SUMMARY REPORT

Bangladesh, Bhutan, Colombia, Kenya, Namibia and Rwanda

unicef for every child

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Acronyms

BCRS	Bhutan Civil Registration System
CRVS	Civil Registration Vital statistics
CRVSID	Integrated Civil Registration, Vital Statistics, and Identity Management
CRS	Civil Registration Services
CR	Civil Registration
DANE	National Administrative Department of Statistics (Colombia)
DCRC	Department of Civil Registration and Census (Bhutan)
ECB	Election Commission of Bangladesh
ECA	(UN) Economic Commission for Africa
ICT	Information Communication Technology
IT	Information Technology
KNBS	Kenyan National Bureau of Statistics
LMIC	Low- and middle-income countries
MOU	Memorandum of Understanding
MINOLAC	Ministry of Local Government (Rwanda)
NAMPOS	Namibia Population System
NPRS	National Population Registration System (Namibia)
NPR	National Population Register

NIDA	National Identification Agency
NBR	National Registration Bureau
NCI- CRVS	National Centralized and Integrated Civil Registration and Vital Statistics system
NISR	National Institute of Statistics of Rwanda
NSB	National Statistics Bureau
NSA	Namibia Statistics Agency
ORG	Office of the Registrar General
PIN	Personal Identity
RNEC	National Civil Registry, Colombia (Registraduría Nacional del Estado Civil)
SISBEN	Sistema de Identificación de Potenciales Beneficiarios de Programas Sociales – Colombia
SDG	Sustainable Development Goal
SWA-ID	South West African ID
UNLIA	UN Legal Identity Agenda
UNICEF	United Nations Children's Fund
UPI	Unique Personal Identity
UPIN	Unique Personal Identity Number
UID	Unique Identity
VS	Vital Statistics

Acknowledgements

Introduction

BACKGROUND

The United Nations has made significant strides in shaping a comprehensive definition of legal identity through its Legal Identity Agenda (UNLIA). This definition primarily acknowledges the fundamental aspects of an individual's identity, including his/her name, gender, date of birth, and place of birth, all conferred through birth registration and the issuance of birth certificates. In cases where birth registration is lacking, legal identity can be established by a legally recognized identification authority.

The UNLIA agenda advocates for a holistic and lifecycle-oriented approach, wherein a new legal identity is incorporated into the identity system upon birth registration and is subsequently retired from the system upon the individual's death following death registration. At the operational level, achieving this entails the establishment of a systematic and ongoing mechanism linking a Civil Registration (CR) system with a Population Register and, eventually, a National ID system. In the absence of a Population Register, the CR system can be directly linked to the National ID system.

This holistic model ensures the provision of legal identity to all individuals in a continuous, universal, and inclusive manner, spanning from birth to death. It hinges on the interoperability between components of systems, granting equitable access to services for all individuals. Furthermore, it extends its framework to the development of other registers designed to serve specific purposes, all of which adhere to the same definitions and classifications, thereby confirming with the overarching methodology. The Population Register, in particular, receives ongoing updates through data on births, deaths, and, in some cases, marriages from the civil registration system, ultimately forming the cornerstone of identity management. The compilation of vital statistics through civil registration is an essential facet of this model.

However, the assessments of 13 UNLIA pilot countries in Africa conducted between 2019 and 2022 experiences drawn from several Asian countries reveal a mixed landscape. Only a handful of countries are making significant strides towards implementing an integrated Civil Registration (CR), Vital Statistics (VS), and Identity (ID) management system, characterized by a holistic and lifecycle-based approach. In most countries, these three crucial components of the UNLIA model tend to operate independently and lack effective interconnections.

The UNLIA synthesis report, which is based on the assessments of 10 countries, underscores the imperative need for conducting in-depth case studies. These studies aim to unveil the intricate details of what enabled certain countries to succeed in their implementation efforts and why others encountered challenges and did not reach the same level of success. The current narrative has largely focused on sharing best practices related to fully functional integrated systems. Yet, it falls short of exploring the crucial 'how' aspect, essential for a comprehensive understanding of the UNLIA model's real-world application.

1.2 OBJECTIVE OF THE CASE STUDIES

The primary goal of this exercise is to develop comprehensive case studies focusing on countries that have conceived, established and operationalized Civil Registration, Vital Statistics, and Identity (CRVSID) systems or significant components thereof. These case studies will transcend the examination of the current functionalities of these systems and the supportive ecosystem that facilitates their implementation and will delve deeply into the evolutionary journey that enabled these countries to intertwine their CRVS and ID systems. Furthermore, these studies will illuminate the process of designing and implementing an efficient business framework that embraces a holistic, lifecycle-oriented approach.

To attain a holistic perspective, encompassing insights from diverse experiences, these case studies will also encompass countries where the endeavour to integrate CRVS and ID systems is ongoing and where substantial challenges persist, awaiting resolution. The ultimate objective is to gain insights into how these countries successfully integrated their CRVS and population registration/ID systems organically. Accordingly, six countries were selected (Bangladesh, Bhutan, Colombia, Kenya, Namibia and Rwanda), representing diverse perspectives and experiences in Asia, Africa and Latin America. However, they may not cover every possible nuance or understanding found globally.

It is important to note that the case studies primarily focus on understanding the pathway to establishing a CRVSID system, summarised in this report. However, for countries that have not successfully achieved full integration or are on their journey towards a steady state[1], the case studies will highlight issues and challenges that hindered their efforts in establishing a CRVSID system.

Essentially, the study seeks to answer three fundamental questions:

1. How was the stock built? This pertains to the establishment of the initial population register.

2. When was the linkage between civil registration data and the population register/identity database realized? This explores the timeline of integrating civil registration data into the population register/ identity system.

3. How long did the system transition from a transient to a steady state? This examines the duration required for the system to achieve a stable and sustainable state.

The successful establishment of a CRVSID system hinges significantly on the conducive environment and the evolving organizational capacities within each country. This encompasses critical factors such as legal and institutional frameworks, information and communication technology (ICT) infrastructure and capabilities, and coordination mechanisms. The case studies are also designed to assess and analyze these organizational capacities thoroughly, shedding light on how they have bolstered the countries in their endeavours to develop robust CRVSID systems.

