics, the 2017 census has yet to be conducted, postponed for the second time in 2019. Moreover, the blocking of websites and internet shutdowns leading to information blackouts have raised questions regarding the justification of information control (Dugo, 2016).

2.2 Overview of South Africa

South Africa is located in the very south of sub-Saharan Africa, bordering Namibia, Botswana, Zimbabwe and Mozambique, whilst enclaving the Kingdom of Lesotho (Figure 2.3). The country has three capitals supporting different functions: the administrative capital Tshwane (former Pretoria), the legislative Cape Town and the judicial Bloemfontein (Government Communications, 2019).

Figure 2.3 - Map over South Africa

Due to South Africa's turbulent history of occupation and colonization, the country is inhabited by a heterogeneous population of approximately 58.8 million people (Department of Statistics South Africa, 2019a; Western Cape Government, 2019). Consequently, there are multiple official languages, comprising isiXhosa, Afrikaans and English amongst eight others. South Africa has a highly rising population, with a median age of about 26 years. Life expectancy in the country currently at 64.8 years (Department of Statistics South Africa, 2019b; Central Intelligence Agency, 2020b).

South Africa has a significantly high crime rate, currently ranked third on Numbeo Crime Index. Crime rates were at 33.97% in 2016 (Numbeo, 2020).

2.2.1 Infrastructure and resources

South Africa has one of Africa's biggest economies. Yet, it sled into its third recession in 2019 (Department of Statistics South Africa, 2020a). The unemployment rate estimates in the country in 2017 was high at 27.5%, and 16.6% of the population was in 2016 estimated to be living below the

national poverty line (Central Intelligence Agency, 2020b). A report from the World Bank published in 2018 suggests that South Africa is the most unequal country in the world by any measure. A significant determinant of this inequality is inequality of opportunity (The World Bank, 2018b, pp. xi & xviiii).

South Africa has a 2018 estimate of 167 mobile subscriptions per 100 inhabitants and a 2016 estimate shows 54% of the population was using the internet, significantly higher than that of the Ethiopian population (Central Intelligence Agency, 2020b). In contrast to Ethiopia, South Africa is seen as having one of the highest media freedoms in Africa (Bitso, 2014).

Governance of electricity consists of a single actor controlling the grid across the country. It is estimated that around 9 million people in South Africa are living without electricity, where rates are far superior in urban areas in contrast to rural communities (Central Intelligence Agency, 2020). Nonetheless, a comprehensive electrification programme started in 1990 in order to improve access (Bekker, Eberhard, Gaunt & Marquard, 2008).

2.2.2 Governmental child protection structures

Similar to Ethiopia, South Africa has signed the United Nations Convention on the Rights of the Child, made a national commitment to the SDGs and is considered to have an impressive constitution and legislation to support children's rights (Parliament of the Republic of South Africa, 2019, p. 2; Byrne, 2005, p. 34). The National Development Plan 2030 focuses on eliminating poverty and reducing inequalities by, amongst other measures, increasing the quality of education for children and extending early childhood development services and nutrition programmes (Government Communications, 2019; National Planning Commission, 2012).

The Department of Social Development (DSD) is the governmental department responsible for development, social protection and social welfare services in South Africa (Western Cape Government, 2019). Furthermore, the department acts as custodians for all NGOs and coordinates their operations. DSD is responsible for providing social protection services and forming partnerships on behalf of the government in an effort to make vulnerable individual groups and communities self-reliant.

2.2.3 The state of the children

Out of the South African population, 19.6 million were in 2017 under the age of 18, and 2.8 million of these were orphans. Around 58,000 lived in 2017 in child-only households and more than two-thirds

of the children lived in the poorest 40% of households (Hall & Sambu, 2018, pp. 132-135). In 2015, 557,000 children were engaged in child labor (Bureau of International Labor Affairs, 2017). South Africa's Human Capital Index is relatively low at 0.41, although a little higher than Ethiopia's 0.39, again linked to risks of poor health and education (The World Bank, 2018c).

Regarding children's parental living arrangements, statistics have revealed that about 21% of children in 2017 were living with neither parent, being reliant on other forms of care. Of the children living under biological guardianship, 41.4% of the children were living with their mother only, contrasting a shallow 3.3% who are only living with the father (Department of Statistics South Africa, 2017). Henceforth, this disparity shows that South Africa has one of the highest rates of father absence in Africa (Posel & Devey, 2006). A vast majority of the children were living in rural areas as opposed to urban cities, calling for diverse needs (Department of Statistics South Africa, 2017).

"...the extended family system still bears the greatest burden in caring for such children, despite the obligation of governments to provide alternative care..." (Assim, 2013, p. vi). Although extended family and friends taking care of children - also referred to as kinship care - is a preferred placement option, studies show that 12% of South African caregivers in 2007 could not identify a carer for their children. Furthermore, willingness to place children in an extended family proved not to be easily translated to reality (Freeman & Nkomo, 2007).

Despite the country moving in the right direction, South Africa still has the biggest HIV epidemic in the world. Most orphans have lost one or both parents due to AIDS, and 360,000 children are living with HIV (SOS Children's Villages International, 2019).

Since the beginning of the COVID-19 lockdown in South Africa in march 2020, numbers of neglect cases have increased and some parents are found to be stressed about lack of income, unemployment and children missing school, at times taking the frustration out on the children. The increased neglect cases are predominantly linked to low-income households and might be connected to the current recession South Africa is newly experiencing. Grandparents and neighbors have shown to be important for caring for children and looking out for suspected abuse (Samie-Jacobs, 2020).

2.2.4 Child information and statistics

During apartheid, the South African government made efforts to hide statistics by refraining to collect certain data and discouraging people from reporting sensitive facts, like HIV/AIDS status, resulting in blind spots in the national statistics, keeping sections of society excluded from the mainstream

economy. Information systems supporting increased awareness- and monitoring of the situation of children have been assessed as needed (Byrne, 2005).

Between 1996 and 2011, approximately 20% of births were not registered by parents within the year of birth. However, birth registration had increased drastically in relation to the years before (Nannan, Dorrington & Bradshaw, 2019).

The Department of Statistics acting as the forefront for statistical systems in use for evidence-based decisions in the country, is currently preparing for a 2021 census with a goal of achieving a full population count using new methods of digital data collection (Department of Statistics South Africa, 2020b; Hall & Sambu, 2018, p. 132).

2.3 Research Countries Summary

The South African population is almost half the size of the Ethiopian. The same goes for the part of the population, which is under the age of 18. There is a lower life expectancy in South Africa than in Ethiopia, and crime and inequality in South Africa are higher, although the overall economy is greater. Ethiopia consists of more rural areas with lower rates of literacy and electricity access, and significantly fewer are utilizing the internet. A summary comparing both countries is found in Table 2.1.

Table 2.1 - Research Countries Summary

	Ethiopia	South Africa
Population	108 million (2020 est.)	58,8 million (2019 est.)
Median age	19.8 (2020 est.)	28 (2020 est.)
Life expectancy at birth	67.5 (2020 est.)	64.8 (2020 est.)
Birth rate per 1,000 population	31.6 (2020 est.)	19.2 (2020 est.)
Death rate per 1,000 population	5.9 (2020 est.)	9.3 (2020 est.)
Rural population (% of total population)	79.2% (2018)	33,6% (2018)
Numbeo Crime Index ranking	44th (2020)	third (2020)
Literacy (total population)	51.8% (2017)	87% (2017)

Population using the internet (%)	15.4% (2016)	54% (2016 est.)
Electricity access (%, rural)	26,5% (2016)	67,9% (2016)
Electricity access (%, urban)	85,4% (2016)	92,9% (2016)
Population under the age of 18	41 million (2018)	19.6 million (2017)

2.4 SOS Children's Villages

SOS Children's Villages operates at several levels. Four of these are directly relevant for this research: International-, National-, Regional- and Village level. These will be introduced in the following sections after a brief introduction to current ICTs. Lastly, SOS Ethiopia and SOS South Africa will be presented.

2.4.1 SOS Information and Communications Technology

SOS' Information and Communications Technology (ICT) network consists of multiple global actors (Figure 2.4). At the International Office in Austria, PDB and PDB2 development team members are found (Mihaimeed, 2017).

Figure 2.4 - SOS ICT Network (Mihaimeed, 2017)

SOS has outlined a 2030 strategy in order to articulate specific goals to meet the needs of children in communities around the world in the coming decade. Such goals are aligned with SDGs, also taken into consideration when developing indicators for internal information systems (SOS Children's Villages, n.d. -a). One of the goals presented involves a push towards a more digital organization and

includes utilizing technology to a greater degree in programme work. As well as improving its own digital infrastructure, SOS also works in communities to improve the digital literacy for young people meeting an ever-evolving digital world (SOS Children's Villages, n.d. -b).

2.4.2 SOS International

As the umbrella organization, SOS International coordinates and supports their programmes around the world, managing the organization's finance, accounting and reporting. Ensuring knowledge sharing and effective information flow is seen as crucial in promoting children's rights (SOS Children's Villages International, 2020). There are several international actors involved at this level, including the International Office in Austria where the PDB and PDB2 development team members are found.

2.4.3 SOS Regional

Regional offices are placed within some of the countries SOS operates in. These offices act as mediators between the international and national level, guiding new policies and protocols.

2.4.4 SOS National

A national office is present in all countries where SOS operates. Its function involves representing an overseeing point of contact for all villages at lower levels in the country. Responsibility involves coordination and monitoring of services provided at lower levels, like Family Strengthening and Family Based Care.

2.4.5 SOS Villages

Based on models of kinship or family, Family Based Care in villages generally consists of several houses located on a physical and bordered property, where each house is inhabited by an SOS parent and SOS siblings. The parent, often a mother, is not a biological parent, but an SOS employee and siblings are not necessarily biological siblings. Beneficiaries are staying in such houses until the possibility of re-integration with the family of origin or exit from SOS programmes are assessed to be appropriate.

2.4.6 SOS Ethiopia

SOS Ethiopia Programmes include Family Based Care, Family Strengthening, Health, Emergency Response and other activities. There are currently seven children's villages in the country and one national office in Addis Abeba (Figure 2.6). In addition, the regional office responsible for, amongst others, SOS Ethiopia and SOS South Africa, is found next to the national office. Approximately 1,500 beneficiaries are registered in alternative care programmes, and 20,500 are registered in family

strengthening. An additional 4,000 are registered for emergency response. 326 out of 470 staff are involved with alternative care.

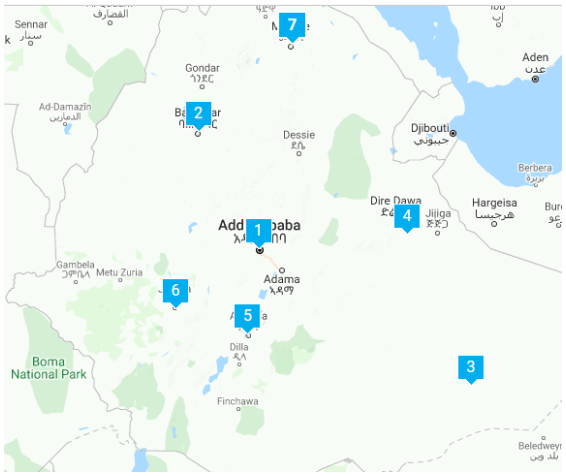

Figure 2.5 - SOS Villages in Ethiopia

2.4.7 SOS South Africa

Eight children's villages and three social centers are found in South Africa in addition to one national office in Johannesburg (Figure 2.7). In addition to the programmes of Family Based Care, Family Strengthening and Health, SOS South Africa's work also involves offering counseling and guidance and trying to support the local population by organizing HIV/AIDS prevention and awareness campaigns (SOS Children's Villages USA, 2019). Approximately 700 beneficiaries are registered in alternative care programmes and 6,700 in family strengthening. 181 out of 207 staff are working with alternative care.

Figure 2.6 - SOS Villages and Social Centres in South Africa

III Literature Review

"over time we created reporting silos (...) we experienced the pain of having different methods, different business rules, in different types of reports"

(SOS International PDB team member)

3 Literature review

The following chapter will introduce relevant concepts from the literature relating to the research. Chapter 7, ”constraining and enabling factors” will further discuss the research findings in context to the following presented literature. The last section of this chapter will provide a summary.

Literature within the following concepts will be introduced, respectively as:

1. Child welfare and protection
2. Case management
3. Information
4. Information flows
5. Information Systems
6. Data quality, data use and capacity building
7. Integration of Information Systems
8. Related work on the child welfare sector

3.1 Child welfare and protection

Child welfare can be defined as “A continuum of services designed to ensure that children are safe and that families have the necessary support to care for their children successfully” (Child Welfare Information Gateway, 2018, p. 1). Services often include prevention of child abuse and neglect, help to families for protecting and caring for their children, report management for potential child abuse and neglect, assessment of child and family needs, alternative care arrangements, supporting educational needs and working to achieve family reunification (Child Welfare Information Gateway, 2018, p. 1). Child welfare services include an array of decision making (Pecora, Whittaker, Barth, Borja & Vesneski, 2018, p. 1).

Child protection can be defined as “preventing and responding to violence, exploitation and abuse against children”. Children vulnerable to abuse, such as those living without parental care, are also targeted by child protection programmes (UNICEF, 2006). In contrast to child welfare in which the best interests of the child are broadly defined to include the welfare of the family, child protection can be seen to focus more narrowly on protection (Taylor, 2017).

SOS works with child welfare and have their own child protection policy, based on, amongst other things, the UN Conventions on the Rights of the Child. Specific considerations are given to violation of children's privacy (SOS Children's Villages International, 2008).

UNICEF (2018d, p. 16) argues a Child Protection System is generally composed of human resources, finance, laws and policies, governance, monitoring and data collection as well as protection and response services and care management. Different actors are also included, namely children, families, communities, those working at subnational or national level and international actors. The outcomes of the interactions between these components and actors comprise the system.

To be fully functional, UNICEF (2018d, pp. 16-17) argues that a child protection system needs certain elements to be present (Figure 3.1). Such elements amongst other, encompass:

1. coordination across government departments and between formal and informal actors.
2. information, monitoring and accountability mechanisms built on evidence-based information and information systems supporting case management and performance monitoring.
3. A continuum of services: preventive, early intervention and responsive services including a process of care which includes case management activities like identification, referral, follow-up, response and so on.
4. Human, financial and infrastructure resources, including effective resource management such as skilled workers, adequate budget allocations, effective training and appropriate infrastructure.

In a self-evaluation, UNICEF found the greatest potential for sustainability to be the support to child protection information management systems, case management and coordination. Capacity-building was identified as one intervention especially effective for strengthening child protection systems. Nonetheless, achieving functional child protection systems was seen as a highly ambitious long-term goal. (UNICEF, 2018e, pp. x & xii).

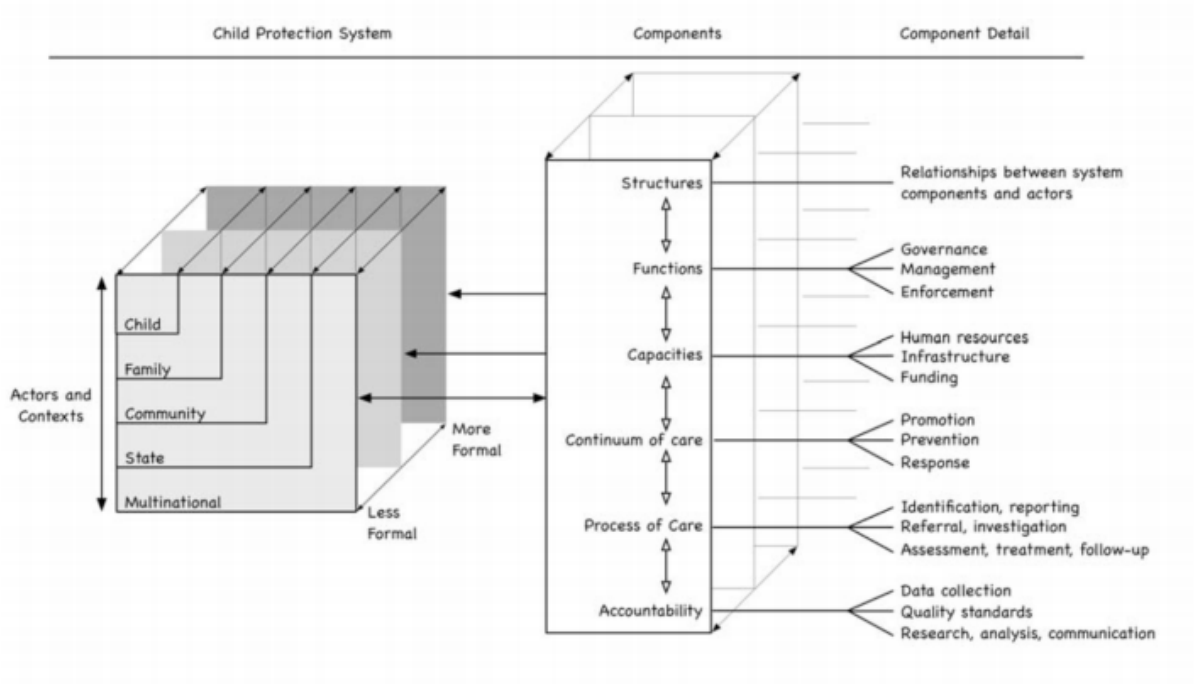

Figure 3.1 - Child protection system elements (UNICEF, 2018d, pp. 16-17)

3.2 Case Management

Case management has its relevance in many sectors. However, with the intention to be used actively in child welfare initiatives, McCormick (2011) defined case management as "... the process of assisting an individual child (and their family) through direct support and referral to other needed services, and the activities that case workers, social workers or other project staff carry out in working with children and families in addressing their protection concern" (p. 1). A "case" will in this sense involve an individual or a family being addressed of such protection concerns or other support services at operational levels. It is essential to distinguish case management from information management. The latter is understood as any documentation of confidential information collected from the child while assisted through case management (McCormick, 2011). Cambridge (2020a) further defines information management more generally as "the process of collecting, organizing, storing and providing information within a company or organization".

As mentioned in the preceding chapter, both South Africa and Ethiopia have a large number of the population living in rural communities. The largest source of support for vulnerable children in such countries is the families and other families part of the communities (Roelen, Long & Edstrom, 2012). In this regard, conventional case management definitions may be inconsistent with traditional care services provided for these children. Such uncertainty, in combination with western social work

models, has called for a reinvention of new concepts in the African context which could be a beneficial contribution at both policy level as well as children in need of care (Roelen, Long & Edstrom, 2012).

Basic case management in developing countries can be split into four essential components, which form the basis of responses to child protection concerns (McCormick, 2011). A quick outline of such components will be outlined in Table 3.1.

Table 3.1 - Four components of case management

Component	Description
Identification and assessment of children	Identification of vulnerable children needing to be addressed through case management can take place in multiple ways. As such, referral mechanisms within governmental actors must be in place in order to address children in need of care to appropriate services. Any actor making such discoveries should be aware of regulatory agencies and NGOs suited for the purpose. Subsequent to such referral, an assessment of the child should be conducted by the relevant actor, in order to meet their best interest.
Individual support plan	In cases where the assessment reveals that care services are necessary, an individual support plan should be drafted to determine what services are required.
Support and referral services	Following, support services are provided. Furthermore, depending on the support plan, the child may be in need of multiple social services (eg. education, physical, mental or legal). In such an event, the child is needed to be referred across needed services. However, services and referrals to needed services can be provided by the same governmental agency or NGO.
Monitoring and review	In the duration of the services provided, a planned review of the child's situation is a crucial part of case management. Activities include regularly planning and monitoring the services provided to the child and track progress in line with the development plan to ensure identified problem areas are solved. Such reviews should repeat with regular intervals and should include relevant caregivers in line with the provided services.

Social workers, both governmental and non-governmental, carry a responsibility to manage cases and by such means have direct responsibilities in all components of case management. “Social workers are considered the most important actors in referral mechanisms and care management for vulnerable children in contexts of a well-established formal social work and child protection sector…” (Roelen,

Long & Edstrom, 2012, p. 16). However, explicit descriptions of roles and responsibilities are often found to be unclear (USAID, 2011). As such, many social workers in eastern and southern Africa receive training deviating from actual work tasks, as many get overloaded with routine administrative work (Roelen, Long & Edstorm, 2011).

3.3 Information

Information is a broad term, and according to Powell (2003, p. 41) almost anything can be seen as information, from individual knowledge of staff to manuals and reports.

Information systems can consist of the collection and transformation of data, providing information output, again being applied by receivers in the form of knowledge. With “data”, we refer to raw data: a collection of text, symbols, characters, images and numbers without much meaning than what they state. When processing data, the result is information: data with meaning. Interpreting information and applying meaning to it further gives us knowledge: information that can be acted on to produce significance or value (Powell 2003, pp. 42-43; Chibba & Rundquist, 2009, p. 332; Heeks 2017; Byrne, 2005, p. 36; Figure 3.2).

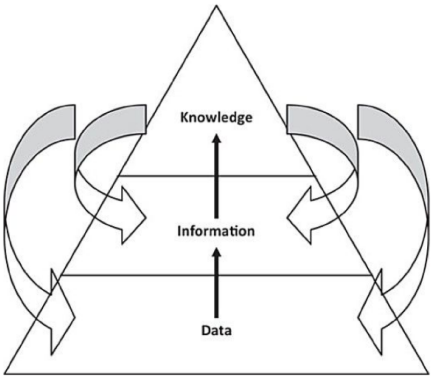

Figure 3.2 - The relation between data, information and knowledge (Heeks, 2017, p. 7)

ICTs can be used for information management, set up to enhance rationalized forms of decision making. However, information overload, misinformation, disinformation and out-of-control information could be the result. This could in turn lead to misinformed actors (Lash, 2002).

Evidence-based work is by Powell (2003, pp. 134 & 137) described as work requiring people to be explicit and specific about what evidence they are using to make decisions, allowing for critical assessments. One needs quality information in order to have a sufficient understanding of issues and opinions in order to make rational decisions. Byrne (2005, p. 34) further argues that the commitment of government and NGOs is needed to enable information being acted upon.

3.4 Information flows

According to Powell (2003, pp. 45 & 172), the flow and exchange of information can help create information value. If information is flowing well within and between organizations, it can empower people and enable them to make evidence-based decisions. Information flow can be defined as "the movement of information between people and systems" (Spacey, 2019). The way in which information flows, or not, can be vital to effective use. Information flow types include publish or subscribe models via data integration, information flowing via human communication such as a business email and the flow of information created by humans such as documents (Spacey, 2019).

The word "productive" is defined by Cambridge (2020b) as "having positive results". Thus, "productive information flows" will in this thesis refer to the movement of information between people and systems enabling actors to make evidence-based decisions based on quality information. According to Powell (2003, pp. 45-46), information flows can be distorted or blocked by organizational structures, inter-organizational or intra-organizational politics, and individual behavior.

Byrne (2005, pp. 33 & 41) argues that for intermediaries like NGOs to have influence, there is a need to develop information-sharing capabilities. Linkages with information flow at higher levels need to be made at lower levels. Moreover, someone must be listening on the other side of the information flow and be able to act on the information. As stressed by Powell (2003), "It is not good enough to throw [information] in the air and hope that it lands on the right desks and is noticed when it does" (p. 46).

3.5 Information Systems

> Information associated with the use and development of information systems can be regarded as knowledge for social action and can assist in an improved knowledge base which can be used to put pressure on government and civil society to change the restrictive structures in which people live (Byrne, 2005, p. 43).

Information systems can be defined as "...a set of entities, shared patterns, and information processing capabilities that support goal attainment" (Watson, 2014, p. 520). Here, entities are people, groups of people and organizations, and information processing capabilities *can* include digital means of processing information.

Watson (2014, pp. 515-516) argues that information systems are everywhere, and not only in the

context of computers; even the Roman alphabet and languages are information systems. Likewise, Braa & Sahay (2012, p. 12) argue for the socio-technical perspective to balance the view on technology and people equally, recognizing that technology can support the collection, transmission, analysis and presentation of information for people to use in decision making. Byrne (2005, p. 33) also looks at information systems as a social process, further stressing the importance of designing information systems that are culturally and technologically appropriate.

Byrne (2005, p. 33) argue that information systems are based on propositions that child vulnerability can be tackled through the creation of awareness and visibility on the situation of children. Likewise, Lang-Holmen (2016) argues for children in the blind spot, and that governmental and societal action can address vulnerability situations by acting on the information being produced, as processing data to knowledge implies.

3.5.1 Management Information Systems

Powell (2003) argues information management, from a manager's perspective, involves perceiving information as a resource which your organization has or can acquire easily, and which can be consciously used and re-used to meet the organization's needs.

Hurtubise (1984, p. 3) argues that a management information system provides specific information support to decision making processes at each level of an organization. As such, both case management at operational levels and policy-making and planning at higher levels can be linked to such systems, like the PDB. According to Powell (2003, pp. 1, 45, 47 & 204), the process of creating a resource out of data, further creating information that has meaning, needs to be managed, whether or not your organization uses ICTs. This process of managing information involves everyone in the organization in their daily work. Information management can be looked at in the context of organizational levels, where structures of information management should be present. It could also be understood in the context of tools and skills for conducting information management. Lastly, information management can be a personal competence in regards to individual managers at different levels, being aware of information as a resource to be used in everyday practice.

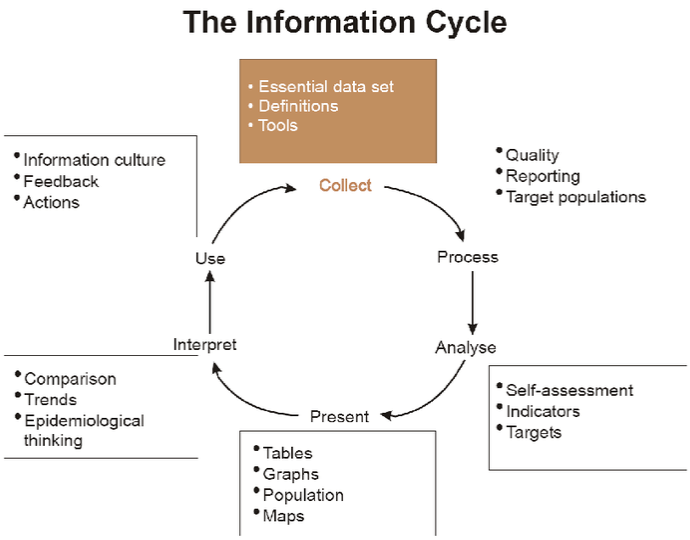

Figure 3.3 - The Information Cycle (Heywood & Rohde, 2000, p. 21)

The information cycle, as introduced by Heywood and Rohde (2000, p. 21), provides a model for looking at links between the phases of collecting, processing, analyzing, presenting, interpreting and using information (Figure 3.3). The model is relevant in regards to beneficiary data related to case management being collected at lower levels, quality checked, aggregated and reported, analyzed and presented - for instance via graphs in a PowerPoint presentation - and interpreted at higher levels. From the interpretations, feedback can be provided to lower levels. Nonetheless, interpretations of the information in the form of knowledge can lead to action.

3.6 Data quality, data use and capacity building

According to Braa and Sahay (2012, p. 261), limited use of data is often the root of poor data quality and vice versa. The capacity building could be one factor affecting quality and use in positive ways. The following section will introduce literature on data quality, use and capacity building.

3.6.1 Data quality and data use

To make an organization more efficient, information should be current and of appropriate quality, available to those who need it, not hidden or lost. Different actors should have easy access to the information they need, without wasting too much time “wading through information that they cannot use” (Powell, 2003, p. 48; Heywood & Rohde, 2000).

Lippeveld (2001) argues that data of poor quality, or irrelevant data, is one reason for the lack of use of information. Moreover, Braa, Heywood and Sahay (2012, p. 379) argue that quality and data use are interrelated; greater use of data will help improve their quality, in turn leading to more data use.
Data use is one important concept in the Information Cycle as presented in Figure 3.3. It is important to note that information use should be found at every level, as everything is done at the operational level must be based on information (Heywood & Rohde, 2000, p. 84), also relating to case management. After managers have interpreted information at higher levels, they should give feedback to other information users through reports, visualizations, league tables and so forth. Verbal feedback has also an important function in order to include lower levels (Heywood & Rohde, 2000, pp. 84-87). Feedback is a form of training and can directly address the causes of poor data quality and enhance awareness of the importance of data. Moreover, feedback can make lower levels aware of their performance in regards to other actors at the same level (Garrib et al., 2008, pp. 551-552). Validation checks incorporated in software can also help establish data quality (Braa & Sahay, 2012, p. 133).

Another reason for lack of use of information is inadequate human, physical and financial resources found in many developing countries. Even though computer equipment is introduced, there can be a lack of qualified staff to maintain the software and hardware (Lippeveld, 2001). Moreover, Powell (2003, p. 87) argues that too much information can weaken abilities for people to absorb the data, meaning the information no longer has meaning.

3.6.2 Capacity building

As staff turnover is becoming more frequent, a potential challenge could be that staff knowledge will be lost in the organization when they leave (Powell, 2003, p. 53). If new working practices are introduced, activities like training may need to be conducted. Furthermore, training is an essential part of the introduction of ICTs (Powell, 2003, pp. 100 & 233). Training to address poor data quality issues could be of use, but are seen as simplistic as larger problems of institutional fragmentation and poor record-keeping can be linked to quality. However, the capacity building could be one key effort in improving information use when scaling systems vertically down the hierarchy to new users (Braa & Sahay, 2012, pp. 223 & 91).

3.7 Integration of information systems

Integration is “the process of joining distinct systems in such a way, that they appear as being a whole in a particular perspective” (Braa & Sahay, 2012, p. 60). Integration does not, in this context, mean

"making a big system", but instead joining decoupled systems so that they appear as such. Interoperability, on the other hand, is "the ability to exchange data between two or more systems" (Braa & Sahay, 2012, p. 60), a direct connection between different systems. Interoperability is not limited to exchange between computer-based systems, but can include physical transport of paper as well (Braa & Sahay, 2012, pp. 60-61). An example of integration and interoperability is provided in Figure 3.4; the District Health Information Software 2 (DHIS2), an information system for health management, where the DHIS2 and sub-systems are integrated with each other through DHIS2 interoperability (Braa & Sahay, 2012, p. 60).

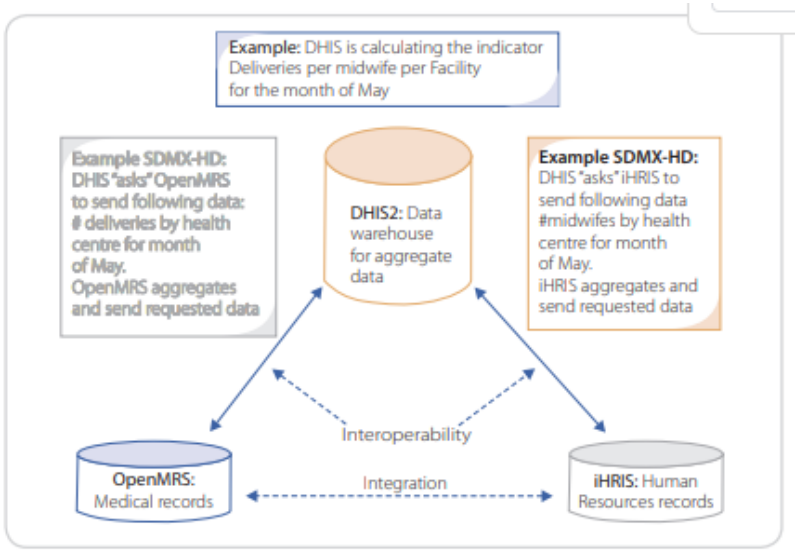

Figure 3.4 - Examples of interoperability and integration (Braa & Sahay, p. 60)

The counterpart of integration is fragmentation. As argued by McCormick (2011, p. 5), child welfare NGOs should support the development of national systems wherever possible. However, this is more often not the case. Fragmentation has been seen as a great problem in health information literature where actors organize their own reporting systems, oblivious to what happens outside organizational borders (Braa & Sahay, 2012, p. 19). Varga, Barreto and Battaglin (2019) argue more broadly that complexity drives organizations to manage silos, inhibiting a holistic view of the target environment, leaving room for failures. Likewise, Grimson, Grimson and Hasselbring (2000, p. 49) argue for actors' current independence in the use of information technology.

3.7.1 Vertical and horizontal integration

A distinguishment between vertical and horizontal integration is made in order to contrast the independent and dependent information system integrations.

Horizontal integration is defined as “integration across various domains or business areas of an organization, or across organizations”, whereas vertical integration is “integration among the line of command from the top to bottom, in the hierarchy of an organization, or the line of business from its top management down to operational levels“ (Braa & Sahay, 2012, p. 63*).* As an example, horizontal integration could mean the integration of different information systems of organizations within the child welfare sector, and vertical could mean the integration of the different levels in the hierarchy of SOS.

As horizontal integration is often emphasizing the integration of different information systems, vertical integration emphasizes “silo”-integration of the same information system. “Too much” vertical integration can be seen as the main reason for fragmented information systems, as programmes tend to focus on building their information systems as silos with little or no interaction horizontally. Even with such negative remarks, vertical integration can be linked to goals of achieving “seamless” flows of information from lower operational levels to higher administrative levels, thus not inherently negative. Vertical integration also corresponds to the aggregation of data, as lower levels will need granular information for, for instance, operational beneficiary case management. In contrast, higher levels will need more aggregated information for management, where only particular subsets are relevant for decision making (Braa & Sahay, 2012, pp. 63-64). Thus, vertical integration means higher levels have a low granularity of data, while lower levels have higher granularity. Only certain information deemed important will reach higher levels, like SOS international.

Information is not only stored digitally, but analog information often ends up in digital information systems. The paper-computer interface could be significant in achieving “seamless” vertical integration, as reporting from lower levels typically is paper-based, especially in developing countries.

3.7.2 Standardization

Integration and interoperability both build on the use of standards. Three levels of standardization are described by Braa and Sahay as the “technical level”, the “semantic level” and the “organizational level”. The technical level is easier to negotiate whereas there are increasing differences between views up to the organizational level (Braa & Sahay, 2012, pp. 66-67; Figure 3.5).

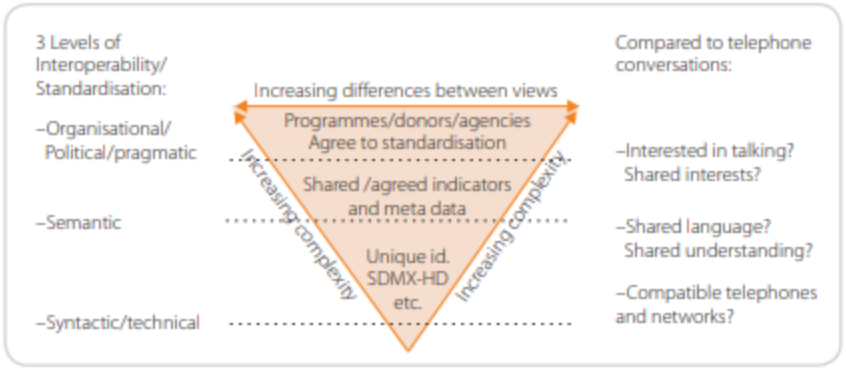

Figure 3.5 - Three levels of standardization (Braa & Sahay, 2012, p. 67)

The technical level embraces standardization of data transfer and interoperability, for both paper- and computer-based systems and any combination. Thus, it embraces agreements on shared "protocols" to enable the transfer of data and information (Braa & Sahay, 2012, p. 68). At the semantic level, the meaning of what is being transferred in terms of standards for data and indicators, data dictionaries and metadata must be agreed upon. This is somewhat more difficult to address and create a shared understanding of as there are more differing views on this matter, but is a focal point in most standardization efforts. At this level, shared meaning and understanding is derived from translations of interests and views (Braa & Sahay, 2012, p. 68). The organizational level is the level of decision making. Here, the power to decide standards at the semantic level is found. At this level, one will discover potentials for alignment of interests between actors and accommodation of new ways of sharing information across organizational boundaries horizontally, implementing new systems and new routines (Braa & Sahay, 2012, pp. 68 & 69).

"Integration (...) is not primarily a technical process, but rather a political one" (Sæbø, Kossi, Titlestad, Tohouri & Braa, 2011, p. 3); it is about aligning organizational political actors, not only technical solutions, as organizational actors working independently can cause fragmentation. However, technical solutions or standards achieving a certain level of success and enabling the building of momentum can be important in aligning the various political actors. This can potentially be information systems, acting as such attractors (Sæbø et al., 2011, pp. 1 & 3). In coherence with the levels of standards, integration takes place at several levels at the same time.

3.8 Related work on the child welfare sector

The following section will present related work within the child welfare sector in terms of case management, implications of the introduction and application of ICTs and related research within the research countries.

3.8.1 Tracking and monitoring case information

In a study by Roelen et al. (2012) concerning the collection and analysis of case information in the child welfare sector, African countries are discussed to be struggling with a contextual fitting of case management information systems. As social workers are primarily managing each case, these systems should be aligned with their interests. Followingly, circumstances around data storage and social workers´ access to case information for routinely reviews are also needed to be in place. However, literacy, motivation and understanding of the importance of timely data are challenges needed to be overcome. Additionally, information is needed to be accessible at policy level for decision making and adapting interventions. Lastly, an assessment of what information is needed, and by what actors at different levels, should provide valuable insights to system specifications.

Tracking and monitoring systems are often not suitable for its purpose and with a lack of capability to maintain them. A multitude of child protection information systems used in eastern and southern Africa are largely paper-based or utilizing local computers. As such, more knowledge is needed to contribute to an understanding of child care associates at various levels taking advantage of a designated technology (Roelen et al., 2012).

3.8.2 Implications of the application of ICT in child welfare

Although understanding the efficiency of child welfare systems is increasingly intricate and being an ever-evolving subject, the introduction of ICT has the potential to strengthen several aspects of this sector. Van Greunen (2013) argues that the use of ICTs could link field workers, local organizations and communities, enabling them to share knowledge and find common solutions to challenges. It could increase transparency and strengthen communication. However, technological advances have overshadowed the discussion of whether the practice of such social work with children and families have been led to a more legalistic focus on child protection at the cost of preservation of children's values. Parton (2009) emphasizes practitioners in social works' concern about the impact of new information systems on child welfare. Although the author acknowledges the evident benefits of accumulated and shared knowledge, the paper asserts a shift from a narrative to a database way of thinking and operating. Nonetheless, It is difficult to assess the impact this shift has on quality of care (White, Fook, & Gardner, 2006). Byrne (2005, pp. 41-42) argues that establishing technological communication networks culturally and traditionally inappropriate nor demanded by users can lead to failure in using ICTs to improve conditions of human life. Even though technology access can improve global connections, lower levels need to steer the connection, and the right human, financial and time resources are needed.

ICTs are at times reliant on internet connectivity. Braa and Sahay (2012, pp. 104-105) argue that the internet in Africa is not perceived as robust or reliable enough to support routine data reporting to central servers, meaning there is often a need for standalone databases. Thus, internet connectivity and electricity cuts affects the integration of digital information systems. Mobile networks could be one promising solution in this sense.

3.8.3 Child welfare in Africa

Sibanda and Lombard (2015) found several challenges faced by governmental social workers. The challenges included an insufficient number of presiding officers in the children's court handling cases on beneficiaries, shortage of social workers and high caseloads, as well as inadequate training of social workers. Poor funding of the child protection sector moreover placed restrictions on use of ICTs like telephones and computers. Similarly, Böning and Ferreira (2013, p. 538) found the general shortage of social workers, high caseloads for social workers and the lack of funding to NGOs as obstacles in improving social work practice in South Africa. Gray (2016, p. 378) argue that social workers face a conflict of interest between NGOs and the government, and must exercise caution with views imposing organizational and donor interests, representing particular political interests or being anti-government. The author further discusses the challenges faced by NGOs in terms of building sustainability, where short-term funding is experienced as insufficient. A meeting summary from an annual report from 2018 to 2019 shows discrepancies between the South African DSD objectives and operations, with lack of key personnel, "a culture of bosses and not leadership", and entities being a "free-for-all and (...) conducive to fraud" challenging the strengthening of monitoring and evaluation (Parliamentary Monitoring Group, 2019; Department of Social Development, 2019a).

Only two universities in Ethiopia provide open social work training programmes (Austrian Development Cooperation, 2014). Moreover, "Lack of inter-sectoral collaboration and coordination is a major challenge (...) in the provision of social protection for children under difficult circumstances" (Government of Ethiopia, 2007, p. 10). Policies and efficient coordination both within government agencies and directly with NGOs are crucial for service delivery (McCormick, 2011, p. 5). Regarding the digitization of Ethiopian institutions, gaps contributing to compromised digitization activities have been identified. The need for management systems, lack of clarity in interpreting the digital world and poor long-term planning factors affected the Ethiopian digitization. Furthermore, records or archives of originals lacked clearly defined preservation management systems (Bayissa, Teklemariam & Birhanu, 2011).

3.9 Chapter Summary

Child welfare includes services designed to ensure that children are safe and can be cared for sufficiently. Child protection is more narrow, including preventing and responding to violence, exploitation and abuse against children. UNICEF argues a fully functional child protection system should encompass elements as coordination, information, monitoring and accountability mechanisms, in addition to resources. Implications of the application of ICTs in child welfare include the potentials to strengthen the sector. Nonetheless, social workers have expressed concerns with the introduction. Shortage of staff, high caseloads, inadequate training and poor funding, are seen as obstacles in improving social work in South Africa. Lack of social work training programmes, poor interpretations of the digital world and lack of collaboration and coordination at the governmental level has been found in Ethiopia. Raw data with little meaning becomes information when it is given meaning. The understanding of information can further enable actors to act on it. Productive information flows should enable actors to make evidence-based decisions based on quality information moving between people and systems. Case management is the process of assisting beneficiaries and the activities that staff carry out in working with them in addressing their protection concern. Information management is the process of collecting, organizing, storing and providing information within a company or organization. Information systems can be defined as a set of entities, shared patterns, and information processing capabilities that support goal attainment. Information systems are socio-technical systems, encompassing a view on people and technology equally balanced. Management information systems provide specific information support to decision-making processes at each level of an organization. Information should be current and of appropriate quality to make an organization more sufficient. Data quality and use are affecting each other, as a lack of local use of information can lead to poor data quality, and data of poor quality can lead to a lack of use of information. Feedback can directly address the causes of poor data quality. Frequent turnovers in staff could mean knowledge is lost in the organization when the staff in question leaves. Training is an essential part of the introduction of ICTs and might need to be conducted when new working practices are introduced. Training can address quality issues, however not in isolation. Integration is the process of joining distinct systems in such a way, that they appear as being a whole in a particular view. Interoperability is the ability to exchange data between two or more systems. Standards are the building blocks of integration and interoperability. Three levels of standardization involve increasing differences in views and are defined as the technical level, the semantic level and the organizational level. Aligning actors for integration encompass a political process where attractors and former success at the technical and semantic level are important.

IV Ethical Considerations

- On Culture and Knowledge

"We have problems separating our management from the actual operations (...)
you end up using all your time on spreadsheets instead of spending time with the children"
(NGO manager)

4 Ethical Considerations - On Culture and Knowledge

The contents of ”Ethics” seems to be relatively fluctuating and can vary across borders and over time. However, the Oxford dictionary (n.d.) regards ethics in a general term as ”moral principles that govern a person’s behavior or the conducting of an activity”. Computer ethics can be defined as ethics that ”... identifies and analyzes the impacts of information tech upon human values like health, wealth, opportunity, freedom, democracy, knowledge, privacy, security, self-fulfillment, and so on.” (Ess, 2007, p. 4).

This chapter will provide reflections on ethical considerations regarding the research, particularly focusing on the research team, the field study and relations to the research countries. Parts of the following chapter includes content from an exam in an ethics course written and delivered by one of the authors of this thesis.

4.1 The research project

First and foremost, we acknowledge that the time spent with participants during the data collection is the participants’ time being spent away from beneficiaries and other duties. With clear workload issues and resource constraints, this deserves a mention. We often experienced that sessions with informants involved with data management happened during frequent electricity outages, thus extra time waiting for connection to come back made data collection at certain villages take longer than anticipated. Nevertheless, participants were informed on how much time was expected for the interviews and observations to last and that they, whenever they needed, could disrupt the session and tend to other matters.

4.1.1 The Research team

With all members of the research team being citizens of Norway, a western country, doing research in two African countries leads to inherent cultural concerns. Coming from an individualistic, analytical culture might have implications for interpretation of data collected in other contexts and underlying assumptions, thus more or less affecting the research results. Moreover, a strong connection to- and interest in ICTs through Informatics studies imply a potential great focus on digitization. Such implications are further discussed in the following paragraphs.

Taken-for-granted assumptions

Assumptions are, according to Feng and Feenberg (2008, p. 112), derived from our cultural background, including everyday beliefs and practices. Assumptions could for instance be linked to our feeling of community or our understanding of knowledge and information. Moreover, assumptions stem from biased knowledge from our history of technical choices; our technical heritage creating a starting point where alternative design options are dismissed without further considerations.

Cultural differences

When first arriving to a new culture, you might instantly notice some differences. For us, coming in Ethiopia for research, the dynamic driving patterns, coffee ceremonies and daily public prayers were behavioral differences we noticed almost instantly. When asking for milk for breakfast, we were surprised to get it warm, and when walking around the streets, we noticed how lively people were, interacting with everyone, including us, a big contrast to the quiet streets of Oslo. One thing that differed in terms of care options was the use of kinship care, where children that no longer could be in the care of their parents, were instead taken care of by their extended family, a relatively unorganized and private arrangement. As an additional example, later explained in the findings chapter, looking at the interface of PDB, one data clerk told us he did not approve of all data elements; static elements decided by the international office in Austria. Ethiopian names consist of a first name, then the father's, and sometimes grandfather's, which had not been taken into consideration. In addition, the calendar was following the Gregorian, quite different from the Ethiopian.

These examples, however, only illustrate the immediate *surface* of the culture, not recognizing underlying reasons that could question the very relevance or logic of specific technologies.

Understanding deep-level manifestations of culture

The tip of the Cultural Iceberg Model by Hall (1978, Figure 4.1) can show us the different levels of culture: visible behavior, like the use of kinship care, and more hidden beliefs, values and thought patterns behind this behavior, not necessarily evident without further engagement. Hall argues that in order to learn the culture below the surface - the deep-level manifestations of it - one needs to actively participate in it (Goodman, 2002; Hall, 1978). We acknowledge that our applied methodology did not result in such active participation to the extent that we could explore deep-level manifestations sufficiently.

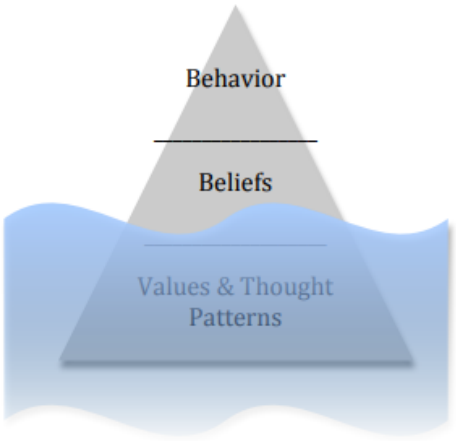

Figure 4.1 - Cultural Iceberg Model - Hall, E. T. (1976)

Individualism vs. community and "ubuntu"

"Against the Western cravings (...) ubuntu does not sustain to such an individualistic outlook as it emphasizes the importance of a group or community" (Mawere & Stam, 2016, p. 6). Taught through generations through face-to-face narratives, thus possibly hard to grasp for outsiders, ubuntu is an important statement of the values present in the individual as regards to the community, "...perpetuated by 'being together' in a continuous face-to-face encounter and holistic interaction with others" (Mawere & Stam, 2016, p. 5). Ubuntu is hard to define, however embracing the importance of the individual belonging to the community.

Engaging with cross-cultural design, Winschiers-Theophilus et al. argues for ubuntu as an important concept in regards to deeper cultural differences in African contexts, pointing to a significantly different sense of community than in western. This can help explain the focus on kinship care. Western traditions, on the other hand, look at individuals as relational beings, values of individualistic nature (Winschiers-Theophilus, Chivuno-Kuria, Kapuire, Bidwell & Blake, 2010, p. 2; Ess, 2007, p. 2).

Ubuntu is subtly referred to in regards to the common use of kinship care by the SOS Ethiopia National Programme Director: *"For me, in rural areas, the needs of the children are not met. They do not go to school and get the right food. But they get affection! Because if the mother cannot provide, the father or neighbourhood gives support. In urban areas, the neighbours don't care about the children. In urban areas, everyone runs for living, a hectic life. Families can abandon them, and no one cares".* Also showing the existence of subcultures, and potentially, the feeling of ubuntu slowly fading in parallel with growing "western" urbanization, one South African NGO actor commented *"...the apartheid system knew how to break family and social support to keep people vulnerable (...)*

annihilated family and village structure. So there are massive communities, but no support structure like in normal tribal support systems".

As researchers from a western culture, without deeper understandings and former experiences with ubuntu, it was important for us to familiarize with the research contexts and cultural values in an early stage of the research process. During a two week preliminary visit to South Africa, feelings of the importance of community were experienced through participating in a graduation ceremony within a township, and different communities were visited. The preliminary introductions helped strengthen the understanding of cultural differences and self-awareness of our interference, possibly positively affecting interpretations during subsequent visits.

For further research of bigger scope, we would recommend engaging further with these differences at a deeper level, possibly through participatory and ethnographic studies. As such, the focus could be on equalizing power relations, focusing on traditional knowledge complementary to technical expertise and vice versa, acknowledging that participants have significant contributions regarding their experiences (Van der Velden & Mörtberg, 2014; Feenberg, 2010, p. 12). Deep-level understandings of cultures could moreover help bridging modes of communication and to enable appropriate knowledge transfer, as there are " significant gaps between (...) individuality and community" (Winschiers-Theophilus et al., 2010, p. 2).

Purely technical vs. socio-technical focus

A socio-technical focus in contrast to purely technical one is purposely made in order to make room for engagement with human actors and societal aspects involved in the information flows within the SOS ecosystem. However, a drive from the research team to look at digital information systems as solutions as opposed to traditional ones were naturally experienced. The PDB was given more attention than non-digital information systems, motivated by preliminary discussions with SOS Norway and personal interest in technology. We acknowledge that the background of the research team could have steered data collection in a direction emphasizing digitization as an inherent solution to the participants' needs, however that reflection on this matter has been present throughout the research. For instance, a choice to eliminate the DHIS2 as a greater focus of the research - a system developed by the Information Systems research group at the University of Oslo and several Health Information Systems Programme (HISP) teams around the globe - was made in order to reduce the bias of the research agenda, opening up for research on other potential systems.

Powell (2003, p. 11) argues that "the reductionist, goal-driven, linear thought-patterns of the Western mind will not be the most useful in a complex world of multiple relationships and linkages", connected

to the world increasingly being influenced by the West. Western ”cravings” for analytical information and power relations in terms of, for instance, donor tracking regarding resource allocations could also relate to the use of ICTs in “developing” contexts.

Pitula, Dysart-Gale & Radhakrishnan (2010) argue for bridging divides rather than looking at how those potentially adopting technology can change themselves. As the PDB is developed at a higher, western level, looking at how the participants could change in order to adopt the PDB better could be countered with looking at how the current systems might not fit the context as well. We do, nevertheless, acknowledge the need to conduct further research looking at deeper cultural differences and understandings of digital information systems like the PDB and their cultural relevance for contexts like the South African and Ethiopian.

Reflection-in-action brought to our attention the importance of emphasis on the *social* part of socio-technical matters; the importance of actor alignment and needs, instead of a narrow focus on technology. The research tries to embrace both concepts, acknowledging that society and technology should not be viewed as independent of each other.

ICTs have been a focus throughout the research, and ICT for development could be seen as a relevant concept in terms of the countries chosen for the field study. Development is commonly focused around making a better world for all, in newer times related to the SDGs (Peet & Hartwick, 2009). When technology is developed in the west, by design, then transferred to a developing country, reality and its contexts might differ significantly from the purpose of the design; referred by Lucy Suchman in design from nowhere, also found in the design-reality gap model by Heeks (Suchman, 2002; Heeks, 2003, p. 4). Parachuting interventions into developing contexts do not always come with positive impacts, where bottom-up, participatory approaches have not been considered. The concept of design from nowhere might be important to note in regards to assessing how much participation in development projects, like the development of the PDB2, is sufficient for efficient utilization of the technology in developing contexts and its social impact. As described in the literature chapter, Byrne (2005, pp. 41-42) argue failure in using ICTs to improve conditions of human life could stem from technological communication networks not being culturally or traditionally appropriate nor demanded by users. It has been difficult to assess the impact of the shift to ICT in child welfare, described by Parton (2009), however, it could be intrinsically important to continue such assessments.

Through the paradox of the origin, Feenberg (2010) illustrates how the history of technical objects becomes invisible to us. As Kiran (2011, p. 193) illustrates with the term ”Trajectory”, revealing aspects (articulations) of technical mediations are taken up and conventionalized into practice. This

could relate to the technical heritage described by Feng and Feenberg (2008); the history of revealing aspects of technologies is stabilized, concealing alternative articulations of objects. This in turn could help us understand how western initiatives might fail in ”developing” contexts; western technical heritage could differ from contexts like the African and constrain alternative views that could be more appropriate in such contexts. This could further have implications for the relevance of the design introduced. For instance, the use of ICTs have in some cases proved to be rather unfit for certain knowledge transfer and modes of communication in developing contexts, exemplified by the One Laptop per Child initiative in 2005 (Wooster, 2018). Because of this, we further recommend researchers to challenge their own technical heritage when doing research; making the importance of engaging with deeper cultural differences even more evident.

Grounds for interference

Technologies can constrain our behavior, but they can also open up possibilities (Kiran, 2011, p. 189). For instance, the PDB enables higher levels to provide incentives and interventions to locations where resources are scarce. However, responsibilities should not be neglected favoring the possibilities technology enables, as long as we cannot sufficiently account for these weighing up for negative impacts. One important responsibility of western researchers as a whole could be to develop ways to measure impacts, both good and bad, on the cultures in which we intervene, to provide sufficient evidence for the grounds we have for interference. The interference is, for us, taken for granted, wishing to help build a better world for all, especially in developing contexts. We propose that the PDB, the PDB2 and other digital information systems used in such contexts should be subject to sufficient evaluation, not only of the technology itself and the underlying logic as formerly argued but more importantly, their societal impacts.

4.2 Participation

“Doing research with children can help us understand what children think about the issues that are affecting them” (National Society for the Prevention of Cruelty to Children, 2012). Including children as participants in the data collection was dismissed at an early stage. As the research focuses - at meta level - on vulnerable children being in the blind spot and thus in need of higher representation in statistics and included in governmental action, it may seem contradictory that they are not included as participants in this research. Vulnerable children are influenced by research on them, thus the research team has tried to approach the research in a respectful manner. Even if the children are not directly actively involved in identified information flows, data on them is. Nevertheless, because of the vulnerable situation of the children, introducing them to the research team felt like creating more

social ties than necessary, and their participation did not seem directly relevant for the scope of this thesis. As such, they were not involved as participants.

4.3 Privacy

For the sake of privacy for the vulnerable children in question, the research team have not requested filled-in forms for the document analysis. Although this could lead to issues of data quality not being discussed in-depth, it was a choice made in order to respect and preserve privacy. Even after informing participants we were not interested in data on individual children, children's files were presented to the researchers, potentially leading to breach of confidentiality, however important for our understanding of what types of information was collected. No personal child information was noted on paper, nor was it noted digitally. Looking at data values could be relevant for findings, however chosen not to be included in the scope of this thesis. Because of this, we also recommend looking into data values in future research, while also taking privacy precautions.

4.4 Exclusion of certain groups of vulnerable children in the research

"Our target is small. There are many children not receiving the right care" (SOS Ethiopia National Programme Director). For the sake of the scope of this thesis, being a master thesis with limited resources in terms of the research team, time and scope of the thesis, data on beneficiaries within the SOS ecosystem, more so within SOS programmes, has been the focus throughout the research. This implies a neglect of data on children outside this ecosystem, including those without parental care, in unregistered residential care facilities and without alternative care options. Since these are, arguably, "more vulnerable" than those chosen for the scope of this thesis, the research group calls for action for future research to also focus on these marginalized groups.

V Research Approach

“Don’t feel comfortable displaying child - sending pictures of children’s reports. Can be vulnerable! But because they are giving us money, we need to do it.”

(SOS South Africa Programme Director)

5 Research Approach

The following chapter aims to provide a description of the research conducted. Firstly, a reflection of the ontological and epistemological assumptions laying the philosophical foundation will be presented as a prerequisite for the research. Following, an outline of the methodology, including the methods used to collect the empirical data, a comprehensive overview of the data collection in the research countries and the participant sampling, will be given. Lastly, the chapter will present the data analysis approaches.

5.1 Philosophical foundation

The overall philosophical foundation for this research is the interpretive paradigm, comprising a certain view from ontology; assumptions on one's view of reality, and epistemology; how one acquires knowledge (Mack, 2010, p. 5). Following the interpretive paradigm, knowledge and the way of discovering it is understood as subjective and the world understood as socially constructed. The research is seeking to obtain contextual understandings with the use of qualitative methods (Willis, Jost & Nilakanta, 2007; Thomas, 2003). Interpretive methods in information systems research are "aimed at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by the context" (Walsham, 1993, pp. 4-5). Henceforth, this applies to the research as it engages in gaining contextual understandings of different information systems and explorations on socio-technical co-shaping processes around these.

With the research resting on the interpretive paradigm, we acknowledge that qualitative research is based upon own and others' interpretations and assumptions of the world, affecting the findings. However, controlled reproduction of findings is not regarded as interpretive research objectives (Maroun, 2011, p. 2). Moreover, different angles are included through triangulation - from heterogenic participants in multiple locations over time - in order to reach a more comprehensive interpretation. We acknowledge that we, as researchers, are engaged in the research and are not distant from the context, shaping the findings.

In contrast to the interpretive research approach, a positivist approach would encompass reality in an objective manner and subscribe to the research with measurable attributes, studying the subject at a distance (Klein & Myers, 1999). Consequently, applying positivist methods of research would be insufficient in exploring social phenomenons in organizations (Walsham, 1995). The social systems

which exist in such organizations are heavily constructed by humans and therefore more so guided by values than objective facts. Extracting knowledge from such systems would be described by Archer (1988) as a position of 'non-positivism'. Thus, an interpretive approach is deemed appropriate.

5.2 Case study

Yin (1984) has described case study research as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used" (p. 23). Although by many researchers considered having a positivist stance, Yin (2009) later adopted reflections also applicable to interpretivism, which in case studies, enables the investigator to retain the holistic and essential parts of empirical experiences, for instance within organizations.

The exploratory aspect of this study entitles examining contemporary phenomenons in different social contexts, where there has been little control over the behavioral events shaping our findings. As such, including the implicit limitation of this research, we emphasize there have been no opportunities for an interventionist approach which is lacking in case studies (Yin, 1984; Baskerville & Wood-Harper, 1996, p. 240). The initial research in Ethiopia and South Africa will in this sense contribute as a prelude for further examination.

5.3 Data collection framework

The following section will provide an overview of the data collection methods, how the data collection framework was used within the research countries and the sampling of participants.

5.3.1 Data collection methods

Field observations and a group discussion have been conducted and documentation has been collected. Furthermore, the majority of the data has been collected through interviews in formal and informal settings, providing the ability to achieve an understanding of the participants' interpretations, as well as the aptitude to study such interpretations subsequently (Walsham, 1995). Field diaries and email archives have been used, supplementing the main methods. Pictures of children and participants have not been included in the thesis with respect for the sensitivity of research on children in vulnerable situations and actors involved in the care of these, however other pictures were taken during the field study as to give context and further our understanding of information flows and information systems' and datasets' functions and use, for instance through pictures of the PDB interface. The data collection methods are summarised in Table 5.1.

Consent

Most of the sessions with our participants were audio-recorded which enabled reiteration of transcripts at a later time. In addition to a stronger engagement with the interviewee, a record of the group discussion, interviews and observation would facilitate methods of analysis and the convenience to extract direct quotes. However, audio recording may have impacted the ability to capture candid statements, furthermore not depicting tacit, non-verbal elements (Walsham, 2006). Observation was at times used to supplement this deficiency. Consent to audio recording and picture taking was acquired verbally before the sessions, whereas terms of participating in the study and handling of confidentiality were described in a consent form (Appendix A).

Triangulation

Investigator-, data- and methodological triangulation have been applied to the data collection in order to gain richer data. Triangulation is using more than one particular approach when doing research, to "seek convergence and corroboration through the use of different data sources and methods" (Wilson, 2014, p. 74, Bowen, 2009, p. 28).

Investigator triangulation involves including more than one person in the data gathering and analysis process. The data collection and analysis were conducted by the three students in the research team, including the two authors of this thesis. Data collection sessions were structured with a fixed responsibility composition, where two researchers shifted between leading the interview and supplying with follow-up questions. The remaining researcher focused on taking comprehensive notes and asked questions at the end of the interview if some subjects remained unclear.

Data triangulation involves using different sources of data in relation to different times, locations and people (Wilson, 2014). Data from different actors were collected in various geographical locations throughout South Africa and Ethiopia, in addition to data collection in Norway and several digital interviews with actors from the SOS international office and different South African actors. Visiting multiple children's villages allowed for similar questions to be asked, providing holistic insights to the same topics.

Methodological triangulation means using more than two methods in studying the same phenomenon under investigation. The within-method triangulation used involved using complementary qualitative methods on several of the participants aimed towards increasing credibility of the findings (Hussein, 2009, p. 4).

Table 5.1 - Data collection methods

Method	Description	Purpose
Interview	Using semi-structured interview guides to interview participants individually	Provide insight into the information flow the participant is affiliated with and their related subjective knowledge and needs
Observation	Studying participants individually through direct observations while performing daily tasks on digital and non-digital information systems, taking field notes and transcribing. Sometimes including asking for specific tasks to be conducted ad-hoc.	Complementing interviews by experiencing information handling at first hand, knowing that practice can deviate from theory.
Group discussion	Medium for a collective open discussion on relevant interest areas with individuals in our sample group.	Provide insight from multiple actors simultaneously in an environment allowing for reflection and consensus on collectively deemed important phenomenons
Documentation	Datasets, indicators, system documentation and other research relevant documents obtained from participants	Complementing interviews and observations, allowing for phenomenons discussed to be analyzed objectively and in greater detail. Allowing for indicator and data type mapping and diving deeper into the research context.

Interview

Interviews are a well-suited method to access subjective interpretation and the ability to investigate various topics (Lazar, Feng & Hochheiser, 2010). Aside from informal interviews, each appointment was conducted with prepared, semi-structured interviews.

Some interviews were conducted through Skype, in cases where participants could not be reached physically. Overcoming geographical dispersion, this enabled further data collection to supplement and clarify the data collection conducted during the field studies (Janghorban, Roudsari & Taghipour, 2014).

A few interview guides were created ahead of the field study, relating to the different participant roles we anticipated access to. However, the guides were often reviewed and edited during the field study, ahead of each interview as our understanding grew. As the nature of semi-structured interviews enables new and unforeseen topics to be explored, the guides dynamically evolved between participant sessions. Furthermore, reflection on action; retrospective contemplations around how the interview went, led to rewrites (Appendix B, C, D, E, F, G, H, I & J). For instance, as our understanding grew regarding the problematic relationship with the government in terms of South African actors based on participant statements made in early data collection, the topic was further explored in subsequent interviews.

Some examples of interview questions asked were:

- *Could you explain to us what a regular workday looks like for you?*
- *How are the reports aggregated and sent to higher levels?*
- *Do you share data with other actors?*
    - *What kind of data?*
- *What challenges do you face in relation to your work?*

Examples of additional questions after rewrites:

- *Could you elaborate on how you coordinate work together with social workers and <governmental department>?*
- *Do you see any <positive sides/cons> with linking your system with those of other similar NGOs and the government?*
- *Is enough information collected?*
- *Is too much information collected?*
- *Is the information utilized sufficiently?*

Power relations have shown to influence the answers we got from some participants, questioning some of the findings. Some participants at the operational levels, like social workers and data clerks, could have given biased answers because of internal power relations. At times, SOS managers were present during the data collection, even when they were not subject to the data collection. When interviewing and observing one data clerk in one SOS village, it was clear that her answers were positive and short, looking at her supervisor when answering, making it difficult to get unbiased answers.

Group discussion

At one SOS children's village, multiple participants were eager to answer our questions in a joint group, which naturally progressed into a lengthy open discussion. Being an unplanned occurrence, we regard it as a group discussion as opposed to a focus group. Consensus on important themes were frequent in regards to collective engagement on factors affecting the village's information flows. Individual views were also challenged, opening up for discussion around the topics. During the group discussion, some actors were more engaged in the discussion than others, excluding some voices and potential topics to be discussed. In order to capture such unheard voices, individual interviews and observations were conducted after the discussion.

Observation and field notes

With subjects directly involved with data management, a more active observatory approach was applied, exploring first-hand user experiences of the system in question. Several use cases were explored, accompanied by an open dialogue. During these observations, unstructured notes and occasionally drawings of diagrams were captured in a notebook, contributing to a more coherent description of the session at a later time. To a great degree, these notes strengthened the ability to reflect on the event, remembering specific interactions and the surrounding situation.

The observations were conducted in the participants' natural environment. We also, in most cases, interviewed the participants and had casual conversations in order to lower the barriers for direct observation. However, in relation to the Hawthorne effect, being observed could have led to some inherent bias as their behavior could change when knowing they were observed by the three researchers (McCambridge, Witton & Elbourne, 2014).

Documentation

With SOS Norway acting as the initiator contributing with the direction of the research project, the data collection started prior to our field trip with an introductory study of documents and diagrams relevant to SOS and their systems. The material consisted of data collection forms created at the international level aimed at capturing data for the alternative care and family strengthening programs, in addition to SOS context diagrams and PDB system documentation. Altogether it provided us with insights into the data expected to be collected and stored.

During the field study, datasets, indicator lists, system documentation and other relevant documents were collected, allowing for themes to be categorized and document analysis to be conducted, complementing the findings.

5.3.2 Data collection in the research countries

The preponderance of data collection was conducted in the two main research countries: South Africa and Ethiopia. However, a short overview of data collection in Norway will be provided as preliminary data collection was conducted there.

Data collection in Ethiopia

Over a duration of three weeks, data collection in Ethiopia took place in three geographical locations: Gondar, Bahir Dar and Addis Abeba (Figure 5.1).

Empirical data from Ethiopia consisted of data collected from actors from SOS, as well as governmental departments in child welfare, NGO management and health.

Figure 5.1 - Research locations in Ethiopia

Data collection in South Africa

In an effort to familiarize with the South African culture as well as to obtain a contextual introduction to one of the research countries, a visit several months prior to the field study was made by the research team. Facilitated by actors from a University with former connections to the University of Oslo, first-hand observations and impressions of the surrounding communities were made. No formal data from this trip is included in this thesis, however, the trip contributed to commencement of the research, and desktop studies were conducted to familiarize with the country and contemporary

issues. Furthermore, understanding the importance of community, “ubuntu”, in contrast to western individualism, as described in Chapter 4, contributed to wider insights.

The data collected during the field study in South Africa took place in four geographical locations over the course of three weeks; the capitals of Tshwane (former Pretoria) and Cape Town, as well as Johannesburg and the smaller city of Port Elizabeth (Figure 5.2).

Figure 5.2 - Research locations in South Africa

Empirical data from South Africa consisted of data collected from actors from SOS, a governmental department in child welfare and local NGOs.

Data collection in Norway

One of the interviews was conducted in Norway with an SOS Norway actor. This interview was conducted prior to the fieldwork for a general overview of SOS and potential challenges and needs.

5.3.3 Participants

The following section will discuss the research participant sampling and provide an overview of the country of residence, role and organizational level the different numbers of participants were affiliated with. A total number of 49 participants were interviewed, observed, and/or included in the group discussion, and documentation was derived from several of these.

Participant sampling

The SOS and governmental participant sampling were nonrandom, based upon convenience. In our case, snowball sampling implied that the SOS Norway research initiator and participant recruited SOS program directors among his acquaintances. An introductory Skype meeting was set up prior to the field study between the South African SOS actors and the research team for introductions to the research, and emails with travel details and confirmations were sent to the South African and Ethiopian SOS actors. The SOS program directors contacted proved to be important for further participant sampling through their own acquaintances (Naderifar, Ghaljaei & Goli, 2017). Actors from the national HISP team working with the DHIS2 were contacted through former connections as well.

Referring to other local NGOs, the participant sampling for this group was also nonrandom and based upon convenience, meeting practical criteria of accessibility, geographical proximity and availability at the given time the research team was in the given location, as well as their willingness to participate (Ilker Etikan, 2016, p. 2). Here, an actor at the university we visited the preliminary visit to South Africa provided us with a list of relevant NGOs in the area, however, they were contacted directly by the research team.

Four smaller local NGOs are included in the data collection, however their names have been chosen not to be included in this thesis. All NGOs included were located in South Africa. The four different NGO functionings were the following:

1. A holistic youth centre, kindergarten, school and cafeteria in a township.
2. A children's home providing alternative care and facilitating adoption of such children.
3. A children's home similar to SOS villages, providing alternative care in different houses at a physical location, before a potential reintegration with family was made possible.
4. An HIV/Aids relief project, involved with community services like delegating food parcels, arranging physical meetings on community issues and providing free access to a library.

Participant overview

Table 5.2 provides a summary of the total number of participants in SOS, the government and other NGOs. Table 5.2, 5.3 and 5.4 further provide an overview of the research participants divided between the research contexts, including their affiliated organization, organizational level, role, how many participants were included in this group, as well as the data collection method applied.

Table 5.2. Total participants per affiliation

Organization	Total # Participants
SOS	27
Government	13
Other NGOs	9

Table 5.3 - Participant overview - outside research countries

Organization	Organization level	Role	Quantity	Method
SOS International	International	PDB/PDB2 Team Member	3	Interview
SOS Norway	National	International Program Coordinator	1	Interview

Table 5.4 - Participant overview - Ethiopia

Organization	Organization level	Role	Quantity	Method
SOS Participants (internal actors)				
SOS	National	Program Director	1	Interview
SOS	National	Monitoring, Evaluation, Reporting and Analysis Officer	1	Interview
SOS	Village	Program Director	1	Interview
SOS	Village	Monitoring, Evaluation, Reporting and Analysis Officer	2	Interview, Observation
SOS	Village	Data Clerk	2	Interview, Observation
SOS	Village	Administrator / Coordinator	3	Interview
Governmental Participants (external actors)				
MoWC	National	Child Care, Support and	1	Interview

		Protection Expert		
MoWC	National	Child Right Expert	1	Interview
MoWC	National	Database Team Leader	1	Observation
eHealthLab	National	Lead	1	Interview
HISP Ethiopia	National	Team Member	1	Interview
ACSO	National	Graphic Designer	1	Interview
ACSO	National	IT Team Leader	1	Observation
Ministry of Health	Regional	Deputy Manager	1	Interview
Ministry of Health	Regional	Data Clerk	1	Observation

Table 5.5 - Participant Overview - South Africa

Organization	Organization level	Role	Quantity	Method
SOS Participants (internal actors)				
SOS	National	Program Director	1	Interview
SOS	Village	Program Director	2	Interview, Group discussion
SOS	Village	Administrator / Coordinator	6	Interview, Observation, Group discussion
SOS	Village	Social Worker	4	Interview, Group discussion
Governmental Participants (external actors)				
DSD	National	Deputy Director	1	Interview
DSD	National	Programme Manager	1	Interview
HISP South Africa	National	Team Member	1	Interview
HISP South Africa	National	Manager	1	Interview

Other NGO Participants (external actors)				
Soweto Care System	National	Board Member	1	Interview, Observation
Apps4D	National	Database Developer	1	Interview
NGO 1	Operational	Manager	1	Interview
NGO 2	Operational	Manager	2	Interview
NGO 2	Operational	Social worker	1	Interview
NGO 3	Operational	Manager	1	Interview
NGO 3	Operational	Data Clerk	1	Observation
NGO 4	Operational	Manager	1	Interview

5.4 Analysis

Both induction and deduction characterized the research approach, in “conversation with the data”. Prone to continuous interplay with top-down, pre-made assumptions, and development of ideas based on bottom-up learnings from the data collected, we allowed some data to determine themes, while some themes determined what data to pay extra attention to. Thematic analysis was applied to the data set collected through interviews, observations and the group discussion during the field study and after. Document analysis was applied to the data set from the documentation received.

5.4.1 Thematic analysis

Thematic analysis is a pattern recognition method argued to be foundational for qualitative analysis, potentially producing trustworthy and insightful findings by being applied to identify, analyze, organize, describe and report themes found within a dataset (Nowell, Norris, White & Moules, 2017, Bowen 2009, p. 32). King argues the method can be useful for highlighting similarities and differences between the research participant’s perspectives, important for the case study for finding generalizable findings versus local singularities (2004).

Thematic analysis consists of six recursive phases, namely: familiarization with the data, coding, generating themes, reviewing themes, defining and naming themes, and writing up. However, flexibility can be applied to fit the research question and data (Braun & Clarke, 2006).

Phase 1: Familiarizing yourself with the data

For phase 1, live transcriptions taken during the interviews were read through. In addition, sound recordings, where present, as they more often were, were played. Based on the recordings, additional full word-by-word transcriptions were made to ensure data that might have been excluded under the live transcription was included in the final dataset. Lastly, field notes from the three researchers were added below the transcriptions and pictures and documents were looked at for contextual familiarization. Phase one was experienced as a very time consuming, yet insightful and intrinsic phase, informing the early stages of analysis (Braun & Clarke, 2006, pp. 17-18).

Phase 2: Generating initial notes

After assessing the familiarized data, initial codes were made to identify the semantic features of the data. Interesting segments were highlighted. The broad coded and collated data were separated into themes. A Google spreadsheet was used to organize the data. The left column described what country, organization and the organizational level were interviewed, whereas the first row separated the data into granular codes (Figure 5.3).

Country / Place	Organization / Village	Collecting data? (Y/N)	Sharing data? (Y/N)	Routines/Processes for gathering and dissemination
SA/CAPE	SOS CV CAPE	Y	Y	See information flow. Additional info: IDP's are updated *every six months*. IDPs do not go into the PDB. IDPs are based on house mother's interventions, school reports, and individual counselling. **Forms used:** government long form, assessment on admission form, risk assessment form, overall assesment form, IDP.
SA/CAPE	SOS CV CAPE	Y	Y	*Initial assessment forms* are filled out upon admission. Control lists are shared with national office monthly. *Monthly and quarterly reports* to the DSD (provincal level). An *Initial Development Plan* is created and used to keep track on how a child is performing according to the plan. *Core Assesment Plans (FS and AC)* seems to be used upon reqruitment, sort of like the Initial Assessment Forms.

Figure 5.3 - Phase 2 of Thematic Analysis

Phase 3, 4 & 5: Searching-, reviewing- and defining and naming themes

Phase 3, 4 and 5 were done recursively. After the initial data coding, the codes were fused into more compact themes. A clear separation of country, organization and level was made in order to enable comparisons, distinctions and generalizations. Reviews were made to edit, move and remove themes as some had too little, or duplicate data. Further, the essence of the themes were identified and organized.

The remaining themes and related information was gathered in two documents; a word document consisting of a table, dedicated to quick lookup of information like the systems and data sets used by the different actors and levels (Figure 5.4), and another clear text word document used to collect more descriptive information and tables, like information flows and quotes (Figure 5.5).

	South Africa			
	SOS Village	SOS National	Government	NGOs
Data sets	Session forms (per program) (Internal)	Control list (From Village)		Individual devel
	Core Assessment Forms - AC (PDB)	Master list (From Village)		Form 48 (Exterr
	Core Assessment Forms - FS (PDB)			Placement Plan
	Group Work Forms (Internal)			Quarterly Repor
	Holiday Activity Form (Internal)			Monthly Report
	Control list (To National)			
	Monthly report (To DSD)			
	Quarterly report (To DSD)			
	Annual Report (To National) (Cape)			
	Family Development plans (Internal)			
	Initial Assessment Form (Admission)			
	Individual Development Plan (Internal)			
Systems	PDB		CBMIS(Desktop+Mobile)	Salesforce
	PDB2		NISIS	SOWETO Care

Figure 5.4 - Thematic analysis - Quick information document example

Master list		SOS CV Village	SOS CV International PD	Family Strengthening Programme (FSP) - beneficiaries and carers
Control list		SOS CV Village	SOS CV International PD	Alternative Care (AC) - beneficiaries, houses and mothers
Monthly report		SOS CV Village	DSD Social Worker	Sent every 25th of the month i.e. admission date, leave date Not health, wellbeing etc.
Quarterly report		SOS CV Village	DSD Social worker	Financial data: subsidies, income Not health, wellbeing etc.
Annual survey	National statistics office (NSO)	SOS CV National Office	National Statistics office	High level, not detailed Not health, wellbeing etc. *Sent sporadically

Figure 5.5 - Thematic analysis - Descriptive information document example

Phase six: Producing the report

Based on this, the findings chapter and “constraining and enabling factors” chapter was produced - a part of the final phase of Thematic Analysis; phase 6.

5.4.2 Document analysis

Document analysis entails “finding, selecting, appraising (making sense of), and synthesizing data contained in documents through skimming, reading and interpreting” (Bowen, 2009, p. 28), and involves elements from thematic analysis; some themes from the thematic analysis were used in the document analysis, however on a more granular level. For instance, “dataset” now included not only the name and description of the forms, but also the actual data elements it consisted of.

In our case, indicator lists, datasets, and other documentation the document analysis were applied to, provided supplementary research data, as well as verification of findings (Bowen, 2009, pp. 28, 30 & 32). Some documents were not retrievable, either because the complex amount of documents available made selection difficult and potential relevant documents might have been missed, or because the selected documents regarded as useful by the research team or participants might not have been the only documents relevant for the research. Furthermore, literature reviews in advance of the field study might have steered the collection in a certain direction, even with the continuous interplay of induction and deduction. Because of this, “biased selectivity” could plausibly characterize the document analysis, with the collection of documents incomplete (Bowen, 2009, p. 32). Nonetheless, document analysis is in general regarded as offering more advantages than disadvantages, being cost-effective and efficient as a means of triangulation (Bowen, 2009, pp. 28 & 32).

5.4.3 Analysis of findings

The literature review and ethical considerations chapters provided a basis for analysis in the “constraining and enabling factors” chapter. Drawing on literature and relating it to the findings, reflection on- and analysis of the findings are made.

VI Empirical Findings

"... a numbers and money game"

(SOS South Africa National Programme Director)

6 Empirical findings

This chapter will provide the research findings based on the thematic analysis and document analysis described in Chapter 5. As presented in Chapter 1, the research is focused around constraining and enabling factors affecting the productivity of current information flows within the identified SOS ecosystem. The objectives should provide the means to answer the research question, thus this and the subsequent chapter will be structured according to the objectives.

Objectives for answering the research questions:

1. *Identify relevant actors of the SOS ecosystem, their relations and functions within the ecosystem.*
2. *Investigate the current information systems and information flows containing information related to beneficiaries within the identified ecosystem.*
3. *Discuss factors that might constrain or enable productivity of information flows, and how.*
4. *Provide recommendations for SOS based on the findings.*

Objective one and two will be introduced in this chapter to provide context as a prerequisite for discussing enabling and constraining factors. Objective three and four will be discussed in Chapter 7.

6.1 The SOS Ecosystem

The following section will introduce the identified actors within the SOS ecosystem. Lastly, the hierarchical levels of SOS will be explained in terms of the findings.

6.1.1 SOS Ecosystem

The identified SOS ecosystem consists of SOS, portrayed as an *internal* actor, in addition to *external* actors: governmental departments, donors and other NGOs (Figure 6.1). Before embarking on the hierarchical levels of SOS, the following section will introduce the functions of the external actors identified, relevant for SOS' operations and general child welfare and protection.

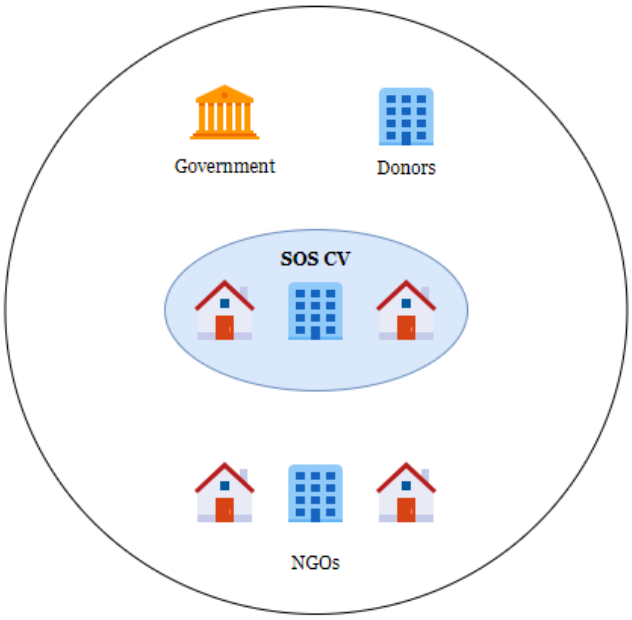

Figure 6.1 - Identified SOS Ecosystem

Governmental departments and agencies

SOS both have reporting obligations to- and possibilities of collaboration with governmental actors and rely on governmental funding. Furthermore, SOS is dependent on governmental support, both for identification of potential beneficiaries, referral and consistent information and communication exchange. The state of the children in the country, and thus the need for NGOs like SOS to operate, is moreover to a high degree the responsibility of the state.

Important governmental actors identified within this research are outlined in Table 6.1 and include departments directly involved with NGOs and child welfare and protection. In addition, statistical and children's courts are found relevant.

Table 6.1 - Identified governmental actors by research country

Governmental organ	South Africa	Ethiopia
Child welfare and protection	DSD	MoWC
NGO administration	DSD	ACSO
Statistical Office	Department of Statistics	Central Statistical Agency
Children's Court	Department of Justice and Constitutional Development	The Federal Supreme Court Child Justice Project Office

Statistical offices important for disseminating aggregated data have not been subject to research, however, they are important to note in regards to their importance for the availability of information. The same goes for the children's courts, relevant for beneficiary referral and progress in NGO programmes through government social workers.

Governmental social workers are found operating both within the MoWC and the DSD. They play an important role in facilitating care options and arranging services for children, as well as supporting them moving through and out of the system. Acting as mediators between beneficiaries and the state, tight cooperation with NGOs is needed. Furthermore, they are key providers of information used to conduct the initial assessment which determines whether a child should be placed in SOS care, like Family Based Care, or provided with preventive services, like Family Strengthening. Cases are managed through children's courts. Governmental social workers are required to prepare comprehensive reports for the respective court on behalf of the child. Quoted from the MoWC, "Social worker services are thus pivotal to every facet of the child's experience in the care and protection system. Hence it is important to ensure children are provided care and support by trained social workers" (Appendix K, p. 50).

Donors

Although donors have not been the main focus for this thesis, nor been subject to the data collection, these are relevant for SOS and other NGO operations due to donations and following obligations, including reporting. At higher levels, organizational donors often require reports on spendings in different kinds of formats. Moreover, SOS and other NGOs working with care programmes are obligated to send narrative reports on beneficiaries being sponsored by respective individual donors. We will not go deeper into donor issues, however noting their important role in the ecosystem.

Other NGOs

NGOs are relevant to the SOS ecosystem as the organization itself is an international NGO. Smaller local NGOs are also relevant as they in many cases do not receive as many international donations and thus could be even more dependent on governmental funding. Moreover, NGOs working with child welfare could experience similar challenges as SOS. They are equally relevant for finding common and different integrated and silo-based information systems and information flows throughout the ecosystem. NGOs have been found to collaborate through forums strengthening consensus of action to be taken by government, however this matter has not been explored further.

6.1.2 SOS Internal Hierarchical Levels

The four relevant hierarchical levels of SOS (Figure 6.2) as outlined in Chapter 2 will briefly be discussed relating to the research findings in the following section.

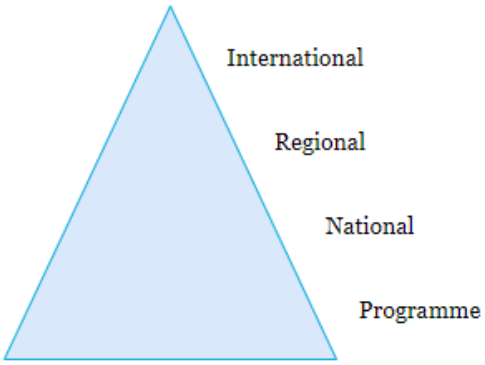

Figure 6.2 - SOS Organizational levels

International level

The International Office with two office locations in Austria - Innsbruck and Vienna - consisted of an internal PDB and PDB2 development team, responsible for maintaining current versions of the PDB, and developing and rolling out the PDB2. Moreover, the international level required reports to be submitted by the regional level. At this level, data granularity was lower as only subsets of what was collected at lower levels is aggregated.

Regional level

The regional office relevant to the research was responsible for 26 English speaking countries in Africa, including the research countries, and located in Addis Abeba, Ethiopia. The regional office reported to the international level and required reports to be submitted by the national level.

National level

At national level, a national office were found in both South Africa and in Ethiopia. The main responsible actor in each national office was the National Programme Director (Table 6.2). The office provided reports to the regional office and required reports to be submitted by villages at programme level.

Programme level

Villages are placed at the programme level in the SOS hierarchy and were required to report to the national level. At this operational level, actors were responsible for carrying out the different SOS

programmes implemented, like Family Based Care. The villages consisted of several houses at a bordered property, amongst the different buildings working as administrative offices for other SOS staff's disposition. One SOS house was placed outside the village as part of a pilot, showing efforts in bringing beneficiaries closer to their communities.

Multiple roles were found at programme level (Table 6.2, Figure 6.3). Like the national office having a national programme director, the programme directors role at programme level was mandating their respective villages. Furthermore, villages accommodated administrators or coordinators tied to respective individual programmes. SOS also had internal SOS social workers, supporting and following up beneficiaries referred to SOS, working closely with governmental social workers. Both governmental and SOS social workers will be a term encompassing case workers, as they both work with case management. Lastly, SOS parents - often mothers - were responsible for directly caring for the beneficiaries in Family Based Care, living with the SOS youth and children. In Ethiopia, a data clerk was responsible for collecting data forms from SOS social workers and feeding collected beneficiary data into the PDB or PDB2. A Monitoring, Evaluation, Reporting and Analysis officer had multiple responsibilities, including making sure the PDB and PDB2 data was up to date, as well as reporting. In South Africa, these roles were more fluctuating, and multiple roles were commonly found to be invested in such work, at times simultaneously.

Table 6.2 - Overview of roles and corresponding responsibilities at SOS

Role	Responsibility
National Programme Director	Overseeing all national SOS levels. Accountable for data and programme quality, thus the indicators.
Programme Director	Overseeing respective programmes at programme level. Accountable for data and programme quality, thus the indicators.
Administrators/Coordinators	Coordinating individual programmes. At times in South Africa PDB input.
SOS social worker	Beneficiary support and guidance. At times in South Africa PDB input. Tight cooperation with a governmental social worker tied to the same case.
Data clerk	Feeding relevant collected data into the PDB.
Monitoring, Evaluation, Reporting & Analysis Officer	Monitoring, evaluating, reporting and analyzing data in systems like the PDB. Quality assurance.
SOS parent	Family Based Care beneficiary carer residing in an on-site house.