While exploring the three fundamental questions, the guiding principle of ensuring inclusivity and leaving no one behind remains paramount. These case studies are underpinned by the values of good governance,

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1   The criteria that characterizes a CRVSID system being in steady state is explained in Section 2.1.

which include fostering transparency, promoting e-governance, enhancing collaboration among diverse agencies, and expanding avenues for data sharing and networking.
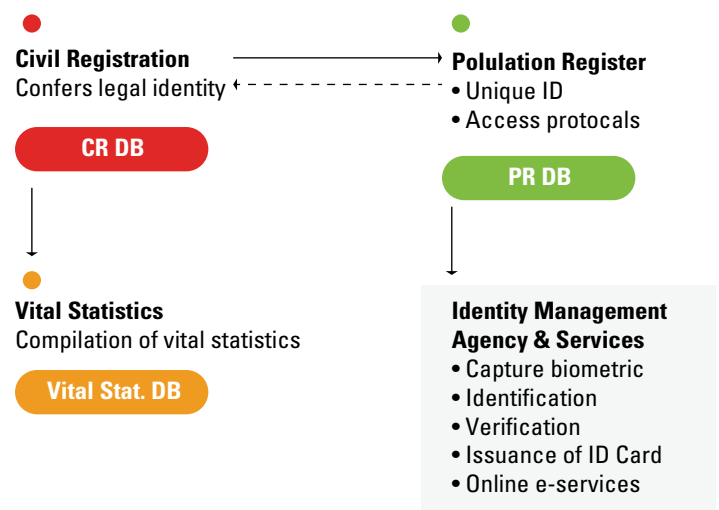
1.3 METHODOLOGY

Two basic approaches were employed in developing the case studies: a) desk review and b) country-specific questionnaire-based interviews. Since country visits were not envisaged as part of this exercise, this proved to be a limiting factor to a some extent. The desk review process involved utilizing normative and guidance documents and other literature from global and regional organizations. Additionally, documents from countries such as legal frameworks, in-country assessment reports, assessments conducted by international and regional organizations, and other relevant documents available on the Internet were reviewed.

However, despite the comprehensive review of documents, including those from countries, the information obtained was not found sufficient to answer the three fundamental questions outlined in Section 1.1, which were the main focus. Furthermore, some of the documents were outdated. Consequently, information gaps were identified, and country-specific questionnaires were developed and distributed to the relevant individuals for their responses. There were also delays due to the non-availability of country focal points to set up interviews with stakeholders in the selected countries because of the year-end busy period and the holiday season. Focused interviews were subsequently conducted with country officials and/or local focal points from organizations actively supporting the government in CRVSID activities. While Bhutan only submitted a written response, Bangladesh, Colombia, and Namibia provided a written response after the interview. In the case of Rwanda, only an interview was conducted. All interviews were recorded with the interviewees' permission. Finally, the draft case study reports were sent to the heads of the civil registration departments for their review and comments.

1.4 A CRVSID SYSTEM – A SIMPLE OVERVIEW

Several low- and middle-income countries have implemented integrated Civil Registration, Vital Statistics, and Identity Management (CRVSID) systems, and many others are in the process. This system provides a unique legal identity to each individual residing in a country, which also serves as a cornerstone for delivering a wide range of social and economic services to the population. The UNLIA proposes an inclusive framework for the CRVSID system[2], which takes a holistic and lifecycle-based approach and prioritizes the human rights of individuals. A simple overview of the framework is given in Figure 1.

Figure 1: A simple overview of the CRVSID framework

Civil Registration
Confers legal identity

CR DB

Polulation Register
• Unique ID
• Access protocals

PR DB

Vital Statistics
Compilation of vital statistics

Vital Stat. DB

Identity Management Agency & Services
• Capture biometric
• Identification
• Verification
• Issuance of ID Card
• Online e-services

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2   See Figure 1 in UNCT-Guidelines.pdf

The framework acknowledges that the civil registration system forms the foundation for establishing and maintaining a robust and trustworthy identity management system[3]. A comprehensive CRVSID system can generate population and vital statistics on a continuous and permanent basis at all levels of administration, which is not possible from any other data sources. It is crucial for achieving the Sustainable Development Goals (SDGs) by providing accurate and timely data for evidence-based decision-making and planning, monitoring progress, and ensuring all individuals' inclusive delivery of services and well-being[4].

For countries rolling out a new CRVSID system, it is necessary to adopt a "stock-and-flow" approach to registration to ensure the inclusion of the entire existing population (i.e., the database of people already living in the country) as well as the continuous inflow of new people, e.g., newborns and immigrants and outflow of people who have died or emigrated[5]. This is critical to keep the information updated and relevant.

The initial and crucial step in establishing a CRVSID system involves initializing the "stock." This is generally achieved through two methods: a) utilizing existing data and records and b) mass enrolment. For the scope of this study, initialization refers to the creation of a fully digitized database using either of the two mentioned approaches. The first approach involves digitizing the initial stock, which can be derived from existing databases or converted from paper-based documents.

The civil registration system continuously provides data on births and deaths, which form the "flow" of information to ensure the population register remains up-to-date. Each resident in the population register, existing and new entrants primarily through birth and immigration, is assigned a unique identity. Upon the death or emigration of a resident, their identity in the population register is retired or deactivated. Many countries are in the process of establishing or have plans to establish a fully digitalized CRVSID system at a national scale. These systems aim to achieve real-time interoperability between the CRVS system, the population register, and the identity management system. There can be variations in the structure of population registers and national identity management systems across countries. For instance, some countries may establish and operate population and identification registers as a single database. In contrast, others may maintain them as two separate but inter-operable databases. In either case, these databases are connected through unique identity numbers assigned to individuals, ensuring seamless integration and interoperability between the two systems.

1.5 STRUCTURE OF THE REPORT

Section 1 – Introduction: The introductory section provides a concise and clear overview of a CRVSID system, aligning with the framework proposed under UNLIA. It outlines the rationale of the case studies and enumerates the key questions that form the core focus of the research. Furthermore, this chapter outlines the methodology employed in conducting the case studies.

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3   For the purpose of this report, the term "identity system" refers to the national identity system implemented or being pursued by all the case study countries, rather than the distributed identity systems found in certain countries at sub-national or local levels.

4   "Linking CRVS and ID systems helps governments meet the Sustainable Development Goals (SDGs). Governments need disaggregated vital statistics to plan and deliver services, and to track progress on 12 of the 17 SDGs. This includes SDG 16.9 *-legal identity for all, including birth regis-tration*" CRVS_ID Compendium Infographic_EN.PDF (data4sdgs.org)

5   "Typically—and for countries rolling out a new foundational ID system in particular—it is necessary to adopt a "stock-and-flow" approach to registration in order to ensure inclusion of the entire existing population (i.e., the stock of people already living in the jurisdiction) as well as the continuous flow of new people (e.g., newborns and immigrants)" - Practitioner's Guide version 1.0 – World Bank Group 2019

Section 2 – Findings: This section provides a comprehensive summary of the individual case studies, providing a comparative overview of the diverse paths countries have taken to establish a CRVSID system. It encompasses the entire spectrum of this transformative process, from initializing a population register to attaining various milestones, ultimately culminating in successfully establishing a robust CRVSID system. The report highlights the achievements and best practices of countries that have successfully established their CRVSID systems by analyzing and consolidating the findings from these case studies. It sheds light on those countries that may have faced challenges or not achieved their desired outcomes. The summary report showcases the achievements and challenges countries face in pursuing an effective CRVSID system and acknowledges the importance of creating an enabling environment and strengthening organizational capabilities. This includes developing robust legal and institutional frameworks, investing in ICT infrastructure, and fostering stakeholder coordination. Furthermore, the summary report delves into identifying and examining key drivers that have played a crucial role in enabling countries to envision and implement an integrated CRVSID system at a national scale.