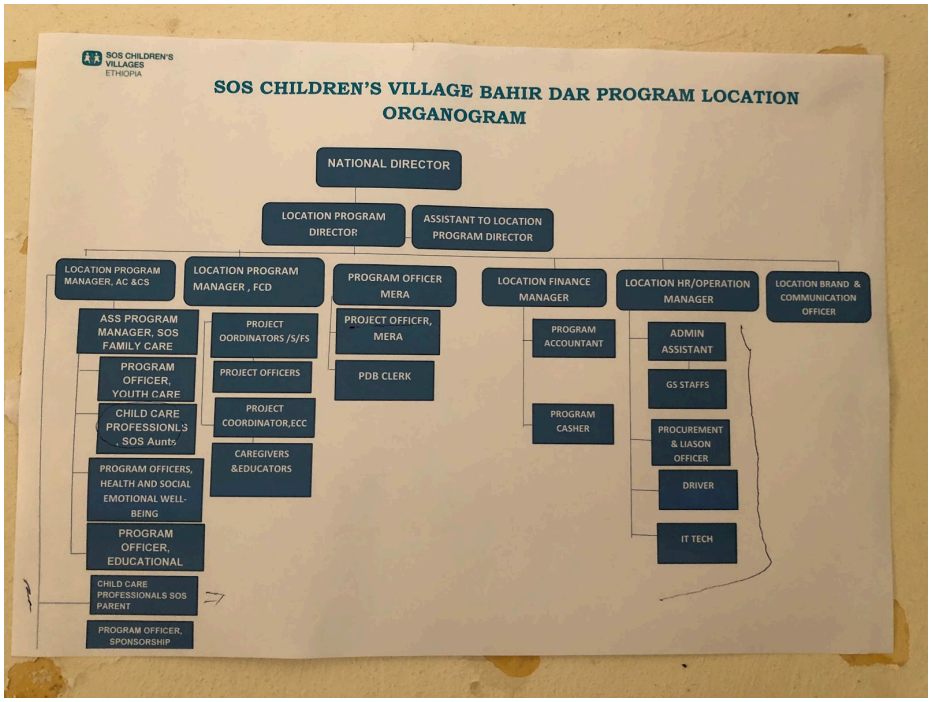

Figure 6.3 - Organogram found at SOS Ethiopia

6.2 SOS Ecosystem ICTs

At all research locations for both internal and external actors, laptops, stationary computers and mobile phones were common. Internet connection was highly unstable and load shedding occurred frequently. Mobile networks had commonly higher coverage and dongles for providing internet access to laptops were at times used. At a local NGO in a South African township, a classroom equipped with computers was utilized for learning purposes, showing that access to digital equipment was available even in relatively remote contexts (Figure 6.4). Aside from this example, all research locations had at least two computers available for disposition.

Figure 6.4 - Computers utilized for learning at a South African NGO

6.3 SOS Ecosystem Information Systems

The following section will focus on findings related to paper-based and digital information systems within the SOS ecosystem. Important to note, however, these information systems can be seen as sub-systems covered by more comprehensive socio-technical information systems, including the entities utilizing them and the following routines. The digital information systems can moreover be seen as ICTs as they enable access, storage, transmission and manipulation of information. Here, we will focus more narrowingly on the mediums providing information processing capabilities.

6.3.1 SOS internal information systems

Internally, SOS both utilize paper-based and digital information systems. The following paragraphs will elaborate on such information systems, including a thorough exploration of the PDB and PDB2.

Paper-based Information Systems

Paper-based datasets were found in all research locations, at all levels, for instance as paper-based data capturing tools used by social workers or as case records in individual beneficiary folders. Documents were also printed in order to keep individual beneficiary information in the same paper-based filing system, and for reporting to governmental actors requiring hard copies. The paper-based filing systems were commonly used as a means to keep information safe and available, for internal case management and in the case of physical visits from the government and other actors requiring a multitude of different information to be made available. These folders were often brimming, and multiple folders would commonly be found for one single beneficiary.

Paper-computer interface

Datasets were commonly printed out and used for data capturing at programme level. The data values captured were then fed into the PDB, PDB2, or Microsoft software like Word or Excel. Whenever datasets were incomplete, and if the information were to be fed into the PDB or PDB2, Microsoft software would be used as a shortcut as a tool for reporting before PDB or PDB2 input was later performed.

Digital information systems

Digital information systems utilized at programme level by SOS research participants, presented in Table 6.3, where the PDB and PDB2 were piloted, in addition to Word, Excel and Power Bi. As datasets from different stakeholders varied, both excel- and word-based forms issued by stakeholders or

generated by SOS were used for reporting to external actors. Excel was used by extracting information from the PDB in addition to managing different types of information not appropriate for the PDB and creating data visualizations. The Business Intelligence Solution Power Bi was too used for data visualization.

At programme level, the PDB was used for case management of each beneficiary and exporting aggregated reports to excel format. At higher levels, the PDB provided aggregated data as means for, for instance, monitoring progress related to the SDGs. Consequently, the PDB was implemented at all levels of the SOS hierarchy globally as a primary tool for managing information on beneficiaries enrolled in SOS programs, thus highly vertically integrated, however with varying utilization.

At the International level, Salesforce was used for handling donor requirements, with event listeners ensuring events were triggered when, for instance, a new family was registered, keeping integrated internal systems up to date.

Table 6.3 - Digital information systems at SOS

Digital Information System	Use
PDB	Programme level: Management information system. Case management. Higher levels: Management information system
PDB2 (Pilot)	Programme level: Management information system. Case management. Higher levels: Management information system
Email	Information and communication exchange, including reports
Word	Reports, database
Excel	Data export, visualization, reports, database
Power Bi	Data Visualization
Salesforce	International level: Donor handling

The PDB

Centralized developed by the development team at the International Office, PDB is a browser-based web application, serving as an information management system tailored to the needs of SOS. The PDB

provides the ability to export PDB data to Excel sheets. Reporting was commonly done this way, reported through email or printed out for hard copy distribution (Figure 6.5).

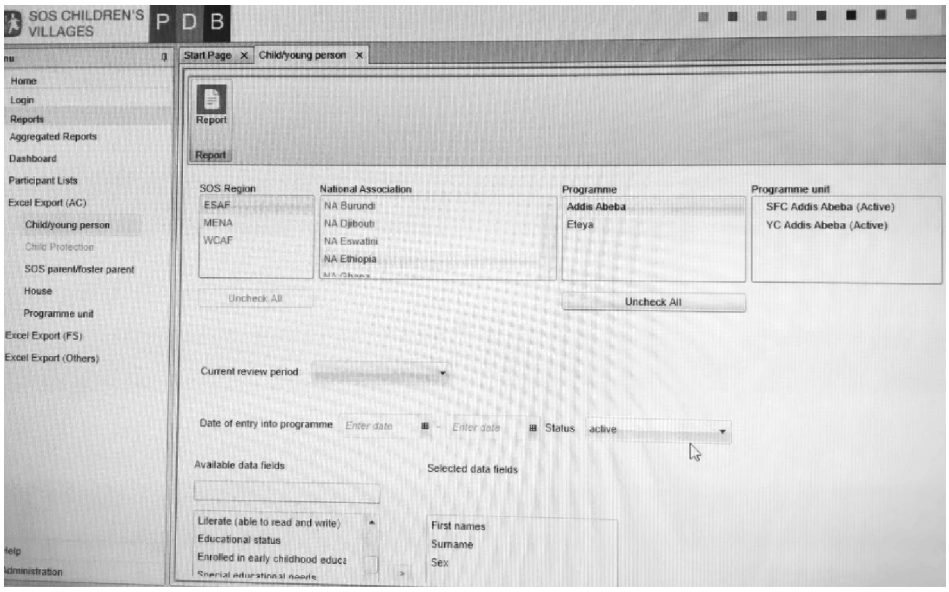

Figure 6.5 - The PDB Interface

Single-factor authentication is provided through login credentials connected to a single PDB user, in theory an actor working in SOS. Furthermore, a set of access levels is built for authorizing different users. Such access levels are mostly specific to the hierarchical level of SOS and apply to the user affiliated with the respective level, however, administrators naturally have additional privileges. PDB users affiliated with a village are generally only granted access to the disaggregated and aggregated data related to their respective village. At higher levels, aggregated data derived from all lower levels can be seen, optionally filtered by village.

As a means for the protection of beneficiary data stored in the database, PDB is based on an SOS identification system. Each beneficiary registered in the database will automatically be issued a unique “SOS ID”. Likewise, with families registered under the family strengthening programme, families will receive a SOS family number as the unique identifier.

The PDB is a silo-based system. The system is not interoperable with any systems for the sake of external actor collaborations. However, it is interoperable with internal systems, including the planning tool Lucy, the enterprise resource planning system Dynamics Navision, the customer relationship planning management system Salesforce and an ID Pool. As such, some horizontal integration has been found in terms of integration across the different business areas of the organization. Important to note here is the lack of horizontal integration with external actors, for

instance with systems used by other NGOs or governmental actors. As mentioned, strong vertical integration has been found in terms of interoperability between the different hierarchical levels of SOS.

The PDB2

The PDB2 is currently under development and expected to be fully implemented across the programme level by 2021. The current PDB will not be functional after this point. Although some functionality is still not implemented, the PDB2 has started piloting in some villages.

In an effort to combat undefined reporting rules in the organization, after acknowledging reporting silos was being produced over time, the PDB development team at the SOS International Office started an initiative to enable one source of truth for high-level information to be shared across stakeholders within the PDB2. This single source of truth is referred to as the SOS Compass and should provide a federation-wide overview with program-, finance-, HR- and fundraising data. The Compass is developed to be used on all levels of the hierarchy as all PDB2 users will be able to access and analyze the automatically aggregated data based on predefined reports decided by SOS international.

The SOS Compass is, at backend, a database and server providing automatically aggregated data from the PDB2 and other integrated systems like Dynamics Navision. Within the PDB2, hyperlinks to the Compass frontend are provided, for instance enabling presentations of reports on core assessments (Figure 6.6). SOS indicator lists are also provided here. As seen in Figure 6.6, online training material is also provided.

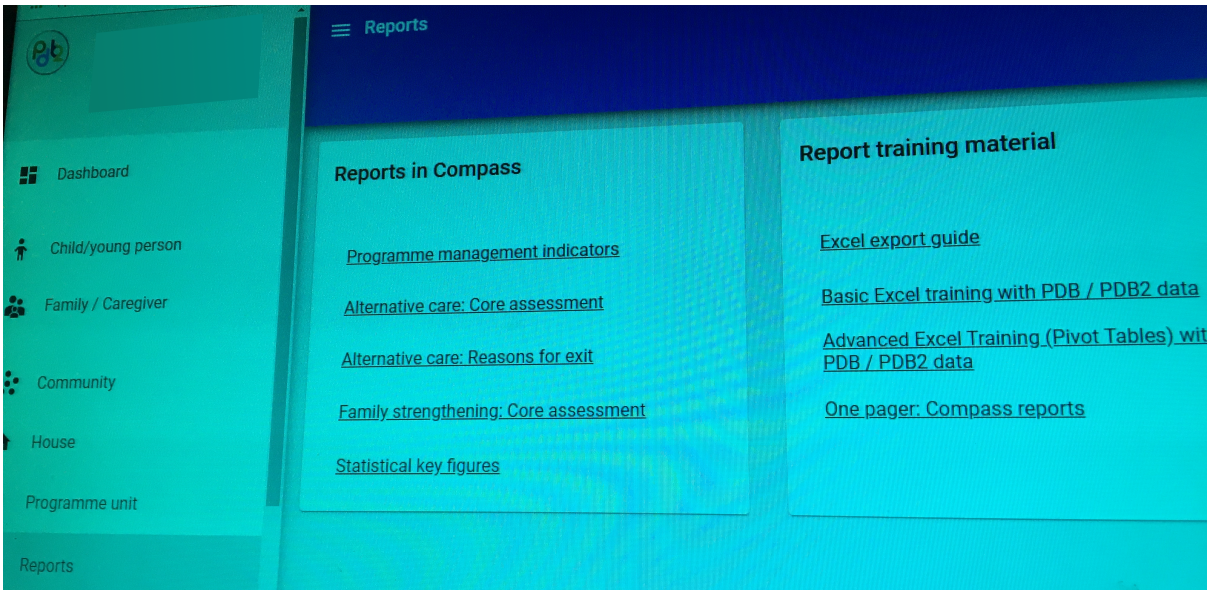

Figure 6.6 - The PDB2 interface

Likewise, both Excel and Power Bi were used for data visualization, often presented in PowerPoint at meetings, the Compass can act as a data visualization tool for pre-defined reports.

Whereas the PDB requires an active internet connection in order to input data and access such data, offline functionality will be introduced in the PDB2, including the ability to be installed on mobile devices. Developed as a Progressive Web App, PDB2 can be downloaded to tablets through the browser, thus resembling a mobile app. As such, it can be accessed both directly through the browser, and through the installed app. This implies access to the system in areas without access to computers, or where using computers are seen as less optimal.

Along with offline functionality, PDB2 will include features for digital data collection through mobile capturing in areas not covered by the internet. Practically, an offline button on the PDB2 interface can be pressed when internet access is available. Out in the field, this enables SOS social workers to upload data to local storage, and the application can be accessed and used in remote areas. When internet access is later obtained, data fed into the PDB2 while offline are automatically uploaded to the server. At the time being, only some features are implemented to be used offline. Tablets will be distributed by SOS International but were not yet rolled out in the research locations.

SOS social workers were found to be mostly working with paper-based interfaces for collecting beneficiary information. In Ethiopia, this means few SOS social workers were directly involved with the PDB, however in South Africa this varied. Currently, data is fed into the PDB by different actors (Figure 6.7). Using the PDB2, SOS social workers could potentially feed data into the PDB directly by downloading the PDB2 on tablets and utilizing the offline mode out in the field (Figure 6.8).

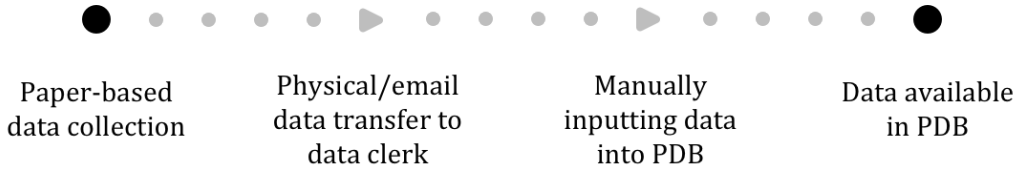

Figure 6.7 - Current paper-computer interface for collecting and feeding data into the PDB

Figure 6.8 - Potential interface for collecting and uploading data to the PDB2

PDB and PDB2 comparison

In Ethiopia, the researchers met with one data clerk utilizing both PDB and PDB2. In the PDB2, the clerk could see synced data from the PDB automatically.

Regarding both versions, the data clerk was unfamiliar with some features. The "dashboard" was empty, and what was supposed to be there now or in the future was unclear to the clerk. Moreover, it was evident that the Compass feature in the PDB2 had not been visited before With the data clerk not knowing what it was used for, and with long loading time, after a seemingly blank page was displayed, the observation moved on to other parts of the PDB2.

The PDB2 interface did not resemble the PDB too much, providing more features and utilizing the Google Material UI component library (Figure 6.9). *"They say it is an extension of PDB1, but it looks entirely different"* was expressed by the clerk. The current version of the PDB was expressed to be a personal favorite.

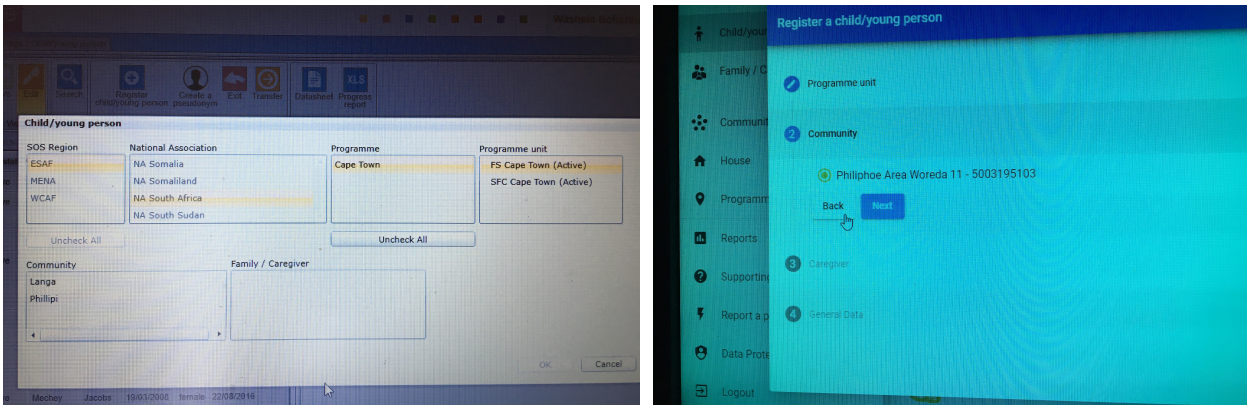

Figure 6.9 - Beneficiary registration interface comparison of PDB (left) and PDB2 (right)

Expressed general issues:

- not all use cases of the system were clear;
- bulk data collection by social workers leading to quality issues and challenges of input with the paper-computer interface;
- no Amharic calendar implemented;
- naming conventions not resembling Ethiopian naming conventions, leading to "wrong" names at higher levels;

Expressed issues directly relating to the PDB2:

- unfamiliar interface, including "bad" structuring of beneficiary lists

Asides from the interfaces, there are several general characteristics separating PDB2 from the current PDB. These can be explored in the following table (Table 6.4)

Table 6.4 - PDB and PDB2 comparison

	PDB	PDB2
Connectivity	Online access only	Online access and some Offline features
Application type	Web Application: Browser-based	Progressive Web App: Available on browser and installable as an app
Primary users	Data clerks, Monitoring, Evaluation, Reporting and Analysis Officers, different roles depending on authorizations	PDB primary users, additionally more SOS social worker friendly
Data visualization	Excel. Power Bi.	Excel. Power Bi. Automatically generated visualizations through Compass.
Reports	Excel exports. Power Bi.	Excel export. Power Bi. Compass reports.

6.3.2 External information systems within the SOS ecosystem

Governmental- and NGO actors had similar information systems to SOS. Paper-based and digital information systems will be introduced in the following paragraphs.

Paper-based information systems utilized by NGOs

At NGOs, similar to SOS, paper-based individual beneficiary folders were commonly found. Indicator lists were often digitized, however written on paper at one local NGO in South Africa (Figure 6.10). Governmental actors requested reports in hard-copy from these NGOs as well.

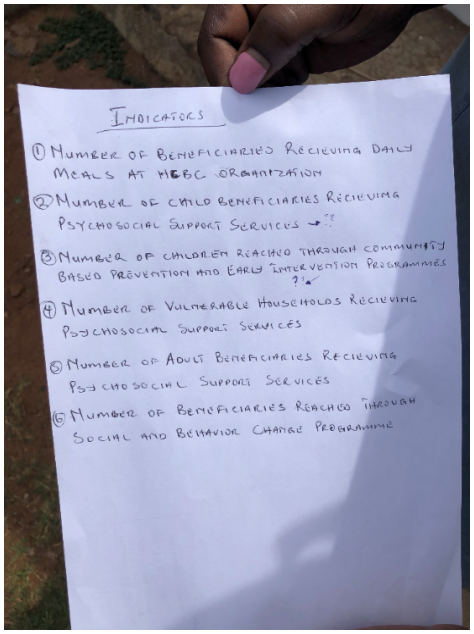

Figure 6.10 - A Local NGO Indicator List in South Africa

Paper-based information systems utilized by governmental actors

The government in both research countries was found to be utilizing paper-based filing systems as well, to SOS' and other NGOs' distress, leading to loss of documents, lack of action and lack of timely information exchange (Figure 6.11.). At the ACSO in Ethiopia, observations made clear that finding the SOS folder from the paper-based filing system took time, illustrating timeliness potentially weakened by such storage (Figure 6.12). Paper-based datasets were commonly found to be used for collecting data, being later fed into different digital silo-based information systems.

Figure 6.11 - A paper-based filing system at a health clinique in Ethiopia

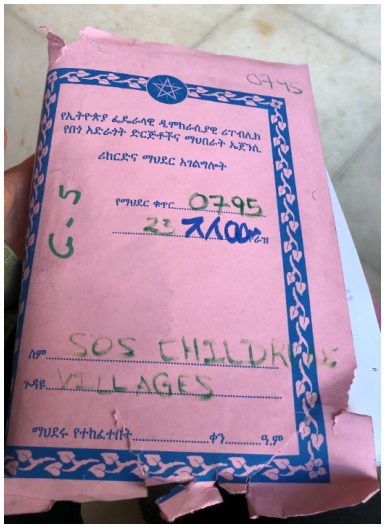

Figure 6.12 - A paper-based folder for SOS at the ACSO in Ethiopia

Digital information systems utilized by NGOs

Digital Information Systems often utilized by NGOs at programme level were Word and Excel. Alike SOS International, one NGO utilized Salesforce for donor handling. Many NGOs moreover outsourced the development of- or independently developed their own silo-based databases.

One system resembling the PDB stood out; the Soweto Care System. Many participants referred to this system when asked about what other information systems used in South Africa could be relevant to explore. The system was widely spread and serving different NGOs for a small fee, including preliminary system training and reports tailored to their needs. The system offered data to be stored in servers in South Africa, which were found to be highly important for some organizations in the country. Other similar digital information systems used for beneficiary data management were identified as the CommCare and Broccoli, in addition to a multitude of other systems.

Digital information systems utilized by governmental actors

The government was found to be utilizing a multitude of silo-based information systems, including Excel, Word and JSON-files being sent by email, often due to lack of network connectivity with an estimated 50% downtime.

The DHIS2 was commonly used at health departments in both research countries. Data for Accountability, Transparency and Impact was a system developed by The U.S. President's Emergency Plan for AIDS Relief on top of the DHIS2.

In South Africa, the Community Based Intervention Monitoring System was utilized at some sections of the DSD in South Africa, mainly focused on Orphans and Vulnerable Children. In addition, over a dozen other silo-based information systems were found to be utilized by the DSD, mainly operating in silos. SCOPEN was identified as the information system being used for verifying beneficiary double-dipping; cases where a child could be supported by two or more stakeholders, whereas another child would be neglected in favor of the child not actually being entitled to multiple services.

In Ethiopia at the MoWC, a Regional Child Wellbeing Data Management System (Figure 6.13) was used. The information management system had been used for about five years. Current efforts and wishes to merge this regional system with a federal one was found. A reason for this was the seemingly black box of the system not being understood by the database team. *"We came here, we didn't know the system. (...) Only know technical, but not what is inside the system. Worked here for three years"* (MoWC IT Department Team Leader). The federal system moreover seemed to have

better IT expert support. A multitude of other databases was also found relating to different departments within the same ministry.

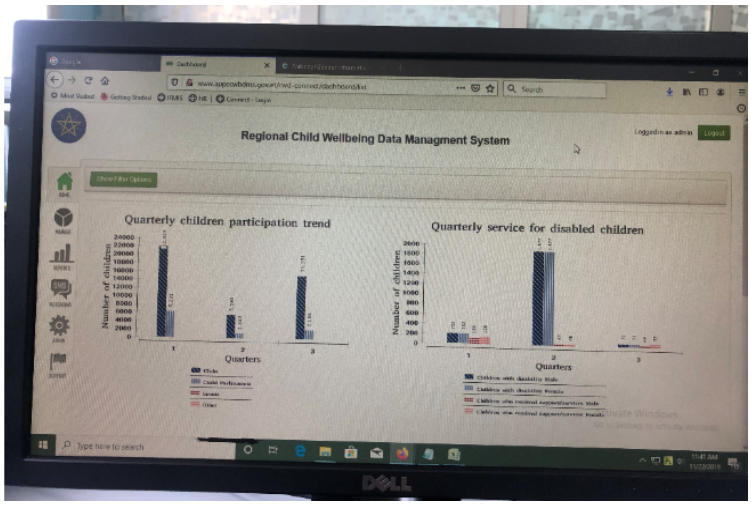

Figure 6.13 - Regional Child Wellbeing Database found at the MoWC

Actors at the MoWC in Ethiopia claimed that the Regional Child Wellbeing Database was not functional because of high turnovers, experts dropping out, and lack of input data from NGOs and other ministries. *"Lots of work"* and *"little money"* were seen as issues affecting utilization.

The ACSO in Ethiopia, monitoring and helping NGOs and their projects, was at the time of field study, working with digitization of their own paper-based filing systems. Two digital databases - one old, and one new - were utilized, in which information on NGOs were found. Because of lack of storage, paper-based documents were scanned and put into the new database, thought to lead to higher quality of data. Upon input completion, the ACSO would later require reports to be submitted in soft-copy only.

While several silo-based systems were found at the governmental level, issues of such horizontal fragmentation are seemingly currently being addressed in both research countries. Governmental digitization processes were found through the preliminary development of a common database used by governmental departments in Ethiopia, developed by the Information Network Security Agency. Moreover, a government-wide system - the National Integrated Social Protection Information System - has been worked on in South Africa for two years, tasked to be developed by DSD with consultations with other departments such as health and higher education. However, these efforts are far from finished, and have shown to be quite intricate.

6.4 Datasets

Indicator lists and datasets amongst other documents were retrieved from research participants where possible and analyzed through document analysis. Findings derived from the analysis proved the MoWC indicators and datasets used internally at the SOS programme level to be pertinent in the scope of this thesis. Nevertheless, an incomplete document collection as described in Chapter 5 made findings on standardization - or lack thereof - at semantic level between the different actors hard to establish, not leading to sufficient comparability. Standardization findings will thus be shallowly based on the thematic analysis. For instance, datasets used in external information flows have not been completely obtained from the participants and thus not been subject to document analysis. They are, nonetheless, introduced as part of the "Information flows" section in this chapter. As such, the following documents will be introduced respectively:

1. *Ethiopian Child Wellbeing Indicators obtained from the MoWC (Appendix K)*
2. *Datasets to be used internally by SOS villages distributed by the SOS International Office and datasets utilized at Ethiopian villages obtained from an Ethiopian SOS manager at programme level*

6.4.1 Ethiopian Child Wellbeing Indicators

Important takeaways from the Child Wellbeing Indicator list retrieved from the MoWC is the multitude of actors being responsible for gathering information in different domains. Such actors included the Central Statistical Agency, ACSO, Ministry of Health, Federal Courts, Ministry of Justice and the MoWC themselves. Reflective notes with concerns regarding the indicators and collection of them were also present.

The ACSO was one important data provider for an indicator related to the number of organizations working on children. Limitations were described as data needed not being readily available at present, that there may not be any established system ensuring regular or periodic data collection on organizations working on children, and that mapping of such organizations would be essential to assign baseline value to the indicator. Furthermore, the development of data collection and reporting mechanisms were needed to be put in place to track the indicator.

6.4.2 SOS Internal Datasets

SOS International has pre-made templates of datasets available for all SOS actors. Regional offices are responsible for rollout, while the content is contextualized at the national level in the sense of

translation and configuration. The datasets are further distributed to the programme level and used by SOS actors - currently in the medium of paper forms - as a means to capture data on beneficiaries.

Table 6.5 - SOS International issued datasets for programme level

#	Dataset	Description
1	Initial Assessment Form (FS** & AC*)	Assessment of the necessity of taking a child or a family into an SOS programme. Assesses current living arrangements, risk factors like health, psycho-social, family resources etc. Summary implies whether the child is admitted or not.
2	Registration and general information (AC, FS, Child in FS)	Three datasets to be used for essential information regarding registration of a child in alternative care, or family or child in family strengthening programmes. Necessary information is obtained in order to create a case file in the PDB.
3	Core Assessment (AC, FS)	Two datasets to be used as an assessment tool in order to provide the best possible care services for children in alternative care programmes or assessing the needs of family members in the family strengthening programmes, as well as tracking beneficiary progress and personal growth.
4	Development Plan (FS, AC)	An individual or family development plan for tracking progress on beneficiaries, to be updated every sixth month
5	Transfer form (FS, AC)	Two datasets to be used to transfer a family or child to another village or other programme
6	Exit Assessment (AC, All in FS, Child in FS)	Three forms to be used for assessment of child/young person or family upon exiting AC or FS programmes
7	Follow-up Assessment (AC, FS)	Assessment of former beneficiaries of SOS programmes. Currently intended as an optional follow-up
8	Re-entry form former participant	To be used to re-enter former beneficiary into SOS programmes
9	Contact Log	Contact log for SOS social workers used for new contacts, upcoming contacts and last contacts. For instance home visits, phone calls and meetings.

**FS = Family Strengthening*

***AC = Alternative Care (Family Based Care)*

In terms of what goes into the PDB, the dataset for registration and general information was found to be inputted at all villages. Exit information was also present. Individual development plans were however often not present, placed within individual beneficiary paper-based folders. These development plans were often tailored to individual beneficiary needs, continuously evolving. Information between beneficiary registration and exit in general was lacking.

In some datasets in Ethiopia, some data type naming conventions were changed. For instance, fields were changed, like “middle name” instead of “surname” as Ethiopian naming conventions differ from western, and “Number” “Street” “Zone/Area” and “Community Special Place Phone Number” for physical addresses, as Ethiopian addresses differ from that of Western-style street addresses.

6.5 SOS Ecosystem Information flows

The following section will provide an overview of the current vertical information flows internal to SOS, as well as the information flows from SOS to governmental actors. First and foremost, case management activities at programme level will be outlined in order to enhance the understandings of some of the information related tasks at this level.

6.5.1 Internal SOS case management activities

Covering three stages of interactions with beneficiaries, the following sections will outline the stages and associated steps for capturing and managing case data internally at programme level. These steps of action are standardized procedures in SOS villages, although may likely vary in practice across locations and contexts. The datasets introduced in Table 6.5 found to be used at programme level and their usage in relation to beneficiaries will be explained at each stage. The following stages of internal SOS case management will be outlined:

1. Referral and pre-admission
2. Post-admission
3. Exit and follow-up

Referral and pre-admission

Initial interactions with new beneficiaries started with a referral from a governmental actor which had identified a child in need of alternative care. What governmental actors, as well as how identification and referral of such children to child care NGOs varied to a certain extent. For instance, the MoWC in Ethiopia was working tightly with NGOs to provide care services to identified children. The ministry was working with multiple authorities, including the law enforcement department having

encountered abandoned or orphaned children. In such events, the ministry was contacted accordingly to aid their situation and provide the services needed. Furthermore, "*...they fill all the formats and send to the SOS CV for approval. Then we approve, and accept the child.*" (SOS National Programme Director Ethiopia).

When programme levels received referral requests, an evaluation of the admission was initialized as seen in Figure 6.14. These evaluations concerned questions such as whether the admission was suitable or necessary. The initial assessment form was used in order to determine the child's eligibility. Followingly, a verdict was reported back to the respective governmental actor. Unless the child was denied admission into the village, the ordinary procedure continued and the respective child was further recognized as a beneficiary for the receiving programme level. From this point on, governmental social workers and SOS social workers provided with the respective case would further cooperate on the following case management of the beneficiary.

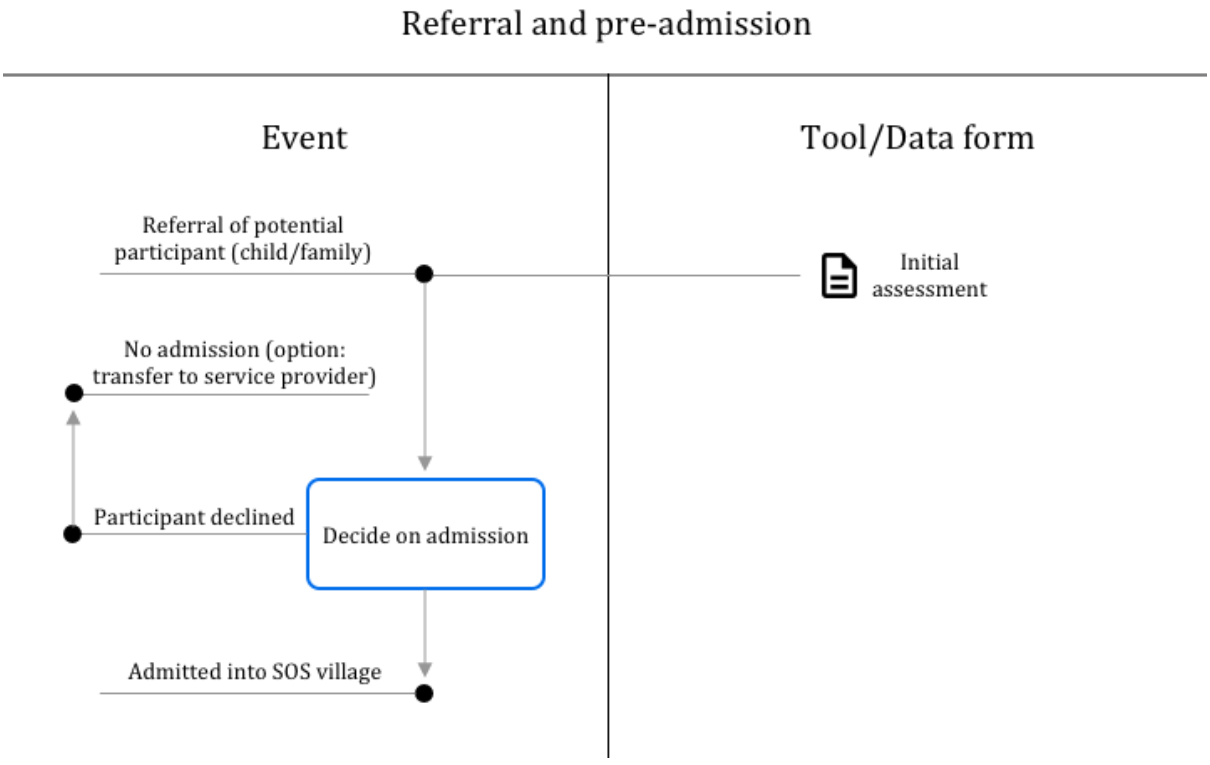

Figure 6.14 - Interactions at referral and pre-admission stage

Post-admission

As a general outline of datasets utilized, Figure 6.15 illustrates a timeline of such usage in regards to beneficiaries at programme level, whereas sections marked with "PDB" resembles information that is expected to end up in PDB.

The first step after beneficiary admission into SOS was making sure crisis intervention services were provided if such action was required by the specific village. This information was stored along with the initial assessment for the respective admission. Within a timeframe of five days for admitted children, village associates cooperated in collecting information on the admitted beneficiaries through a registration form, and with this information, create a new case in the PDB. This process was also conducted for enrolled families in the family strengthening programme, however beneficiary data was created and stored in separate sections of the PDB depending on the programme. Subsequently, general information was captured and stored on the newly generated cases within PDB.

At the earliest time possible and at the latest of four weeks after registration, a core assessment was needed to be completed for the beneficiary. The assessment of a child's or family's needs, development areas, talents, strengths and skills were highly dependent on a carefully conducted core assessment. As such, The assessment form was a standardized form aimed at capturing specific data indicators covering such areas and was issued by the international level. Data captured within this form was further converted from its paper state and into the corresponding case in the PDB. Such an operation often involved two actors at the village; an SOS social worker capturing data, and a data clerk or other staff feeding data from these forms into the PDB. The transfer of such forms were either physically overhanded or sent digitally through email.

After the core assessment data was captured and fed into the PDB, a development plan was drafted for either the individual child or in the context of a family development plan. The core assessment built the base for a well-thought development plan and formed the basis for SOS to provide the most adequate support services for the concerned beneficiary. This plan was due for completion no longer than four weeks after its preceding form and was in most cases filled out by an SOS social worker. According to the guidelines provided by the international level, the individual development plans were not considered to be up-to-date whenever development plans were not reviewed after 12 months.

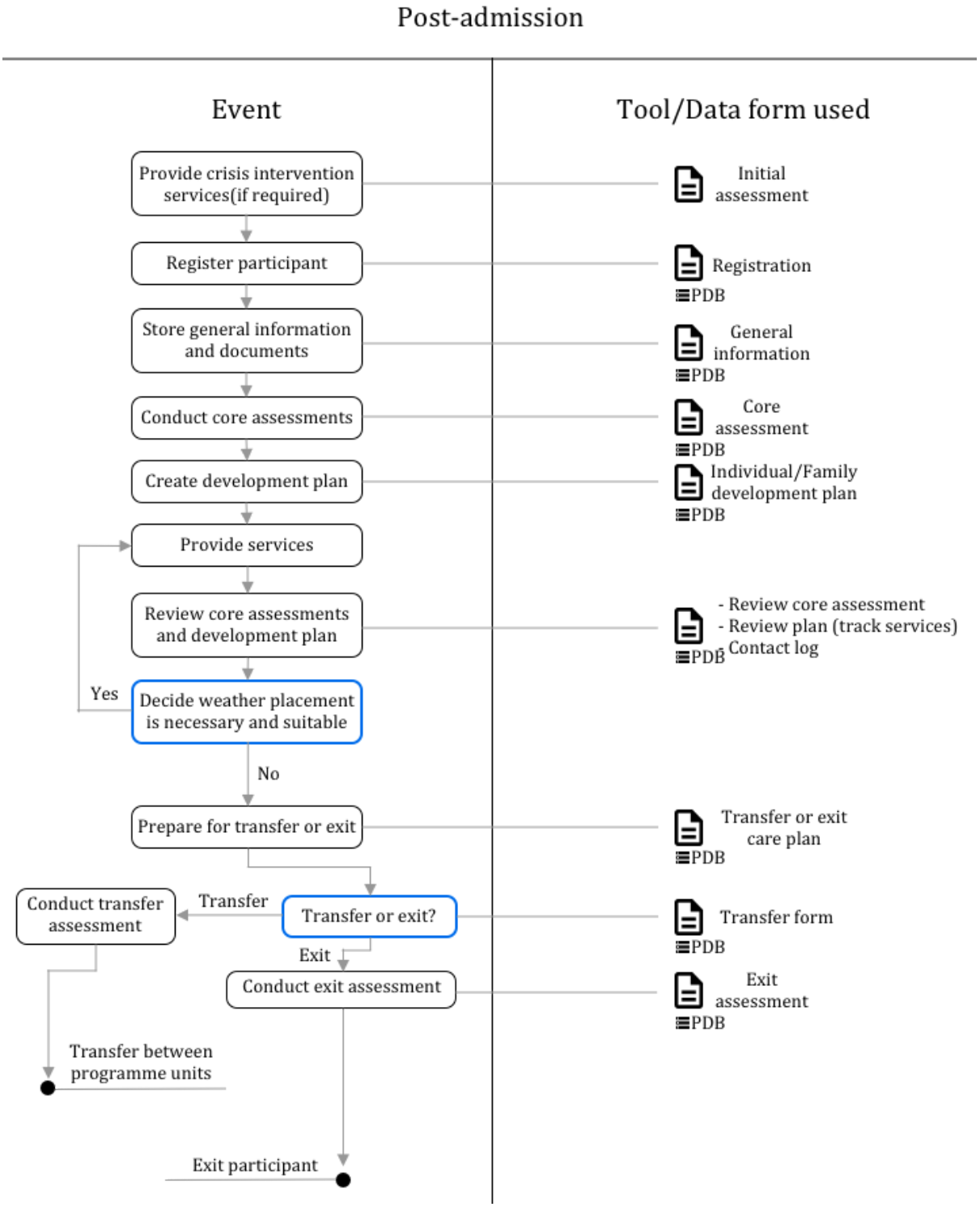

Figure 6.15 - Interactions at post-admission stage

As these forms got completed and updated within the beneficiary case in PDB, paper copies of all necessary documentation were also usually stored and organized by each case in individual beneficiary folders as part of a paper-based filing system. Government representatives conducted occasional inspections of programme levels data management, in order to verify its level of

satisfaction and if the circumstances comply with government regulations. As earlier mentioned, these folders were often brimming and some information was seen as redundant.

Following this, the services defined in the individual development plan were continuously provided until the plan, including a reiteration of the beneficiary's core assessment, was once more reviewed. The frequency of development plan reviews varied, although it was generally found to be at the rate of six months. As such, this iteration would be an ongoing process consisting of SOS services benefiting the beneficiary, promoting their self-reliance. This repetitive process continued until the most recent core assessment, including the development plan, indicated the placement of the respective beneficiary was no longer necessary or suitable. If this was the case, the beneficiary was prepared for transfer or exit from the programme and the village.

If the beneficiary in question was subject to transfer between programme units, a transfer form had to be filed stating the reason for the transfer. However, if the beneficiary was exiting SOS care altogether, exit procedures continued.

Exit and follow-up

As part of procedures and steps before a beneficiary could exit the programme unit, an exit assessment had to be conducted within four weeks prior to the exit. Subsequently, an optional follow-up assessment was scheduled to be conducted three to twelve months after the exit (Figure 6.16). Stated by an SOS social worker in South Africa, personal beneficiary information was generally removed from PDB after the exit process had concluded. However, no deeper investigation was made on this matter and such formal requirements were not specifically disclosed in either of the research countries.

The aforementioned annual reports created at programme levels were internally used as a guide and with intent to steer the care programmes provided by the respective village. However, result-based management was reportedly not entirely rolled out throughout the organization at programme level.

No SOS actors claimed it to be useful for actors at programme level to share information related to case management - found in children's paper-based personal files and the PDB - between the programmes as *"every village is concerned with their own children, not other's"* (SOS Administrator). However, best practices were shared sporadically with physical meetings in different villages as discussed in Chapter 4.

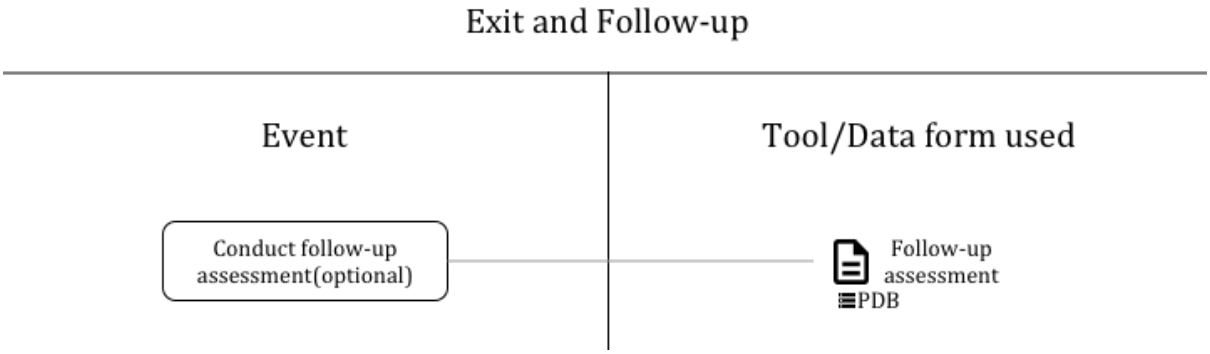

Figure 6.16 - Interactions at exit and follow-up stage

6.5.2 Vertical information flows internally in SOS

Vertical information flows consisted of subsets of information being aggregated from the programme level up to the international via the national and regional level. As stated by a member of the PDB/PDB2 team, all levels of SOS were required to create annual reports regardless of other hierarchical requirements. The objective of these reports differed at each level, and were analyzed internally and used accordingly.

Communication between programme level and the national office were intended to be frequent, providing needed information about villages in order to contribute to a coherent picture of national status. Nevertheless, feedback on shortcomings or unsatisfactory data quality in South Africa and Ethiopia was provided in an informal manner, often solved with sporadic phone calls. As a general note when questioned about the current data handling situation, the SOS National Programme Director in South Africa described the situation as *"weak in terms of data collection, management and data flow processes"*. Henceforth, the national office was now in the planning stage of *"structuring the data flow in meaningful management in a useful manner to different parties and stakeholders".*

On a monthly basis, administrators at programme level, generally programme directors, would update the national office with a census of current beneficiaries, also stating their status of funding. In South Africa, the national office required a "master list", with data on beneficiaries in family strengthening programmes and a "control list", with data on beneficiaries and SOS carers in alternative care programmes. The control list and master list were instead submitted by the villages in soft copies by email to the National Office. As such, the programme director did not currently directly utilize PDB for monitoring individual programme levels in South Africa. Following in Ethiopia, programme level prepared monthly and quarterly reports to the national level. The monthly report had a fixed format intended to provide the national level with an overview of current activities. Additionally, a quarterly

progress report was prepared twice a year, providing information about activities, beneficiary numbers, as well as financial plans. These forms were sent by email.

The regional level required reports from the national level on a monthly basis. Moreover, annual reports created at national level, submitted to regional, included facts and figures concerning SOS indicators in order to assess the quality of care services provided in the country. SOS could use such analysis to conduct regional benchmarking to get insights to global trends. Information used in these reports were extracted from the PDB by monitoring and evaluation actors at national level using excel capabilities.

With a lack of access to actors directly concerned with administrators at regional and international level, scarce discoveries have been made of data usage at these levels. However, contributing sources could disclose that the regional office also provided situation reports to the international office where facts and figures were presented.

6.5.3 Horizontal information flows from SOS to governmental actors

The following section will introduce the flow from SOS to external governmental actors in the SOS ecosystem. As a result of differences in governmental structures, external information flows proved to be dissimilar in the two research countries. An outline of information flows specific to each research country will therefore be provided. As a general note, SOS has a set of reporting obligations in the framework of NGO regulations. A discovery was made on how these obligations were structured and its frequency within the research countries.

Generally in the SOS ecosystem, and similarly for all levels of SOS, annual reports created were used to inform stakeholders, donors and partners. The ability to convey the effect on child care services provided was an important measure in acquiring new sponsors and keeping the old in order to improve services.

SOS South Africa - Programme level

In South Africa, associates involved with data management at programme level were expected to contribute with a monthly beneficiary and programme statistics report required by the DSD (Figure 6.17). These reports were templates made by the DSD and included statistics mainly disclosing numbers of beneficiaries currently in care services and whether they were qualified for government grants. Included in these reports were also information children's visits to other services, such as *“how many times children have gone to the doctor, dentist or therapy sessions”* as stated by a

Programme Director. Furthermore, the reports included narrative segments stating achievements, highlights or potential challenges The report was found to consist of aggregated numbers exported from the PDB and further processed, before transferred as a soft copy over email and a hard copy delivered to the DSDs district office. These reports were experienced to encompass challenges with the receiving party, often requested to be sent multiple times due to being lost in transport or needed by different actors within the government. DSD representatives often practiced verbal feedback upon physical visits to the villages in order to ensure funding were spent appropriately, often requiring more information.

Progress reports were expected to be sent bi-annually to the DSD. These reports included information on achieved goals, as well as disclosing how granted government funds were spent during the period. The DSD required that organizations registered had to submit financial statements approved by an accounting officer, along with a narrative segment. The report captured the impact of the care services provided and contributed to ensuring the organization maintained a good record of financial transactions.

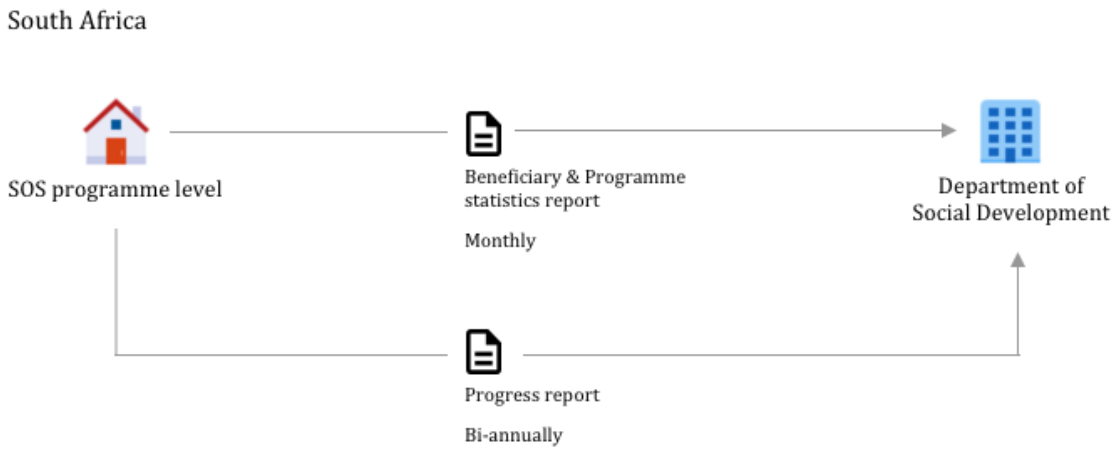

Figure 6.17 - External reporting in SOS South Africa at programme level

SOS Ethiopia - Programme level

Unlike in South Africa, quarterly, bi-annual and annual reports were composed covering status on current beneficiaries and programmes (Figure 6.18). In Ethiopia, this was done by a dedicated monitoring, evaluation, reporting and analysis officer. These reports were often required to be stamped and delivered as a physical copy to the MoWC. Often, this entailed both soft copy and hard copy distribution in order to ensure the report was received.

A more detailed operational and financial report was moreover composed by administrators at the village annually, required by the ACSO. Current and new projects needed to be disclosed, as the ACSO provided grants for interest-specific projects.

Lastly, a financial report was demanded by the Bureau of Finance at a frequent rate of quarterly, bi-annually and annually.

Figure 6.18 - External reporting in SOS Ethiopia at programme level

SOS South Africa - National level

The SOS National Office responded to an annual survey distributed by the Department of Statistics South Africa, illustrated in Figure 6.19. However, its frequency was experienced to be impromptu. The survey was a static form intended to capture more organizational data, rather than information on activity-specific data of SOS.

As the national office mainly functioned as a higher level of oversight more concerned with the administration of the operative work at programme level, less information was registered to be flowing to governmental agencies at this level. In contrast to villages, the National Office was not under the same jurisdiction regulating NGOs, thus deemed for less governmental information demands.

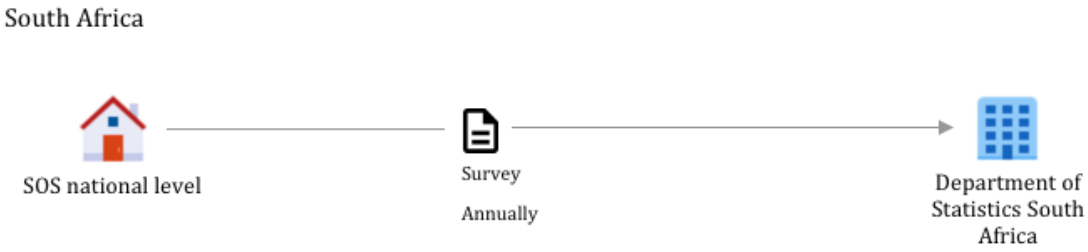

Figure 6.19 - External reporting in SOS South Africa at national level

SOS Ethiopia - National level

Annually, the national office in Addis Abeba was scheduled to construct two reports to the ACSO, namely an activity and financial report, as well as an operational plan (Figure 6.20).

The annual operational plan over seven sections described activity implementations, highlighting the the projected impact of programmes. The main section of the report outlined the planned activities, budgeting and expected results. In later sections, the report stated that projected financial, material and human resources needed more granularly.

Over nine sections, the activity and financial report evidently covered the types of programme interventions and geographic scope the organization covered, but most importantly, presented the activity implementation status. Being the most important section of this report, it included the organizations planned activities, budget utilization as well as the number of beneficiaries through the various programmes and projects. The implementation status covered the statistics and number of beneficiaries in a set of predefined indicators, and the corresponding expenditure relative to these indicators. In the later sections of the report, SOS disclosed how the planned financial resources were utilized in line with the programme and administrative expenditures, as well as projects not completed within the respective term.

In addition to the reports submitted to the ACSO, project plans were distributed to government entities cooperating on a current project on a bi-annual and annual basis.

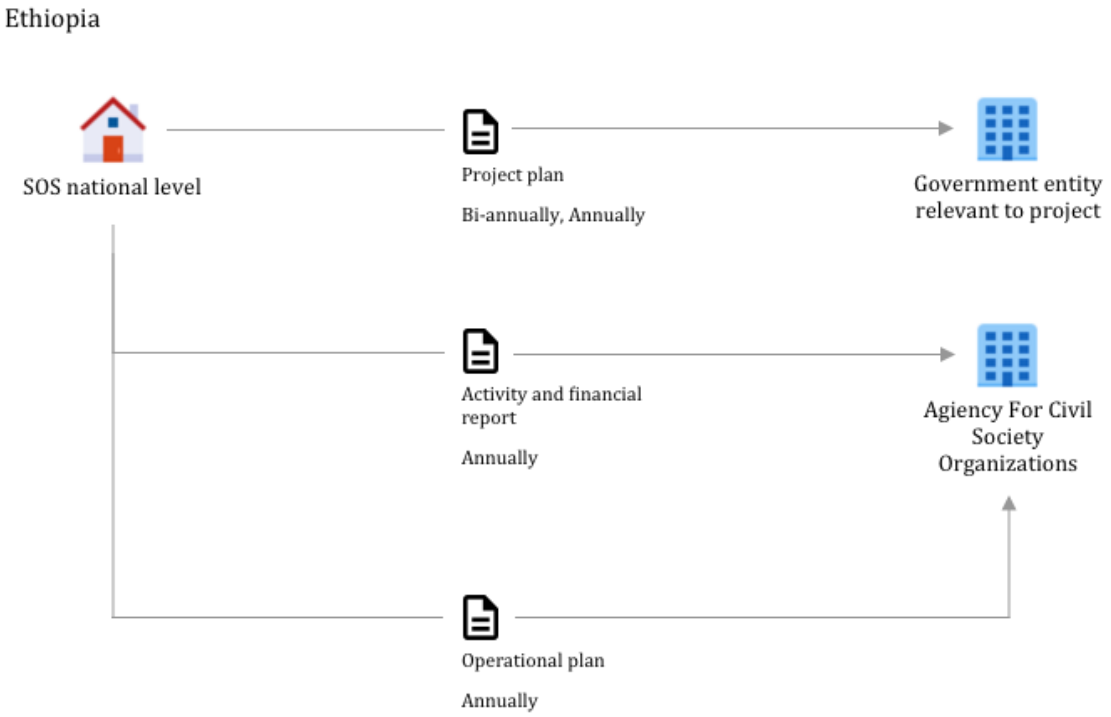

Figure 6.20 - External reporting in SOS Ethiopia at national level

6.6 Chapter summary

The SOS ecosystem has been introduced, consisting of SOS, other NGOs, governmental actors and donors. SOS was found at four hierarchical levels, in which the silo-based information management systems, the PDB and PDB2, were vertically integrated. Governmental actors had shown great importance for SOS' and other NGOs' operations in regards to collaborations with governmental social workers and current reporting requirements. The DSD in South Africa and MoWC in Ethiopia were especially important governmental actors to take note of, as the governmental actors mainly concerned with child welfare in the countries.

The PDB and PDB2, including upcoming features, have been introduced and compared. At SOS, the PDB and to some degree a preliminary version of the PDB2 were used for case- and information management in addition to paper-based filing systems, however the information flows consisted of many more, including software developed by Microsoft. At governmental actors and NGOs, a range of digital and paper-based silo-based systems were found, including unorganized paper-based filing systems. Requirements by governmental actors for physical delivery of paper-based forms were found, whereas email was the preferred option for NGOs, including SOS. Efforts of digitization in Ethiopia could mean less demand for hard copies in the future. In South Africa, integration efforts have been found in terms of the National Integrated Protection Information System. Such integration

efforts were also identified in Ethiopia, with a federal database to be developed by the Information Network Security Agency.

Information flowing vertically within SOS and horizontally between SOS and governmental actors have been introduced. SOS Ethiopia has shown to be required to report to a multitude of governmental actors in contrast to SOS South Africa. Paper-based filing systems were used in order to store case management information and information requested to be made available for a multitude of actors. Because of this, the folders were often brimming and multiple folders could be found for each beneficiary.

Constraining and enabling factors affecting the information flows within the ecosystem have been derived from the findings and will be further discussed in the succeeding chapter.

VII Enabling and constraining factors

“... rule of thumb: Keep a copy and scan and email in case something gets lost."

(SOS Program Director)

7 Enabling and constraining factors

The following section will be focused around research objective three, discussing factors that might constrain or enable productive information flows within the SOS ecosystem. Moreover, the discussion will include objective four, providing recommendations for SOS. The discussion is based on the findings introduced in chapter 6 and the thematic- and document analysis. The document analysis included analysis of the Department of Social Development's (2019b) "Final NISPIS Report" not earlier mentioned, relating to the current integration efforts in South Africa. The factors will be discussed drawing on relevant literature introduced in Chapter 3, in addition to a few concepts from Chapter 4.

The analysis identified multiple constraints and enablers to productive information flows within the SOS ecosystem. These will be elaborated on in the following paragraphs. Firstly, an introduction to the overarching topics and respective constraining and enabling factors are given in Table 7.1, followed by a thorough discussion per identified topic.

Table 7.1 - Summary of topics explored and respective constraining and enabling factors

Topic	Constraints	Enablers
Infrastructure	Poor Internet connectivity, Unreliant electricity supply, Lack of financial and human resources, Poor capacity building	Mobile network strengthening in Ethiopia, strengthened electrical coverage in South Africa, PDB2 offline mode
Government	High turnovers of social workers and officers, low governmental and NGO collaboration and trust in South Africa, a multitude of governmental report receivers in Ethiopia	Heightened collaboration between government and NGOs in Ethiopia, few report receivers in South Africa
Feedback	Sporadic feedback within SOS South Africa	Clearly defined roles in Ethiopia providing more coherent feedback mechanisms
Privacy	Great privacy concerns in South Africa, low privacy concerns in Ethiopia	

Integration	Lack of horizontal integration, governmental coordination and standardization	Current integration efforts in both countries, seemingly acknowledging existing issues, PDB2 compass feature
Paper-based filing systems	Unorganized and massive paper-based filing systems	Digitization efforts of paper-based filing systems in Ethiopia
Data quality and use	Poor data quality due to existing constraints. Data gluttony leading to information overload	PDB2 validation rules
PDB and PDB2	Lack of motivation for the transitioning to PDB2, cultural differences affecting relevance	PDB2 mobile capturing

7.1 Infrastructure

As introduced in Chapter 2 and exemplified in Chapter 6, infrastructural challenges were present in both research countries. In regards to the information flows, this at times resulted in data of low quality being exchanged, affected the timeliness of reporting and weakened utilization of ICTs used for information exchange. Internet connectivity, electricity supply, human- and financial resources and capacity building will be discussed in the following paragraphs.

7.1.1 Internet connectivity

A big contributor to challenges with maintaining timely and accurate streams of data on the beneficiaries from programme level were issues with maintaining a stable internet connection. All of the data clerks and other roles participating in our inquiries using the PDB or PDB2, expressed that connectivity issues were constraining their opportunities to conduct productive work. For instance, it was prohibiting input to- and export from the PDB and delaying reporting obligations to be fulfilled through email. Other duties were attended to during downtime. This resulted in, at times, information related tasks being postponed or forgotten.

As Braa and Sahay (2012, pp. 104-105) argued, ICTs are, at times, reliant on internet connectivity, however internet access in Africa has not been perceived as robust enough to enable a common data pool used for routine data reporting. Using multiple stand-alone databases has thus been the norm.

As such, internet connection could not only affect information flowing vertically within organizations like SOS, but also horizontally across information systems.

Changes in Ethiopian telecommunications will in the coming years shift from governmental monopoly to opening up the grid for foreign actors. Moreover, 4G networks are expected to be installed in several locations. These efforts could address some network challenges in the future, as Braa and Sahay (2012, p. 105) argues for mobile networks being one promising solution to internet challenges in Africa.

"Internet is one of the challenges. Now they are working on offline-version of PDB. Will solve a lot of things." (SOS Ethiopia National Programme Director). The offline mode provided by the PDB2 could simplify data collection and input in the PDB2 at SOS, averting some consequences relating to connectivity issues. However, since not all features are available in offline mode yet, and offline mode has to be activated upon offline data collection, the feature will not solve all issues. Nevertheless, it could be one step in the right direction.

7.1.2 Electricity supply

"We have backup generators. This happens very often!" (SOS Ethiopia National Programme Director)**.** During the field study in South Africa, load shedding was experienced multiple times. At one point, electricity was scheduled to be turned off several times of the day during the course of a week. Ethiopian electricity was also "shared" between different cities at different times of the week, forcing actors to rely on backup generators or halt digital information related tasks.

Even when the internet connection were present, the unstable electricity supply made uninterrupted work hard to conduct. This greatly affected data management at programme level, and delayed the participant's work by challenging softcopy distribution and use of ICTs.

As a possible result of the comprehensive electrification programme mentioned in Chapter 2, South African electrical coverage was experienced to be in a more stable and predictive state than in Ethiopia. Load sheddings and outages were still common, however, being less frequent. Moreover, concerned areas had access to schedules for planned load sheddings. Electricity supply was seen as a great issue in both contexts, however more unpredictable in Ethiopia.

Electricity supply could, as described by Braa and Sahay (2012, pp. 104-105), affect internet connectivity, and strengthening the infrastructure could mean greater access to- and utilization of ICTs, enabling digital means of reporting and thus strengthen information flows both internally and externally in the SOS ecosystem.

7.1.3 Financial resources

Most participants, both at SOS and other NGOs, communicated a lack of financial resources. Reliant on external funding, almost all NGOs expressed worries about the economic situation of the organization. This was particularly seen at local NGOs, not supported by wider international actors like SOS. As such, NGOs were heavily dependent on their own fundraising activities.

The governmental funding was mostly labeled in order to ensure spendings were being used on operational matters and beneficiaries' basic needs. As such, spendings had to be used on certain products and services, and could not cover all organizational needs. Sporadic donor funding, in contrast to monthly donor subscriptions, was also leading to unpredictable incomes, similar to what was explored by Gray (2016, p. 378), in regards to insufficient short-term funding leading to challenges of building sustainability.

The consequences of these financial constraints were payment of wages being postponed, shortage of staff, staff motivation being reduced, and unpredictability affecting budgeting and, to some degree, care of beneficiaries. Regarding information flows, a side effect was found to be data quality and timely reporting weakened because of halt information related tasks.

7.1.4 Human resources

SOS and other NGOs communicated a lack of human resources, with a demand for data management not proportional to the available capacity. Financial constraints were one reason, and for rural NGOs in South Africa, security was a big issue, exemplified by one of the NGOs having been robbed by gunpoint at seven occasions throughout the span of a year. On the basis of such circumstances, lack of human resources resulted in high workload and reduced capacity conducting information related tasks, as primary work was naturally prioritized. The high demand for information related tasks resulted at times in unqualified personnel working with information management. Due to financial constraints, voluntary workers were also found at several NGOs.

"The government has no required capacity to support different actors" (SOS Ethiopia National Programme Director). Human resources at the government were also lacking, and multiple

participants expressed their worries about the governmental capacity to conduct work the participants were reliant on, like feedback, general information and communication exchange and beneficiary follow-up. Support and follow-up from the government were identified as sporadic, depending on who was in position as the time. This resulted in weakened cooperation and unproductive information flows between the government and NGOs, with timeliness and data quality weakened.

"System is there but capacity is not" was explained by one SOS Ethiopia Programme Director. The same message had been shared by other participants. In coherence with Sibanda & Lombard (2015) and Böning and Ferreira (2013), a shortage of social workers are present in South Africa. Moreover, a shortage of social workers in Ethiopia could stem from the lack of training programmes offered, as described by the Austrian Development Cooperation (2014). Inadequate human resources could lead to lack of use of information, again affecting data quality (Lippeveld, 2001). The same goes for financial resources, seemingly one factor causing the lack of human resources. Byrne (2005, pp. 41-42) also stressed the importance of lower levels needing to steer the connection with higher levels, where human-, financial- and time resources are needed. As argued by UNICEF (2018d), human- and financial resources need to be present in order for a fully functional child protection system to be present, and such infrastructural challenges need to be addressed, affecting both the child protection system and the information flows within.

7.1.5 Capacity building

"...it really requires several months, in some cases unfortunately years until the training reached every corner of the world." (SOS International Office PDB Team Member). In addition to lack of human resources, most participants at programme level expressed they only had one initial PDB training, if any at all. PDB2 training in villages where PDB2 was partly implemented was limited to learning basic features relevant for the specific purpose of current routines of data input and export, however these routines seemed to be incorporated sufficiently. Overall knowledge of the release date of the PDB2 was widely known, however pros and cons of the new version were not, excluding potential motivation for a transition to the PDB2. Lack of experimental navigation around the PDB and PDB2 for looking at potential features was found, exemplified by the Compass Feature never having been visited or noted by one of the clerks, and other clerks not being able to describe features not utilized in their everyday work. As the interfaces for PDB and PDB2 differ significantly, users of the PDB2 complained about the unfamiliar environment and how it did not resemble the original design, making navigation harder to familiarize with. One direct consequence were weakened utilization of

the PDB and PDB2. Utilization of the upcoming PDB2 will have a meaningful impact on information flows internally as well as externally. Capacity building to utilize the system will therefore be crucial.

Looking at the information systems used at the governmental level in Ethiopia, lack of capacity building in regards to staff working with information systems was found. Even though the IT department team leader at the MoWC had three years of experience whilst inhabiting the leader role of managing the Regional Child Wellbeing Database, he did not know how to maintain the software, experienced as a "blackbox". Development of the databases was outsourced and little technical details were understood by the team. In accordance with Lippeveld (2001) and Roelen et al. (2012), lack of capacity to maintain systems can make them not suitable and can lead to a lack of use of information, another constraint found in both research countries. A lack of capacity building in addition to the lack of human resources at the governmental level was thus found.

Training can, as described by Powell (2003) be necessary with the introduction of ICTs and new working routines, and data-use workshops as described by Braa and Sahay (2012) could potentially better data quality and use, yet it could be especially hard to reach all staff, especially with frequent turnovers. For instance, this was stated in many villages at programme level in Ethiopia and furthermore expressed in an annual operational plan addressed to the ACSO by the National Office (2017). Data quality can moreover be affected by other factors, as described by Braa and Sahay (2012), and training alone can not address challenges of data quality and use alone.

7.2 Government

The following section will discuss constraints and enablers relating to governmental turnovers, collaboration and trust and reporting requirements. Such factors are found to affect the information flows between governmental actors and NGOs, including SOS.

7.2.1 Governmental turnovers

In both research countries, governmental turnovers created inefficient communication and rather unsatisfactory collaboration, forcing NGO actors to repeat information already provided. SOS and NGO actors experienced several people from the same governmental body requesting the same information, and information previously sent was lost at the governmental side, even though it was physically delivered and sent by copy through email. Confusion regarding report receivers was also identified, as governmental turnovers often had not been communicated to the NGOs, including SOS.

“Since there are no good data systems, when there is a change in officer, they start from scratch, not from what is already documented. It is a challenge!” (SOS Ethiopia Programme Director)**.** In Ethiopia, governmental officers were frequently changed. This made it difficult to inform the government, and time was spent building up collaborative efforts from scratch. The general impression was, however, that the government wanted to support NGOs, but had constraints in regards to capacity as explored in the sections above.

"Social worker doesn't record it. So we record it because we know that the next time the child has to go to court, we need to make sure that social worker has those things (...) You're lucky if they actually are the same social worker going to court" (NGO manager). In South Africa, SOS and NGOs on programme level experienced significant challenges regarding governmental social worker turnovers, often referred to as the “bottlenecks” for information exchange. The high turnovers and competence variations resulted in loss of important documents, weakened timeliness of information provided, lack of consistency in follow-up and weakened collaboration and trust. Such misalignment with essential actors for case management impeded the generation of necessary case data and the court processes required to acquire funding for each specific case. Even as high turnovers were also found in Ethiopia, the same level of distrust was not observed in Ethiopia at programme level; one of the biggest observable differences between the two research countries.

South African participants communicated a sense of disempowerment as much reliance was on the governmental social workers. They were found not to be acquiring and providing the required information on time. Much work impacting beneficiary progress could not be done by NGO actors themselves due to legal responsibilities. Because of distrust over social worker accountability and meeting of obligations, data gluttony was found *“in case they don’t have it”* (NGO manager). This sometimes led to duplicate data collection both at SOS, other NGOs and the government. At programme level, SOS social workers expressed frustrating governmental social worker relationships to be an ongoing challenge. In contrast, the deputy director at the DSD argued there were a strong collaboration and working relations between social workers and communities at this point and SOS at national level claimed themselves to be the bottleneck for beneficiary progress, saying governmental efforts had changed for the better. This shows the discrepancies of views on higher and lower levels, and the lack of knowledge on the state of operational levels within the government and SOS.

Reasons for the high turnovers in South Africa were identified as graduates staying for a short period to get experience before moving on and lack of permanent work appointments given to the

graduates. With some governmental social workers being graduates, their qualifications for given positions were also questioned.

Drawn between NGOs and the government, social workers have been faced with issues of being subject to suspicion and mistrust, as discussed in literature by Gray (2016, p. 378). These confrontational relationships could restrain them from fulfilling their already-difficult jobs effectively. Furthermore, shortage of presiding officers in the children's court, inadequate social worker training and high workload and caseload as found by Sibanda and Lombard (2015) and Böning and Fierra (2013) could explain the issues faced by governmental social workers leading to the lack of synergy and high turnovers. Such elements furthermore align with findings by Roelen et al. (2012), discussing a high degree of responsibility and workload managing individual cases.

As Powell (2003, p. 53) discusses, high turnovers could challenge staff knowledge staying within the organization. Experience-based decision making as opposed to evidence-based decision making could also get lost, as staff could acquire important experience regarding their role. Challenges of poor record-keeping and information exchange internally in the government nonetheless strengthened the problematic situation. Strengthening record-keeping and reducing fragmentation within the government could be two important measures to be made in order to keep information of quality and reduce the needs for collaboration being disrupted by staff leaving their roles (Braa & Sahay, 2012). Certainly, addressing the issues leading to the high frequency of turnovers is in high need as the drawbacks include the inefficiency in administering the transfer of case involvement with replacing a social worker, as well as the coordinational misalignment with internal case workers at SOS.

7.2.2 Governmental collaboration and trust

The thematic analysis revealed that SOS South Africa's collaboration with the South African government was prone to high distrust and miscommunication. The same was concluded from the analysis of data gathered from other NGOs in South Africa. High skepticism over South African governmental actors' goodwill and accountability created turbulent relationships with governmental intermediaries like governmental social workers described above. Fear of corruption and uneven power relations was a common theme as well.

From the South African SOS and NGO actors point of view, SOS' reporting obligations were mainly involved with numbers and names of beneficiaries, in addition to a legal court order for each child. If a court order had expired, the beneficiary would no longer be funded by the government. *"A numbers and money game*" one SOS Program Director claimed. Multiple actors stated the government was

mainly interested in verifying these court orders, catching double-dippers and verifying spendings of funding, however not so much with children's wellbeing as such. Although governmental monitoring on spendings and double-dipping in itself is not a direct constraining factor for productive information flows - important for making sure more children are reached and spendings are not misused - the seemingly narrow focus created a tension between the government and NGOs and could prohibit information on child wellbeing reaching higher levels. This affected trust and collaborative efforts from the NGO side. The challenges of distrust in South Africa could, amongst other things, stem from the formerly known fraud and "culture of bosses and not leadership" within the DSD, as identified by the DSD themselves (2019b).

From the governmental side, some NGOs fundings had been misused by certain individuals for personal gain, fictive NGOs had been created in order to receive funding and fictive beneficiaries had been reported, creating a distrust towards NGO legitimacy and spendings, somewhat explaining efforts of the DSD towards financial monitoring. Trying to improve the relationship between the NGO sector and the government is thus in work, seen from the Non-Profit Organization Act in South Africa.

In contrast to SOS South Africa, SOS Ethiopia have recently experienced a boost in governmental collaboration and trust, especially at programme level. During a visit to a children's village, the ACSO had a meeting with the SOS Programme Director at programme level regarding current projects, and a meeting was also conducted at a later time during a second visit, with the MoWC. This is considered an enabling factor for cooperation and productive information flows, as possibilities of actor alignment are strengthened.

7.2.3 Governmental reporting requirements

Another finding contrasting the two research countries were the governmental departments SOS and other NGOs were expected to report to. While the South African actors had a limited set of governmental actors expecting submission of reports, the Ethiopian had a multitude. At the national level, SOS Ethiopia was expected to report to the concerned government, sometimes reporting copies to the MoWC. This would not in itself necessarily be a constraint, however creating duplicate reporting obligations, higher workload and parallel information flows. This multitude of reporting obligations could moreover potentially reduce governmental accountability and their capacity to act on the information provided, as stressed by Powell (2003, p. 46) and Byrne (2005, pp. 33 & 41). Aligning governmental actors and reducing the fragmentation internally at the government could be one effort in reducing the NGO reporting obligations. This could be especially important for reports required to be delivered in physical form where timeliness could be affected.

7.3 Feedback

Feedback can be seen as a form of training, highly important for data quality and use, as discussed by Heywood and Rohde (2000, pp. 84-87) and Garrib et al. (2008, pp. 551-552).

Feedback from the SOS National Office to villages was described by the National Programme Director in South Africa as trigger-based and sporadic. For instance, if the director found data gaps in the master list or control list received from the villages, he contacted the villages directly. PDB was not utilized at national level currently for monitoring. The Program Director however assured new ways of monitoring were in the planning stage and hopefully rolled out in the coming years. Even though verbal feedback could be important to include lower levels as described by Heywood and Rohde (2000, pp. 84-87), the current feedback mechanisms can be seen as insufficient as it was not provided in a structured and timely manner.

In Ethiopia, feedback was found given to national level by regional level. On one hand, well-established feedback mechanisms at this level could be due to the national and regional offices being placed in geographically close locations. On the other, in general, participants in Ethiopia expressed current feedback as being sufficient.

As the SOS Compass will be introduced, one might expect more transparency vertically and horizontally. The feature could also be relevant in terms of providing feedback, for instance through the use of league tables, if such visualizations and reports are implemented. As such, lower levels could access the Compass feature and easily get insight in how they are performing. The use of the Compass as a feedback mechanism has not been discussed with participants, but looking into the opportunity could nevertheless be one recommendation for SOS as current feedback mechanisms could be seen as insufficient in some locations.

7.4 Privacy

Privacy was a great concern for many actors in South Africa, and another highly visible difference between research participants in South Africa and Ethiopia. Although important to take into consideration as a child protection measure, it affected the use of digital information systems as they were not trusted with certain information.

Beneficiary data into the PDB and other digital systems were carefully managed in South Africa. Theft of computers and other electronics were also a worry of many South African participants, with great reason. Technology was not trusted with some information, as Powell (2003) discussed, like beneficiary development plans. Some research locations did not use the PDB or PDB2 for other means than beneficiary admission and exit data. This was to a high degree the common routine in South Africa. Feeding information between these stages in beneficiary programmes was seen as unnecessary and at times a danger for beneficiary privacy. Even though the SOS International Office agreed not all sensitive information was appropriate feeding into the PDB, having a high focus on privacy, one could assume that some information not being fed into the PDB should have been in regards to data completeness. Furthermore, the PDB authentication, authorization and identification should prohibit beneficiaries from being identified. The lack of trust in technology could moreover pose problems in regards to an overload of paper-based filing systems, silo-based information systems and disrupting the exchange of quality information between relevant actors. Only one local NGO manager explained insight in beneficiary lives could be highly important in order to ensure transparency and verifying that they were taken proper care of.

In Ethiopia, privacy concerns were rarely found in terms of digital information. This was also experienced in terms of data collection where insight in governmental operations did not require more than a knock on ministry doors. This provided insight and transparency, could however question privacy concerns. There could be cultural reasons behind this, a society of great trust, could also stem from Ethiopian challenges of interpreting the digital world as identified by Bayissa, Birhanu and Teklemariam (2011).

7.5 Integration

Fragmentation was a constraint found in both research countries; information was found to be spread over multiple silo-based information systems. Horizontal and vertical integration, governmental coordination and standardization will be discussed in the following section.

7.5.1 Horizontal and vertical Integration

Likewise what has been introduced by Grimson et al. (2000, p. 49), independence in the use of information technology was also found in relation to the SOS ecosystem. Likewise Braa and Sahay (2012) and Varga, Barreto and Battaglin (2019) discuss in terms of fragmentation, organizational actors, both governmental and non-governmental, was found developing silo-based information systems tailored to own needs, leaving little room for generic utilization by other actors and support

of national systems like argued by McCormick (2011, p. 5). Systems integration seemed to be a lesser priority for NGOs dealing with managing their respective organization with limited capacity.

Governmental fragmentation

"The lack of mechanisms for integrating and sharing data across the government makes it difficult to identify vulnerable individuals and families that might be falling through the cracks and not being reached with social protection services that they need." (Department of Social Development, 2019b, p. 1). As introduced in Chapter 6, governmental actors used a multitude of different stand-alone digital information systems like the Regional Child Wellbeing Database in Ethiopia and the Community Based Intervention Monitoring System in South Africa, in addition to paper-based filing systems. Little horizontal integration was found internally in DSD and MoWC as well as between different governmental departments in sectors like health and education. Databases were built from scratch, often outsourced. In South Africa, a deputy director at the DSD utilizing the Community Based Management Information System knew little about other systems used throughout the DSD. He further argued that *"ministries move into own silos and create own processes and data report mechanisms".* For instance, SCOPEN has been evolving for decades to adjust for new requirements, and is at current state inadequate for integration efforts (Department of Social Development, 2019b, p 28).

SOS integrations

At SOS, the PDB and PDB2 were seen as being strongly integrated vertically, and horizontally integrated in terms of interoperability to other internal systems used for financial-, HR- and other types of data. PDB2 was synced in terms of what was fed into the PDB, but not the other way around. Seeing as PDB2 will replace the PDB, this is not seen as a constraint, and being able to still use PDB with the PDB2 could be highly appropriate for a smoother transition. The vertical integration of PDB and PDB2 enabled seamless information flows between lower- and higher levels of SOS, as argued by Braa & Sahay (2012, p. 63). However, no interoperability between SOS and information systems used by external actors was found. As such, the development of the PDB and PDB2 was highly influenced by its own organizational needs.

The PDB2 Compass Feature introduced in Chapter 6 could enable external users to more easily access automatically aggregated visualizations and reports from SOS. However, one participant working with the DHIS2 in Ethiopia explained they switched to the DHIS2 in order to create graphs and conduct analysis within the system, also a feature provided by the Compass. Nevertheless, because of internet downtime, reporting at the Ministry of Health in Ethiopia was still most often done using excel sheets

and email. As the utilization of the Compass Feature is reliant on internet connection, and the upcoming PDB2 Offline Mode is not implemented for this feature, there is a chance that this could reduce utilization of the Compass in terms of external reporting, also reducing the chances for the PDB2 to be utilized as “the single source of truth”.

Current integration initiatives

A common enabling factor for both research countries was the discovery of current initiatives to integrate governmental silo databases. As these initiatives were in a preliminary phase, our insights of the initiatives extent and development progress are, however, limited.

"We are governmental organization and every organization needs to have a database communicating with each other (...) Minimizing cost of paper-based. More accurate data (...) INSA is developing for all government and going to be a shared database. but right now we are developing for ourself" (ACSO Designer). At governmental level in Ethiopia, every department was now required to develop digital databases to be integrated through interoperability with a federal database. Similarly, in South Africa, a national integration effort referred to as the National Integrated Social Protection Information System was in a preliminary phase which included outlining current data sources in order to draft the integration implementation. In general, a high drive towards strengthening the information cultures and information systems in question was found, accompanied by an acknowledgment of current information flows not being optimal.

The National Integrated Social Protection Information System in South Africa is planned to serve as an electronic integrated data management system for agencies in the social protection sector. This is planned to be done through integrating existing silo-based systems at governmental level. The development and implementation is in line with the goals of achieving *“...optimal systems to strengthen coordination, integration, planning, and monitoring and evaluation of social protection services”* (Department of Social Development, 2019b, p. 4). It should address challenges related to reporting discrepancies, fragmentation and misalignment of information through the promotion of data sharing and uniform reporting, providing an integrated view of the entire social protection system across the government of South Africa (Department of Social Development, 2019b). However, the Department of Planning, Monitoring and Evaluation (2014, as cited in the Department of Social Development, 2019b, p. 11) outlined three potential challenges to such integrations:

1. Lack of a common understanding on what constitutes social protection.
2. Lack of a long term social protection strategy.

3. Fragmentation of the social protection system with administrative bottlenecks and implementation inefficiencies.

Potential integration challenges

Internet connectivity issues incorporate challenges in integrating information systems and agencies. Consequently, as Braa & Sahay (2012, p. 326) states, an African norm of capturing data into different silo databases has emerged. Relating to health information systems, the authors discovered that information was generally reported electronically by email attachments, similar to what was practiced by NGOs in both research countries. Information was also reported through the use of memory sticks, which were found to be the case at health facilities as stated by a deputy manager at the Ministry of Health in Ethiopia. By such, means of maintaining multitudes of standalone databases with such "fragile" dataflows introduces numerous complications (Braa & Sahay, 2012).

Actor alignment is still an issue having to be addressed in the future for integration efforts to continue, as for instance, a uniform understanding amongst stakeholders is missing in regards to the National Integrated Social Protection Information System (Department of Social Development, 2019b). As Sæbø et al. (2011) argue, integration is not a purely technical process, but a political one, stressing the importance of actor alignment. Attractors can be important in aligning actors, however, the child welfare sector in South Africa and Ethiopia seemed to be lacking such a technical solution. One promising database in relation to this could have been the Soweto Care System, already being implemented at over 100 NGOs in South Africa. However, this system had already been considered being used by the DSD and disregarded, and is now anticipated to be phased out. The Community Based Intervention Monitoring System was used by DSD, but only in regards to Orphans and Vulnerable Children at the HIV and AIDS unit of DSD. The alignment of actors was in other words not established outside this unit.

7.5.2 Governmental coordination

"Currently, services targeting vulnerable individuals and families delivered by the different government departments and agencies are not coordinated and information on the beneficiaries resides in different silo databases" (Department of Social Development, 2019b, p. 1). In cases where a national child care system is weak or non-existent, child welfare NGOs like SOS play an imperative role. As such, many African governments must confide in cooperating with NGOs. Efficient coordination has in the literature been identified as crucial for service delivery (McCormick, 2011, p. 5). *"I think the collaboration between gov departments is key"* was claimed by the Deputy Director at DSD. Furthermore, UNICEF (2018d, pp. 16-17, 2018e, pp. x & xii) argues that coordination across

governmental departments is a crucial element in a fully functional child protection system and that coordination serves as a great potential for sustainability. However, varying degrees of weak coordination was apparent in both research counties.

The deputy director at DSD explained there to be a strong collaboration between ministries at political level. However, implementation efforts were seen as flawed, and proper resources and alignment of data management within the government was needed. This could plausibly be caused by more comprehensive matters like the complexity of actor alignment at organizational level and infrastructural challenges. The deputy director further claimed there was *"definitely a need for coordination. Will provide us with a more holistic overview of services rendered to children"* (DSD Deputy Director).

A child expert at the MoWC in Ethiopia claimed there to be *"no focal person"*, or mediator, between the ministries. Moreover, little information exchange was found between ministries in general. Alignment engagements were also poor. The NGOs in Ethiopia was mandated to make engagement with different ministries like the MoWC, however evaluation of different projects in different programs concerning beneficiaries was seen as low from the national level of the MoWC. From the child wellbeing indicator list received from the MoWC, it was also apparent that not all needed information from the ACSO was currently present, and that mapping of organizations working with children was in need. The child expert of MoWC accordingly elicited a need for alignment between parallel government programs regarding children's data.

"*Different stakeholders can take care of children, but there is no coordination from the government side. Sometimes there is duplication where one child can be supported by two to three stakeholders, and another is neglected"* (SOS Ethiopia National Program Director). At national level at SOS Ethiopia, a need for coordination from the governmental side to reduce double dipping was needed. Since one NGO could have the mandate and capacity to support schools and another one health, coordination was seen as highly needed in order for the right services to be provided to the "right" children. This stood in high contrast to South African needs, where participants elicited needs for the government to care for other data regarding child wellbeing.

7.5.3 Standardization

"Government has no capacity to standardize" (SOS Ethiopia National Programme Director). As discussed by Braa & Sahay (2012, pp. 66-67), standardization is an important building block for integration and interoperability.

“Most of the time it's [datasets] very similar to what we have, but not 100% the same wording, and then government don’t accept it” (PDB/PDB2 Team Member). With different reporting obligations to governmental actors, donors and the SOS national office, SOS participants at programme level experienced similar information being reported to different actors at several occasions. In South Africa, the Annual Report submitted to SOS National were “almost the same” as the one to the government, but still had to be submitted to both, creating duplicate reporting and parallel streams of information flows. Because of a lack of standardization, the same information had to be reported in different formats with different data fields providing similar information. Not only did the formats differ, but the way in which the information was to be exchanged differed as well. As some required hard copies, soft copies were often sent to the same actors as an additional measure in case the hard copy was lost. At times, email attachments were too big and had to be sent in multiple fragments, heightening the possibility of a loss of documents by the receivers.

Such differences can be found at the semantic level as described by Braa and Sahay (2012, p. 68). Furthermore, the standards need to be agreed upon at the organizational level in order for interoperability to be made, also addressing the constraints on governmental coordination described in the section above. Efforts addressing the shared meaning of the data should be a prerequisite for future interoperability between SOS and the government, however could be made hard due to increasing differences in views between the actors having to align and agree on the semantic standards. Nevertheless, as SOS data fields are decided by the International Office, such alignment could be hard to conduct as it happens outside the context of the nation. As proposed by Roelen et al. (2012), an assessment of what information is needed, and by what actors at different levels, could be included in further research to address standardization at the organizational- and semantic level; a complex task as seen in the National Child Wellbeing Indicators derived from the MoWC. This was also an explicit need echoed by actors at the SOS International Office.

Internally in SOS, Chapter 6 described that forms provided by SOS did not always look the same after being modified by national offices. Moreover, development plans were developed on the basis of individual children’s needs and progress. This could challenge the paper-computer interface and the transfer of verified information into the PDB, also challenging standardization of PDB2 mobile capturing if the feature is to be used for development plans.

7.6 Paper-based filing systems

For the information stored using paper-based filing systems, loss of information was common at the governmental side. Actors were found to have a hard time finding the information needed as they had

to go through several folders and pages before obtaining the right information. As Powell (2003, p. 48) notes, data quality includes information being accessible, with actors not having to dig through the information that they cannot use. The paper-based filing systems thus seemed to reduce data quality. SOS actors at programme level experienced wrong information on beneficiaries being provided by the government on several occasions. This led to postponing important steps in creating progress for individual children. Results were NGO actors being left with a feeling of beneficiaries in their care being left in "limbo", with NGO actors not being able to act on behalf of them, for instance for placing children for adoption or timely admission of beneficiaries to their programmes.

The lack of organized filing systems blocked or distorted important information flows between NGOs and the government. It strengthened the need for NGOs to collect data themselves and make additional quality assessments of information received. It moreover contributed to duplication of data collection and data gluttony; SOS actors collecting more information than necessary. This would in turn, as argued by Powell (2003, p. 87) reduce possibilities of utilization of data and data quality affection decision making. Moreover, it reduced trust in governmental obligations being fulfilled. It could also thus question the evidence base the government had for decision making, with information not being easily accessible or of adequate quality.