Section 3 – Recommendations: This section provides a set of high-level actionable recommendations for UNLIA that are deemed crucial.

Country case studies: The case study of each of the six countries is presented as a comprehensive and self-contained report, following a standardized structure that allows for easy comparison and analysis. The adopted structure ensures consistency while accommodating variations based on the maturity level of each country's CRVSID system. Each case study begins with a concise overview of the journey undertaken by the government towards establishing its CRVSID system. This section highlights a chronological account of the key milestones achieved along the pathway to understand better the temporal framework within which the system has evolved.

Subsequently, the case studies delve into distinct sections, each focusing on essential aspects of the CRVSID system. These sections typically include the birth and death registration system, the vital statistics system, the identity systems, and the interoperability of these systems within the broader CRVS framework. Each section provides a comprehensive analysis of the country's approach, policies, and implementation strategies about the respective aspects of the system. During the examination of the three essential questions (See Objectives in Section 1.1) about the progress towards developing an integrated CRVSID system, the focus was on examining the supportive conditions necessary for the country to implement such a system. These primarily encompassed the legal framework, institutional arrangement (including coordination), and information and communication technology (ICT) aspects. This detailed exploration allows for a nuanced understanding of the specific challenges, achievements, and best practices unique to each country's context. Finally, the case study concludes with a section on lessons learned. This critical segment synthesizes the country's experiences, reflecting upon the successes, challenges, and valuable insights gained throughout the establishment and development of the CRVSID system.

While the overarching structure of the case studies remains consistent, it is important to note that the level of detail and emphasis may vary depending on the maturity level of each country's CRVSID system. This flexibility ensures that the case studies accurately reflect each country's unique attributes and contextual intricacies, allowing for a comprehensive and nuanced analysis of their respective journeys.

Findings

2.1 CRVSID SYSTEM IN STEADY STATE

The synthesis of the findings involves a comprehensive examination of the sequential steps that a country has undertaken to establish and maintain a functioning CRVSID system in a steady state. This process is visualized and simplified in Figure 2, which clearly depicts the typical steps involved.

The synthesis of the findings involves understanding the pathway that a country has followed to establish a CRVSID system that is functioning in a steady state. A representative and illustrative depiction of this multifaceted process is presented in Figure 2 below, capturing the key elements and interdependencies involved in establishing a functional CRVSID system.

Figure 2: Steps leading to the establishment of a CRVSID system in a steady state
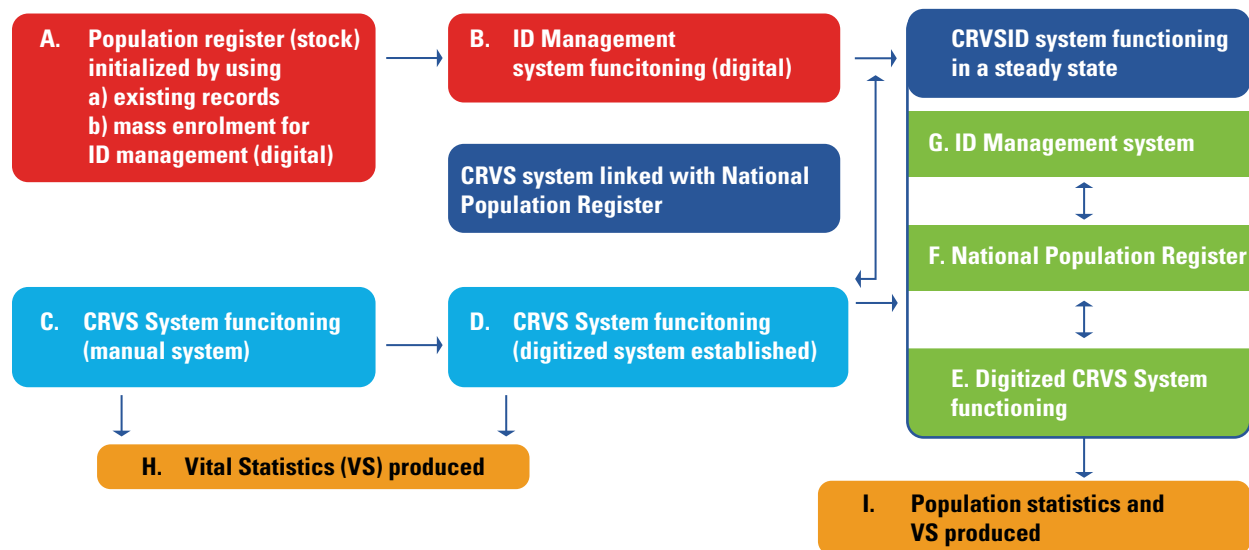
Figure 2 shows a typical roadmap leading to the establishment of a CRVSID **system that is in a steady state**. Here, a digitalized stock is assumed to have already been established. This stock is either in the form of a register, which covers all the resident population in the population register or a database of adults who have been issued unique national identity numbers and/or identity cards. The analysis would systematically delve into the diverse approaches countries have adopted in completing each step, which is one of the key objectives of the case studies. However, it would be first necessary to discuss a steady state in the

context of the CRVSID system[6]. When a CRVSID system reaches a steady state, it implies that it has achieved stability, effectiveness, and continuity in its operations. The steady-state ensures the system can consistently and reliably provide individuals with essential civil registration and identity services. At this stage, the system's core components, including birth and death registration and identity management, are functioning smoothly and sustainably. It is important to note that while a CRVSID system may achieve a steady state as described above, it does not automatically guarantee optimal efficiency in its functioning (See discussion in Section 2.2)

During the steady state, the CRVSID system also demonstrates solid organizational capabilities. This includes a well-defined legal and institutional framework that governs the system's operations, ensuring compliance with relevant laws, regulations, and data protection measures. Adequate information and communication technology (ICT) infrastructure is in place to support the system's functioning, including secure databases, connectivity, and data exchange protocols. Coordination mechanisms between various stakeholders, such as government agencies, local development partners, donors and relevant non-governmental organizations, are established to foster collaboration and maximize system efficiency. It is essential to recognize that once the CRVSID system reaches a stable state of operation, it has the potential to serve as the fundamental database that can be interconnected with other functional registries using unique identity numbers generated in the CRVSID system. These registries are maintained to identify beneficiaries and facilitate the delivery of services in various sectors, such as social protection, employment, education, and health. Moreover, the CRVSID system also plays a valuable role in updating the election database.