According to a SOS Programme Director in South Africa, *"social workers love narrative stories with pens in files"* and such information was often not taken up in the PDB, described as a gap by the Programme Director. With PDB fields being pre-decided by the international office, however with participatory input from some global SOS actors, the paper-based way of collecting and storing information might have been more convenient in terms of customization and the ability to describe case information on beneficiaries in own terms. As argued by Parton (2009), social workers have shared concerns with the introduction of information systems in child welfare, constituting a shift from a narrative to a database way of thinking and operating. Even though no actors claimed there to be any lack of fields in the PDB and that it seemed consistent with their needs, a deeper dive into data fields and what is being used and not in terms of data values could be conducted in future research to explore this potential gap further.

SOS and other NGOs complained that paper-based filing systems constrained the government's abilities for providing quality information in time, and loss of documents was common. Even though privacy concerns might be addressed through the use of such filing systems, SOS could potentially face the same problems as the government in the future. Seeing that governmental actors have started digitizing their filing systems in Ethiopia based on cost, data quality, lack of available space and

problems with organizing the folders, we recommend tending to this matter as measures could be taken early as a prevention mechanism. This could be especially important to note in contexts where security including burglary is an issue, as was often the case for South African actors. However, privacy concerns and cultural differences should be included in the effort of dealing with the consequences paper-based filing systems could be seen to introduce and non-digital alternatives could more importantly prove to be sufficient.

The negative aspects following the current filing systems does not mean all information should reside within digital information systems. Feeding all collected data into systems like the PDB could lead to information overload as explained by Lash (2002, p. 2). Powell (2003) argues choosing what information is important for action is one role tied to information management, and should be tied to what is included in the system.

Although not implicitly an enabling factor for productive information flows, digitization processes as found in Ethiopia in regards to governmental recordkeeping could be seen as an enabling factor for productive information flows. However, even though digitizing filing systems in Ethiopia could improve the quality of data and information exchange between governmental actors and NGOs, potentially leading to strengthened integration and a greater evidence-base for decision making, digitizing information flows does not solve all issues. As discussed by Powell (2003), organizational structures, politics and individuals can block or disrupt the flows. Moreover, lack of clarity in interpreting the digital world in Ethiopia has been found by Bayissa et al. (2011), meaning digitization in such a context might not be the most efficient and prone to western influence as discussed in Chapter 4. This was more so experienced by the research team observing the use of databases in Ethiopia, with few IT experts present and lack of capacity building, also at the ACSO where the digitization efforts were found.

7.7 Data quality and utilization

"Lots of data quality issues. (...) Don't update regularly. (...) But now we have become very strict. (...) check that it is inserted, and potential discrepancies from PDB and source documents. Then we ask the locations. (...) Discrepancies many times" (SOS Ethiopia National Programme Director)**.** As formerly explored, the organizing of paper-based filing systems, or the lack thereof, contributed to reduced data quality as information was not made easily accessible and timeliness was weakened. Incorrect data being reported from governmental actors was an issue. Amongst other things, infrastructural challenges weakened utilization and quality.

Timeliness and availability of data was an occurring issue, not only relating to what NGOs and SOS received - or not - from the government side. If information was required from stakeholders fast, feeding the PDB could be neglected or postponed by SOS staff and reporting was conducted without this additional step. High frequency of reporting requirements resulted in limited time ensuring data completeness, a quality included in reliability as explained by Heywood and Rhode (2000, p. 42).

Regarding data quality at SOS, logical checks are included in the PDB2 as validation rules, which could reduce human error and positively impact data quality, described by Braa and Sahay (2012, p. 133) as helping establish data quality. Examples of such checks are mandatory fields in beneficiary registration and validity checks against existing data. The PDB2 mobile capturing could moreover reduce quality issues related to data clerks interpreting social workers' data, for instance relating to bulk-reporting of beneficiaries as explored in the findings chapter.

"*Data is very important. Sometimes we collect data we don't use. huge data can be collected, but not used - analysis is complicated*" (SOS Ethiopia National Programme Director). Data use was seen as weak in both research countries and could be tied to the data gluttony commonly experienced. As Powell (2003), information overload can inhibit the use of information and thus decision making. As explained by an actor at the SOS International Office, *"Results based management is not entirely rolled out in the entire federation"*. Information related tasks seemed, for some, to be just another work burden where an understanding of the value of information was absent, reducing motivation for conducting such tasks. Even though the use of information was found, these factors made efficient utilization of all data collected hard to conduct.

7.8 PDB and PDB2

In regards to the PDB2, the Offline Mode, Compass feature, mobile capturing and validations rules have already been discussed. A discussion on the transition from PDB to PDB2 and the introduction of mobile capturing as a significant feature that could lead to change in working practices will be discussed below.

7.8.1 Transitioning from PDB to PDB2

From the visits to the South African SOS village where the PDB2 was piloted, it was clear that the data clerk had little understanding of the different features PDB2 was providing. In terms of his own work, little had changed except the interface in which the unfamiliarity made him unmotivated for transitioning to the PDB2. For instance, as the Compass Feature was unfamiliar to the clerk, positive outcomes from the introductions of this feature were not known. The PDB was still the preferred

option, possibly because of PDB2's partial implementation or unaccustomed interface. This could, however, also relate to training not having been conducted properly or motivations for the transition not having been communicated sufficiently, and cultural differences relating to design-reality-gaps and "design from nowhere" as introduced by Heeks (2003) and Suchman (2012), especially in regards to gaps in skills and knowledge. With low levels of literacy, especially in Ethiopia as shown in Chapter 2, literacy challenges in addition to motivation challenges will need to be addressed as proposed by Roelen et al. (2012).

While acknowledging the difficulties in ensuring sufficient training at lower levels, SOS is recommended to strengthen the focus on training being conducted at lower levels and to communicate benefits for the transition to the PDB2 to strengthen motivation and uptake. Moreover, in the future, higher emphasis on participatory methods for systems design could enable users at lower levels to feel more empowered and left with a stronger feeling of ownership, and the system could be developed to be more relevant for the different contexts. While deeper cultural engagement might be hard to conduct, also relating to the limited capacity of SOS at international level, we encourage the exploration of such engagements to look beyond the system's interfaces and focusing more on embedded logic in on-the-ground realities much different than the context in which the system is designed.

7.8.2 PDB2 Mobile capturing

When asked if external reporting through excel or word by email without data fed into the PDB was a wanted routine to continue with, a PDB Team Member answered: *"of course different people have different interests, and I cannot speak for the entire federation and all its stakeholders, but it is clearly the intention of out team that the PDB2 is/becomes the 'source of truth'".*

The introduction of a mobile version for the PDB2 as a progressive web app is complementary with the Offline Mode features, however also being more relevant as mobile networks are gradually strengthened in the African countries. As some SOS actors collect data from children, youth and families within the community - and not only from youth and children within villages - this could come in handy for ensuring better timeliness of data. This might also reduce human error where data clerks' translations from forms filled by social workers are prone to misreading as explained in Chapter 6.

"The new offline mode, and the possibility to use it with tablets [will] encourage social workers more to use it in the field directly" (SOS International Office PDB Team Member). As seen from Ethiopia, SOS social workers were not working with PDB directly, however, some were in South Africa. Enabling

input to be done outside SOS's physical boundaries might result in more social workers using the information system. The enabling of mobile capturing could simplify the collection phase in the information cycle described by Heywood & Rohde (2000, p. 21), as a SOS social worker could collect information that is fed into the PDB directly. As presented in Chapter 6, this could mean dismissing a manual step in feeding the data into the PDB. Paper-based work could also be reduced, regarding the paper that is to be fed into the PDB. Although, not all paper-based work is currently fed into the PDB either way and as such it will far from replacing all paper-based work. Information required by other actors, in which social workers collect, could on the contrary mean both mobile- and paper-based capturing and will have to be conducted simultaneously.

With the gradual shift from paper-based to mobile capturing, the role of data clerks, where present, could become redundant, and more workload could be placed upon social workers already lacking capacity if input to the PDB through mobile capturing is seen as harder to conduct than through paper-based means. As described by Roelen et al. (2012), systems should be aligned with social workers' interests. Such changes in working practices and introduction of the PDB2 and tablets to social workers who might not have former experience with such tools could mean widespread training will need to be conducted, as proposed by Powell (2003, p. 100 & 233), especially in contexts as Ethiopia where mobile- and internet users are significantly lower than in South Africa and western countries. This need for training was nevertheless acknowledged by the PDB2 development team, aiming for strengthening social worker capacity and investment in online training, as well as making the system as user friendly as possible. However, training has shown in the past to be hard to roll out across the whole federation, taking everything from months up to several years. A PDB2 team member explained that only 100 tablets were currently available for 5000 to 6000 social workers. Thus rolling out these features were dependent on resources that were currently not available.

A transition to digital means of data collection is not necessarily unproblematic. It has already been mentioned that social workers often liked narratives using pen and paper. With the child-worker relationship inherent in Case Management, beneficiary contact with emotional, qualitative expression and use of information could be highly important for decision making, whereas the analytical information demanded by higher levels might be more suitable for the higher levels in question. As seen from former literature by Parton (2009), this shift from a narrative way of thinking to a database way has drawn some concern amongst social workers.

One research participant working with the Soweto Care System in South Africa explained that many efforts on introducing mobile capturing often resulted in it not being used after all, thus they had

dismissed such requests. Similarly, the Database Team Leader at the MoWC claimed that tablet distribution to field officers was not successful as they did not know how to use them. As a result of this, they had dismissed mobile capturing.

Phasing out the PDB in favor of the PDB2 could mean reducing the current paper-computer interface, making the system more “appropriate” for direct use by social workers. However, the above-mentioned implications should be addressed in order for the transition to becoming beneficial to social workers in their everyday work, instead of yet another information related burden.

VIII Conclusion and Future Work

"There is what should be, and what is; there is a huge discrepancy"
(SOS South Africa National Programme Director)

8 Conclusion and future work

This last chapter will provide a conclusion of the research conducted in this thesis according to the research question, recommendations for SOS, reflections on our research and extent of contribution and, lastly, proposed future research.

8.1 Conclusion

Based on a two-year socio-technical case study, information flows within the child welfare sector in two sub-Saharan countries - Ethiopia and South Africa - have been studied. SOS, as an actor heavily concerned with aiding vulnerable children across the globe, have been the main subject of interest in this thesis. As such, the research question for this thesis has been introduced as the following:

1. *What constraining and enabling factors affect the productivity of current information flows containing information related to SOS beneficiaries internally in SOS and between SOS and other actors within the identified SOS ecosystem, and how?*

In accordance with this, four research objectives have been outlined:

1. *Identify relevant actors of the SOS ecosystem, their relations and functions within the ecosystem.*
2. *Investigate the current information systems and information flows containing information related to beneficiaries within the identified ecosystem.*
3. *Discuss factors that might constrain or enable productivity of information flows, and how.*
4. *Provide recommendations for SOS based on the findings.*

The objectives will be addressed respectively in the following sections.

8.1.1 The SOS ecosystem

The SOS ecosystem as identified in this project has been discovered to constitute various actors working within the child welfare sector. All actors were entangled in each other's work towards ensuring children’s rights were being met in the respective countries.

SOS consists of four hierarchical levels: the international-, regional-, national- and programme level. While the international level consists of PDB and PDB2 development team members, the National Office present in each country consists of a National Programme Director responsible for SOS operations in the respective country. The regional level acts as a mediator between these two levels.

The programme level where SOS villages are placed consists of operational actors like SOS social workers, administrators, reporting officers and a Programme Director.

Relevant actors in the SOS ecosystem was identified as other NGOs and donors, in addition to governmental actors in which most of the focus of the thesis has been directed towards in regards to external actors:

1. The Department of Social Development in South Africa working with child welfare and protection, in addition to managing NGOs
2. The Ministry of Women and Children Affairs in Ethiopia working with child welfare and protection
3. Agency for Civil Society Organizations - the department in Ethiopia responsible for managing NGOs

In addition, governmental statistical offices and children's courts were found to be relevant to the ecosystem. Governmental social workers were intrinsically important for beneficiary progress, being responsible for case management of beneficiaries in cooperation with NGO social workers through the children's courts.

8.1.2 Current information systems and information flows

Within the identified ecosystem, numerous information systems and information flows were found to be fundamental for what concerns the overall management of beneficiary information. Information systems discovered to be most impactful for these processes were as following:

1. PDB as a vertically integrated management information system used at all levels of SOS
2. PDB2 (pilot version) to replace the PDB by 2021
3. Paper-based datasets for data capturing used by SOS and other NGOs
4. Paper-based filing systems used for case management at the operational level of NGOs
5. Paper-based filing systems used for record-keeping at the government
6. Email used by all actors at all levels for reporting
7. Microsoft software like Excel, Word used by all actors at all levels
8. Various NGO silo-based information systems
9. Various governmental silo-based information systems

Information systems were mostly fragmented and indicated a degree of individualism where actors within the child welfare sector had developed their own databases for their own organizational needs. Nonetheless, initiatives to integrate governmental systems were found in both countries: the National

Integrated Social Protection Information System in South Africa and a federal database to be developed by the Information Network Security Agency in Ethiopia.

Relating to the components of case management introduced in Chapter 3 (Table 3.1) and Chapter 6 (Figure 6.15, 6.16 & 6.17), all four components have been introduced in relation to the SOS ecosystem in depth in accordance with the research findings.

Identification and initial referral of children and young people eligible for SOS alternative care programmes were found to be mandated by various authorities in the research countries, which in turn proposed such vulnerable individuals to SOS. Governmental social workers and children's courts were highly engaged in this process. Furthermore, SOS social workers conducted a thorough assessment of the referred child upon admission, revealing service needs and capturing development areas, talents, strengths and skills. The assessment, labeled "core assessment" was a dataset created at the international level designed to capture information at operational level. Some of the information could be mapped to relevant SDGs through SOS indicators. The core assessment was conducted in order to provide the most adequate support service for the vulnerable individual.

Individual support plans were fundamental to services provided by SOS. Based on the conducted core assessment, internal social workers produced this plan; a required activity in order to guide appropriate care services and to track individual progress.

As government welfare and protection services were mostly found to be offered by partnering NGOs, like SOS, referral mechanisms played an important part in offering adequate support for the many children in need of such services. SOS carried a comprehensive responsibility in offering their beneficiaries protection and growth, as well as to further assist with referral to other actors.

The research has involved information systems designed to monitor and manage case data. Furthermore, it captured the synergy in terms of information exchange between these information systems.

SOS practiced internal case management at programme level by capturing data to monitor its beneficiaries. PDB was only partly utilized in this sense. Each case was generally reviewed and re-assessed to provide the most adequate care services. Furthermore, every SOS level, including programme levels produced yearly reports to showcase potential improvement areas. As such, vertical information flows internal to SOS has been outlined from operational- to international level.

Following this, external information flows between SOS and the government were outlined. From SOS programme level, reports were sent monthly and bi-annually to the Department of Social Development in South Africa. In Ethiopia, multiple governmental actors required reporting; a report was to be delivered to the Ministry of Women and Children Affairs in the frequency of quarterly, bi-annually and annually. Furthermore, reports were also sent annually to the ACSO and quarterly, bi-annually and annually to the Bureau of Finance. At national level, the SOS national office answered annual surveys - however in practice experienced to be impromptu - to the National Statistics Office in South Africa. In Ethiopia, annual reports were sent to the Agency for Civil Society Organization and projects based plans were sent to the relevant governmental entity bi-annually and annually.

8.1.3 Constraining and enabling factors

As the main objective for answering the research question, multiple constraints and enablers have been identified and discussed in terms of their impact on the productivity of information flows within the SOS ecosystem.

Most constraining and enabling factors were impacting each other in intricate ways, making root causes hard to identify. General findings, however, indicate that the productivity of both research countries' information flows were heavily impacted by infrastructural challenges, governmental turnovers, collaboration and trust, fragmentation, privacy issues, poor record-keeping and lack of data quality and use. Enabling conditions included efforts in infrastructural strengthening and governmental integration efforts, as well as the introduction of the PDB2 and its respective features. Numerous challenges will have to be addressed in order to ensure productive information flows allowing actors to make evidence-based decisions at the different actors and levels of the SOS ecosystem.

Generally, infrastructural constraints were found in both countries relating to lack of human- and financial resources, poor internet connectivity and electricity. Capacity building was also seen to be a constraint at SOS and governmental actors.

Especially interesting was the lack of trust identified between the government and NGOs in South Africa, where children's wellbeing was perceived by NGOs to be overruled by a significant focus by the government on financial spendings and double-dipping. The lack of trust was moreover steered towards the governmental social workers in which relationship with NGO social workers was seen as highly frustrating and prone to miscommunication while ultimately being dependent on a high degree

of synergy. The governmental social workers were, as such, referred to as “bottlenecks” for information exchange, and in this sense an inefficient factor to case management. This unproductive relationship was tied to multiple challenges such as high frequency of turnovers. Data gluttony and duplicate data collection were commonly found at operational levels of NGOs because of this distrust and the unorganized paper-based record-keeping found at the government. A high workload was moreover connected to this. Data quality and use, both interrelated, were consequently impacted. The productivity of the information flows between the government and NGOs was thus affected by the above-mentioned challenges, reducing quality information being exchanged, in turn reducing the knowledge-base important for making evidence-based decisions favoring the vulnerable beneficiaries.

As for the vulnerable beneficiaries in which the child welfare and protection system is ultimately designed to serve, such challenges in South Africa as described above not only led to staff being occupied by an overload of information related tasks leading to less time being spent on beneficiary care directly; It also led to beneficiary progress through the system being postponed, leading to a feeling of beneficiaries being stuck in “limbo”. This affected possibilities for adoption and timely admission to programmes and was a direct consequence of the challenging relationship between governmental- and NGO social workers.

Ethiopia had recently experienced a heightened collaboration with governmental actors, in contrast to what was found in South Africa. However, high levels of fragmentation within the government were still found as a constraint affecting the productivity of information flows in both countries. Silo-based information systems were common in both contexts at all actors, and lack of horizontal integration was identified. Nevertheless, current integration efforts show the acknowledgment of such deficiencies and could potentially strengthen the integrations of the child welfare sector in both countries at the government, although still at a preliminary phase. Yet, current discrepancies between political coordination and actual implementation could complicate such efforts. A need for actor alignment at the organizational standardization level was thus identified as highly needed.

Reports from operational level at NGOs were commonly submitted through email after being prepared in excel or word. However, governmental actors requested reports to be delivered stamped and in hard copy. As such, reports were found to be submitted both through email and physical transfer, and copies were printed and stored in paper-based filing systems in case they were lost at the government side or requested in sporadic governmental audits. This more so related to the distrust against governmental actors having the accountability and capacity to receive and store information. This resulted in duplicate reporting and parallel information flows.

Internally in SOS, the introduction of the PDB2 comes with promising features potentially simplifying sharing of aggregated data with external stakeholders, offline use addressing infrastructural challenges, validation checks addressing data quality and mobile capturing potentially reducing human errors identified as contingent on the current paper-computer interface. Moreover, strong vertical integration was identified within the organization. Nonetheless, comprehensive capacity building will be needed in order for the PDB2 to have a positive impact on current information flows, particularly in regards to social workers being subject to changes in working practices with the introduction of mobile capturing using tablets. The lack of horizontal integration between the PDB2 and other systems could make the PDB2 just another silo-based system mainly concerned with internal organizational needs. Moreover, low motivation for the transition to the PDB2 was found, potentially challenging the efficient utilization of the system. Privacy concerns were also relevant to what information was being fed into the PDB, thus challenging the utilization of digital information systems in such contexts as the South African, characterized as not trusting the use of ICTs for storing data on vulnerable beneficiaries. The concerns are understandable, but could reduce uptake of technology in the sector - assuming such uptake is leading to positive societal impacts at all.

8.1.4 Recommendations for SOS

A few recommendations for SOS will be provided in terms of strengthening current internal information flows.

Firstly, as explored under section 7.3 “Feedback”, the use of the Compass feature as a potential feedback mechanism should be explored in order for heightened transparency and communication of individual unit performance on programme level. This could, for instance, be done through developing league tables as visualized reports in the Compass.

Secondly, as explored under section 7.6 “Paper-based filing systems”, we recommend tending to the matters of paper-based filing systems as a preventive measure for unorganized record-keeping affecting information flows. Privacy-concerns and cultural differences should be taken into consideration when investigating alternatives.

Lastly, as explored under section 7.8.1, “Transitioning from PDB to PDB2”, we recommend strengthening the focus on capacity building and clearly communicating benefits of PDB2 transitioning in order to strengthen motivation for PDB2 utilization. Benefits not being apparent amongst the operational level might also mean more participatory approaches could be beneficial for such

information systems to be contextually appropriate. This is also relevant to the introduction of a more social-worker targeted information system.

8.2 Extent of contribution

A lot of time doing research was spent collecting background information on SOS and their operations, before embarking on data directly relevant to the research question. This was due to the identifications of gaps in the literature after having conducted thorough desktop studies. As such, the thesis scope became bigger, but necessary background information has been provided and thus serves as a contribution to SOS. The identified constraining and enabling factors for productive information flows provide contributions that could not only be relevant to SOS, but also other NGOs, and especially the government.

This research is seen as a preliminary or complementary contribution to conducting holistic research on- and obtaining holistic understandings of the current state of the child welfare sector.

8.2.1 Validity of research

Ethiopia has a written language unknown to the research team members. We did not have access to any translators. As such, translation from Amharic to English was done using google translate in order to conduct document analysis on SOS Ethiopia datasets. This could question the validity of these findings. However, all forms were explained by research participants before they were handed to us, meaning the context of the forms were adequately understood.

As mentioned in the ethics chapter, the case study the research team was involved with during the field study could imply a more shallow understanding of the cultures of the research context, affecting interpretation and findings, even if qualitative methods were used.

The fact that the third researcher in the research team had another research question than that of the authors of this thesis, meant that some redundant data was collected. Seeing the irony, we could indeed have gathered too much data, making it hard to fully utilize it all. However, a thorough analysis was conducted to simplify the findings and discussion process.

Power relations have shown to influence the answers we got from some participants, questioning some of the findings. During the group discussion, some actors were more engaged in the discussion than others, excluding some voices and potential topics to be discussed. In order to capture such

unheard voices, individual interviews and observations were conducted after the discussion. Regarding observations, being observed could however have led to some inherent bias as their behavior could change when knowing they were observed by the three researchers. As for the interviews, some subjects with overseeing managers present seemed to elicit potential biased short and positive answers. Different measures have been taken in order to reduce the inherent hindrances.

Another power relation that could affect the answers were the relations between the participants and us. Three foreign researchers conducting the data collection might have been interpreted as intimidating by some of the participants, applying a certain tension, potentially affecting data. We had expected some power related issues in advance because of the size of the research team. We did, however, to our knowledge, not notice any uncomfortable subjects during the study, aside from the participants responding with managers present. On the contrary, they seemed comfortable and happy to help. Furthermore, our interest in their daily work seemed to be welcomed gladly.

We acknowledge that the SOS ecosystem will be incomplete, because of a complex set of actors interacting with SOS, thus all actors and information flows will not be identified. During the field study, it became apparent that the government was one of the most significant external actors collecting information from SOS. After a relatively divergent opening of the field study, convergence was important in order to gain richer insights into parts of the ecosystem identified.

8.2.2 Generalization

During the preliminary outlining of the research project, generalization was an ongoing theme. Being approached by SOS, it seemed natural to conduct research on behalf of this NGO. Because this research would imply a high generalization within SOS only, other NGOs were added as research participants, and governmental actors as well. As such the “SOS ecosystem” was a more generalizable version of potential research.

The research was conducted in two African countries, however we acknowledge the findings would be more generalizable if more contexts were added to the research. Nonetheless, even though both are defined as “developing” countries in Africa, we experienced Ethiopia and South Africa to be very different, making room for higher generalization, more so strengthened by identified literature applied to the findings.

Findings in relation to internal case management in SOS, and its interplay with governmental monitoring requirements in two African developing countries, may reveal insights of value to similar

child welfare organizations. Such countries partnering with NGOs in order to offer promised child right services introduces joint case management efforts explored in this study.

8.3 Proposed future research

As mentioned in the ethics chapter, in general, we propose conducting future research allowing for deeper cultural engagement, possibly through participatory and ethnographic studies. As such, the PDB, PDB2 and other information systems could be evaluated in terms of embedded logic, cultural relevance and societal impacts; not only in regards to surface changes of the interface or the users themselves.

Data values have not been considered in this research, however such measures could be relevant for analyzing cultural differences and data quality in a deeper sense than that of this research. Privacy precautions should be taken when conducting such research, both in regard to the vulnerability of the subjects and contextual privacy sensitivity.

Further research on the integration of the child welfare system is highly needed, seeing the multitude of stakeholders, requirements, information flows, silo-based information systems, datasets and indicators. Standardization could be one important concept to consider when conducting such research. Research including an assessment of what information is needed, and by what actors at different levels, with particular focus on actor alignment, could address standardization at the organizational- and semantic level.

In addition to information flows regarding established known NGOs like SOS, research on the information flows - or lack thereof - on children without such support could be conducted. As such, one could possibly identify the reach of the children, seeing as information flows in the SOS ecosystem and similar ecosystems could neglect children whose vulnerability might be even higher. If all children are counted and included in productive information flows, vulnerable children might just be able to evade the blind spot, and the information flowing throughout the child welfare sector might just be of adequate quality for tracking progress in globalized goals for sustainability.

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Appendix A - Consent form

Are you interested in taking part in the research project;

”Investigating opportunities for integrated information flow of data on children in SOS Children's Villages' programs: A case study in Ethiopia, South Africa and Norway”?

This is an inquiry about participation in a research project where the main purpose is to understand data management within SOS children's villages in Norway, Ethiopia and South Africa. In this letter we will give you information about the purpose of the project and what your participation will involve.

Purpose of the project
This master thesis aims to contribute to a qualitative understanding of the current processes, challenges and possibilities of collecting and sharing data on children in care programs on multiple levels - from national office to care worker - scoped within the mapped ecosystem of the SOS CV.
The research question is as following:

1. What data sets could be relevant to share between the different actors, and which actors should be included in this sharing?
2. How could the sharing take place?
3. What enabling and constraining factors for collection and dissemination is present within the SOS CV ecosystem in the selected countries?

Who is responsible for the research project?

Institute of Informatics at University of Oslo is the institution responsible for the project.

Why are you being asked to participate?

The sample selected, is either people working in the SOS Children’s village Organization or working with data on children in alternative care. We have achieved contact with individuals in Ethiopia and South Africa who satisfy this sample trough contacts within the SOS CV Norway.

What does participation involve for you?

Participation in this project involves either taking part in interviews or acting as subject of observation. There will not be collected sensitive personal information. The interviews will include questions about the SOS facility, accessibility of data, practises and data collection. Information will be recorded electronically and on paper.

In some cases we want to conduct an observation on your workflow. This will involve observing your workflows at your facilities and in collecting and processing data on children in alternative care.

Participation is voluntary

Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.

Your personal privacy – how we will store and use your personal data

We will only use your personal data for the purpose(s) specified in this information letter. We will process your personal data confidentiality and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act).

- Since this is a collaborative study with our supervisor, access is restricted to our use only.
- Data will be stored in our institutions data storage provider.
- To anonymize your data, names collected will be pseudonymised.
- The master thesis will be uploaded to UiOs internal page; www.duo.uio.no. No participants will be recognized in the thesis.

What will happen to your personal data at the end of the research project?

The project is scheduled to end May 1st 2020. Any identifying data will be anonymized before uploaded on the institutes publishing platform. Data collected for this project will be deleted after the end of the project.

Your rights

So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you
- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability), and
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

What gives us the right to process your personal data?

We will process your personal data based on your consent.

Based on an agreement with Institute of Informatics at University of Oslo, NSD – The Norwegian Centre for Research Data AS has assessed that the processing of personal data in this project is in accordance with data protection legislation.

Where can I find out more?

If you have questions about the project, or want to exercise your rights, contact:

- Institute of Informatics, University of Oslo via Jens Johan Kaasbøll(jensj@ifi.uio.no)
- Our Data Protection Officer: Maren Magnus Voll(m.m.voll@admin.uio.no)
- NSD – The Norwegian Centre for Research Data AS, by email: (personverntjenester@nsd.no) or by telephone: +47 55 58 21 17.

Yours sincerely,

Project Leader (Researcher/supervisor) Student

Consent form

I have received and understood information about the project *[insert project title]* and have been given the opportunity to ask questions. I give consent:

☐ To participate in interview

☐ To be observed

I give consent for my personal data to be processed until the end date of the project, approx. May 1st 2020.

(Signed by participant, date)

Appendix B - Interview Guide: Social Worker SOS Programme Level

Interview Guide Social Worker Village 19.11.2019

SOS

- What does a normal day for you look like?
- What forms are you responsible for filling out?
    - How do you fill out?
- Do you face any challenges when gathering information and reporting?
    - Are the forms sufficient for your needs?
        - Is there data you would like to add to forms that is not put in the forms?
        - Is there data you would like to remove that is not suiting your context?
- Do you use the information collected in the forms yourself?
    - For what purposes?
    - Do you wish there were more information that you did have access to?
- Could you show us the forms you use?
- Could we get a copy of a form you have reported on (removing child ID)?

Data

- Who receives your collected data?
    - Do you know what happens with the data collected?
    - Do you know why you have to collect it?
    - Do you receive feedback?
- Who decides what data to be collected?
- Are there situations where you are unable to collect data?
    - Situations where you are unable to report the data collected?
        - How do you report on the data?
            - Giving reports to PDB clerk via email/paper-based?
            - Always the same way of reporting?
- How often is the data collected?
- How often is the data collected reported?
- Why do you think it's important to collect data about children in alternative care?
- Do you think there are any challenges relating to sharing information on the children with others?
- Do you experience issues with transportation?

Resources

- Are you using any digital devices for work you do?
    - if yes;
        - What kind?
        - For what purpose?
    - Is it making the work easier, or does it complicated?
        - Why?
        - How you you describe your digital literacy?
- Do you experience any general issues?
    - What and why?

Final remarks
Do you have any questions for us?
Is there anything you would like to add?

Interview Guide

Village level - Mera Officer - SOS

19.11.2019

Interview

About the Mera officer

- What are your work-related responsibilities?
    - Analysis?
    - Sending reports upwards?
    - Data quality checks?
    - Sending feedback?
- Could you explain to us what a regular work day looks like for you?

PDB/PDB2 and reports

- What does the reports in PDB/PDB2 look like?
    - How are the reports analysed?
        - Exported to excel or other means?
        - How do you create graphs?
- Is the data delivered to you entirely paper-based, or digital?
- How are the reports aggregated and sent to higher levels?
    - Send to national office only or other sources reports are given to?
    - How do you aggregate data?
    - How do you send the reports
        - Available through PDB or exported and sent by other means?
    - How are the reports presented - export to excel or other means?
- The forms are static, the content of which are defined by the SOS headquarters in Austria. Do you feel that the forms are lacking in any way?
    - Anything that could be added to suit your context?
    - Anything that is not relevant for your context?
- Who configures the setup of PDB?
- What do you think are the positive sides of PDB?
    - Negative sides?
- What do you think are the positive sides of PDB2?
    - Negative sides?
- Does the PDB2 bring a positive impact to your tasks (compared to PDB1)?
    - Why/why not?
- Does the PDB2 bring a negative impact to your tasks (compared to PDB1)?
    - Why/why not?

- Do you think there are functionality not in PDB or PDB2 that would be beneficial to you?

Information exchange

- Do you share data with other actors?
    - Government
    - NGOs
    - Other
- What kind of data?

SOS CV <Village>

- Get a clear overview of the services/programs for SOS CV <Village>! These could be different from others, as well as having different naming conventions.
    - What goes under AC?
    - What goes under FS?

Challenges

- What challenges do you face in relation to your work?
    - Connectivity issues?
        - How much downtime (in percentages) would you say the network has?
    - Capacity?

Observation

- Can we look at the reports and aggregated reports from the PDB menu?
- The Compass feature - can we look at it?
    - Do you use it?
- Could we have a look at the functionality in PDB and PDB2 that you usually use and how you use it?

Data use observation

- Could you show us a comparison over time? Showing the development over time?
- Could you show us a comparison between two family strengthening programmes?
- Could you show us some way you could use the data in the PDB for decision making or creating charts for decision making?
- Can you show us how you create your reports?
- Can you show us how you edit data in the PDB?
- Are you the only one in the village tasked with reporting?
- Who in the village (and SOS in general) can see/edit data in the PDB?
- … Other roles related to the PDB we have not talked to that have other responsibilities than yourself?

Interview Guide - Program Director, Programme level SOS CV

Let's start with SOS' relationship with the government:

- What parts of the government do you report to?
- What do you report and how often do you report it?
    - PDB data
    - Operational data
    - Other
- Do you see any challenges with the status quo of government data exchange?
- Do the government require anything from you?
- Do you think it would be beneficial to further integrate your information system with the government's?

- Can you explain in as much detail as possible how these different stages of data treatment and utilization are being executed here in this village:
    - Data collection
    - Data processing
    - Data presentation
    - Action/Use
- Is the use of CAs mainly paper-based or is it digital in any way?
- The CA/FS are static forms, the content of which are defined by the SOS headquarters in Austria. Do you feel that the forms are lacking in any way?
    - Anything that could be added to suit your context?
        - Why?
    - Anything that is not relevant for your context?
- What changes would like to see to data exchange between you (village or SOS as an org.) and the government or other actors similar to yourselves?
    - Why?

- What vulnerable children are your target group in SOS <Village>?

- What governmental actors do you report to?
    - Other departments?

- What kind of relationship would you say you have with the <Country> government in regards to cooperation and sharing data on children?
    - Do you think there are challenges in regards to the government knowing the well-being of all children in <Country>?
        - Chances that vulnerable children might not get help? Why?
        - What is being done to further the reach and visibility of such children?

- You also report to National Office SOS? Anyone else within SOS?
    - What reports goes to National Office?

- What reports do you report for your own use and never share with anyone?
    - Do you think it would be beneficial to share this info with others?

- What other actors do you report to?
    - Sponsors?
        - Who?
    - Directly or through national office or something?

- Challenges
    - What do you think are the positive sides to sharing information on children in your programs?
    - Could there be any negative sides of sharing info on children in your programs?
    - What challenges are you currently facing in regards to getting information on vulnerable children in <Country>?
    - What challenges are you currently facing in regards to sharing information on the children in your programs with others?

- Do you use other systems than PDB in this village for reporting on the children or other related activities?

REQUEST:

- Could we get a copy of all the forms you use for reporting to these sources?
- Do you have an organization chart / a diagram over your organization that we could get?

Interview Guide - SOS National Office

28.11.2019

Interview questions

OVERVIEW

- What are the roles found on the national level of SOS regarding gathering, processing, analysing, sharing and using information on children in your programs?
- We see the SOS levels as such:
    - National
    - Province
    - Region
    - Ward
    - Community
        - What levels are using the PDB? Only national and wards (the program locations), or more?
- Opinions on cooperation w/ government?
    - What challenges are there?
    - What can be improved?

FORMS

- Forms you send to villages that you require to be sent to you?
    - What forms
    - How is it sent
    - What is the data used for
    - What data, forms, etc. do YOU require that villages give you?

PDB

- What data do you require that villages put into the PDB?
    - I.e. follow-up, core assessment?
        - (seems like only enrollment and exit from village level is registered in PDB sometimes?)
- What requirements to you get from the international office on what to put into the PDB, if any?
- The contents of the PDB is static. Is there any PDB data you would add or remove?
- What are your opinions on the quality/variety of reporting tools of the PDB?

REPORTING

- What governmental departments are you reporting to?
    - Reporting how?
    - What forms, can we see?

- Do you see a need for system integration between you and the government?

SYSTEMS

- Lucy
    - Integrated with PDB?
    - Can we have a look at Lucy?
- Navision
- Takes on PDB2?
    - Do you think it improves work tasks and will be suited for social workers?
- PDB
- Other systems used in national office for gathering, processing, analysing, sharing information on children?

REQUESTS

- Organization chart?
- All forms you send to lower levels?
- All forms you send to other actors, i.e. that you report on yourself

Interview Guide

SOS CV International

25.11.2019

Information flow, reports and actors

- What organizations are SOS CV International collaborating with?
- What kind of collaboration would you describe that you have with governments in the nations providing SOS programs?
    - What differences in context do you recognize?
- What levels do you get reports from?
    - Regional office?
- What reports do you require lower levels to report on?
    - What levels reports directly to you and what kind of reports?
- How do you get the reports?
    - Through PDB or sent by mail?
- What do you use the information from the reports for?
- How would you describe the information culture in regards to sharing of information within SOS CV globally?
    - Challenges?
        - In relation to sharing the information with governments?
    - Recognized opportunities?

PDB/PDB2

We know that the SOS IS consists of different "subsystems". We've learned that some of them are connected and exchange information, for instance PDB and Lucy.

- Technically speaking, how are these subsystems connected and how is information being exchanged between them?
    - And what systems (all)
- Are there other ways to *import data to the PDB* (File formats, APIs), that are suitable for systems or services outside of the SOS IS?
- Are there other ways to *export data from the PDB* (File formats, APIs), that are suitable for systems or services outside of the SOS IS?
- What challenges are you facing with the current PDB?
- Are these challenges being addressed with PDB2?
    - Are these challenges being addressed with the current PDB?
- Can you explain how PD2 will differ from the current PDB in terms of
    - Technical features
    - Policy changes
- We heard that there might be developed functionality for prohibiting data quality issues (like rules for negative numbers etc.) in PDB2 - is this the case?

    - Yes, we developed logical checks that are either used to validation rules in the user interface or in data quality monitoring. Let's discuss in the call, what exactly you are interested in. But I can already provide you examples:

We heard there is an app (or some sort of mobile functionality) being developed for data collection for the PDB.

- Technically speaking, how is data being exchanged between the PDB and the mobile app?
- Does/will it have offline capabilites?
    - If so, how does it work
- What is the status of the development of the app?
    - Is the app supposed to be used internationally or by specific nations and/or villages?
    - When do you plan on deploying/launching it?

DHIS2 and the potential benefits from an integration with the SOS IS (Kim Hilton Specific)

As you may now, DHIS is a health management information platform with development backing from UiO. It is a general platform with the possibility of developing applications and configuring it pretty much however you want to. It's the world's largest HMIS platform, and is being used by 67 countries (mostly in Africa and Asia).
It serves as an example in our theses, so we're trying to assess whether it would be a help to SOS. This assessment will be built on initial mapping of the SOS IS and the IS of the respective nations we'll be visiting. It's a work in progress, but as of now we've identified the following areas for DHIS2 to potentially support or improve through an integration with SOS IS:

1. **Flexibility**. Data elements could be added or removed. If a village or nation has a problem that they would like to be covered in the PDB, but isn't, they could add that. This would at the very least be usefull locally. There is an issue on how this would work when transcending levels, i.e. if the national layer were to have different data elements than a particular local one.
2. **Integration with national HMIS**. DHIS2 is currently used as a national HMIS2 in South Africa and Ethiopia (although the Ethiopian implementation isn't quite as mature as the South African). An integration between SOS IS and DHIS2 could as such serve as a link between SOS and state databases/HMIS.
3. **Data presentation tools**. DHIS2 has a wide range of data presentation tools. From what we've learned (correct us if we're wrong), the current tools for presenting data from the PDB are somewhat limited.
4. **Offline capabilities**. DHIS2-applications are often designed with offline capabilites. This is suitable for health workers, possibly also in SOS, who works in the field and collects data where network connectivity is sparse or non-existing.

… what are your thoughts on this?

Requests

- Are you able to send us some screenshots from the PDB and PDB2 from international level? - We would like to see what the interface looks like from the highest level
    - *What differences are there at the higher level PDB view compared to other views?*
    - *How many "levels" of views are there in PDB?*
- Could you email us system documentation on PDB and PDB2 (and other systems used, i.e. Lucy and Navision)?
- Could you email us system documentation on the mobile data collection app?
- Information on "the stack" - what languages and technologies used to develop PDB and PDB2?
- If there is difference on the interface/system used for collecting data offline from tablets and phones, it would be great if you could provide us with some documentation/screenshots from this as well.

Interview Guide - Department of Social Development South Africa

Introduction
Talk about us, what we want to do, and that **we focus on data sets, systems and information flows regarding vulnerable children**. Also clarify if he knows about SOS CV and their relations to DSD.

We want to get the DSD point of view since we have only been talking to NGOs so far. It is important to get information from both sides to know the holistic situation on information on vulnerable children. We would love to get informed on what works, and what does not, regarding systems used, integration and standardization, information flow and communication and data sets. What could be improved and what works well?

About the interview
- *Role*
- *Responsibilities*
- *Regional or national DSD?*
- *Relations to CBIMS*

General about DSD
- How is the DSD organisation structured?
    - What governmental “levels” and functions?
    - Different sub-departments internally in DSD?

General status on handling of information on vulnerable children
- What would you describe the status of handling information on vulnerable children like?
    - What information is collected from the child care organizations?
        - How is it done?
    - Is enough information collected?
    - Is too much information collected?
    - What is the information used for?
        - Is the information utilized sufficiently?
- Does any information travel or otherwise get reported to the ministry of health?
    - (relevant because of child health data and the use of the software DHIS2 in that sector)
- Does any information travel to other governmental departments or upwards in the system?
- National Plan of Action for Children in South Africa 2018-2022?

Relationship with SOS CV and other NGOs
- how would you describe DSDs relationship with SOS CV?
  (or other NGOs if SOS not applicable)

Systems

- What systems are the DSD currently using to handle information on vulnerable children?
    - Analog
    - Digital
    - Difference between your department and at other departments?
    - Are these working well?
    - For clarification: When SOS CV (NGO) sends information to DSD social workers - where does it end up (what system, where)?
        - What is the system named?
        - What is the information used for?
        - is the information sent further to other actors?
    - Planning on digitizing or using other systems in the future?
    - Is there a need or incentive to improve the systems? Please elaborate.
- We learned about a software called CBIMS from another interview subject
    - Could you elaborate this?
    - What is the status of CBIMS now, and will it be utilized further in the future?
        - If not, other systems taking over?
        - maybe you could share a screenshot or something similar of the CBIMS so we could get a clue of what it looks like?
- Could you mention any similar systems like CBIMS (and those mentioned) that you know is being used?

Integration with other systems

- IF digital system: Is DSD's system interoperable or integrated with any other systems?
    - Within the government
    - With third-party systems
- If yes, please elaborate on:
    - *Why* there was a need for interoperability/intergration
    - *How* these systems are integrated
- If not, please elaborate on:
    - Is there a need for integration, and if so, why, and with who/what systems?

Information flow

- How does information on children in care programs end up at the DSD - what are the steps from lower levels to your?

Forms

- What forms are being issued by DSD to SOS CV
  (or other NGOs if not knowing about SOS)
    - (After he has answered): We have noted that monthly report and quarterly report is to be sent to social workers by SOS CV (or NGOs), is this the case?
        - Could you elaborate on this?
- Could we get a soft copy of these (without data values)?
- What forms are DSD using to report to other actors, if they are?

- Could we get soft copies of these as well?
- In addition to forms, do you have any indicators sheets you could share with us, in relation to what you capture in the systems and use in the forms you issue?
    - This is very relevant to see if what you gather matches what other actors gather, looking at consistency

Social workers

- Social/Case workers connected to children in vulnerable situations - are they placed at regional or national level?
- What are their responsibilities?
    - Legally
    - In terms of gathering information
    - In terms of reporting
- How do you find the communication and collaboration between social workers and NPOs to be?
- To your knowledge, how long does a social worker stay with the DSD?

Challenges

- What are the main challenges faced by DSD in terms of handling information on children in alternative care?
- How do you think information flow on vulnerable children could improve in the future?
    - What must be done?