In some countries, marriage and divorce registration are linked to the population register. For example, Colombia and Namibia have linked their population register or national ID database with the marriage registration database to update the marital status of individuals and link the spouses' identities. While this linkage may not be a fundamental requirement for a CRVSID system, it serves as a method for keeping track of changes in marital status and maintaining accurate records in line with individual identification databases. It is crucial to highlight that generating comprehensive vital statistics and population data is a fundamental

BOX 1

Continuous registration and updates that happen in CRVSID system in steady state

- New arrivals (newborn, in-migrant)
- New data (e.g., added biometrics)
- Deaths and out-migrant
- People coming of age for ID
- Changes/errors
- Renewals, lost IDs
- Etc.

outcome of a properly functioning CRVSID system. However, for this study, vital statistics are not considered a necessary requirement for a CRVSID system to be deemed in a steady state.

2.2 CURRENT STATE OF CRVSID SYSTEMS IN CASE STUDY COUNTRIES

Table 1 below presents the current state of functioning of a digitalized CRVSID system in the case study countries and includes information on some of the essential attributes related to the processes.

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6   "Once the initial phase has been completed—or for existing ID systems, once upgrades are completed—a "steady-state" approach to registration requires a strategy for the continuous updating of existing identity records and continuous registration of the flow of new people enrolling for the first time" (See page 142 – Practitioner's Guide (version 1.0), World Bank Group 2019.

Table 1: Current state of functioning of the digitalized CRVSID system, including key attributes

COUNTRY	BIRTH AND DEATH REGISTERED ONLINE INTO A CENTRAL DATABASE?	DATA ON BIRTH AND DEATH LINKED TO POPULATION REGISTER/ NATIONAL IDENTITY DATABASE IN REAL-TIME?	IDENTITY NUMBER ISSUED IMMEDIATELY AFTER BIRTH REGISTRATION?	IDENTITY NUMBER DEACTIVATED IMMEDIATELY AFTER DEATH REGISTRATION?	BIOMETRIC DATA COLLECTED AT THE AGE (IN COMPLETED YEARS)?
Bangladesh	Yes	Yes, only birth	Yes	No	16
Bhutan	Yes	Yes	Yes	Yes	87
Colombia	Yes	Yes	Yes	Yes	7
Kenya	Partially	No, planned for birth	No planned	No	18
Namibia	Yes	Yes	No8	Yes	16
Rwanda	Yes	Yes	Yes	Yes	16

It is evident from Table 1 that four out of the six countries have successfully established and maintained CRVSID systems in a steady state. These countries, namely Bhutan, Colombia, Namibia, and Rwanda, have demonstrated effective integration and sustainability of their systems. On the other hand, Bangladesh has made significant progress by linking birth registration with its National ID system. However, it is important to note that Bangladesh's implementation can be regarded as a partially implemented CRVSID system, as full integration has not yet been achieved. Despite numerous efforts in the past, Kenya has faced challenges in establishing a complete linkage between their CRVS and ID systems. As a result, Kenya's CRVSID system has yet to achieve full integration and may be considered a work in progress.

2.3 COVERAGE OF IDENTITY AND COMPLETENESS OF BIRTH AND DEATH REGISTRATION

It is important to recognize that attaining a steady state in a CRVSID system does not necessarily imply that the system has achieved comprehensive identification coverage or that birth and death registration levels are complete across the board. The country's case studies provide valuable insights into the reality that various factors, such as social, cultural, and logistical challenges, hinder the achievement of universal coverage and complete registration. These factors include limited resources, remote and marginalized populations, inadequate infrastructure, and cultural barriers. In some countries, the agenda gets political, especially before an election or when a new government takes over and reverses existing policies. Therefore, while a

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7   Bhutan has recently launched digital ID, and are now collect biometric of citizens on their attaining age 8 years for issuance of the new introduced National Digital Identity

8   It would be important to note that in Namibia the unique ID is assigned and stored in the National Population Register it is issued to individual when she/he applies for ID registration at the age of 16.

CRVSID system may be functioning steadily, it is imperative to consider the context-specific challenges and limitations that may still exist in achieving full coverage and registration levels.

Table 2 below presents the CRVSID system's implementation status in the six case study countries. It also shows the ID coverage and completeness of birth and death registration.

Table 2: Status of implementation of CRVSID system, coverage of ID, and completeness of birth and death registration and issuance of birth certificates

COUNTRY	STATUS OF IMPLEMENTATION OF CRVSID SYSTEM	COVERAGE OF ID (%) AMONG POPULATION (15 + YEARS)9	COMPLETENESS OF BIRTH REGISTRATION (%)10	CHILDREN UNDER AGE 5 POSSESSING BIRTH CERTIFICATES (%)11	COMPLETENESS OF DEATH REGISTRATION (%)12
Bangladesh	Partially implemented, not in a steady state	87 (2021)	58 (2022)	33	45 (2022)
Bhutan	Steady-state	85 (2023)	88 (2021)	NA	62 (2021)
Colombia	Steady-state	97 (2021)	97 (2015)	NA	80 (2015)
Kenya	Initiated	91 (2021)	86 (2021)	34	55 (2021)
Namibia	Steady-state	91 (2021)	80 (2017)	63	76 (2017)
Rwanda	Steady-state	98 (2022)	93 (2022)	17	31 (2022)

The data presented in Table 2 regarding ID coverage and the completeness of birth and death registrations demonstrates that a system can operate in a steady state even with relatively low coverage levels. However, it is crucial to interpret these coverages within their proper context.

For example, Rwanda has 98% ID coverage among people 15 and above, 93% birth registration coverage, and only 31% death registration coverage. These figures suggest that in 2022 alone, the National Population Register (NPR) fell short of updating its records through birth registration by 7%, and 69% of deaths were not even notified to the NPR for deactivation of ID. While children whose births have not been registered can still be enrolled in the NPR through alternative processes at a later stage, deaths of people already existing in

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9   The data for Bangladesh, Columbia, Kenya, and Namibia was sourced from the World Bank ID for dataset (Identification for Development (ID4D) Data | DataBank (worldbank.org)) Bhutan in its written response reported that ID coverage to be 74.6 % as of 29 May, 2023 and that rest of the population are either less than 15 years of age who have not reached the age to process the National ID cards. This population data for Bhutan used to estimate the ID coverage. Data for Rwanda obtained from Population and Housing Census.