Actors related to DSD

- Who manages DSD?
- Does DSD get any requirements from other actors in terms of what to collect or share of information on children?
- Does DSD give any requirements to other actors in terms of reporting to DSD?
- We have heard there is a collaboration between USAID and DSD - do you want to briefly explain this collaboration?

Clarifications

When children are being placed in care at NGOs, there should be an initial assessment of the child. Is this the responsibility of DSD or the NGO?
(SOS CV talked about a panel assessing the child for placement)

When we were collecting data in Ethiopia, they had a governmental actor called Civil Society Organization that helped NGOs with their project plans, followed them up and gave them fundings. Do you have any similar governmental organization in SA?

Other things you would like to mention or ask?

Interview guide - Ethiopian government

Get information on

- *is this the regional level or national level?*
- *role?*

About the ministry

- What is your responsibility?
- How do you track the well-being of the children in your target group?
- What makes tracking well-being of children difficult in <Country>?
- What are the current challenges in <Country> in regards to vulnerable children?
- What do you think could help you get a broader view of the well-being of children in <Country>?
- How broadly are you represented in <Country>?
    - How big is the reach?
    - What are you doing to expand your representation and reach?
- What other authorities do you cooperate with?
- How do you handle vulnerable children in <Country's> rural and urban population?

Challenges

- What challenges do you face in terms of information on vulnerable children?
    - Infrastructure?
    - Capacity?
    - Resources?
    - Monitoring systems?

Collaboration with SOS CV

- What relationship do you have with SOS CV?
    - What collaborations?
- What levels of SOS are you getting reports from?
- What reports do you require to get from SOS CV?
    - Why? *For what use?*
    - How often?
- What are SOS CV reports used for?
- How could the cooperation with SOS CV be improved?
    - Do you think that a tighter integration of your systems would be beneficial or not?
        - why?

Collaboration with other actors

- We know there is a agency that NGOs have to give plans to and report to
    - What do they gather of information that you don't?
    - Do you share information between you / collaborate?

- Do you require reporting from other NGOs like SOS?

Systems used

- What systems do you use for handling information on children?
    - What are the processes around gathering information and putting it into this system?
    - Is the system integrated with other actors systems in terms of reporting from lower levels?
    - Is data from other actors fed into your system?
        - Can you give an example of a report you receive from (for example, SOS) and how it ends up in your systems?

NGO Interview Guide South Africa

26.11.19

Interview questions

In general - children in SA

- How would you describe the child care system in South Africa?
    - Challenges?
- How does the state track the children of this country's well-being?
    - Challenges?
    - Differences in rural and urban areas?
- What do you think would make it easier for the government to track the well-being of children in this country?
- What challenges in regards to child care do you face in Johannesburg?
- What challenges do you in <NGO> face in general?

In general - <NGO>

- How does the organizational chart look, what are the roles in the facilities?
- Do you recieve resources from the state for the work you do?
- Could you elaborate on how you coordinate work together with social workers and department of social services?
    - What are their role in terms of what <NGO> does?
- After children have been placed in permanent families, who tracks their well-being further?

Digital systems

- What systems are used internally?
    - What do you use them for?
- Are your systems linked with any external systems?
- Are your systems capable of importing data?
- Are your systems capable of exporting data?
- What challenges, if any, do you face with your current digital systems?
    - Are you addressing them? How?
- Do you see any positive sides with linking your system with those of other similar NGOs and the government?
- Do you see any cons to linking your system with those of other similar NGOs and the government?

Infrastructure/Data

- If any, what is reported to the government?

- Reporting to other stakeholders, like donors, NGOs, other departments in the government?
- Is the government providing physical visits?
- What data is being gathered on the children?
    - For internal use
        - What is the data used for internally?
    - For external use
        - What is the data used for externally?
- How is the reporting done?
    - Forms - from who
        - Soft copy/hard copy
    - Who is responsible?

Needs

1. Do you think there is a need for tracking children's well-being through data collection and dissemination?
    1. What could be the negative sides to this?
    2. What could be the positive sides to this?

Requests

- If you are collecting data and reporting through forms
    - could we get soft copies of these?
- If systems
    - some documentation or more information available online?

HISP interview guide

General

- Disclaimers
- What do you do for a living?

DHIS2

- Can you tell us how DHIS2 is implemented in South Africa (department, ministires, NGOs?)
- What is your opinion on the usage of DHIS2 here?
- Is the government autonomous in their usage of DHIS2
- Do you know is DHIS2 is used to handle data on children to any extent in SA?
    - Tracker for personal data?
- Tell us about how data could be *exported* from DHIS2
- Tell us about how data could be *imported* from DHIS2
- Is interoperability between DHIS and other systems easy to accomplish?
    - Is it integrated with a system now?
- DHIS2 server distribution - how many and where?
    - Do you maintain servers the government uses for DHIS2?

As a member of the South African HISP group, can you tell us about your workings relationship with the government:

- In regards to health information
- In regards to DHIS2

The Department of Social Development is the government organ responsible for all matters related to children in SA. We've learned that there at least has been an initiative for them to digitalize their systems to something akin to DHIS2.

- Do you know anything about this?
- Do you know about any initiatives to integrate whatever information systems the different government entities has?
- Do you know any systems or platforms in SA that is similar to DHIS2

SOS Children's Villages

My theses is specifically to assert whether DHIS2 could be a viable candidate for intergration to or substitution of SOS Children's Villages' IS.
NOTE TO SELF: Explain the SOS information flow. Important to note that SOS collects personal data on the lower levels, and aggregates them to the higher levels.

Some of the issues raised by SOS NO include lack of flexibility. Data is collected by paper forms, the content of which is static and pre-defined by the main office in Austria.

- With DHIS2 being fully flexible, that might be a point where it could be of benefit. What are your thoughts on this?

Data presentation also seems to be an issue. It has been pointed out to us that SOS' tools for data presentation (graphs, tables, etc) are somewhat lacking.

- How do you view the quality of data presentation tools in DHIS2?
- Do you have any examples of those tools helping decision makers to make more informed decisions compared to their previous information input?

We're in the process of finding out the extend to which data is exchanged between SOS and the ethiopian government.

- If SOS were to integrate with DHIS2: in terms of DHIS2 structure, how would you for instance see data exchange between SOS and the government being done? (SOS as a sub-group to gov.?)
- Do you know if there has been a case where an organization and a nation both implementing DHIS2 and using it to exhange or share information?

Appendix K – MoWC Ethiopia Child Wellbeing Indicators

Child Wellbeing Indicator Domain 1: Demographic Characteristics

Indicator 1:Total number of children who live in Ethiopia

Definition	This indicator refers to the number of Ethiopian children under the age of 18 years who live in Ethiopia.
Measurement	Count of number of children under the age of 18 years old in the reporting year who are Ethiopian nationals as per Article 6 of the 1995 FDRE constitution and Ethiopian Nationality Law Proclamation No. 378/2003 which states that any child whose either parent is Ethiopian or is born from a person who has acquired Ethiopian nationality by law and sanctioned by law for his/her minor's citizenship application is an Ethiopian citizen. However, the indicator does not include Ethiopian nationals that live outside Ethiopia or refugee children that reside in the country
Rationale	Knowing the number of children currently, and the number of children there are likely to be in the future, is critical to effective policy and planning efforts. The number of children affects demand for schools, health care, and other services for children and their families. Society makes substantial public and private investments in children in all areas of life, including health and safety, education and training, recreation, and social development. With projections of the total number of children, such investments can be better informed, and therefore potentially more effective.
Unit of measurement	*Count (Number)*
Disaggregation	Region, sex, and residence (urban/rural)
Source	National Population and Housing Census Report, Annual Population Projection
Reporting Entity	Central Statistical Agency
Frequency of Data Gathering	Yearly population projection, and population census report every decade

Indicator 2:Percentage of children from total population

Definition	This indicator refers to the number and proportion of Ethiopian children under the age of 18 years who live in Ethiopia.
Formula	$\frac{\textit{Total number of children who live in Ethiopia}}{\textit{Total number of population}} \times 100$
Rationale	Knowing the proportion of children from the total population currently and in the future is critical to effective policy and planning efforts. This indicator is a measure of the proportion of total number of children in the country aged below 18 years from the total number of population in the reporting period.
Unit of Measurement	Percentage
Disaggregation	Region, sex, age, urban/rural residence
Source	National Population and Housing Census Report, and Annual Population Projection
Reporting Entity	Central Statistical Agency
Frequency of Reporting	Yearly population projection, and population census every decade

Indicator 3: Number of Children with Disabilities

Definition	Number of children with disabilities in the country refers to those the total number of Children under the age of 18 years old with Disability by the UN Convention on the Rights of Persons with Disabilities (2007). In other words, children with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.
Measurement	Disability, a complex multidimensional experience, poses several challenges for measurement. Approaches to measuring disability vary across countries and influence the results. While data on all aspects of disability and contextual factors are important for constructing a complete picture of disability and functioning, operational measures of disability vary according to the purpose and application of the data, the conception of disability, the aspects of disability examined – impairments, activity limitations, participation restrictions, related health conditions, environmental factors – the definitions, question design, reporting sources, data collection methods, and expectations of functioning. The population and housing census conducted by CSA collects data on Disability statuses of the population. According to the census report, a person who was unable to carry out or limited in carrying out activities that others can do due to congenital or long term physical/mental disabilities was identified as a disabled person. Short term difficulties due to temporary conditions were excluded. In general, a person was defined as disabled if due to physical or mental injuries could not fully perform activities that other healthy person could do. Type of disability was classified as blind, deaf, dumb, seeing difficulty, hearing difficulty, speaking difficulty, deaf mute, disability in hands, disability in legs, physical organs movement difficulty, mental retardation, mental problem and others. The 2007 Population and Housing Census excludes the following persons from being classified as disabled for they are being capable of performing activities that other healthy persons could do. Persons with one eye or one ear as long as the person is able to fully perform activities in the manner or within the range considered normal for a human being, even if his/her other eye or ear is blind or defective, he or she is not considered as disabled person.
Rationale	The issue of children with disabilities is cross-cutting. Children with disabilities are less likely than other children to be in school, and in some countries they have lower transition rates resulting in lower schooling attainment. They may also have trouble using the health services they need, whether because those services are inaccessible, or due to discrimination or exclusion. Children with disabilities are particularly vulnerable to physical violence and sexual, emotional and verbal abuse, and in some instances, the disability is itself caused by maltreatment. A primary goal of collecting population data on children with disabilities is to identify strategies to improve their well-being. Comprehensive and systematic documentation of all aspects of disability among children can In its concluding observations on Ethiopia's 3rd round report Paragraph 52 (b), the CRC Committee suggested on the need to collect adequate disaggregated statistical data on children with disabilitiesand use such data in developing policies and programs to promote equal opportunities for them in society, paying particular attention to children living in the most remote areas of the country. This indicator tracks data on total number of
	children with disability disaggregated by type of disability which are important to support the design and monitoring of interventions.

Unit of Measurement	Number (count)
Frequency of reporting	Every ten years and as needed based on special surveys conducted on disability
Data source	Population and housing census and special surveys
Reporting entity	CSA and MOLSA
Disaggregation	Sex, age, region, type of disability (vision, hearing, speaking, intellectual, disability in hands, disability in legs, and others)
Limitation of existing data sources	Estimates of the prevalence of children with disabilities vary substantially depending on the definition and measure of disability and data collection method. A recent review of the literature in low- and middle-income countries reports child disability prevalence from 0.4% to 12.7% depending on the study and assessment tool. A review in low-income countries pointed to the problems in identifying and characterizing disability as a result of the lack of cultural and language-specific tools for assessment. This may account in part for the variation in prevalence figures and suggests that children with disabilities are not being identified or receiving needed services. Parents or caregivers – the natural proxy responders in surveys – may not also accurately represent the experience of the child. Imprecise or off-putting wording in the questions – such as using the word "disabled" when asking about difficulty with an activity– can also result in under-reporting. In addition, data gathered need to be relevant at the national level and comparable at the global level – both of which can be achieved by basing design on international standards, like the International Classification of Functioning, Disability and Health (ICF). The data collection method also influences results. Censuses and surveys take varying approaches to measuring disability, and the use of these approaches to data collection often report different rates of disability. However, disability data collected through censuses or surveys focus exclusively on a narrow choice of impairments and as a result report low disability prevalence rate. The 2007 Ethiopian population and housing census report, for example, reported that the country had 805,492 people with disabilities. This is far below the 10 to 15% disabled population estimate made by international organizations for developing countries. Hence, as the census has narrow definition of disability, the reported figures understate the number of children with disabilities. Furthermore, age disaggregation in the census reporting does not fit with the reporting needed to determine children with disabilities as youth aged 18 and 19 are reported in the 15 to 19 age range.

Indicator 4: Number of orphans and vulnerable children

Definition	The population and housing census conducted by CSA collects data on Orphanhood statuses of the population. Orphanhood is defined by CSA as the condition of being a child without living biological parents or a child deprived by death of one or usually both of his/her biological parents. Information on Orphanhood status of children under age 18 (survival status of the parents) was collected on complete count basis for every household member. A vulnerable child may be defined as being under the age of 18 years and currently at high risk of lacking adequate care and protection as a result of facing one or more of the following (orphaned by the death of one or both parents; abandoned by parents; living in extreme poverty; living with a disability; affected by armed conflicts; abused by parents or their carers; malnourished due to extreme poverty; HIV-positive; and finally, those marginalized, stigmatized, or even discriminated against.)
Rationale	Some estimates show that OVC may account around 6% of the total population in Ethiopia. These children are disproportionably impacted by poverty, violence, exploitation and abuse. Increasingly there is a need to build protective and support mechanisms for these children that transcend basic education and health care. The 2011 EDHS, for example, found out that Children whose both parents are dead are less likely to attend school than children who have both parents alive. Ethiopia has developed a National Plan of Action (NPA) for OVC covering the periods between 20044 and 2006. Though the NPA for OVC expired in 2006, it called for strengthened service delivery, coordinated approaches and streamlined responses to the specific needs of the country's OVC. This indicator tracks the number of OVC in the country as reported by periodic demographic and health survey and population census; and projections made based on the survey and census reports. Systematic collection and documentation of all aspects of orphanhood and vulnerability among children can support the design and monitoring of interventions.
Unit of Measurement	Count (Number)
Disaggregation	Region, age, sex, and type of orphanhood status (only mothers alive, only fathers alive, both deceased (double orphaned) and type of vulnerability
Data Source	EDHS, Population and Housing Census Reports, and Special Surveys
Reporting Entity	CSA
Frequency of Reporting	Every five years (EDHS) or ten years (census)

Indicator 5:Number of refugee children living in Ethiopia

Definition	Number of refugee children living in Ethiopia
Interpretation	Ethiopia is a party to the 1951 international refuge convention and its additional 1967 protocol. At a regional level, it is a party to the OAU refuge convention of 1969. Furthermore, Ethiopia is also a party to a number of international and regional human rights instruments which are meant to protect every individual including refugee. In sum, refugee children refer to those people who are recognized as refugees under Refugee Proclamation No. 409/2004[1] of Ethiopia, which incorporated refugee definition from both the 1951 Convention and the 1969 African refuge convention verbatim. This indicator tracks the number of children aged below 18 years who, owing to external aggression, occupation, foreign domination or events seriously disturbing public order in either part or the whole of their country of origin or nationality, are compelled to leave their place of habitual residence and are admitted to refugee camps of Ethiopia, i.e outside of their country of origin or nationality.
Unit of Measurement	Count (Number)
Disaggregation	Age, sex
Source	Annual Report of Refugee and Returnee Affairs Authority; UNHCR Refugee Monthly Statistical Reports
Reporting Entity	Refugee and Returnee Affairs Authority (AARA), UNHCR
Frequency of Data Gathering	Annually
Frequency of Reporting	Annually

CWB MIS Indicator Domain 2: Education

Indicator 6: Net Enrollment Rate in Pre-Primary Education

Definition and method of computation	Pre-primary NER refers to the number of children of official pre-primary school age (ages 4-6) who are enrolled at the beginning of the year in preprimary education as a percentage of the total children of the official school age population (4-6).

Rationale	While access to primary education has increased, many children still do not complete the first cycle of primary and repetition and drop-out rates remain high throughout the whole cycle. Drop-out is particularly high in the early primary grades. This highlights the need to work on expanding early childhood education, which helps prepare children for primary school and which is at the moment still very scarce. In addition, participating in ECCE is the right of the child and it has been considered as bedrock of Education for All (EFA) and the first step in meeting all the other EFA goals (ESDP IV, 2010). In light of this, early Childhood Care and Education/ECCE has become one of the priorities for the education sector because it will be one of the potential inputs to the overall improvement of quality of education and reduction of drop out and repetition rates in later stages of formal schooling and because it leads to higher enrolments, particularly of girls. Cognizant of this rationale, the Ethiopian Government has given due attention to Early Childhood Care and Education (ECCE) in the Education and Training Policy (ESDP IV, 2010). Enhancing the coverage and quality of pre-school education in urban and rural areas is also identified as one strategic initiative in the draft National Child Policy of Ethiopia.
Unit of Measurement	Percentage
Frequency of data gathering	Annually
Frequency of reporting	Annually
Data source	EMIS
Data Supplying Organization	MoE
Disaggregation	Sex and region

Indicator 7: Net enrollment rate (NER) at primary level (1-8)

Formula	NER at primary level is calculated by dividing the number of properly aged primary students (for Ethiopia ages 7-14) by the number of children of school age (7-14). In Ethiopia, primary education is defined as education in grades 1 to 8, in two cycles namely: 1st cycle (grades 1-4) and 2nd cycle (grades 5-8). NER at each level of education should be based on enrolment of the relevant age group in all types of schools and education institutions, including public, alternative basic education schools, private and all other institutions that provide organized educational programs.
Rationale	Primary education is absolutely critical to a nation's development, providing on average the highest public returns to investment for the state, and the critical underpinning for later education and economic growth. Enhancing the accessibility, quality and equity of primary and first cycle education is among the strategic priorities of the Ethiopian government as specified in GTP, ESDP IV, and the draft national Child Policy. NER is the best way of measuring organized on-time school participation. It is a more refined indicator of school and enrolment coverage and explains the proportion of students enrolled in terms of official age group.
Unit of Measurement	Percentage
Frequency of data gathering	Annually
Frequency of reporting	Annually
Data Source	EMIS
Data Supplying Organization	Ministry of Education
Disaggregation	Sex and region
Limitation	Difficulties may arise when calculating an NER at primary and secondary education levels that approaches 100% if the reference date for entry to primary education does not coincide with the birth dates of all of the cohort eligible to enroll at this level of education; a significant portion of the population starts primary school earlier than the prescribed age and consequently finishes earlier as well; and there is an increase in the entrance age to primary education but the duration remains unchanged.

Indicator 8: Secondary Net Enrollment Rate (NER

Definition	Secondary NER refers to the enrolment of children in first cycle (15-16 years old) and second cycle (17-18 years old) secondary education as a percentage of the population of that age.
Formula	Total enrolment of children of the appropriate age in first cycle (15-16 years old) and second cycle secondary education (17-18 years old) divided by the population of that age.

Rationale	Enhancing the accessibility, quality and equity of primary and first cycle education is among the strategic priorities of the Ethiopian government as specified in GTP, ESDP IV, and the draft national Child Policy. NER is the best way of measuring organized on-time school participation. It is a more refined indicator of school and enrolment coverage and explains the proportion of students enrolled in terms of official age group. NER is ideally 100%, but for secondary education this is seldom achieved. Very low NER suggests a large number of over-aged students enrolled.
Unit of Measurement	Percentage
Frequency of data gathering	Annually
Frequency of reporting	Annually
Data Source	EMIS
Data Supplying Organization	Ministry of Education
Disaggregation	Region and sex
Limitation	Difficulties may arise when calculating an NER at primary and secondary education levels that approaches 100% if the reference date for entry to primary education does not coincide with the birth dates of all of the cohort eligible to enroll at this level of education; a significant portion of the population starts primary school earlier than the prescribed age and consequently finishes earlier as well; and there is an increase in the entrance age to primary education but the duration remains unchanged.

Indicator 9: Gross Enrollment Rate (GER) at Primary Level

Definition	GER at primary level is the percentage of total enrolment in primary schools, irrespective of age, out of the corresponding primary school age population, ages 7-14. GER at each level of education should be based on total enrolment in all types of schools and education institutions, including public, private, alternative basic education schools and all other institutions that provide organized educational programs.
Formula	Divide the number of pupils (or students) enrolled at primary level (1-8) regardless of age by the population of the age group (7-14) which officially corresponds to the given level of education, and multiply the result by 100.

Rationale	GER is a crude measure of school coverage. GER shows the general level of participation in a given level of education. It indicates the capacity of the education system to enroll students of a particular age group. It can also be a complementary indicator to net enrolment rate (NER) by indicating the extent of over-aged and under-aged enrolment. Usually, since it includes under-aged and over-aged pupils, GER can be higher than 100%. A high GER generally indicates a high degree of participation, whether the pupils belong to the official age group or not. A GER value approaching or exceeding 100% indicates that a country is, in principle, able to accommodate all of its school-age population, but it does not indicate the proportion already enrolled. The achievement of a GER of 100% is therefore a necessary but not sufficient condition for enrolling all eligible children in school. When the GER exceeds 90% for a particular level of education, the aggregate number of places for pupils is approaching the number required for universal access of the official age group. However, this is a meaningful interpretation only if one can expect the under-aged and over-aged enrolments to decline in the future to free places for pupils from the expected age group.
Unit of Measurement	Rate
Frequency of data gathering	Annual
Frequency of reporting	Annual
Data source	EMIS
Data Supplying Organization	MoE
Disaggregation	Region, sex
Limitation	GER can exceed 100% due to the inclusion of over-aged and under-aged pupils/students because of early or late entrants, and grade repetition. In this case, a rigorous interpretation of GER needs additional information to assess the extent of repetition, late entrants, etc.

Indicator 10: Secondary Gross Enrollment Rate (GER)

Definition	Secondary GER refers to the total enrolment at first cycle (9-10) and second cycle (11-12), irrespective of age, as a percentage of the total population of the appropriate age (15-18). For Ethiopia, the ages for first cycle secondary (General Secondary) would be 15-16, and that for second cycle, 17-18 years of age.
Formula	Divide the number of pupils (or students) enrolled at first cycle (9-10) and second cycle (11-12) secondary level, regardless of age, by the population of the age group (15-118), and multiply the result by 100.

Rationale	GER is a crude measure of school coverage. Secondary GER shows the general level of participation at secondary level. It indicates the capacity of the education system to enroll students of a particular age group. It can also be a complementary indicator to net enrolment rate (NER) by indicating the extent of over-aged and under-aged enrolment. Usually, since it includes under-aged and over-aged pupils, GER can be higher than 100%. A high GER generally indicates a high degree of participation, whether the pupils belong to the official age group or not. A GER value approaching or exceeding 100% indicates that a country is, in principle, able to accommodate all of its school-age population, but it does not indicate the proportion already enrolled. The achievement of a GER of 100% is therefore a necessary but not sufficient condition for enrolling all eligible children in school. When the GER exceeds 90% for a particular level of education, the aggregate number of places for pupils is approaching the number required for universal access of the official age group. However, this is a meaningful interpretation only if one can expect the under-aged and over-aged enrolments to decline in the future to free places for pupils from the expected age group.
Unit of Measurement	Rate
Frequency of data gathering	Annual
Frequency of reporting	Annual
Data source	EMIS
Data Supplying Organization	MoE
Disaggregation	Region, sex
Limitation	GER can exceed 100% due to the inclusion of over-aged and under-aged pupils/students because of early or late entrants, and grade repetition. In this case, a rigorous interpretation of GER needs additional information to assess the extent of repetition, late entrants, etc.

Indicator 11: Repetition rate at primary level

Definition	The proportion of students at primary (1-8) who have remained in the same grade for two or more consecutive years by retaking the grade having either left the grade prematurely or returning for a second or third time.
Formula	The percentage of pupils repeating in primary level grades divided by the total previous year's total enrollment in the same grades multiplied by 100

Rationale	While access to primary education has increased, many children still do not complete the first cycle of primary and repetition and drop-out rates remain high throughout the whole cycle. The low enrollment at pre-primary education level was partly to blame for the high repetition rate. Any repetition reduces the efficiency of the education system, and is also, at times, an indication of too high pupil-teacher ratio (PTR), unqualified teachers, or lack of learning materials. Repetition rate helps to understand how the education system utilizes efficiently the limited resources and time as repeating a grade means using more resources than allocated to a student. Current national policy requires that promotion is based on students' continuous assessment results for the first three grades of primary. Cognizant of the high repetition rate in the country, the Ethiopian government has been implementing several initiatives to reduce the rate down (ESDP IV, 2010).
Unit of Measurement	Percentage
Frequency of reporting	Annually
Data source	EMIS
Data supplying organization	MoE
Disaggregation	Region, sex
Limitation	As Ethiopia uses the term "readmit" to characterize any student not repeating within one year, Ethiopia's repetition rates are (according to international standards) artificially low, but it is reported drop-out rates are therefore artificially high.

Indicator 12: Percentage of certified and qualified primary and secondary teachers

Definition	Qualified teachers refers to those who have received the minimum organized teacher training required for teaching at primary and secondary levels of education, expressed as a percentage of the total number of teachers at the same level of education. According to national standards, the primary education (1-8) requires teachers with minimum qualification from College of Teacher Education (CTE).
Formula	To determine the percent of qualified teachers, divide the number of teachers of the specified level of education who have received the minimum required teacher training by the total number of teachers at the same level of education, and multiply the result by 100.
Rationale	Shortage and sometimes absence of qualified teachers is one of the key challenges of education quality and relevance in Ethiopia which will have impact on the wellbeing of children in the future. Qualified/trained teachers are important to the education system. Increasing the number of qualified teachers is one of the targets of the Ethiopian government as part of its endeavor to improve quality of education in the country. A high percentage of teachers certified to teach in schools implies that a majority of the teaching force is trained and has the necessary pedagogical skills to teach and use the available instructional materials in an effective manner.

Unit of Measurement	Percentage (%)
Frequency of data gathering	Annually
Frequency of reporting	Annually
Data source	EMIS
Data Supplying Organization	MoE
Disaggregation	Sex, region, education level (Grades 1-4, 5-8, 1-8, 9-10, 11-12 and 9-12)
Limitation	This indicator does not take into account differences in teachers' experiences and status, teaching methods, teaching materials and variations in classroom conditions -- all factors that also affect the quality of teaching/learning. It should be noted that some teachers without this formal training may have acquired equivalent pedagogical skills through professional experience.

Indicator 13:Net Intake Rate (NIR)

Definition	NIR is the percentage of new entrants in grade 1 who are 7 years old, out of the total number of children at official admission age (age 7 for Ethiopia) in a given year.
Formula	Divide the number of children of official primary school-entrance age who enter the first grade of primary education for the first time by the population of the same age, and multiply the result by 100.
Rationale	The indicator helps to precisely measure access to primary education by the eligible population of primary school-entrance age. A high NIR indicates a high degree of access to primary education for the official primary school entrance age children. NIR of 100% is a necessary condition for the policy goal of universal primary education. NIR in principle should not exceed 100%.
Data Source	EMIS
Data Supplying Organization	MoE
Frequency of Data Collection/Reporting	Annually
Disaggregation	Sex and region
Limitation	This indicator can be distorted by an incorrect distinction between new entrants and repeaters in the first grade. This can be the case especially for under-aged pupils who may repeat the first grade at the official entrance age.

Indicator 14: Drop-out rates at primary and secondary levels

Definition	Dropout rate is the percentage of pupils who discontinue their learning from a given grade compared to the previous year's total enrolment in the same grade.
Formula	Dropout rate by grade is calculated by subtracting the sum of promotion rate and repetition rate from 100 in the given school year. For cumulative dropout rate in primary and secondary education, it is calculated by subtracting the survival rate from 100 at a given grade. Survival rate refers to the percentage of a cohort of pupils (or students) enrolled in the first grade of a given level or cycle of education in a given school year who are expected to reach successive grades. It is calculated by dividing the total number of pupils belonging to a school-cohort who reached each successive grade of the specified level of education by the number of pupils in the school-cohort. The survival rate is calculated on the basis of the reconstructed cohort method, which uses data on enrolment and repeaters for two consecutive years.
Rationale	Drop-out rate is still high in Ethiopia particularly at early grade levels among girls, children living pastoral areas, and women's participation in education is constrained by economic, socio-cultural, familial, personal and school factors. The ability of children to access education is severely compromised as children drop out of school due to poverty, schools remain closed for extended periods of time, teachers leave the affected areas, school buildings are used as shelters or are damaged, school materials are damaged, children and their families are displaced from their villages and live in temporary shelters for long periods. The high levels of drop-out are to a large extent an expression of the poor quality and attractiveness of schools; as long as these rates remain high, the objective of Universal Primary Education will not be achieved (ESDP IV, 2010). The imperative to bring down urgently the drop-out rates particularly in the early grades among girls, children areas that face recurrent emergencies is one of the major priorities of the Ethiopian government. In particular, retention of girls in schools to increase their participation in the education system is given much attention by the government in its education sector development program. Dropout rate help to understand how the education system utilizes efficiently the limited resources and time. It is commonly used to measure the efficiency of the education system in producing graduates of a particular education cycle or level. Lower drop-out rate is an indication of proper utilization of limited resources as a student leaving a school (drop-out) before completing a particular cycle or level of education is also wastage of resources.
Unit of Measurement	Percentage
Frequency of data gathering	Annually
Frequency of reporting	Annually
Data Source	EMIS
Data Supplying Organization	MoE
Disaggregation	Region, sex, education level (Grades 1-4, 5-8, 1-8, 9-10, 11-12 and 9-12)
Methods of Computation	Drop-out rate is a measure, typically by grade, of those who leave formal schooling. In most cases it is calculated as the remainder after subtracting from enrolment, those who repeat and those who are promoted to the next grade. Ethiopia's use of the concept of "readmit," artificially lowers repetition, but raises dropout rates.

Indicator 15:Primary Completion Rate (PCR)

Definition	Primary Completion Rate (PCR) refers to the total number of graduates from the last grade of the first and second cycle primary education, regardless of age, expressed as a percentage of the population at the theoretical graduation age for primary.
Formula	PCR is calculated by dividing New Pupils in last Grade (total pupils in last Grade minus repeaters in last Grade) by population official age in the last grade; where "New Pupils in last Grade"= total pupils in last Grade minus repeaters in last Grade
Rationale	While access to primary education has increased, many children still do not complete the first cycle of primary education and repetition and drop-out rates remain high throughout the whole cycle. The gains in access are of little meaning if they are not accompanied by improved student learning. The challenge of quality is closely linked to the challenge of completion (ESDP IV, 2010). PCR is an established measure of the outcomes and quality of an education system. It has been specified as one of the two major education indicators for the Millennium Development Goals (MDGs).
Unit of Measurement	Percentage
Frequency of data gathering	Annually
Frequency of reporting	Annually
Data Source	EMIS
Data supplying organization	MoE
Disaggregation	Sex, region
Limitation	PCR is highly dependent on the accuracy of the single age population for both points of measurement (for grade 5, age 11, and for grade 8, age 14) and the accurate measurement of repeaters in each grade. With adjustments for Ethiopian approaches for calculation of both values i.e. single age ranges and repeaters, a steady upward trend in completion rates is important. PCR might also be driven by the availability of places in secondary education, so care should be taken in making comparisons.

Indicator 16: Enrollment of Children With Special Educational Needs at Primary and Secondary Levels

Definition	Number of children with special educational needs enrolled at primary and secondary level. Students with special needs may include those with hearing, vision and physical impairments, mentally retarded and others.
Formula/Measurement	Counting and aggregating the number of children with special needs enrolled in each grade at primary (1-8) and secondary levels (9-12).

Rationale	The enrollment of children with special needs is mostly low due to the unavailability of schools with material and human resources to cater to the particular needs of these children. Special needs or inclusive education is a process of addressing and responding to the diversity of needs of all learners through increasing participation and reducing exclusion within and from education. The Ethiopian Ministry of Education has adopted an inclusive education strategy regarding the provision of the service within the existing structure and in the framework of inclusive education. The final goal of the strategy is to ensure access and quality education for marginalized children particularly for children with SNE such as the ones with disabilities. The General Education Quality Improvement Program (GEQIP) has also given attention to these issues and incorporated it in its teacher development component (ESDP IV, 2010). Hence, tracking progress on this particular indicator could show how far the school system has become inclusive to accommodate these groups of children and improved their future wellbeing.
Unit of Measurement	Number
Frequency of data gathering	Annually
Frequency of reporting	Annually
Data Source	EMIS
Data Supplying Organization	MoE
Disaggregation	Sex, region, and type of disability (vision impairment, physically impairment, hearing impairment, mentally retarded, and others)

Indicator 17:Percentage of primary and secondary schools with improved school facilities and services	
Definition	Percentage of primary and secondary schools with improved school facilities and services such as safe drinking water, gender sensitive latrines (flush toilets and ventilated improved pit latrines), clinics, sport facilities, libraries, laboratories, internet, student council, pedagogical centers and guidance and counseling disaggregated by type of facility or service.
Formula	Divide the number of schools with improved school facilities and services such as safe drinking water, gender sensitive toilet, clinics, sport facilities, student council, libraries, laboratories, internet, student council, pedagogical centers and guidance and counseling disaggregated by type of facility or service by the total number of schools in the country
Rationale	School facilities such as availability of water, latrines, clinics, libraries, sport facilities, clinics, internet, laboratories, guidance and counselling, and pedagogical centers have impact on access, quality, efficiency and equity. The school facilities are also tools to attract students in general and girls in particular.
Data Source	EMIS
Data Supplying Organization	MoE
Frequency of Data Collection/Reporting	Annually
Disaggregation	Region, education/school level (primary and secondary), and type of school facility as specified above
Limitation	The existing system of education data collection tracks schools facilities on availability of water, latrines, clinics, libraries, laboratories and pedagogical centers. However, data on availability of sport facilities, guidance and counselling and student council are not being captured. While internet access is being tracked at secondary level, the data is not being captured at primary level. This calls for ensuring the inclusion of questions to gather such data in the education data collection instruments designed by MoE.
Indicator 18:Number of teachers that are trained in special needs education	
Definition	Special needs education is the education of students with special needs in a way that addresses the students' individual differences and needs. Ideally, this process involves the individually planned and systematically monitored arrangement of teaching procedures, adapted equipment and materials. Trained Special Needs teachers refer to those teachers who are educated and certified at Diploma, BA, MA and PhD levels to teach students who have a wide range of learning, mental, emotional, and physical disabilities. Only those trained teachers who teach in schools will be counted.
Formula	Counting and aggregating the number trained special needs teachers working at primary and secondary levels in the country.

Rationale	Applying the international estimates by WHO of an average 10% prevalence of disability in any population, in Ethiopia less than 3% of them have access to primary education. Access to schooling decreases rapidly as children move up the education ladder and girls are manifestly underrepresented. Generally schools have difficulty in addressing their students' special educational needs. Some studies have shown that these special schools and special classes are understaffed, under resourced and also have a shortage of instructional materials (MoE, 2010). To reduce the existing gap and to actualize Education for All, the Ministry of Education has designed a strategy for Special Needs Education, the final goal of which is to ensure access and quality education for marginalized children and students with special educational needs. Different universities and colleges have started new teacher education programs on special needs education. Core curricula have been modified for children with disabilities and manuals are being prepared on disability specific curriculum at the federal level. In addition, special needs education is mainstreamed across all teacher education and training institutions in the country.
Data Source	EMIS
Data Supplying Organization	MoE
Frequency of Data Collection/Reporting	Annually
Disaggregation	Sex, region, qualification (diploma, first degree, second degree and above), and education/school level (primary and secondary)
Limitation	Data on Special needs teachers is not being collected by the Ministry of Education. Hence, ensuring the inclusion of such information in the Ministry's routine data collection tools is necessary.

Indicator 19:Number of students who have access to the Internet at school

Definition	Total number of students with access to the Internet in all primary and secondary schools
Formula	The total number of students with access to the Internet in schools is determined by aggregating the data maintained by the schools with regard to internet access
Rationale	The indicator aims to measure the accessibility to Internet use for educational purposes by students. A high percentage for this indicator suggests greater access to the Internet for students. However, in order to have a better sense of its potential effectiveness, one needs to match the number of students with Internet access entitlement to the number of computers used for instructional purposes that are connected to the Internet. Depending on the pedagogical need, 100% access to the Internet for all students may not be an intentional educational goal for all grades.

Data Source	MoE does not collect data on student's access to the Internet at school, but it does collect the availability of internet at secondary schools. Administrative data collection through annual school census (based on school registers); or alternatively sample school survey or household survey may be conducted to provide the needed data.
Data Supplying Organization	MoE
Frequency of Data Collection/Reporting	Annually
Disaggregation	Region, sex, age, education/school level (primary and secondary)
Limitation	The indicator does not indicate the extent that students use the Internet or what they use it for. This indicator remains theoretical as it does not account for the actual use or frequency of use of the Internet by students. The type of bandwidth for Internet connectivity in schools as well as the number of simultaneous users can constrain the amount of Internet resources accessible within a given time span.

Indicator 20:Percentage of students at primary and secondary levels who participated in extracurricular activities

Definition	Children in grades 1 through 12 participating in one or more regularly scheduled extracurricular activities such as student council, academic and social clubs, sport activities, school music or other performing arts programs that occur after school at least once a week. Children who participated in more than one type of activity are included in each type of activity in which they participated. Arts include such activities as music, dance, or painting. Academic and social clubs include activities such as tutoring, health club, red cross, and so on.
Formula	Students who participated in student council, academic and social clubs, sport activities, school music or other performing arts programs divided by total number of students at primary and secondary levels
Rationale	Research suggests that participation in structured extracurricular activities such as include sporting teams, drama clubs, academic clubs, church groups, and service activities provides important opportunities for social, emotional, and civic development during childhood. Participation in club activities during middle childhood is linked to higher academic performance and self-esteem. Participation in sports is linked to higher social competence and contributes to better health and lower likelihood of obesity. Researchers have also found a positive association between arts participation and a number of desirable academic and social outcomes, such as school grades, test scores, enrollment in postsecondary education, attainment of a bachelor's degree, and higher levels of literacy and civic engagement.
Data Source	Data on the indicator is not reported in the annual education statistical abstracts published by the Ministry of Education.

Data Supplying Organization	MoE
Frequency of Data Collection/Reporting	Annually
Disaggregation	Type of extracurricular activity, region, school level and sex
Limitation	As data needed for the indicator is not available, it is necessary to work with the Ministry of Education to ensure the inclusion and collection of such data in its annual school census.

Indicator 21:Number of Highly Vulnerable Children (HVC) at primary and secondary levels

Definition	Highly vulnerable children (HVC) may be defined as "those children under age 18 whose safety, well-being, or development is at significant risk due to inadequate care, protection or access to essential services. HVC include those who are orphaned; receive inadequate adult support because of death, abandonment, economic distress, or chronic illness; have HIV/AIDS or are suspected of having HIV; are directly affected by armed conflict; live outside of family care; or in some other way have suffered from a collapse of traditional social safety nets in their communities. This definition encompasses OVC (Orphans and Vulnerable Children), a term commonly used to reference children affected by HIV and AIDS.
Formula	Gross enrollment, regardless of their age, of the number of HVC enrolled at primary and secondary levels
Rationale	All children, without exception, have the right to quality early education. Essential to the realization of this right is ensuring access and quality for the highly vulnerable children. Ensuring these rights would also be in accordance with the principle of non-discrimination as guaranteed under article 28 of the CRC. At present, good-quality education programs serving these vulnerable/excluded populations are scarce. Where they exist, they are not well monitored or assessed. Unfortunately, lack of education compounds social problems such as illiteracy and poverty. The costs to government of addressing longterm social problems will be much greater than those required to ensure that vulnerable sectors of the population have the right to education.
Data Source	The Education Management Information System (EMIS) does not seem to collect data on enrollment of HVC.
Data Supplying Organization	MoE
Frequency of Reporting	Annually

Disaggregation	Sex, region, education/school level (primary and secondary)
Concerns	MoWCYA needs to work with MoE to ensure collection of enrollment data on HVC. This indicator may also overlap with the previous indicator on enrollment of children with special needs and similar data may be utilized by both indicators. Data about the vulnerability status of children enrolled in schools may also be difficult to collect as such information may be confidential or may not be obtained at all.

CWB MIS Indicator Domain 3: Culture, Art, and Recreation

Indicator 22:Number of child-friendly recreational, sport, theatre, public library, culture and art facilities/centers

Definition	Number of child-friendly recreational, sport, theatre, public library, culture and art facilities/center
Measurement	The indicator is measured by counting and aggregating the available number of childfriendly recreational, sport, theatre, public library, culture and art facilities/centers in the country
Rationale	Young children need opportunities to explore their world. Among these opportunities are child-friendly recreational, sport, theatre, public library, culture and art facilities/centers. This indicator is intended to assess progress under obligations laid down in article 31 of the Convention on the Rights of the Child which discusses children's leisure and play time as a distinct activity and a key element of sports and recreation activities. Active lifestyles, including stimulating play, sports and recreation as well as free leisure time, are viewed by the UNCRC as important opportunities for the physical, social, emotional and cognitive development of young children. The indicator tracks the measures that have been taken by the government to respect and promote the right of the child to participate fully in cultural and artistic life and ensure as well as encourage the provision of appropriate and equal opportunities for cultural, artistic, recreational and leisure activity..
Rationale	Children need more than just the basic means for survival. They also need opportunities to develop a sense of personal significance and fulfillment. This occurs when they are able to explore and respond to the world around them, to discover and express cultural and social values on numerous levels, and to assert and shape their own voices. This can be achieved when they purposefully engage their minds and bodies in order to exercise their creative capacities through expressive media.
Unit of measurement	Number (count)
Disaggregation	Region, type of facility/center
Data Source and Reporting Entity	Progress reports of Federal Sports Commission, Ministry of Education, Ministry of Culture and Tourism, and MOWCYA; and special mapping or surveying of such facilities
Reporting Entity	Federal Sports Commission, Ministry of Tourism and Culture, and MOWCYA
Frequency of Reporting	Annually

Limitation and concerns	Current data collections do not provide complete background information on facilities for children. Hence, data on this indicator may have to be collected from a range of stakeholders. Coordinating the data collection process will be challenging. Besides, disaggregated data on each of the components of child friendly recreation, sport, theater, library, art, culture and other facilities may not be available. Most importantly, tracking utilization of these centers by children would be challenges particularly in open public and community facilities where registration of children who use the facilities may not take place. There is also a risk of double counting.

Indicator 23:Number of children that utilize available child-friendly recreational, sport, theatre, public library, culture and art facilities/centers

Definition	Number of children that utilize available child-friendly recreational, sport, theatre, public library, culture and art facilities/centers
Measurement	The indicator is measured by counting and aggregating the number of children under 18 years of age that utilized available child-friendly recreational, sport, theatre, public library, culture and art facilities/centers in the country
Rationale	Young children need opportunities to explore their world. Among these opportunities are child-friendly recreational, sport, theatre, public library, culture and art facilities/centers. This indicator is intended to assess progress under obligations laid down in article 31 of the Convention on the Rights of the Child which discusses children's leisure and play time as a distinct activity and a key element of sports and recreation activities in preschool and school settings. Active lifestyles, including stimulating play, sports and recreation as well as free leisure time, are viewed by the UNCRC as important opportunities for the physical, social, emotional and cognitive development of young children.
Unit of measurement	*Number (count)*
Disaggregation	Region, sex, age, type of facility
Data Source	Progress reports captured from facility utilization or registration documents of Federal Sports Commission, Ministry of Education, Ministry of Tourism and Culture, MOLSA and MOWCYA; or sample-based special surveys
Reporting Entity	Federal Sports Commission, Ministry of Education, Ministry of Tourism and Culture, MOLSA and MOWCYA
Frequency of Reporting	Annually
Limitation	Data on this indicator may have to be collected from a range of stakeholders. Coordinating the data collection process will be challenging. Besides, disaggregated data on each of the components of child friendly recreation, sport, theater, library, art, culture and other facilities may not be available. Most importantly, tracking utilization of these centers by children would be challenges particularly in open public and community facilities where registration of children who use the facilities may not take place. Furthermore, there is a risk of double counting.