10   For source of data on birth registration completeness refer to individual case study reports.

11   Data obtained from latest data from DHS (Kenya 2022, Namibia 2013,Rwanda 2019-2020, and MICS (Bangladesh 2019)

12   For source of data on death registration completeness refer to individual case study reports.

the NPR, unless reported directly through another method, will consequently remain un-reported in the NID database, and their corresponding IDs will not be deactivated. Hence, when ID coverage data is obtained solely from the ID system, it will continue overestimating the actual coverage.

The registration of deaths consistently lags behind birth registration in all countries. As a result, the NPR database may remain incomplete on one end and inflated on the other, leading to ongoing management challenges. In Rwanda, while the stock was initialized in 2008, it was not until 2020 that the NPR was linked to the civil registration system. Therefore, many children born before the crucial date or under age 16 are not still in the NPR, rendering it incomplete[13]. Such a situation poses a persistent issue in effectively managing the identity system and raises concerns about its reliability and credibility. Even though the system exhibits operational stability, its long-term sustainability may be at risk due to these inherent limitations.

Colombia is the only country that seems to be sustaining a CRVSID system with reasonably high levels of completeness.

Barring Bhutan, all the other case study countries require submitting birth certificates as an essential prerequisite for obtaining an identity document. However, this requirement often creates another significant barrier for individuals, as numerous people may not have acquired their birth certificates despite being registered. Table 2 further illustrates the limited issuance of birth certificates, even in countries with relatively high levels of birth registration, such as Kenya and Rwanda.

2.4 ENABLING ENVIRONMENT AND ORGANIZATIONAL CAPABILITIES FOR ESTABLISHING AND SUSTAINING A CRVSID SYSTEM

A strong legal framework supported by an appropriate institutional arrangement, robust ICT infrastructure, and effective coordination plays a crucial role in establishing and maintaining a successful CRVSID system. These elements provide for effective governance, facilitate efficient data management, and foster stakeholder collaboration.

It is crucial to acknowledge that strong political will at the highest levels of government decision-making is essential for the successful development of a modern CRVSID system. All the case study countries demonstrated political will and provided the necessary leadership to establish a modern CRVSID system. The successful ones even progressively advanced their systems to higher levels of maturity.

The following sub-sections aim to analyze the enabling environment and organizational capabilities mentioned above to determine their role in successfully establishing and operating a steady CRVSID system. Additionally, the sub-sections explore the issues and challenges faced by countries that have not been able to achieve the same level of success in this area.

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13   Bangladesh has managed to provide children not covered in their identity database on the date of linking birth registration to their identity systems are now being provided identity numbers through the school system

2.4.1 Legal Framework

A strong legal framework is essential in establishing a robust institutional framework that enables an efficient and effective CRVSID system. Such a framework provides a legal base to protect individual rights with enforcement mechanisms and promote interoperability with other foundational and functional registries, which leads to efficient service delivery and inclusion. It establishes legal validity, protects individual rights, enables enforcement, and promotes interoperability, all of which are crucial for such a system's successful implementation and operation.

Table 3 provides country-wise information on the legal and regulatory frameworks that govern the CRVSID system.

Table 3: Legal and regulatory frameworks for the CRVSID system

COUNTRY	LEGAL FRAMEWORK FOR CRVS SYSTEM	LEGAL FRAMEWORK FOR NPR/ID SYSTEM	LEGAL PROVISIONS FOR LINKING THE CRVS SYSTEM AND NPR/IDENTITY SYSTEMS
Bangladesh	Birth and Death Registration Act 2014, as amended in 2013 and Birth and Death Registration Rules 2018 Marriage: Muslims: Muslim Family Laws Ordinance, 1961; Dissolution of Muslim; Marriages Act, 1939; Muslim Marriages and Divorces (Registration) Act, 1974 Hindus and Buddhists: Hindu Married Women's Right to Separate Residence and Maintenance Act, 1946 Christians: Christian Marriage Act, 1872; Divorce Act, 1869	National Identity Registration Act 2010 and National Identity Registration Rules in 2014	No provisions exist in either of the laws. Birth registration data is currently shared with the ID system through an MOU signed between the Office of the Registrar General (ORG) and the Election Commission (NID authority). A Bill on National ID, which is in the pipeline, provides for sharing birth registration data for updating the ID database.
Bhutan	No separate law on civil registration exists. Marriage – Marriage Act of 1980	No separate law on the identity system exists.	Both systems are implemented based on a clause on citizenship by birth in the Citizenship Act.
Colombia	The legal framework evolved from 1938 through 1970 when Law No. 1260 laid down the parameters guiding CRVS. These were refined by subsequent laws and government Resolutions. Marriage: Same law as above	The 1948 law creating RNEC14 covers both CR and identity services in Colombia.	The 1948 law creating RNEC covers CRVS and NPR/Identity systems requirements.

COUNTRY	LEGAL FRAMEWORK FOR CRVS SYSTEM	LEGAL FRAMEWORK FOR NPR/ID SYSTEM	LEGAL PROVISIONS FOR LINKING THE CRVS SYSTEM AND NPR/IDENTITY SYSTEMS
Kenya	Birth and Death Registration Act (Cap 149 of the Laws of Kenya) as amended in 1972 Marriage: The Marriage Act, 2014	The Registration of Persons Act, Cap 107, 1949	No provision in any of the laws for linking CRVS with National ID system exists.
Namibia	Births, Marriages and Deaths Registration Act, 1963 Marriage: Same law as above	Identification Act, 1996	Provision under Section 3 (a) of the Identification Act 1996 links CRVS with the NPR/Identity system.
Rwanda	Law number 32 was enacted in 2016 and amended in 2020, followed by several Presidential and Ministerial orders. Marriage: Same law as above	Law number 14, enacted in 2008 governing the registration of the population and issuance of the national identity card, was amended vide Law number 44 in 2018	Law number 14 mandated the production of birth and death registration proofs for updating population registers in the sector offices.

Four countries—Bangladesh, Kenya, Namibia, and Rwanda—have separate legal frameworks for their civil registration and identity management systems. However, Bhutan lacks specific legislation for either of these systems, while Colombia has a unified code of law governing the registration of persons, encompassing both civil registration and national identity.

In Bangladesh and Kenya, neither of the laws contains provisions enabling the sharing of civil registration data to update the national identity database. Nonetheless, in Bangladesh, the Office of the Registrar General has established a real-time sharing mechanism with the Election Commission, which is responsible for managing the identity system. This facilitates updating the national identity database by exchanging birth registration data pursuant to a memorandum of understanding signed between the two organizations. In contrast, in Bhutan, Colombia, and Namibia, such provisions are not required, as the civil registration and identity databases operate as a unified entity managed by a single authority or agency. In Rwanda, the relevant provisions of the 2008 law governing registration of population and issuance of identity are used for sharing the civil registration data in real time with national population register.