Indicator 24:Number of children's playing fields	
Definition	The number of playing fields for children refers to the number of public and private spaces devoted to playgrounds and sports fields for children. Modern playgrounds often have recreational equipment such as the seesay, merry-goround, swingset, slide, jungle gym, chin-up bars, sandbox, spring rider, monkey bars, overhead ladder, trapeze rings, playhouses, and mazes, many of which help children develop physical coordination, strength, and flexibility, as well as providing recreation and enjoyment.
Measurement	All kinds of outdoor and in-school playgrounds devoted and developed for children will be counted to determine the number of playing fields in the country.
Rationale	Children need opportunities to explore their world, to play, and to learn through playing. Evidence shows that play playing is crucial to children's physical, mental, social and emotional health and wellbeing, and therefore to their families and to communities as a whole. A body of evidence recognizes playing as an essential part of every child's development and providing opportunities for play that are available and accessible contributes to better health outcomes for children and young people. Children prefer to play outdoors away from adult supervision– in safe but stimulating places. Schools often offer ideal space for children to play and interact with one another. In addition, children needs to have access to playgrounds outside home and schools to utilize during their vacation time. The right of children to play means the right to pursue activities that are not controlled by adults. This indicator is intended to assess progress under obligations laid down in article 31 of the Convention on the Rights of the Child which discusses children's leisure and play time as a distinct activity and a key element of sports and recreation activities in preschool and school settings. Active lifestyles, including stimulating play, sports and recreation as well as free leisure time, are viewed by the UNCRC as important opportunities for the physical, social, emotional and cognitive development of young children. They are therefore central to the principle of the young child as an active social participant and rights holder. The indicator tracks the measures that have been taken by the government to provide for the child's right to play through access to adequate and appropriate play opportunities.
Unit of measurement	Number (Count)
Disaggregation	Type of playing field, ownership (public, community, private, etc), region
Data Source	Progress reports, annual statistical abstracts, and special mapping or surveying of such playing fields Federal Sports Commission, MOLSA and MoWCYA may collect and report data on outdoor playing fields that are not in schools. Ministry of Education may capture sport playing fields at schools.
Reporting Entity	Federal Sports Commission, MOWCYA, Ministry of Culture and Tourism, MoLSA, Ministry of Education
Frequency of	Annually

Reporting	
Limitation	Data on this indicator is not being collected in a coordinated manner. Hence, bringing together the relevant stakeholders is important to ensure regular supply of data needed to track the indicator. In addition, operational definition about children's playing field was not available. The indicator may also be tracked under the first indicator in this domain that tracks the number of childfriendly recreational, sport, theatre, public library, culture and art facilities/centers

CWB MIS Indicator Domain 4: Health and Nutrition

Indicator 25:Under-5 Mortality Rate

Definition	The number of deaths among children under five years expressed as a proportion of all children. It refers to the under-five mortality rate refers to the probability of dying before age 5 years per 1,000 newborns.
Formula	The number of deaths among children under five years divided by total number of under-five children. This indicator is expressed as the number of deaths among children under five in a given year, per 1000 live births.
Rationale	The under-five mortality rate is a leading indicator of child health and overall human development. It is indicative of government commitment to health. The fourth Millennium Development Goal (MDG) indicator is: 'Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate'. The under-five mortality rate is one of the indicators included in the Human Assets Index and is therefore one of the quantitative criteria for the identification of least developed countries within the United Nations. Under-five mortality rate is a key impact indicator used globally for multiple purposes, including the MDGs. This indicator measures the ultimate impact at the population level. The use of this indicator also reflects Ethiopian government's commitment to contributing to improve the health of children.
Data Source	Generating accurate estimates of under-five mortality poses a considerable challenge because of limitations in data availability and quality. Ethiopia, like many developing countries, lacks vital registration systems that accurately record all births and deaths. Therefore, population censuses and household surveys Demographic and Health Surveys (DHS) are the primary source of data on child mortality.
Data Supplying Organization	CSA, MoH
Disaggregation	Region, sex
Frequency of Reporting	Every Five Years
Limitation of the Indicator	A weakness of this indicator is that many other factors affect the country's under five mortality rate—including poverty, conflict, nutrition and many other factors. In addition, there are many challenges related to measurement. This indicator may also be slow in responding to policy changes given that it is at the end of a long results chain and frequently measured through surveys which reflect child mortality from earlier time periods.

Indicator 26:Proportion of births attended by skilled health personnel

Definition	Proportion of births attended by skilled health personnel.
Formula	*The number of births attended by skilled health personnel* / *number of expected live births* *X 100 Total*
Rationale	All women should have access to skilled care during pregnancy and childbirth to ensure prevention, detection and management of complications. Assistance by properly trained health personnel with adequate equipment is key to lowering maternal deaths. As it is difficult to accurately measure maternal mortality, andmodel-based estimates of the maternal mortality ratio cannot be used for monitoring short-term trends, the proportion of births attended by skilled health personnel is used as a proxy indicator for this purpose. This is an MDG indicator. A *skilled personnel* is defined as a health professional (such as a midwife, nurse, health officer or doctor) who has been trained in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns. This definition excludes health extension workers, traditional birth attendants, whether trained or not.
CRC and ACRWC Reference	Article 23 sub article 1 to 4 of CRC and Article 14 sub article 1&2 of ACRWC require States Parties recognize the right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health by taking appropriate measures to diminish infant and child mortality; ensure the provision of necessary medical assistance and health care to all children with emphasis on the development of primary health care; combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution; ensure appropriate pre-natal and post-natal health care for mothers; ensure that all segments of society, in particular parents and children, are informed, have access to education and are supported in the use of basic knowledge of child health and nutrition, the advantages of breastfeeding, hygiene and environmental sanitation and the prevention of accidents; develop preventive health care, guidance for parents and family planning education and services; and abolish traditional practices prejudicial to the health of children.
Disaggregation	Region
Primary Data Source	Delivery register
Secondary Data Source	HMIS, DHS
Data Sources	MoH, CSA
Frequency of Reporting	Annually

Indicator 27:Full immunization coverage among 1-year-olds

Definition	Proportion of surviving infants who receive all doses of antigens before their first birthday.
Formula	*Number of children received all vaccine doses before 1st birthday* *X 100 Total number of surviving infants*
Rationale	Providing all of these vaccines before a child reaches the first birthday is one of immunization program's main objectives. Receipt of all of these doses of infant antigens protects a child from major causes of childhood morbidity and mortality. The infant antigens are BCG; pentavalent (DPT-HepB-Hib) doses 1-3; OPV doses 1-3; and measles. *Surviving infants* refers to infants who survive to their first birthday.
Disaggregation	Facility type: health post, health center, hospital
Primary Data Sources	Family Folder, Immunization register and tally sheets
Data Sources	HMIS and DHS
Data Supplying Organization	FMoH and CSA
Frequency of Reporting	Annually

Indicator 28:Antenatal care coverage – at least four visits

Definition	The percentage of women that received antenatal care at least four or more times during pregnancy.
Formula	*The number of pregnant women that received antenatal care four or more times. X 100* *Total number of expected pregnancies*
Rationale	Antenatal care coverage is an indicator of access and use of health care during pregnancy. The antenatal period presents opportunities for reaching pregnant women with interventions that may be vital to their health and wellbeing and that of their infants. Receiving antenatal care at least four times increases the likelihood of receiving effective maternal health interventions during antenatal visits. This is an MDG indicator.

CRC and ACRWC Reference	Article 23 sub article 1 to 4 of CRC and Article 14 sub article 1&2 of ACRWC require States Parties recognize the right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health by taking appropriate measures to diminish infant and child mortality; ensure the provision of necessary medical assistance and health care to all children with emphasis on the development of primary health care; combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution; ensure appropriate pre-natal and post-natal health care for mothers; ensure that all segments of society, in particular parents and children, are informed, have access to education and are supported in the use of basic knowledge of child health and nutrition, the advantages of breastfeeding, hygiene and environmental sanitation and the prevention of accidents; develop preventive health care, guidance for parents and family planning education and services; and abolish traditional practices prejudicial to the health of children.
Disaggregation	Region
Data Sources	HMIS, ANC register and ANC tally sheet
Data Supplying Organization	FMOH
Frequency of Reporting	Annually

Indicator 29:Contraceptive acceptance/prevalence rate

Definition	The proportion of women of reproductive age (15-49 years) who are not pregnant who are accepting a modern contraceptive method (new and repeat acceptors).
Formula	*Number of new and repeat acceptors* *X 100 Total number of women of reproductive age who are not pregnant*

Rationale	This indicator is directly related to operations: for contraception utilization (and prevalence) to increase, the numbers of both new and repeat acceptors should increase. Each acceptor is counted only once, the first time s/he receives contraceptive services in the calendar year. "*New acceptors*" refers to the number of acceptors who receives family planning services from a recognized program for the first time. This is not the number of consultations. Each acceptor is enumerated once in the year, at the first consultation for contraception in the calendar year that includes receipt of contraceptive supplies or routine checkup for ongoing use of a long term method such as Norplant, IUD, etc. "*Repeat acceptors*" refers to the number of acceptors who received family planning services and who first received a contraceptive method from a family planning program in a previous year. New and repeat contraceptive acceptors are reported as two separate counts, so it is possible to calculate each rate separately as needed. Acceptor data reported from NGOs and other community-based non MOH sources can also be included in this calculation.
Disaggregation	Region
Data Sources	HMIS, DHS
Data Supplying Organization	FMOH, CSA
Frequency of Reporting	Annually

Indicator 30:Percentage of HIV-infected pregnant women who received antiretroviral medicines to reduce the risk of mother-to-child transmission, among the estimated number of HIV-infected pregnant women.

Definition	Percentage of HIV-infected pregnant women who received antiretroviral medicines to reduce the risk of mother-to-child transmission, among the estimated number of HIV-infected pregnant women.
Formula	*Number of HIV+ Pregnant women who received ARV drugs to reduce the mother to child transmission X 100* *Estimated number HIV infected pregnant women*

Rationale	In the absence of any preventive interventions, infants born to and breastfed by women living with HIV have roughly a one in three chance of acquiring infection themselves. This can happen during pregnancy, during labor and delivery or after delivery through breastfeeding. The risk of mother to child transmission can be significantly reduced through the complementary approaches of providing antiretroviral prophylactic regimens for the mother with or without prophylaxis to the infant, implementing safe delivery practices and using safe alternatives to breastfeeding. Antiretroviral prophylaxis followed by exclusive breastfeeding may also reduce the risk of vertical transmission when breastfeeding is limited to the first six months. There are two general antiretroviral treatment options that HIV-infected women can receive for the prevention of mother-to-child transmission in Ethiopia: (1) prophylactic regimens using a combination of antiretroviral drugs; and (2) antiretroviral therapy for HIV-positive pregnant women eligible for treatment.
Disaggregation	Region
Primary Data Sources	ANC, Delivery and PNC registers
Secondary Data Sources	HMIS, Multi-Sectoral Response Information System (MRIS)
Data Supplying Organization	FMOH, FHAPCO
Frequency of Reporting	Annually

Indicator 31:Maternal deaths (institutional)

Definition	The proportion of female deaths from any cause related to or aggravated by pregnancy or its management
Formula	*Number of maternal deaths in health institution* *X 100 Total number of deliveries in health Institution*
Rationale	Maternal death is the death of a woman from conditions caused or aggravated by pregnancy, which occurs from time of conception to six weeks postpartum, but not from incidental or accidental causes. The cause of death could be direct – abortion, hemorrhage, hypertension, obstructed labor or sepsis; or could be indirect like heart disease aggravated by pregnancy, or malaria in pregnancy. Ideally, the institutional proportion of maternal deaths should be less than 1%. Five major obstetric complications are known to be the major cause of maternal mortality: hemorrhage (post-partum, ante-partum), ruptured uterus, eclampsia, obstructed labor, infection. These conditions are in the HMIS disease classification list for inpatient morbidity and mortality. The fatality rate for all five conditions taken together should be less than 1% of all deliveries. The reasons for every maternal death in a health institution should be investigated and appropriate quality/service improvements measures taken.
Disaggregation	Region, facility type*:* health post, health center, hospital
Primary Data Sources	Inpatient department registers. To capture all maternal deaths it is essential to review death registers from surgical, medical, obstetric, and gynecological wards, from OPD (for deaths before admission), and from the delivery register.

Primary Data Sources	ANC, Delivery and PNC registers
Secondary Data Sources	HMIS, Multi-Sectoral Response Information System (MRIS)
Data Supplying Organization	FMOH, FHAPCO
Frequency of Reporting	Annually
Remark	This indicator should be compared with maternal deaths determined and reported in the Demographic and Health Survey every five years.

Indicator 32:Pre-Pregnancy HIV Testing Rate

Definition	Percentage of pregnant women who were tested for HIV and who know their results
Formula	*Number of pregnant women tested and know their result* / *Total number of pregnant women who received antenatal care at least once* X 100
Interpretation	Mother-to-child transmission of HIV infection can occur during pregnancy, labor and delivery or during breastfeeding. The risk of mother-to-child transmission can be reduced by a range of interventions, including providing antiretroviral prophylaxis to women during pregnancy and labor and to the infant in the first weeks of life; obstetrical interventions, including elective caesarean delivery; and completely avoiding breastfeeding. Receiving HIV testing and counseling services as early as possible during pregnancy enables pregnant women living with HIV to benefit from HIV services and to access interventions for reducing HIV transmission to their infants. The numerator is the sum of the following: a) Pregnant women who received an HIV test and result during antenatal care; b) Pregnant women attending labor and delivery with unknown HIV status who were tested for HIV in the labor and delivery facility and received their result; c) Women with unknown HIV status attending postpartum services within 72 hours of delivery who were tested for HIV and received their result; and d) Pregnant women with known HIV infection attending antenatal care for a new pregnancy.
Disaggregation	Region
Primary Data Sources	ANC, Delivery and PNC registers
Secondary Data Sources	HMIS, Multi-Sectoral Response Information System (MRIS)
Data Supplying Organization	FMOH, FHAPCO
Frequency of Reporting	Annually

Indicator 33:Proportion of households with access to any type of latrine facilities

Definition	Proportion of households with access to any type of latrine facilities
Formula	*Number of households with any type of latrine facilities (both unimproved and improved)* X 100 *Total number of households*
Rationale	Use of latrines is known to reduce the morbidity of communicable diseases, particularly those transmitted by the fecal oral route, such as diarrhea, hepatitis, etc. Access to a latrine must be accompanied by appropriate utilization and availability of hand washing facilities after use. This is usually assessed by survey; in Ethiopia, routine visits to each household by Health Extension Workers (HEWs) offer an alternative method to surveys.
Disaggregation	Region
Source	HMIS, National Water Monitoring and Information Network (NWMIN), DHS
Data Supplying Organization	MoH, Ministry of Water, Energy and Irrigation, and CSA
Frequency of Reporting	Annually

Indicator 34:Children aged 6-59 months who received vitamin A supplementation

Definition	Proportion of children aged 6–59 months who received a dose of vitamin A supplement
Formula	*Total number of children aged 6-59 months who received a dose of Vitamin A supplementation in the reporting period* X100 *Estimated number of children aged 6-59 months*
Interpretation	Supplementation with vitamin A is considered to be a critically important intervention for child survival owing to the strong evidence that exists for its impact on reducing child mortality. Therefore, measuring the number of children who have received vitamin A within is crucial for monitoring coverage of interventions towards the child survival-related Millennium Development Goals and Strategies.
Disaggregation	Region
Primary Data Source	Family folder; Nutrition registers
Secondary Data Source	HMIS
Data Supplying Organization	FMOH
Frequency of Reporting	Annually

Indicator 35:Number of children who received testing and counseling services

Definition	Number of children who received testing and counseling services and who received their test results
Measurement	*Number of children who have been tested for HIV and who received their results*
Interpretation	This indicator is intended to monitor trends in the uptake of HIV testing and counseling services over time, regardless of how testing and counseling services are delivered. Data should be generated by counting the total number of children who received HIV testing and counseling from any service delivery point. Service delivery points could include fixed health care facilities such as, hospitals, public and private clinics, OPD, VCT, ANC, L&D, PMTCT, or TB sites; standalone sites such as free standing sites not associated with medical institutions; and, mobile testing such as, HIV T&C services offered in a specific location for a limited period of time, e.g. outreach, door-to-door services and workplace testing events. All individuals receiving T&C should be counted in this indicator regardless of where the service is provided. These individuals will include TB patients, pregnant women, and infants. Adequately collecting data for this indicator requires a minimum provision of the following services: counseling, testing, returns and receipt of test results.
Disaggregation	Age and region
Primary Data Source	Facility VCT, PMTCT, TB and PITC records.
Secondary Data Source	HMIS, Multi-Sectoral Response Information System (MRIS)
Data Supplying Organization	FMOH, FHAPCO
Frequency of Reporting	Annually
Remark	The indicator is being tracked by FMOH for the whole population disaggregated by sex. Hence, the data collected for the indicator will provide the information needed for this indicator

Indicator 36:Incidence of diarrhea among children under five

Definition	Percentage of children under age five who had diarrhea in the two weeks preceding the survey,
Formula	*Total number of children under 5 years of age with diarrhea, in the twoweek period before the survey.* X100 *Total number of children surveyed*

Rationale	Diarrhea and related gastrointestinal illnesses continue to be one of the most important causes of illness and death worldwide, especially amongst young children. World health organization estimates that 88% of all diarrhea diseases are due to unsafe water supply, inadequate sanitation and poor hygiene practices. Much of this illness is due to exposures to contaminated water or food, as a result, for example, of poor water quality, limited access to water, poor food hygiene and safety, or poor sanitation in the home. Dehydration from diarrhea is a major cause of death in infancy and childhood in Ethiopia. The 2011 EDHS also revealed that children under age five were reported to have had diarrhea, in the two-week period before the survey.
Disaggregation	Region, sex
Data Source	HMIS, DHS
Data Supplying Organization	MoH, CSA
Frequency of Reporting	Annually, Five Years
Limitations	As with almost all measures of morbidity, a major problem with this indicator is data availability and quality. Routine reporting of diarrheal diseases tends to be patchy, largely because many cases may not be referred to health facilities but may be treated either in the home. Diarrheal diseases also take many different forms and can occur in association with a wide array of other illnesses, so differences in diagnosis can occur, affecting the reported disease rates. In the 2011 EDHS mothers were asked whether any of their children under age five had diarrhea at any time during the two-week period preceding the survey. The validity of this indicator is affected by the mother's perception of diarrhea as an illness and her capacity to recall the events. Moreover, the prevalence of diarrhea varies seasonally. Thus, the data obtained from the EDHS should be interpreted with caution.

Indicator 37:Mean Duration of Breastfeeding

Definition	Mean duration in months of breastfeeding among children
Formula/ Measurement	The estimates of mean durations of breastfeeding are based on current status data, that is, the proportion of children last-born in the three years preceding the survey who were being breastfed at the time of the survey.

Rationale	Infant feeding affects both the mother and the child. Feeding practices affect the child's nutritional status, which in turn affects the risk of death. The duration and intensity of breastfeeding affect the mother's period of postpartum infertility, and hence the length of the birth interval and fertility levels. UNICEF and WHO recommend that children be exclusively breastfed during the first 6 months of life. Exclusive breastfeeding is recommended because breast milk is uncontaminated and contains all the nutrients necessary in the first few months of life. In addition, the mother's antibodies in breast milk provide the infant with immunity to disease. This indicator is intended to collect information on efforts made to construct, implement and evaluate the effectiveness of their inter-sectoral plan for the promotion and protection of breastfeeding.
Disaggregation	Region
Primary Data Source	The Ethiopian Demographic and Health Survey (EDHS) is the major source of data for the indicator. The 2011 EDHS asked questions about early initiation of breastfeeding, exclusive breastfeeding during the first six months of life, and continued breastfeeding until at least age 2. Interviewers obtained information by asking mothers about the current breastfeeding status of all children under 5 years of age and, for the youngest child born in the two-year period before the survey and living with the mother.
Data Supplying Organization	CSA
Frequency of Reporting	Every five years
Limitations	The validity of this indicator is affected by the mother's capacity to recall the breastfeeding durations.

Indicator 38:Infant Mortality Rate

Definition	Probability (expressed as a rate per 1,000 live births) of a child born in a specific year or period dying before reaching the age of one, if subject to age-specific mortality rates of that period.
Formula	$\frac{\textit{Deaths at ages below 12 months}}{\textit{Number of surviving children at beginning of specified age range during the five years prior to survey}} \times 1000$
Rationale	One of the targets of the Millennium Development Goals (MDGs) is to reduce the under-five mortality rate by two-thirds between 1990 and 2015. The infant mortality rate is an important measure of the well-being of infants, children, and pregnant women because it is associated with a variety of factors, such as maternal health, quality and access to medical care, socioeconomic conditions, and public health practices. Infant mortality rates measure child survival and reflects the social, economic and environmental conditions in which children (and others in society) live, including their health care. Since data on the incidence and prevalence of diseases (morbidity data) frequently are unavailable, mortality rates are often used to identify vulnerable populations. Infant mortality rate is an MDG indicator.
Disaggregation	Sex and region
Measurement and Primary Data Source	Civil registration systems are the preferred source of data on infant mortality. Give the lack fully functioning registration systems that accurately record all births and deaths.in Ethiopia, however, household surveys, such as Demographic and Health Surveys (DHS) and census are the primary source of data on infant mortality.
Data Supplying Organization	CSA
Frequency of Reporting	Every Five Years
Limitation	Estimates of infant and child mortality in the EDHS that are based on retrospective birth histories are subject to possible reporting errors that may adversely affect the quality of the data. The estimates may be affected by the completeness with which births and deaths are reported and recorded, as well as the accuracy of information on current age and the age at death for children who died. A lack of accurate information on the age at death may distort the age pattern of mortality. Another potential data quality problem about the indicator is the selective omission from the birth histories of births that did not survive, which can lead to underestimation of mortality rates. Displacement of birth dates may cause a distortion of mortality trends. This can occur if an interviewer knowingly records a death as occurring in an earlier year, which would happen if an interviewer is trying to cut down on the overall workload, because a lengthy set of additional questions is asked about live births occurring during the five years preceding the interview.

Indicator 39:Percentage of children under five who are underweight

. Definition	Proportion of under-five children whose weight-for-age is below minus two (−2 SD) standard deviations (moderately malnourished) and minus three (−3 SD) standard deviations (severely malnourished) from the median weight-for-age of the reference population
Formula	*Number of under five children that meet the criteria for underweight* X100 *Total number of children under five years surveyed*
Rationale	The nutritional status of children under age five is an important outcome measure of children's health. Child growth is the most widely used indicator of nutritional status in a community and is internationally recognized as an important publichealth indicator for monitoring health in populations. In addition, children who suffer from growth retardation as a result of poor diets and/or recurrent infections tend to have a greater risk of suffering illness and death. This indicator belongs to a set of indicators whose purpose is to measure nutritional imbalance and malnutrition resulting in under-nutrition (assessed by underweight). The indicator allows identification of subgroups of the child population that are at increased risk of faltered growth, disease, impaired mental development, and death.
Disaggregation	Region and sex
Primary Data Source	The anthropometric data on height and weight collected by EDHS permit the measurement and evaluation of the nutritional status of young children. The 2011 EDHS collected data on the nutritional status of children by measuring the height and weight of all children under age five. The nutritional status of children were calculated using new growth standards published by the World Health Organization (WHO) in 2006. Data were collected to calculate weight-for-age expressed as standard deviation units from the median for the reference group. Children who fall below minus two standard deviations (−2 SD) from the median of the reference population are regarded as moderately malnourished, while those who fall below minus three standard deviations (−3 SD) from the median of the reference population are considered severely malnourished.
Data Supplying Organization	CSA
Frequency of Reporting	Every five years

Indicator 40:Percentage of children under-five who are stunted

Definition	Proportion of under-five children whose height-for-age is below minus two ((−2 SD) standard deviations (moderate and severe) and minus three (−3 SD) standard deviations (severe) from the median height-for-age of the reference population
Formula	*Number of under five children that meet the criteria for stunting* X100

	Total number of children under five years surveyed
Rationale	Good nutrition is the cornerstone for survival, health and development. Wellnourished children perform better in school, grow into healthy adults and in turn give their children a better start in life. Many of the Millennium Development Goals (MDGs) – particularly MDG 1, to eradicate extreme poverty and hunger, and MDG 4, to reduce child mortality – will not be reached unless national development programs and strategies give priority to the nutrition of women and children. Child growth is the most widely used indicator of nutritional status in a community and is internationally recognized as an important public-health indicator for monitoring health in populations. This indicator belongs to a set of indicators whose purpose is to measure nutritional imbalance and malnutrition resulting in under-nutrition (assessed by stunting).
Measurement and Data Sources	The 2011 EDHS collected data on the nutritional status of children by measuring the height and weight of all children under age five. Data were collected to calculate height-for-age to determine linear growth retardation and cumulative growth deficits in children. Children whose height-for-age Z-score is below minus two standard deviations (−2 SD) from the median of the WHO reference population are considered short for their age (stunted), or chronically malnourished. Children who are below minus three standard deviations (−3 SD) are considered severely stunted. Stunting reflects failure to receive adequate nutrition over a long period of time and is affected by recurrent and chronic illness. Height-for-age, therefore, represents the long-term effects of malnutrition in a population and is not sensitive to recent, short-term changes in dietary intake.
Disaggregation	Region and sex
Data Supplying Organization	CSA
Frequency of Reporting	Every five years
Limitation	*The percentage of children with low height-for-age reflects the cumulative effects of undernutrition and infections since birth, and even before birth. This measure, therefore, should be interpreted as an indication of poor environmental conditions and/or long-term restriction of a child`s growth potential. The percentage of children with low weight-for-age may reflect the less common 'wasting' (i.e. low weight-for-height) indicating acute weight loss, and/or the much more common 'stunting' (i.e. low height-for-age). Thus, it is a composite indicator that is difficult to interpret.*

Indicator 41:Percentage of children under-five who are wasted

Definition	Proportion of under-five children whose weight-for-height is below minus two ((−2 SD) standard deviations (wasted) and minus three (−3 SD) standard deviations (severely wasted) from the median weight-for-height of the reference population
Formula	*Number of under five children that meet the criteria for wasting* X100 *Total number of children under five years surveyed*
Rationale	Good nutrition is the cornerstone for survival, health and development. Wellnourished children perform better in school, grow into healthy adults and in turn give their children a better start in life. Many of the Millennium Development Goals (MDGs) – particularly MDG 1, to eradicate extreme poverty and hunger, and MDG 4, to reduce child mortality – will not be reached unless national development programs and strategies give priority to the nutrition of women and children. Child growth is the most widely used indicator of nutritional status in a community and is internationally recognized as an important public-health indicator for monitoring health in populations. This indicator belongs to a set of indicators whose purpose is to measure nutritional imbalance and malnutrition resulting in under-nutrition (assessed by wasting).
Measurement and Data Sources	The 2011 EDHS collected data on the nutritional status of children by measuring the height and weight of all children under age five. Data were collected to calculate weight-for-height to measure body mass in relation to body height or length and describe current nutritional status. Children with Z-scores below minus two standard deviations (−2 SD) are considered thin (wasted) or acutely malnourished. Wasting represents the failure to receive adequate nutrition in the period immediately preceding the survey and may be the result of inadequate food intake or a recent episode of illness causing loss of weight and the onset of malnutrition. Children with a weight-for-height index below minus three standard deviations (−3 SD) are considered severely wasted.
Disaggregation	Region and sex
Data Supplying Organization	CSA
Frequency of Reporting	Every five years
Limitation	The percentage of children with low height-for-age reflects the cumulative effects of under-nutrition and infections since birth, and even before birth. This measure, therefore, should be interpreted as an indication of poor environmental conditions and/or long-term restriction of a child`s growth potential. The percentage of children with low weight-for-age may reflect the less common 'wasting' (i.e. low weight-for-height) indicating acute weight loss, and/or the much more common 'stunting' (i.e. low height-for-age). Thus, it is a composite indicator that is difficult to interpret.

Indicator 42:Pediatric ART coverage

Definition	Percentage of HIV-positive children under 15 years with advanced HIV infection receiving antiretroviral therapy
Formula	$\frac{\text{Number of children with advanced HIV infection who are currently receiving antiretroviral therapy in accordance with the nationally approved treatment protocol at the end of the reporting period}}{\text{Estimated number of children with advanced HIV infection}} \times 100$
Rationale	It is crucial for HIV-positive children to receive antiretroviral treatment (ART) early. This indicator is a measure of children's access to ART. It is defined as the proportion of newly infected children starting ART.
Disaggregation	Sex and Region
Measurement and Data Source	ART Register is the primary source of data for the indicator. Data for this indicator is generated by counting the number of children who are currently receiving ART in accordance with the nationally approved treatment protocol at the end of the reporting period. Patients who have died, stopped treatment, transferred out or are lost to follow-up (patient not seen for 3 months from last visit) are **NOT** counted. Patients on ART who initiated or transferred in during the reporting period should be counted. ART taken only for the purpose of prevention of mother-to-child transmission and post-exposure prophylaxis are not included in this indicator.
Secondary Data Source	HMIS
Data Supplying Organization	MoH
Frequency of Reporting	Annually

Indicator 43:Number of special needs children who received medical rehabilitation and awareness raising services

Definition	Number of children with special needs who received medical rehabilitation and awareness raising services
Formula	The indicator is calculated by counting the total number of children with special health care needs that have received medical and psychological rehabilitation, assistive devices and awareness raising services during the reporting period. The term, "children with special needs," includes those with a broad range of chronic health conditions, from major physical or developmental disabilities to often less limiting conditions.
Rationale	Different line ministries need different types of information on disability to enable them to target their resources where they are most needed. The lack of reliable information impacts severely on the planning and development of services and intervention strategies aimed not only at preventing disability, but at creating an enabling environment for the equalization of opportunities. In addition, the Convention on the Rights of the Child (CRC) recognizes the human rights of all children, including those with disabilities. The Convention contains a specific article recognizing and promoting the rights of children with disabilities. Article 23 of the CRC refers to the obligations of States parties and recognizes that a child with mental or physical disabilities is entitled to enjoy a full and decent life, in conditions that ensure dignity, promote self-reliance and facilitate the child's active participation in the community. Along with the CRC, the Convention on the Rights of Persons with Disabilities (CRPD), adopted by the United Nations General Assembly in December 2006, provides a powerful new impetus to promote the human rights of all children with disabilities. One of the greatest hurdles disabled people face when trying to access mainstream programs are negative attitudes. It is these attitudes that lead to the social exclusion and marginalization of people with disabilities. Negative attitudes are continually reinforced. Disability is portrayed as a 'problem'. People with disabilities are viewed as helpless and dependent; as ill and in constant need of care and medical treatment, or as tragic victims. Culture plays an important role in the way we relate to people with disabilities. This contributes to the perception of people with disabilities as different or 'outsiders'. Attitude changing is a complex process which involves moving, in a series of stages, from one set of attitudes to another. Public education and awareness are central to the changing of attitudes. Moreover, appropriate, accessible and affordable health services at primary, secondary and tertiary level are essential to the equalization of opportunities for children with disabilities. Such services should include general medical and nursing assistance on an in-patient, out-patient or community home care basis, and specialized health professional assistance. Where the disability permits, special forms of assistance such as medical and psychological rehabilitation and assistive

	devices may be offered. Rehabilitation is the word used to describe ways of helping children with disabilities to become fully participating members of society, with access to all the benefits and opportunities of that society.This means that disabled children should have access to such benefits as early childhood development opportunities, education and training opportunities, job opportunities, and community development programs. Medical rehabilitation is an essential part of the rehabilitation process. It involves detailed and timely diagnosis and a whole range of specialized treatments and appropriate techniques. Access to appropriate rehabilitation services can make the difference between leading an isolated and economically dependent life and leading an economically independent life and playing an active role in society. Medical rehabilitation may occur within the primary health care delivery system, and as specialist services within the secondary and tertiary health service delivery system. Psychological rehabilitation focuses on mental health and is used to assist people with brain injuries and/or psychiatric illnesses. Assistive/rehabilitation technology enables children with disabilities to participate on equal terms. In other words, if children with disabilities are to access their rights and responsibilities and participate in society as equal citizens, they must have access to appropriate and affordable assistive devices. Hence, the production, supply and maintenance of assistive devices is critical for integration of children with disabilities into mainstream socio-economic structures.
Disaggregation	Type of support received (medical rehabilitation, assistive devices and awareness raising) and region
Data Source	The National Census, in conjunction with routine monitoring and evaluation reports of the government CSOs and development partners, will provide the necessary information about the provision of rehabilitation and awareness raising services for children with disabilities.
Data Supplying Organization	MoLSA, MoWCYA, MoH,
Frequency of Reporting	Annually

CWB MIS Indicator Domain 5: Child Rights and Protection

Indicator 44:Percentage of children whose birth is registered

Definition	Percentage of under-5 children whose birth has been registered
Numerator	Number of under-5 children whose birth has been registered on a given date
Denominator	Total number of under-5 children

Rationale	A legal framework for vital events registration plays an important role in delivering the basic human rights set out in the Constitution of the FDRE (Federal NegaritGazeta, 1995), the Revised Family Law (Federal NegaritGazeta, 2000), international human rights instruments ratified by Ethiopia, and in several UN declarations, covenants and resolutions. Article 7 of the CRC, for example, specifies that every child has the right to be registered at birth without any discrimination. Birth registration, the official recording of a child's birth by the government, establishes the existence of the child under law and provides the foundation for safeguarding many of the child's civil, political, economic, social and cultural rights. Registering a child's birth is a vital step towards his or her protection. Apart from being the first legal acknowledgement of a child's existence, birth registration is central to ensuring that children are counted and have access to basic services such as health, social security and education. In effect, birth registration is their 'passport to protection.' Children and adults whose births have not been registered are effectively invisible in the eyes of the State. That often puts them beyond the reach of the protection and services to which they have a right, such as health care and education. It may also prevent them from exercising their rights as citizens later in life (UNICEF, 2009)[2]**.** Provisions for the registration of vital events were included in the Ethiopian Civil Code enacted in 1960 (Federal NegaritGazeta, 1960)[3]. The 1960 Civil Code made it compulsory to register births, deaths and marriages. However, Article 3361 of the same 1960 Civil Code prohibited those articles pertaining to civil registrations coming into force until an official order was issued. The order to activate these articles never came. Thus, for several decades, municipalities of big cities and towns had been issuing certificates of births, deaths, marriages and divorces without proper registration anchored in a national law. In 2000, the Revised Family Law (Federal NegaritGazeta, 2000)[4] was enacted. It had incorporated provisions for the registration of marriages and births. It also requested the Federal Government to issue registration law that would establish the Office of Civil Status. In August 2012, the Federal Democratic Republic of Ethiopia (FDRE) issued the *Registration of Vital Events and National Identity Card Proclamation No. 760/*2012,, which is a
	comprehensive and compulsory law on registrations of vital events in Ethiopia (Federal NegaritGazeta, 2012)[5].
Unit of Measurement	Percentage
Frequency of reporting	Annually
Data source	Civil and Vital Registration System, Health Facilities, Municipals

Responsible body for data collection	The Ethiopian Federal Democratic Republic Vital Events Registration Agency. Articles 3 and 5 of Regulation No. 278/2012 establishes the Ethiopian Federal Democratic Republic Vital Events Registration Agency (VERA) as the federal public administration autonomous organ to direct, coordinate and support the registration of vital events at national level, and to centrally organize and keep records of vital events. Until the agency goes operational, data for the indicator may be collected from the Ministry of Health and Municipals, although such information may not provide a complete picture.
Responsible body for reporting	Central Statistical Agency (CSA). CSA has been the main agency for collection and compilation of official statistics, including vital statistics from population and housing census and household surveys. It is also charged by law to coordinate the country's statistical activities to ensure use of uniform statistical concepts, definitions and classifications nation-wide. Hence, the information gathered by the vital events registration organs would be compiled for statistical purposes by CSA.
Disaggregation	Sex and region

Indicator 45:Proportion of children without adequate parental care that received alternative care and support service

Definition	Children without adequate parental care refers to all children not in the overnight care of at least one of their parents, for whatever reason and under whatever circumstances. Children without adequate care includes those living in child-headed households, homeless children and children living in institutions. Supports provided to children without adequate parental care may include the provision of alternative care, psychological rehabilitation and others. Alternative care[6] may take the form of formal care where all care provided in a family environment which has been ordered by a competent administrative body or judicial authority, and all care provided in a residential environment, including in private facilities, whether or not as a result of administrative or judicial measures. With respect to the environment where it is provided, alternative care may be (i) kinship care: family-based care within the child's extended family or with close friends of the family known to the child, whether formal or informal in nature; (ii) foster care: situations where children are placed by a competent authority for the purpose of alternative care in the domestic environment of a family other than the children's own family that has been selected, qualified, approved and supervised for providing such care; (iii) other forms of family-based or family-like care placements such as adoption; (iv) residential care: care provided in any non-family-based group setting, such as places of safety for emergency care, transit centers in emergency situations, and all other short- and long-term residential care facilities, including group homes; and (v) supervised independent living arrangements for children. Other supports provided to children without adequate parental care may include reintegration and reunification services.
Numerator	Total number of children below age 18 without adequate parental care that received alternative care and other support services
Denominator	Total number of children below age 18 without adequate parental care
Rationale	Where a child is temporarily or permanently deprived of his/her family environment, the child is entitled to special protection and assistance, and the government is responsible for providing appropriate non-institutional or institutional alternative care to such children, with or through government and other duly authorized institutions in accordance with its national laws. Additionally a number non-governmental organizations also intervene in providing one or more of the types of alternative care services. The indicator,
	therefore, tracks the number children taken care by this service in accordance of the 2009 revised alternative childcare guideline of the MoWCYA.

[6] United Nations (UN), Guidelines for the Alternative Care of Children, Resolution adopted by the General Assembly, February 2010

Unit of Measurement	Percentage (%)
Data Source	Existing MIS of justice system authorities, HAPCO, MOLSA, MOWCYA and others may provide some data needed to measure the indicator. To make it comprehensive and have information on children living without adequate parental care, however, a survey of children living without parental care, and survey of children living in institutions is necessary.
Data Supplying Organization	CSA and MoWCYA
Frequency of Reporting	Annually
Disaggregation	Type of support service, nationality, sex and age

Indicator 46:Proportion of children receiving humanitarian assistance in hotspot areas, including refugee camp

Definition	Proportion of children receiving humanitarian assistance in hotspot areas, including refugee camps
Formula	Number of children receiving humanitarian assistance in hotspot areas, including refugee camps divided by total number of children living in hotspot areas, including refugee camps. Areas are classified as hotspot based on a combination of factors including high food insecurity, moderate to high levels of malnutrition rates, admission trends in therapeutic feeding programs and other vulnerabilities.
Rationale	Emergencies caused by man-made and natural disasters result in serious threats to the psychological and social well-being of children, their families and communities. Children may experience psychological difficulties because of a number of factors, including death, injury, displacement, the destruction of one's home or school, and the suspension of essential services. Emergencies can also disrupt social institutions, deprive families of their livelihoods, create tension and divisions within communities, and cause the rule of law to collapse. Such disasters destroy homes and communities, create conditions in which disease can spread, keep children out of school and destroy the social systems that protect vulnerable children. Children may be separated from their families or may lose official documents necessary for them to gain access to humanitarian assistance. Separated and unaccompanied children, especially child-headed households, are inevitably more vulnerable to economic or sexual exploitation and abuse.
Unit of Measurement	Percentage
Frequency of reporting	Annually

Data source	Refugee and Returnee Affairs Authority; Disaster Risk Management and Food Security Sector (DRMFSS); United Nations Children's Fund (UNICEF); United Nations High Commissioner for Refugees (UNHCR); International Organization for Migration (IOM); and World Food Programme (WFP)
Disaggregation	Sex, age, region and nationality

Indicator 47:Number of children in correction and rehabilitation centers

Indicator	Number of children in correction and rehabilitation centers
Definition	Number of children in detention and rehabilitation centers refers to all children under age 18 in detention and rehabilitation centers on a particular date, whether held pre-trial, pre-sentence or after sentencing.
Measurement	This indicator requires the collection of snapshot information (information showing the situation on a specific date). The information required for measurement is the total number of children in detention and rehabilitation centers. If possible, information should be collected from sufficient information sources to cover the whole number of children in detention and rehabilitation centers in the country. However, where this is not achievable, the number of children detained in a representative sample of places of detention can be used to estimate the actual number of children in detention and rehabilitation centers.
Rationale	Children in detention are especially vulnerable to its negative influences, including loss of liberty and separation from the usual social environment and higher risks to be subjected to abuse. International standards clearly state that detention of children shall only be used as a measure of last resort. Measurement of the number of children in detention helps in monitoring progress towards reduction of the use of deprivation of liberty and informing policy change. This indicator provides information on the number of children in detention and rehabilitation centers which includes children detained pretrial, pre-sentence and post-sentencing in any type of facility (including police custody). In addition, the indicator helps to get further useful information about the appropriate use of detention by analyzing what offence (if any) such children have or are accused of having committed. Finally, the collection of information on the number of children in detention is important for resource allocation and administrative purposes.
Unit of measurement	Count (Number)
Disaggregation	Region, sex, age, and status of sentencing (pre-trial, pre-sentencing and post sentencing

Data Source	Information for this indicator may be sought from three information sources: (1) places of detention and rehabilitation; (2) competent authorities; and (3) offices of the public prosecutor. The primary information source is likely to be places of detention and rehabilitation. A place of detention and rehabilitation should keep records of all children deprived of liberty in that institution. This should apply to all institutions, including police stations with holding cells, remand homes, prisons and secure rehabilitation facilities. The decision to place a child in detention (other than for a child held in a police cell) is almost always made by a competent authority. Hence, these authorities may also therefore be useful information sources for this indicator. Finally, offices of the public prosecutor may also maintain and update files on the status of children in conflict with the law, including information regarding detention status.
Reporting Entity	Federal Prison Administration, Regional and City Prison Administrations,

	Ethiopian Human Rights Commission, Office of the Public Prosecutors, MoWCYA, Federal Police
Frequency of Reporting	Annually

Indicator 48:Number of child-friendly correction and rehabilitation centers

Indicator	Number of child-friendly correction and rehabilitation centers
Definition	The indicator tracks such corrections and rehabilitation centers that are established for children in accordance with the Criminal Law of F.D.R.E Article 157-165 and are deemed to be child friendly. Some of the criteria for child friendly centers include whether or not children are kept in separate buildings, kept in separate rooms, share rooms with adults, availability of educational and training services, sufficient food, and steady supply of water and sanitation services as well as bedding facilities.
Rationale	Every child deprived of liberty shall be treated with humanity and respect for the inherent dignity of the human person, and in a manner which takes into account the needs of persons of his or her age. In particular, every child deprived of liberty shall be separated from adults unless it is considered in the child's best interests not to do so. *CRC, Article 37(c)*. The principle of separation of children from adults in prison has two purposes: to protect children from exploitation, abuse and negative influences by adults, and to ensure that the detention of children is effected in facilities that cater to their special needs. This indicator measures the number of child friendly detention and rehabilitation centers that are for children only or those that are separate from adult detention centers and have separate facilities. Correction and rehabilitation centers in which children are held in separate rooms or cells from adults but share facilities such as exercise, washing or dining areas with adults are not considered child friendly centers.
Unit of measurement	Count (Number)
Disaggregation	Region
Data Source	Monitoring report of Ethiopian Prisons
Reporting Entity	Federal Prison Administration, Regional and City Prison Administrations, Ethiopian Human Rights Commission
Frequency of Reporting	Annually

Indicator 49:Number of children living with their parents in prison

Definition	Number of children living with their parents in prison
Measurement	Counting and aggregating the number of children living with their mothers in prison
Rationale	According to Article 28 of the Federal Prisons Commission Establishment Proclamation No. 365/2003, Article 12 of the Federal Detainees Treatment Regulation No. 138/2007 and regional detainees treatment regulations and directives, where a female detainee comes with an infant not more than 18 months old and where its interest so requires, the infant shall stay in the detention centers with the mother. This indicator measures the number of children in prisons with their parents in all regional and federal prisons.