2.4.2 Institutional arrangements

Institutional arrangements are essential for a CRVSID system because they provide a clear structure and accountability, establish efficient business processes, foster collaboration and coordination, enable data sharing and systems interoperability/integration, support capacity building, and contribute to system sustainability. The institutional arrangement backed by a regulatory framework can successfully ensure the

clear mandates of each entity, streamline business processes, promote seamless data exchange when needed, enhance cooperation, and enable the integration of data from various sources upon authorization by the regulatory framework.

The organizational structure varies across countries, as seen in Table 4 below.

Table 4: Organizational structure for operations and management of civil registration and identity systems

COUNTRY	AGENCY RESPONSIBLE FOR MANAGEMENT AND OPERATIONS AT THE NATIONAL LEVEL		AGENCY RESPONSIBLE FOR THE REGISTRATION OF BIRTHS AND DEATHS AND NATIONAL IDENTITY AT THE LOCAL LEVEL	
	CIVIL REGISTRATION SYSTEM	IDENTITY SYSTEM	CIVIL REGISTRATION SYSTEM	IDENTITY SYSTEM
Bangladesh	Office of the Registrar General, Ministry of Local Government (ORG) Marriage - Law and Justice Division	National ID wing in the Election Commission of Bangladesh (ECB)	Local self-government offices in rural areas (4571), Regional registration offices (124), Municipalities (32), Cantonment boards (11), Total -5030	Electoral offices at sub-districts, police stations, district and regional centres (514)
Bhutan	Department of Civil Registration and Census (DCRC), Ministry of Home and Cultural Affairs Marriage - High Court (Judiciary)	Same	DCRC offices in block level (20), Municipalities (4) and districts (20) Total - 224	District offices of DCRC (20) and Municipalities (4)
Colombia	National Civil Registry (Registraduría Nacional del Estado Civil) (RNEC) Marriage - RNEC	Same	Registry offices (1197). Authorized notaries (931), Clinics and hospitals (194) Authorized corregimientos (67) Total - 2389	Same

COUNTRY	AGENCY RESPONSIBLE FOR MANAGEMENT AND OPERATIONS AT THE NATIONAL LEVEL		AGENCY RESPONSIBLE FOR THE REGISTRATION OF BIRTHS AND DEATHS AND NATIONAL IDENTITY AT THE LOCAL LEVEL	
	CIVIL REGISTRATION SYSTEM	IDENTITY SYSTEM	CIVIL REGISTRATION SYSTEM	IDENTITY SYSTEM
Kenya	Civil Registration Services (CRS), Ministry of Interior and Coordination Marriage - the Office of the Attorney General and the State Department of Justice (OAGSDJ	National Registration Bureau (NRB), Ministry of Interior and Coordination	Registration offices under CRS at sub-county level (142), Huduma centres (common service centres) (52) Total – 17715	Commissioners' Office in counties (47), Huduma centres (52)
Namibia	Department of Civil Registration (DCR), Ministry of Home Affairs and Immigration Marriage - Department of Civil Registration (DCR) under the Ministry of Home Affairs, Immigration, Safety and Security (MHAISS)	Same	Regional offices of DCR (14), Category I offices (14), Category II offices (10) and hospital-based facilities (24) Total - 62	Regional offices of DCR (14), Category I offices (14)
Rwanda	Ministry of Local Government (MINOLAC) and National Identity Agency (NIDA)16 manage the day-to-day operations. Marriage - MINOLAC	NIDA	Health facilities (600), Cell offices (2148) and Sector offices (416) Total - 3164	Selected sector offices (180)

Three countries, namely Bhutan, Colombia, and Namibia, have adopted a unified approach by establishing a single department/agency at the national level to oversee both the civil registration and identity systems. The same entity governs, manages, and operates both systems in these countries as a cohesive unit. In Rwanda, the day-to-day operations and management of the integrated system are the responsibility of NIDA, while the legal responsibility for the civil registration system lies with MINOLAC (Ministry of Local Government). On the other hand, Bangladesh has assigned the responsibility of civil registration and identity systems to different agencies at the national level. In Kenya, two separate departments within the same ministry handle the civil registration and identity functions.

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15   The registration of births and deaths in Kenya follows a process involving assistant chiefs at over 10,000 sub-locations for events that occur outside health facilities. For events occurring within health facilities, medical personnel facilitate application for registration. In cases where a birth event is not reported to the assistant chiefs, birth registration can also be facilitated through identified MCH (Maternal and Child Health) service centres . This decentralized approach allows family members to submit their applications without having to travel to specific registration centres Despite operating manually, Kenya has achieved a birth registration completeness rate of approximately 86% and a death registration rate of 55% by leveraging formal networks at the local level

16   NIDA is under supervision of the Ministry in charge of information and communication technology and innovation.

Is it necessary for the governance and management of the civil registration and identity system to be allocated to a single government agency in order to establish and maintain an efficient CRVSID system? While the six case studies presented here may not be sufficient to prove this hypothesis, as there may be examples to the contrary. However, based on this study, it is evident that having a single entity from the beginning can offer advantages in facilitating the holistic and integrated implementation of a CRVSID system. Moreover, maintaining the system in a stable state and continuously enhancing its coverage and efficiency appears more feasible when managed by a unified agency. However, while having CRVS and ID systems under one agency can be considered beneficial, it is not the sole determinant of successfully building and maintaining an integrated CRVSID system. Table 4 also illustrates that the agencies responsible for civil registration services at the local level are not always the same as those handling identity services. Even in cases where the agencies at the national and local levels are the same, the number of centres dedicated to identity services, such as identity registration, document submission, and fingerprinting, is significantly lower. This disparity primarily arises from the fact that collecting biometric data necessitates ICT infrastructure and equipment that may be unavailable or unaffordable at the local level.

For instance, in Bhutan, identity services are only accessible at the district and municipality levels, while in Rwanda, they are limited to the sector level. Despite the relatively small number of identity registration centres, the population enjoys high identity coverage. This can be attributed to the substantial proportion of the population already included in the initial database and the high value placed on the identity card by individuals for daily interactions with the government and accessing services.

2.4.3 Coordination mechanism

Effective coordination among key stakeholders is vital to ensure the successful design and development of a stable and efficient CRVSID system. Once a policy decision is made at the highest level of government to establish a CRVSID system[17], it is crucial to establish a high-level coordination committee, which guides the business process revision to achieve the effective linkage of CRVS and ID. Additionally, the committee will develop a clear roadmap with specific milestones and timelines to guide the system's development.

The high-level committee will also oversee creating a strategic and action plan to build the CRVSID system. This plan should address the implementation of process flows and interoperability and include activities to strengthen organizational capabilities such as the legal and institutional framework, ICT infrastructure, management and coordination and human resources.

Furthermore, the high-level committee will be pivotal in implementing the plan, making high-level policy decisions, and approving significant procurements (if needed). A technical coordination committee to support the high-level coordination committee is needed. This committee typically comprises officials responsible for the respective systems (civil registration and identity) and ICT experts who will make technical decisions regarding various aspects of the preparatory work during the building phase. These decisions may include

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17   Usually, a decision of establishing a CRVSID system is taken at level of Cabinet and approved by the heads of the governments. It requires a lot of advocacy efforts including budget advocacy once approved.

mapping end-to-end business processes, defining core functional and non-functional software requirements, and proposing technology solutions. The technical committee will remain actively involved until the CRVSID system reaches full operational capacity and achieves a stable state. The team is also responsible for regularly updating the high-level committee regarding the system's progress. To ensure effective coordination, the technical committee may establish multiple teams, each focusing on different technical aspects during the system's development phase.

The high-level and technical committees should include representation from various ministries/departments/agencies. This will involve participation from the civil registration office, the department or agency responsible for governing and operating the national population register or identity management, the government agency overseeing ICT, the Ministry of Health, and other relevant entities.

In countries where a single entity manages the CRVSID system, there may not be a requirement for an inter-departmental coordination mechanism. However, even in such countries, the need for the special committee's intervention will reduce once the coordination is mainstreamed and regularised. As mentioned in Section 2.2, despite being in a steady state, the CRVSID system may still operate at a sub-optimal level due to low registration levels of births and deaths. Improving the CRVS system requires continuous coordination as multiple government agencies are involved.

Rwanda has taken steps to establish three committees: the High-level Coordination Committee on Civil Registration and Vital Statistics, the National CRVS Steering Committee, and the CRVS Core Technical Team, each with clearly specified reporting lines.

A high-level steering committee chaired by the Secretary of the Cabinet Division for improving CRVS has been constituted in Bangladesh. Two other committees also exist: the Technical Committee on CRVS, headed by the Additional Secretary (Coordination) from the Cabinet Division, and the CRVS Implementation Committee, headed by the Secretary (Coordinationa & Reforms) from the Cabinet Division.

In Kenya, at the government level, the National Integrated Information Management System Committee comprises representatives from CRS, NRB, Immigration, and ICT, with high-level leadership from the Principal Secretary. At the stakeholders' level, there is a national CRVS Technical Working Group (TWG) comprising representatives from various government line ministries and development partners.

In June 2023, Bhutan established a three-tier coordination mechanism - National CRVS Steering Committee; Inter-Agency CRVS Technical Committee; Dzongkhag (province) CRVS Coordination Committee.

In Namibia, a CRVS technical committee oversees the implementation of the NPRS and monitors its performance. The committee comprises executive directors from relevant line ministries and institutions, such as the Ministry of Home Affairs, Immigration, Safety and Security, and the Namibia Statistics Agency. Notably, the Prime Minister's Office in Namibia leads the development of the CRVSID system and coordinates its implementation, as it is responsible for guiding the development of e-Governance across all government agencies[18].

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18   No information was available for Colombia

2.4.4 Information Technology (IT)

Several IT components have to work together to establish a comprehensive and sustainable CRVSID system, enabling efficient CRVS management while ensuring accurate identification and linkage of individuals' records across various government databases. The key components are:

- Database Management System: Robust and secure system for efficient data storage and retrieval

- Unique Identification System: Assigns unique identity numbers to individuals for linking records

- Deduplication: Identifying and eliminating duplicate records for data accuracy and reliability

- Data Integration and Interoperability: Integration with other government systems for seamless data sharing

- Data standards harmonization: Aligning and integrating data standards for compatibility and consistency.

- Integrating Biometric Data: Enhancing identity verification while considering privacy considerations.

- Data Security and Privacy Measures: Strong measures to protect sensitive information and comply with regulations

- Infrastructure and Connectivity: Reliable hardware, network, and power supply for uninterrupted access

- Smart Card Technology: Utilizing smart cards as a secure form of identification and storing personal information.

- Strong backend system: robust and reliable infrastructure that supports the functionality and performance of a software application or website. …

The scope of the study does not encompass an extensive exploration of the IT components involved in CRVSID systems in the case study countries. Based on the review of literature and documents, it is evident that countries that are maintaining a CRVS system in a steady state have implemented almost all of these components, albeit utilizing different technology options. Some key components related to the CRVSID system's process aspects are discussed below.

In Bhutan, Colombia and Namibia, civil registration information and identity particulars are consolidated within a single integrated database[19]. In Rwanda, however, civil registration information and identity-related data are stored in separate databases capable of real-time interoperability. In Bangladesh, the birth and death data and the national identity data are stored in two distinct databases. Only the birth registration data from the birth and death registration system (BDRIS) is linked to the national identity database in real-time.

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19 The database management systems for these three countries are known as – Bhutan: Bhutan Civil Registration System (BCRS); Colombia: Registro Nacional de Identificación y Estado Civil" (National Registry of Identification and Civil Status), commonly known as RNDC; and Namibia: e-National Population Registration System (eNPRS)

It is worth noting that in Rwanda, both databases are maintained by the same agency (NIDA), whereas in Bangladesh, separate agencies are responsible for managing the databases - the birth and death data by the Office of Registrar General and the identity database by the Election Commission[20]. In Kenya, the national identity database is maintained by the National Registration Bureau (NRB); as stated in Table 1, the electronic database for civil registration maintained at the national level is incomplete.

Table 1 shows that ID numbers are issued to newborns immediately after birth registration in four countries: Bangladesh, Bhutan, Colombia, and Rwanda. In the case of Kenya, the process of assigning a Unique Personal Identity (UPI) number on birth registration has recently started. In Namibia, while the national identity is assigned at birth, it is issued to individuals only when they reach 16 years of age and come for identity registration.

In each country, identity cards (whether Smart or not) are issued to individuals who are registered in the national ID database. The age at which these cards are issued and the expiry periods of these cards vary among countries, as shown in Table 5 below. This table also details the number of digits and their structures in the ID numbers.