Unit of measurement	Count (Number)
Disaggregation	Sex, region, age
Data Source	Monitoring report of Ethiopian Prisons
Reporting Entity	Federal Prison Administration, Regional and City Prison Administrations, Ethiopian Human Rights Commission
Frequency of Reporting	Annually

Indicator 50:Number of children in contact with the law

Definition	Number of children below 18 years old in contact with the justice system as victims, suspects, accused, convicted, witnesses and complainants during a 12month period
Rationale	This indicator provides a useful information about the extent of child involvement in crime as perpetrators or victims, and their other contacts with the justice system. The indicator provides data that can be used to develop and plan prevention and juvenile justice system services.
Unit of measurement	Count (Number)
Disaggregation	Region, sex, type of legal case
Data Source	Police and court information system or records provide the necessary data for the indicator.
Reporting Entity	Ministry of Justice, Federal Police, Federal Courts
Frequency of Reporting	Annually

Indicator 51:Number of children in contact with the law who received psycho-social rehabilitation services

Indicator	Number of children in contact with the law who received psycho-social rehabilitation services
Definition	Number of children below 18 years old in contact with the justice system as victims, suspects, accused, convicted, witnesses and complainants who received psycho-social rehabilitation services such as life skill including peer teaching, individual and group counseling (spiritual and professional), recreation service and others during the last 12 months. A child for a certain care and support activity should be counted only once in a reporting period.

Rationale	International instruments specify that all children in contact with the law especially those leaving detention should benefit from arrangements designed to assist them in returning to society, family life, education or employment after release. Such guidance and structural support is an important step towards successful reintegration into society and the prevention of re-offending. This indicator measures the percentage of children in contact with the law who benefit from a structured psychosocial rehabilitation program or service.
Data Source	The original information sources for this indicator are places of detention, courts and the providers of psycho-social support services.
Organization Responsible for Reporting	Federal Courts, Federal Police, Federal Prisons, Ministry of Justice
Frequency of Data Collection/Reporting	Annually
Disaggregation	Sex, Region

Indicator 52:Number of children that are victims of harmful traditional practices (HTP), violence and abuse

Definition	Number of children officially reported victims of HTPs, violence and abuse (such as sexual, physical, trafficking, psychological, gender based violence, economical and so on) during a 12 month period
Measurement	Counting and aggregating the total number of children officially reported as victims of violence during a 12 month period
Rationale	All children have the right to be protected from violence, exploitation and abuse. There is significant evidence that violence, exploitation and abuse can affect the child's physical and mental health in the short and longer term, impairing their ability to learn and socialize, and impacting their transition to adulthood with adverse consequences later in life. This indicator measures the level of functioning of the child protection system. A well-functioning child protection system should identify, report, investigate, refer and treat cases of violence. Extremely low levels of official reporting by different service providers may indicate a weak child protection system rather than a low prevalence of violence.
Unit of Measurement	Number (#)
Disaggregation	Sex, region, type of violence (such as early marriage;female genital mutilation; and sexual, physical, psychological and economical abuse; and so on)
Data Source	The criminal justice information system and records
Reporting Entity	Federal Police, Ministry of Justice, Prosecutors Office, and Federal Courts
Frequency of Reporting	Annually

Limitation and challenges	Violence, exploitation and abuse are often practiced by someone known to the child, including parents, other family members, caretakers, teachers, employers, law enforcement authorities, state and non-state actors and other children. Only a small proportion of acts of violence, exploitation and abuse are reported and investigated, and few perpetrators are held accountable.

Indicator 53:Number of cases of HTPs, violence and abuse against children convicted in relation to number of cases reported to police

Definition	Number of cases of HTPs, violence and abuse against children convicted in relation to number of cases reported to police (such as early marriage, female genital mutilation, sexual, physical, trafficking, psychological, gender based violence, economical and others). one case is similar to one reported and substantiated act, regardless of victim or perpetrator
Numerator	Number of children officially reported as victims of violence during a 12 month period
Denominator	Number of convictions of reported violence and abuse against children during a 12 month period
Rationale	All children have the right to be protected from violence, exploitation and abuse. There is significant evidence that violence, exploitation and abuse can affect the child's physical and mental health in the short and longer term, impairing their ability to learn and socialize, and impacting their transition to adulthood with adverse consequences later in life. This indicator measures the level of functioning of the child protection system. A well-functioning child protection system should identify, report, investigate, refer and treat cases of violence. Extremely low levels of official reporting by different service providers may indicate a weak child protection system rather than a low prevalence of violence.
Unit of Measurement	Number (#)
Disaggregation	Age, sex, region, type of violence
Data Source	The criminal justice information system and records
Reporting Entity	Federal Police, Ministry of Justice, Prosecutors Office, and Federal Courts
Frequency of Reporting	Annually
Limitation	Violence, exploitation and abuse are often practiced by someone known to the child, including parents, other family members, caretakers, teachers, employers, law enforcement authorities, state and non-state actors and other children. Only a small proportion of acts of violence, exploitation and abuse are reported and investigated, and few perpetrators are held accountable.

Indicator 54:Proportion of children victims of violence and abuse that received necessary psychological and other supports for their full recovery and social reintegration

Indicator	Proportion of children victims of violence and abuse that received necessary psychological and other supports for their full recovery and social reintegration
Definition	Percentage of child victims of violence and abuse (child prostitution, drug, alcohol, sexual and so on) who received Recovery, Reintegration, or Psychological Support Services during a 12 month period
Numerator	Number of child victims who used Recovery, Reintegration, or Psychological Support Services during a 12 month period * 100
Denominator	Number of convicted cases of violence against children during a 12 month period. The preferred child population for the denominator is the subset of substantiated cases. However, depending on the availability of data, the denominator child population may be the number of reported cases of violence against children instead of the number of substantiated cases of violence against children.
Rationale	This indicator measures the level of functioning of the child protection system. A well-functioning child protection system would identify, report, investigate, refer and treat cases of violence. An extremely low level of service utilization indicates a weak child protection system rather than a low prevalence of violence.
Unit of Measurement	Percentage (%)
Disaggregation	Age, sex, region, type of support
Data Source	The numerator population is all children in the country who were reported as victims of violence who used Recovery, Reintegration, or Psychological Support Services within the 12 month period. Where it is not easy to collect information about the whole numerator population, the number of reported victims from a representative sample of regions can be used to estimate the total value. Information will need to be collected both from authorities in the criminal justice or child welfare system and from the service providers. A list of children reported as victims during the 12 month period should then be crosschecked against the children who received services during that same period.
Reporting Entity	Federal Police, Ministry of Justice, Prosecutors Office, and Federal Courts
Frequency of Reporting	Annually

Indicator 55:Number of child friendly benches or courts

Definition	Number of child friendly benches or courts for children who come into contact with the law as victims, witnesses, offenders or complainants. Child friendly courts are the ones with appropriate interpretation services, properly equipped waiting areas, anatomical dolls available for sexual abuse cases, closed circuit television or other equally appropriate facilities, intermediaries and others.
Measurement	Counting and aggregating the total number of child friendly benches or courts for children in the country
Rationale	Whether children come into contact with the law as victims, witnesses, offenders or complainants, it is equally important that they are met with a system that understands and respects both their rights and their unique vulnerability. Article 40 of the CRC requires states to establish a separate system of juvenile justice for children. The indicator assesses the establishment of laws, procedures, authorities and institutions specifically for children in contact with the law. The indicator measures whether a specialized juvenile justice system exists for children in contact with the law
Unit of Measurement	Count (Number)
Disaggregation	Region
Data sources	Federal Ministry of Justice and Supreme Court
Frequency of Reporting	Annually

Indicator 56:Number of children that were provided services by trained social worker

Indicator	Number of children that were provided services by trained social workers
Definition	Social workers are case managers for children who are referred for statutory and pre-statutory protective services. They are responsible for linking the child to all the elements of the care and protection system and helping them move through and out of the system.

Rationale	Social workers are the key providers of core services, including the initial assessment which determines whether a child should be placed in care or provided with preventive services, the locating of placement vacancies, and the preparation of all concerned for the child's entry into care. They much manage cases through the children's court and associated processes, prepare comprehensive report for the court. They are also responsible for delivering therapeutic services to the child and family, and support to the foster family if applicable, and for arranging any other services which may be necessary. Social worker services are thus pivotal to every facet of the child's experience in the care and protection system. Hence it is important to ensure children are provided care and support by trained social workers. This indicator measures the overall number of children that were provided services by trained social workers.
Data Source	Service delivery records, court records, etc
Data Supplying Organization	Federal Courts, Ministry of Justice
Frequency of Data Collection/Reporting	Annually
Disaggregation	Sex and Region

Indicator 57:Number of local and foreign adoptions

Definition	Number of child adoptions include all adopted Ethiopian children by adoptive parents within Ethiopia or a foreign country. Domestic adoption is where an Ethiopian child is adopted within Ethiopia, through either a family adoption or a non-family adoption. Intercountry adoption, on the other hand, is where an Ethiopian child is adopted by residents or nationals of a foreign country. Both domestic and inter-country adoption involves the transfer, on a permanent basis, of parental rights and duties for children from the birth parent(s) to the adoptive parent(s). It is a permanent legal relationship between the adoptive parent(s) and the child. The child has the same legal rights as if they were born in the adoptive family.
Measurement	The number of children who are placed in adoption each year whether or not they were previously in formal care. Through disaggregation, this indicator also makes it possible to measure and compare the number of children placed in domestic and inter-country adoption.

Rationale	For children who have permanently lost the possibility of being cared for by their own parents, adoption will usually ensure long-term continuity of care, security and positive outcomes, assuming that the process is conducted professionally and ethically and is regulated appropriately. The measurement of this indicator is therefore important because it allows monitoring of the overall trends in the use of adoption. Furthermore, through disaggregation it will inform decision makers on the overall ratios of domestic and inter-country adoption within the country.
Data source	This indicator requires that information is available from a completed and specified time frame, preferably a 12-month period.
Original Data Sources	Information sources for the number of children adopted are those locations or organizations that directly provide formal care for children or that are mandated to process the adoption of children, including judicial competent authorities, Adoption Agencies and others.
Data Supplying Organization	Federal Courts, MoJ, MoWCYA
Frequency of Reporting	Annually. Ongoing collection of these data should be done by MoWCYA as part of its routine data collection processes.
Disaggregation	Sex, local/foreign adoption

Indicator 58:Post-placement follow-up of adopted children

Definition	Percentage of adopted children whose post-placement conditions were followed up,
Numerator	Number of children who have had a follow-up visit from concerned government agencies
Denominator	Total number of foreign and domestic adopted children
Rationale	Monitoring of this indicator can help in inspecting and determining the wellbeing of adopted children. The indicator also helps to establish linkage between adopted children and their birth parents to facilitate family bondage. If the rate of children who have had a post-placement follow-up is high, it may imply that the adoption system is working well in terms of this indicator
Measurement	In order to measure this indicator, records indicating family visits for each adopted child are needed from all information sources. Data may be collected through physical visit to the adoptive parent's residence and direct interviews with adopted children and their adoptive parents.
Data Source	Supervision reports and adoption database
Data Supplying Organization	MoWCYA and Ministry of Foreign Affairs MIS. For local adoption, MoWCYA conducts the supervision. Ministry of Foreign Affairs in collaboration with MoWCYA and with its Embassies and Consulates is expected to undertake the post-placement follow-up on Ethiopian children adopted by adoptive parents of a foreign country. Embassies and consults quarterly reports sent to the Ministry of Foreign Affairs as well as supervision reports of those mandated people that conducted the post-placement follow-up will provide much of the data to track the indicator.
Frequency of Reporting	Annually.
Disaggregation	Sex, local/foreign adoption.

Indicator 59: Number of children's clubs and parliaments organized

Definition	Number of children's clubs and parliaments organized during a particular year
Rationale	Child participation as guaranteed in Article 12 of the UN Convention on the Rights of the Child means that children have the right to be heard and taken seriously. The UN Committee on the Rights of the Child has adopted a General Comment on the implementation of this article and gives detailed guidelines on which areas children have a right to participate. Child participation is defined as an ongoing process of children's expression and active involvement in decision-making at different levels in matters that concern them. It requires information-sharing and dialogue between children and adults, based on mutual respect, and full consideration of children's views in the light of their age and maturity. Children's parliaments are established to serve as mechanisms for child participation in parliamentary processes. A children's parliament provides children with the opportunity to learn about the functions of parliament. This can eventually result in a general population with greater electoral literacy and increased civic engagement.
Unit of Measurement	Number (#)
Disaggregation	Region, machismos of participation (parliament, club)
Data Source	MoWCYA performance reports
Reporting Entity	MoWCYA
Frequency of Reporting	Annually

Indicator 60:Number of children who participated in children's clubs and parliaments

Definition and Measurement	Number of children aged 6–18 years who participated in a children's club and parliaments on a regular basis (at least once a month) during the year.

Rationale	Child participation as guaranteed in Article 12 of the UN Convention on the Rights of the Child means that children have the right to be heard and taken seriously. The UN Committee on the Rights of the Child has adopted a General Comment on the implementation of this article and gives detailed guidelines on which areas children have a right to participate. Child participation is defined as an ongoing process of children's expression and active involvement in decision-making at different levels in matters that concern them. It requires information-sharing and dialogue between children and adults, based on mutual respect, and full consideration of children's views in the light of their age and maturity. Children's parliaments are established to serve as mechanisms for child participation in parliamentary processes. A children's parliament provides children with the opportunity to learn about the functions of parliament. This can eventually result in a general population with greater electoral literacy and increased civic engagement.
Unit of Measurement	Number (#)
Disaggregation	Sex, region, mechanisms of participation (parliament, club, etc)
Data Source	MoWCYA performance reports
Reporting Entity	MoWCYA
Frequency of Reporting	Annually

Indicator 61:Number of orphans and vulnerable children who received legal support/protection

Definition	Number of orphans and vulnerable children who received legal support/protection when they are deprived of their rights (including SDD, denial of inheritance, and other legal services). Highly vulnerable children (HVC) may be defined as "those children under age 18 whose safety, wellbeing, or development is at significant risk due to inadequate care, protection or access to essential services. HVC includes those who are living in extremely difficult circumstances and are exposed to risks; infected and affected by HIV&AIDS; with disabilities living in extremely difficult circumstances and are exposed to risks; children in worst forms of child labor (sex workers, bonded labor, illicit activities, work that stops school attendance, cattle rustling, and other intolerable forms of work); experiencing various forms of abuse and violence e.g. survivors of sexual violence; children in abusive homes or institutions; street children/abandoned children/neglected children; children in contact with the law; from child headed households; who are engaged in armed conflict as captives or child soldiers; and any other category of children who are assessed to be in need of immediate care and protection.
Measurement	Aggregating OVC that received legal support or protection from federal to local government and community levels
Rationale	Highly Vulnerable Children live in circumstances where they are likely to suffer any form of abuse or deprivation and is therefore in need of care and protection. They represent groups of children that experience negative outcomes, such as the loss of their education, morbidity, and malnutrition, at higher rates than do their peers. They are susceptible to abuse, exploitation, violence, and neglect and often do not have access to support systems designed to assist in these instances. Hence, they need support to resolve their legal problems either by mediation or prosecution. This indicator is intended to measure provision of legal protection support for OVC.
Unit of Measurement	Number (#)
Disaggregation	Region, sex and age
Original Data Source	HVC care and support register
Secondary Data Source	Multi-Sectoral Response Information System (MRIS)
Reporting Entity	Federal HAPCO, Federal Courts, MoJ, Human Right Commission, Ombudsman and Federal Police
Frequency of Reporting	Annually

Indicator 62:Number of accidents on children

Definition and Measurement	Number of children affected by accidents that encompass all forms of accidents, including motor transport accidents, poisoning, fire/flames, falls and drowning/choking/suffocation as well as suicides and homicides.
Rationale	Accidents are the commonest cause of hospital admission for children in many countries. They are also among the major causes of childhood deaths. Hence, tracking the number of accidents on children in essential to identify and deal with major causes of accidents.
Unit of Measurement	Count (Number)
Disaggregation	Region, sex, and type of accident
Data Source	Federal Police Information System and Records, Civil and Vital Registration System
Reporting Entity	Federal Police, Central Statistical Agency
Frequency of Reporting	Annually

Indicator 63:Number of paternal/forensic systems established to determine the biological parent of a child

Definition and Measurement	Number of paternal/forensic systems established to determine the biological parent of a child
Rationale	Forensic science is the application of a broad spectrum of scientific disciplines to assist in legal decision making. Occasionally, situations arise in which people require concrete, scientific evidence of parentage, whether it be their own or that of someone else. In most instances, maternity is easy to determine. Unfortunately, questions of paternity aren't so easy to answer. In order to make a determination of fatherhood, forensic laboratories are needed for paternity testing. Forensic analysis is useful in civil courts when the paternity of a child is in question. In broader applications, the paternity testing mean that children who were adopted now have more direct means to confirm their biological identity or to find their birth parents. In addition, parentage testing is often an essential tool in proving immigration status in cases of family reunification. This indicator tracks the establishment paternal systems in the country to determine the biological parent of a child.
Unit of measurement	Count (Number)
Disaggregation	Region
Data Source	Police Information System and Records
Reporting Entity	Federal Police
Frequency of Reporting	Annually

CWB MIS Indicator Domain 6: Family Care, Community/Neighborhood and Environment

Indicator 64:Percentage of children who live below poverty line

Definition	The number of children living in households with a household income below the national poverty line, expressed as a proportion of all children. National poverty lines are thresholds defined at the country level below which a person is deemed to be poor. National poverty lines are commonly set as the consumption expenditure or income level at which food energy intake is just sufficient to meet basic requirements, or they are set by stipulating a consumption bundle (incorporating both food and non-food items) deemed to be adequate for basic consumption needs, and then estimating the cost of the consumption bundle for each of the subgroups being compared in the poverty profile.
Formula	Determining the percentage of children that live below poverty line requires determining the household per capital income/consumption and then the number of children that live in households below the poverty line. The proportion of households that lives below the poverty line is calculated using either consumption or income data, gathered from nationally representative household surveys. Whenever available, consumption data are preferred to income data for measuring poverty, because income is more difficult to measure accurately and can vary over time even if the standard of living does not.Consumption, including consumption from own production (or income when consumption is unavailable), is calculated for the entire household and then divided by the number of persons living in the household to derive a per capita measure. Once the household per capita income is determined, all those children that live in households below the national poverty line will be divided by the total number children in the country to determine the percentage of children that live below poverty line.
Rationale	Childhood poverty has both immediate and lasting negative effects. One way of identifying how many children are living without enough resources to meet their needs is to use a poverty line and measure how many children live under it. As money is needed to access a range of services, income poverty is often closely related to poor health, reduced access to education, and physical environments that compromise personal safety. A lack of sufficient income can therefore compromise children's rights to nutrition, education, and health care services. Cognizant of this, child poverty is a priority at international and national levels. At international level, the key provisions relating to child poverty are contained in the CRC. Safeguarding an adequate standard of living for children is the main concern of Article 27 CRC, which comprises a principal obligation to ensure a standard of living adequate for the child's physical, mental, spiritual, moral and social development; an emphasis on parental responsibility for safeguarding this right; a reference to the country's obligation to promote and maintain parents' abilities and capacities in doing

	so, as well as to intervene directly if parents do not live up to their responsibilities.205 In addition, Article 26 acknowledges the link between children's citizenship and the distribution of material resources, including access to social security. Eradicating poverty and improving the livelihood of citizens through broad-based economic development is one of the key priorities of the GTP. Therefore, whilst the task of safeguarding a decent standard of living for children is considered a responsibility of the parents in the first place, ensuring the children's access to social security remains primarily a State obligation. The indicator measures the proportion of children who live below the national poverty line. The proportion of the children below national poverty line measures poverty by the level of income/consumption available to an individual. A person is considered poor if his or her consumption or income level falls below some minimum level necessary to meet basic needs. This minimum level is usually called the "poverty line".
Unit of Measurement	Percentage
Frequency of reporting	Annually
Data source	Annual country development progress reports published by MoFED; the expenditure data from the Household Consumption and Expenditure (HCE) survey and the DHS administered by the Central Statistical Agency every five years; or special surveys to measure child poverty may provide the necessary data to track progress on the indicator
Reporting entity	MoFED, CSA
Disaggregation	Sex, region
Limitation	No poverty line is perfect. Using a single income measure tells us nothing about how resources are distributed between family members, or how money is spent. But this measure does give some indication of how many children are living with severely constrained resources.

Indicator 65:Adult Literacy Rate

Definition	Literacy rate is the percentage of the national population aged 15 years above years who can both read and write with understanding a short simple statement on everyday life. Literacy status in the 2011 EDHS, was determined by the respondents' ability to read all or part of a sentence in the language they were most likely able to read.
Formula	$\frac{\textit{The number of literates aged 15 years and over}}{\textit{Total population aged 15 years and over}} \times 100$

Rationale	Children with literate parents stay in school longer and achieve more. Each extra year of education for mothers is also associated with a significant decline in infant mortality and improved child health. Adult literacy programs can contribute to reducing the spread of HIV and AIDS. There are clear connections between literacy levels and both economic output and GDP capital growth (ESDP IV, 2010). Cognizant of this, adult literacy rate is one of the main objectives of the ongoing Growth And Transformation Plan (GTP) and of the Education Sector Development Program (ESDP IV). Facilitating the outreach of adult education for parents/guardians is one of the major initiatives identified in the draft National Child Policy under the family care strategic theme. This indicator provides a measure of the stock of literate persons within the adult population.
Unit of Measurement	Percentage
Frequency of reporting	Annually
Data source	Annual Education Statistical Abstracts and Education Progress Reports; Welfare Monitoring Survey; Ethiopian Demographic and Health Survey (EDHS); and Population and Housing Census Reports
Responsible entity for reporting	MoE, CSA
Disaggregation	Sex, region, urban/rural residence, age category

Indicator 66:Percentage of highly vulnerable children (HVC) households that benefited from economic strengthening support schemes

Definition	The indicator refers to the proportion of households with highly vulnerable children (HVC) less than 18 year old who received vocational trainings business skill training, technical and material support and/or start-up capital in the reporting period. Highly vulnerable children (HVC) may be defined as "those children under age 18 whose safety, well-being, or development is at significant risk due to inadequate care, protection or access to essential services. HVC includes those who are living in extremely difficult circumstances and are exposed to risks; infected and affected by HIV&AIDS; with disabilities living in extremely difficult circumstances and are exposed to risks; children in worst forms of child labor (sex workers, bonded labor, illicit activities, work that stops school attendance, cattle rustling, and other intolerable forms of work); experiencing various forms of abuse and violence e.g. survivors of sexual violence; children in abusive homes or institutions; street children/abandoned children/neglected children; children in contact with the law; from child headed households; who are engaged in armed conflict as captives or child soldiers; and any other category of children who are assessed to be in need of immediate care and protection.
Formula	$\frac{\textit{The number of households with Highly Vulnerable Children aged below 18 that benefited from economic strengthening support schemes}}{\textit{Total number of households with Highly Vulnerable Children aged below 18}} \times 100$

Rationale	This indicator is intended to measure implementation of economic strengthening or income generating activity (IGA) related care and support for HVC. This helps to know the coverage for specific care and support services provided to HVCs. The indicator can provide information on how far the economic strengthening or IGA program reached the needy HVCs.
Unit of Measurement	Percentage (%)
Disaggregation	Region, age, sex, and type of vulnerability
Original Data Source	HVC care and support register and training attendance sheet and proceeding reports
Reporting Entity	Federal HAPCO; MOLSA
Frequency of Reporting	Annually

Indicator 67:Number of people trained on child related issues

Definition	Number of people trained with minimum qualifications in formal childcare and development, and child related issues such as Alternative Child Care options, protection from child abuse, OVC Standard Service Delivery Guideline, etc. This also includes police officers, prosecutors, judges and law enforcement officials that received training on preventing violence against children, child rights protection, childsensitive interrogation and interviewing techniques.
Measurement	Counting and aggregating the total number of people with relevant training or qualifications in childcare and the delivery of appropriate services for children
Rationale	While it cannot be assumed that qualification in itself makes good childcare staff, having qualified staff does go a long way to ensuring the quality of care children can expect to receive in formal care settings. This indicator informs decision makers as to the availability of capacity and competence childcare and development. The information collected can inform governments and partners where training and skills development should be targeted to improve the quality of child care and development services in the country.

Data Source	A special survey may be required to generate the information for the indicator. This indicator requires the collection of snapshot information (information showing the situation (number of trained people on child related issues) on a specific date). Information sources for this indicator are those locations or organizations that directly or indirectly work on or provide care for children. The term 'minimum qualification' may appear somewhat ambiguous and differ from place to place. Ideally, when measuring for this indicator, all people who have a qualification that is granted by an accredited body and recognized nationally, and that is appropriate to the functions of the particular member of staff, should be considered in the collection of information. Such functions vary in accordance with
Data Supplying Organization	MoWCYA
Frequency of Reporting	Annually. This indicator can also be measured on an as-needed basis.
Disaggregation	Category of training, sex, region

Indicator 68:Number of highly vulnerable children households that have access to social cash transfer or safety net schemes

Definition	Number of households with highly vulnerable children under 18 that have access to social cash transfer or safety net schemes. Safety nets are targeted transfers of cash, food, or other goods to poor or vulnerable households.
Measurement	Counting and aggregating the number of households with highly vulnerable children under 18 that benefited from social cash transfer or safety net schemes
Rationale	Safety nets are a key form of social protection, which includes any public actions to support poor and vulnerable persons and increase their ability to manage risk. A key difference from other forms of social protection is that safety nets are noncontributory, meaning recipients do not contribute to the program before receiving benefits. This indicator is intended to measure the number of highly vulnerable households that benefited from safety net and cash transfer schemes in the country.
Unit of Measurement	Count (Number)
Disaggregation	Region
Data Source	Safety Net Program Records and Reports
Reporting Entity	Federal Ministry of Labor and Social Affairs (MoLSA), Ministry of Agriculture
Frequency of Reporting	Annually

Indicator 69:Number of parents/guardians who received training on positive parenting skills

Definition	Positive parenting refers to providing guidance that keeps a child on the right path, offered in a positive way that resists any temptation to be punitive. Positive parental skills training is part of parental education programs and is all about being a positive influence in a child's life and giving the child the tools to be a loving, responsible, successful and compassionate adult.
Rationale	Studies show that most Ethiopian children live under very difficult circumstances and are exposed to different forms of abuses such as corporal punishment, which impedes their good start in life. As the vast majority of the population is not educated, parents have no knowledge on care and education of children (MoE, 2010)[7]. Parental education focuses on improving the practical nurturing skills of parents and caregivers. It includes prenatal, natal, and postnatal care, child development, the importance of good health care and community-based nutrition, hygiene and the role of parents in early stimulation. The parental education program may have a home-based and center-based component. The home based will be carried out in the houses of the families; the center-based approach will take place in any existing community building, health post, school, church, and others. This indicator tracks the total number of parents and caregivers that were educated and trained on positive parental skills.

Unit of Measurement	Count (Number)
Disaggregation	Region, age, sex
Data Source	The implementation of the National Policy Framework and the Strategic Operational Plan and Guideline for Early Childhood Care and Education (ECCE) in Ethiopia is meant to be coordinated by the Ministry of Education. Hence, MoE is expected to provide the data needed for the indicator.
Reporting Entity	Ministry of Education
Frequency of Reporting	Annually
Limitation	The MoE may collect data on number of parents and caregivers that participated in parental education programs, of which positive parenting is a part. Hence, data specifically on positive parental skills may not be available unless the gap is addressed in consultation with the MoE.

Indicator 70:Number of partner organizations that are involved in the provision of services for highly vulnerable children (HVC)

Definition	Number of partner organizations such as the civil society organizations, private sector, faith based organizations, community based organizations and others that are involved in the provision of services such as educational support, food and nutrition, shelter and care, psychosocial support, child protection, health care and others for Highly Vulnerable Children (HVC).
Measurement	The indicator is measured by identifying and aggregating the organizations that are involved in the provision of services for HVC, which may include international NGOs, local NGOs, FBOs, CBOs, the business community and others.
Rationale	Addressing the needs of orphans and vulnerable children (OVC) and mitigating negative outcomes of the OVC is a priority for national governments and international stakeholders across the globe who recognize this as an issue with social, economic, and human rights dimensions. In response to the OVC challenge, apart from the government at various levels, a number of organizations are involved in OVC work in Ethiopia. No single organization has sole jurisdiction over the issues surrounding highly vulnerable children. Government may need to find ways to bring together the main stakeholders to respond in a coordinated and effective way to assure that resources reach communities and that these responses meet the many needs of orphaned and vulnerable children. This indicator captures information on the number of partner organizations that provide services for OVC which could be utilized to know who does what and harmonize interventions in the country.
Unit of Measurement	Count (Number)
Disaggregation	Region, type of organization (private, international NGO, local NGO, FBO, CBO and so on)
Data Source	The required comprehensive data may not be available at present. Hence, mapping of such partner organizations may be necessary.

Reporting Entity	Ministry of Labor and Social Affairs, and MoWCYA
Frequency of Reporting	Annually
Limitation	Currently there may not be a comprehensive list of organizations that work on HVC in the country. Hence, mapping of the organizations that provide services to HVC may be required to provide baseline data and propose mechanisms for data collection and reporting on these service providers.

Indicator 71:Number of community care structures providing social welfare services to vulnerable children

Definition	Community care structures refer to systems and mechanisms used by communities to interact, coordinate and deliver home-based care; social protection and welfare; legal services; nutrition support; mental and psychosocial support; and referral and access to health services and follow-up for vulnerable children.
Rationale	Community based structures play important roles in meeting the needs of vulnerable children. Community-based structures can provide a minimum package of services for OVC, including comprehensive access to health services, assistance with school fees, child protection services, as well as nutritional, psychosocial, and economic support. This indicator tracks availability of community based structures that provide social welfare services to vulnerable children. The information provided by this indicator can inform policy and program decision making processes to mobilize the community and its resources and build as well as increase the number of community based structures so as to increase access to social welfare services to vulnerable children.
Unit of Measurement	Count (Number)
Disaggregation	Region
Data Source	The required data may not be available at one organization. The ones that already exist may not also be that comprehensive. Hence, mapping of such community care structures may be necessary.
Reporting Entity	Ministry of Labor and Social Affairs, Ministry of Health, and MoWCYA
Frequency of Reporting	Annually
Limitation	Data specifically on community care structures that provide social welfare services to vulnerable children may not be readily available and aggregated.

Indicator 72:Number of hospitalizations of children aged below 18 for respiratory diseases

Definition	Respiratory diseases are diseases that affect the respiratory system. These include diseases of the lung, pleural cavity, bronchial tubes, trachea, and upper respiratory tract and of the nerves and muscles of breathing. Respiratory diseases range from mild and self-limiting such as the common cold to lifethreatening such as bacterial pneumonia or pulmonary embolism. A child will be counted more than once if they were hospitalized on more than one occasion in the same year, and this is a possibility for many of the respiratory diseases.

Rationale	Children are especially sensitive to air pollution because of their rapid growth, developing body systems, unique pathways of exposure and higher intakes of air. Air pollution has long been considered as a source of exacerbation of asthma and other respiratory conditions. Studies that have investigated the impact of outdoor air pollution on children have noted increased coughing and wheezing, increased use of airway medications, increased hospital visits for respiratory conditions and a permanent reduction of lung capacity. The indicator measures the impact of the environment in causing respiratory diseases/infection among children.
Unit of measurement	*Count (Number)*
Disaggregation	Sex, region, age
Data Source	Patient admission registry; HMIS
Reporting Entity	Ministry of Health
Frequency of Reporting	Annually
Limitation	Data on this indicator may not be collated and aggregated by the Ministry of Health.

CWB Indicator Domain 7: Policies, Structure, Systems and Budget

Indicator 73:Percentage of sector ministries, bureaus and offices that mainstreamed and institutionalized children's rights issues

Definition	Sector ministries, bureaus and offices that mainstreamed and institutionalized children's rights issues refers to these government bodies at all levels that included structures and systems to deal with children issues and incorporated children's rights and wellbeing issues into their institutional plans and agendas.
Formula	*Number of government offices that mainstreamed and institutionalized the issue of children's rights* X 100 *Total number of sector ministries, bureaus, and offices*
Rationale	In order to effectively improve child wellbeing, children's rights need to be addressed through specified child-targeted programs as well as mainstreamed into broader macro-economic and social sector development policies. Children should be at the forefront of all developments. Mainstreaming children's rights requires a childsensitive lens when planning, monitoring and implementing services, policies and procedures. The indicator measures the proportion of sectorial institutions that have mainstreamed and institutionalized the issue of children right mainly child labor in their policies and strategies. Organizations that have included this issue in considered the implications children of any planned action, including legislation, policies or programs, in any area and at all levels are claimed to have mainstreamed the issue of child right. These organizations incorporate the concerns and experiences of children rights as an integral part of their design, implementation, monitoring and evaluation of policies and programs in all political, economic and societal spheres. Data for this indicator will be gathered from reviewing the policies, strategies and periodic planned activities of the individual government sector organizations and bureaus and annual reports of the MoWCYA.
Unit of Measurement	Percentage

Disaggregation	Region
Data Source	Annual reports of sectorial government ministries and regional bureaus
Reporting Entity	MoWCYA
Frequency of Reporting	Annually
Limitation	The extent to which children issues are adequately mainstreamed and institutionalized at institutions may be difficult to measure. Besides, the indicator requires taking exhaustive list of government agencies from federal to local government levels and collecting data from each to determine progress. In addition, the data needed for the indicator are not currently collected as part of the routine MIS of stakeholders.

Indicator 74:Number of sectors that developed child related policy, strategy, guidelines, and other relevant documents

Definition	Number of sectors that developed child related policy, strategy, guidelines, and other relevant documents at all levels in the country
Measurement	Counting and aggregating all child related legal, policy, and strategic frameworks and other operational guidelines and manuals developed to improve child wellbeing in the country
Rationale	Ethiopia has ratified the United Nations Convention on the Rights of the Child and the African Charter on the Rights and Welfare of the Child, and by doing so have accepted this responsibility. In order to meet these obligations, the country must undertake a broad range of multi-sectoral actions, including adopting national policies, strategies and action plans; and allocating and mobilizing increased resources for children. The country has several policy instruments and pieces of legislation that relate to the rights, protection, care and support of children. This indicator measures the number of sectors in the country including, but not limited to, Education, Health, Agriculture and Food Security, Road, Water and Sanitation, Justice, Labor and Social Affairs, and several others that have developed children related policies, strategies, guidelines and other relevant instruments in a particular reporting period. Child related policies may include existing and new promulgations, strategic plans of action, guidelines and manuals, and others that are designed to protect child rights and wellbeing.
Unit of Measurement	Count (Number)
Disaggregation	Region
Source	Annual report of sectorial government ministries; and mapping of such policy instruments
Reporting Entity	Sectoral ministries and others such as MoLSA, MoWCYA, MoE, MoH, MoJ, AARA; and relevant regional government bureaus
Frequency of Reporting	Annually
Limitation	Child related policy and strategic frameworks may be covered under overall sectoral policy and strategic frameworks. As a result, it may be difficult to determine what constitutes a child related policy and strategic framework. Besides, the indicator is subjective in that it is of limited use for inter-country comparison. In addition, some organizations may develop several policy and strategic frameworks and guidelines on children while others may just have a few. Hence, since organization that have such instruments is counted once regardless of the type and variety of these instruments, the indicator may not reveal the adequacy and quality of the instruments.

Indicator 75:Percentage of government budget allocated for children

Definition	Percentage of government budget allocated for children
Formula	$\frac{\textit{Total annual budget allocated for children related activities}}{\textit{Total annual government budget}} \times 100$

Rationale	Monitoring budget allocations for children would be useful to provide insight into the genuine interest and political commitment towards children. This indicator tracks the level of financial resource allocated for activities as related to children as a proportion of the total annual government budget. The indicator will also help track how much money did the government spend to improve the overall situation of children; which sectorial or programmatic allocations were prioritized; and to what extent does the government invest in programs for children in order to fulfil national and international obligations.
Unit of Measurement	Percentage
Disaggregation	Region; and sector such as Education, Health, Livelihood and Food Security, Water and sanitation and so on
Data Source	Country annual public finance/expenditure reports published by CSA and MoFED; special budget tracking study
Reporting Entity	MoFED, CSA, MoWCYA
Frequency of Reporting	Annually
Limitation	This indicator does not capture the question about whether the proportion of funds is adequate. Most importantly, availability of disaggregated budget data for children under 18 may not be easy to find in national accounts or other progress reports.

Indicator 76:Number of social workers working on children issues

Definition	Number of social workers involved in the delivery of psycho-social services for children
Measurement	This indicator measures the overall number of social workers providing psycho-social services to children that are in contact with the law and all others that require their supports.
Rationale	Social workers are case managers for children who are referred for statutory and pre-statutory protective services. They are responsible for linking the child to all the elements of the care and protection system and helping them move through and out of the system. Social workers are the key providers of core services, including the initial assessment which determines whether a child should be placed in care or provided with preventive services, the locating of placement vacancies, and the preparation of all concerned for the child's entry into care. They much manage cases through the children's court and associated processes, prepare comprehensive report for the court. They are also responsible for delivering therapeutic services to the child and family, and support to the foster family if applicable, and for arranging any other services which may be necessary. Social worker services are thus pivotal to every facet of the child's experience in the care and protection system. Hence it is important to ensure children are provided care and support by trained social workers.
Unit of Measurement	Number (count)
Disaggregation	Sex, region
Data source	Human resource statistics of the Federal Courts, Ministry of Justice, MoLSA, MoWCYA, Ministry of Civil Service, and CSA.
Reporting Entity	Federal Courts, Ministry of Justice, MoLSA, MoWCYA, Ministry of Civil Service, and CSA.
Frequency of Reporting	Annually

Indicator 77:Number of organizations that work on children

Definition	Number of partner organizations that work on Ethiopian and refugee children living in Ethiopia
Measurement	Identifying and aggregating all organizations that work on children that include government agencies that are mandated to coordinate or provide services for children; and others such as local and international NGOs, bilateral and multilateral organizations, private institutions, public universities, community based and faith-based organizations, and so on.
Rationale	No organization has sole jurisdiction over the issues surrounding children. Government may need to find ways to bring together the main stakeholders to respond in a coordinated and effective way to assure that resources reach children and that these responses meet the many needs of children. Among others, this calls for knowing the organizations that work on children. The indicator tracks the number of organizations that are engaged in the provision of services and other supports to children.
Unit of Measurement	Number (count)
Disaggregation	Region, type of organization (local and international NGOs, private firms, development partners, CBOs, FBOs, and so on)
Data Source	Database and statistical reports of Charity and Societies Agency; and special studies conducted to map organizations working on children
Reporting Entity	MoWCYA; Charity and Societies Agency
Frequency of Reporting	Annually
Limitation	The data needed to track the indicator may not be readily available at present. Besides, there may not be established system that ensures regular or periodic data collection on organizations that are working on children. Hence, mapping of such organizations would be essential to assign baseline value to the indicator and develop data collection and reporting mechanisms that should be put in place to track the indicator.

Indicator 78:Total amount of money invested in highly vulnerable children (HVC)

Definition	Total money spent on HVC refers to the amount of money allocated, disbursed and spent from government, NGO, development partner, private sector, and other budgets on HVC aged below 18.
Measurement	Aggregating total current and capital investment or expenditures made on HVC during a particular year. Highly vulnerable children (HVC) may be defined as "those children under age 18 whose safety, well-being, or development is at significant risk due to inadequate care, protection or access to essential services. HVC includes those who are living in extremely difficult circumstances and are exposed to risks; infected and affected by HIV&AIDS; with disabilities living in extremely difficult circumstances and are exposed to risks; children in worst forms of child labor (sex workers, bonded labor, illicit activities, work that stops school attendance, cattle rustling, and other intolerable forms of work); experiencing various forms of abuse and violence e.g. survivors of sexual violence; children in abusive homes or institutions; street children/abandoned children/neglected children; children in contact with the law; from child headed households; who are engaged in armed conflict as captives or child soldiers; and any other category of children who are assessed to be in need of immediate care and protection.
Rationale	Highly Vulnerable Children live in circumstances where they are likely to suffer any form of abuse or deprivation and is therefore in need of care and protection. They represent groups of children that experience negativeoutcomes, such as the loss of their education, morbidity, and malnutrition, at higher rates than do their peers. They are susceptible to abuse, exploitation, violence, and neglect and often do not have access to support systems designed to assist in these instances. Hence, they require special intervention to protect their rights. This indicator helps to monitor budget allocations for highly vulnerable children which would be useful to provide insight into the genuine interest and political commitment towards HVC.
Unit of Measurement	Number (Count)
Disaggregation	Investing body (federal government, regional governments, other organizations)
Data Source	National accounts, annual expenditure reports of relevant sectors, and public expenditure reports published by CSA/MoFED
Reporting Entity	Federal HAPCO; MOLSA; MoE; MoJ; MoH; MoFED; CSA; AARA; MoA, and so on
Frequency of Reporting	Annually
Limitation	*This indicator does not capture the question about whether the proportion of funds is adequate. Most importantly, availability of disaggregated data for OVC may not be easy to find in national accounts. In addition, many different ministries are involved in a comprehensive national response (education, social welfare, health, agriculture, social works, etc.) that may also be supported by external resources. It is therefore quite difficult to track the inputs by the different stakeholders.*

Indicator 79:Number of functional child-focused structures and systems in the country

Definition	Number of formal functional child-focused structures and systems may include CRC committee, OVC committees or task forces, child forums, and others established to support implementation of international and national policy and strategic instruments. Only those child-focused structures that have been actively operating to fulfill their mandate during the period for which data is collected will be considered for inclusion to determine the value for the indicator.

Measurement	Counting and aggregating all formal functional child-focuses structures and systems at all levels in the country
Rationale	Ethiopia has ratified the United Nations Convention on the Rights of the Child and the African Charter on the Rights and Welfare of the Child, and by doing so have accepted this responsibility. In order to meet these obligations, the country must undertake a broad range of multi-sectoral actions, including adopting national policies, strategies and action plans; and allocating and mobilizing increased resources for children. The country has several policy instruments and pieces of legislation that relate to the rights, protection, care and support of children. Most importantly, effective structures are needed to implement and enforce legislations and policies. This indicator tracks the functional child-focused structures and systems in the country that have been established to that are needed to implement policies and strategies adopted to improve child wellbeing in the country.
Unit of Measurement	Count (Number)
Disaggregation	Level in which the structure exists (federal and region)
Source	Annual report of sectorial government ministries; and mapping of such child related structures and systems
Reporting Entity	Sectoral ministries and others such as MoLSA, MoWCYA, MoE, MoA, MoH, MoJ, AARA; and relevant regional government bureaus
Frequency of Reporting	Annually
Limitation	Measuring functionality of available child-focused structures and systems may be difficult and subjective. What constitutes a child-focused structure and system may also require further definition to ease measurement and common understanding.