Table 5: Number digits and the structure of ID numbers, type (Smart or otherwise), age at issue, expiry period and cost of identity card

COUNTRY	NUMBER OF DIGITS IN ID CARD	STRUCTURE OF THE CARD	SMART CARD ISSUED		AGE AT WHICH THE CARD IS ISSUED	EXPIRY PERIOD OF THE CARD	COST OF THE CARD
			YES	NO			
Bangladesh	10 digits	The first 9 digits are random, with the last number being the checksum digit.	Yes		18	15 years	The first ID card is free. Between 115 and 375 Bangladesh Taka(1.05 to 3.43 USD) is charged for correction or subsequent copies.
Bhutan	11 digits	A combination of district, block and running serial numbers	Yes		8[21]	10 years	100 Nu (1.20 USD)

20 The civil registration database management system in Rwanda is called the National Centralized and Integrated Civil Registration and Vital Statistics system (NCI-CRVS) and for Bangladesh, the birth and death registration database management system is called Birth and Death Registration Information System (BDRIS). In Rwanda, the population data is managed through the National Population Registry (NPR) , which is used for the purpose of national identity management. In Bangladesh, the national identity (NID) database is maintained by the Election Commission.

21 Bhutan has recently introduced a new identity system called the National Digital Identity. Citizens from the age of 8 and above are being enrolled in the existing Bhutan Civil Registration System (BCRS) through the collection of their biometric data. Along with the issuance of the 4th generation identification cards to citizens, their identity will also be available in the form of a digital wallet on mobile phones. This digital wallet can be used for a wide range of transactions, eliminating the need for physical interactions.

COUNTRY	NUMBER OF DIGITS IN ID CARD	STRUCTURE OF THE CARD	SMART CARD ISSUED		AGE AT WHICH THE CARD IS ISSUED	EXPIRY PERIOD OF THE CARD	COST OF THE CARD
			YES	NO			
Colombia	10 digits	The first 3 digits correspond to the Office where birth is registered; next 7 digits are numbered consequently.	Yes		722	10 years	Free for the first card; Columbian Peso 55,750 (15.5 USD) for a duplicate copy
Kenya	8 digits	Serially, at the time of issue	No		18	No expiry period	The first ID card is free, KES 100 D (0.69 USD) for replacement
Namibia	11 digits	Logical construct based on the date of birth	Yes		16	10 years	The first ID card is free; it is 7.5 dollars (Incremental for every duplicate issued)
Rwanda	16 digits	The first 6 digits of the NIDA number represent the date of birth of the individual in the format of YYMMDD. The next 4 digits represent the district of birth, while the last 6 digits are randomly generated.	Yes		16	No expiry period	500 Rwandan Franc for the first card (0.42 USD) and 1500 Rwandan Franc for subsequent cards

Deduplication is a crucial process that must be incorporated during birth and identity registration to prevent the presence of duplicate records in population registration and identity databases. All case study countries employ deduplication techniques that utilize both biographic and biometric (fingerprint) data for registering individuals in their population register and/or national identity databases. However, it is worth noting that countries such as Rwanda and Bangladesh have established systems to identify duplicate birth registrations using different attributes on which information is collected through birth registration. However, in these and

22   This is a basic ID card issued during childhood. Upon reaching the age of 18, every citizen is reissued a citizenship card (*Cédula de Ciudadanía*). Starting 2020, Colombia has enabled citizens to create a digital version of their national ID card on their smartphone by downloading an app from the National Registry of Civil Status, scanning a QR code and authenticating their identity using facial recognition.

similar other countries, existing systems do not support automated deduplication of registration records. Consequently, they have to rely on a manual verification and validation process before deciding to remove duplicate birth records. This additional step ensures that accurate and reliable data is maintained despite the absence of automated deduplication capabilities in their systems.

Some case study countries have successfully established direct connections between their national identity databases (foundational databases) and some selected functional registers or databases). For example, in Colombia, the SISBEN (Sistema de Identificación de Potenciales Beneficiarios de Programas Sociales) utilizes the unique identification number generated by the CRVSID system as a key reference in its social welfare identification system, facilitating accurate identification and assessment of potential beneficiaries. Similarly, in Rwanda, the NCI-CRVS system seamlessly integrates with the health management system, enabling sharing newborns' identity numbers with healthcare providers to provide healthcare services efficiently. Likewise, in Namibia, the direct linkage between the passport management system and the e-NPRS (Electronic National Population Registration System) enhances passport management processes by ensuring secure and reliable identification of individuals. It is worth noting that in Bangladesh, the interlinking of the voter's register and the national identity register ensures improved coordination and reliable voter identification, safeguarding the integrity of the electoral process[23]. These successful connections demonstrate the positive impact of integrating national identity databases with functional registers, fostering streamlined government operations and service delivery. The majority of the studied countries that have implemented a stable CRVSID system are actively working towards expanding the interlinkages of this foundational system with other functional registers. They are focusing on improving the enabling environment, which includes aspects such as the legal and regulatory framework, institutional arrangement, and information technology. Countries aim to facilitate seamless integration and effective coordination between the CRVSID system and other registers by addressing these areas.

Table 5 depicts the technical components, such as the age at which biometrics are collected and the issuance of smart identity cards. However, this report does not explore the technological aspects associated with these parameters, as they are beyond the scope of the study.

2.5 PRODUCTION OF VITAL STATISTICS AND POPULATION STATISTICS

Except for Bangladesh, all the other case study countries produce and make them publicly available, as indicated in Table 6 below. However, none of these countries except Colombia have reached a stage that enables the compilation of dynamic population data. Colombia stands out as the country that has made the most significant strides toward achieving this objective, boasting impressive rates of identification coverage, birth registration, and death registration.

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23   It should be noted that the Bangladesh National Identity database is primarily derived from the existing voters' database, resulting in a seamless interlinkage between the two. However, the absence of a comprehensive CRVSID database poses a hindrance to establishing linkages with population-based functional registers, including those related to education, health, and social protection.

Table 6: Status of production and dissemination of vital statistics based on civil registration data

COUNTRY (AGENCY RESPONSIBLE FOR COMPILATION OF VITAL STATISTICS)	VITAL STATISTICS PRODUCED	LATEST YEAR FOR WHICH VS IS AVAILABLE	TABLES PRODUCED AS PER THE UN LIST	REMARKS
Bangladesh Proposed to be compiled by Bangladesh Bureau of Statistics (BBS)	No	-	-	The High-Level Steering Committee has taken a decision to establish a civil registration-based vital statistics report.
Bhutan National Statistics Bureau (NSB)	Yes	2020	Most tables	
Colombia National Administrative Department of Statistics (DANE)	Yes	Birth – 2020 (final); 2021 (preliminary) Death – 2018 (final); 2019 to 2021 (preliminary)	A few only	No report has been published, but data is available online at DANE - Population and Demography Online access to the anonymized micro-data is also provided (latest 2015) Separate data series for infant mortality rates is provided online.
Kenya Civil Registration Services (CRS)	Yes	2021	A few only	
Namibia Namibia Statistics Agency (NSA)	Yes	2016-2017	A few only	This is a one-off report. No report was produced before or after this.
Rwanda National Institute of Statistics of Rwanda (NISR)	Yes	2022	Most tables	

Sharing civil registration data with vital statistics compiling agencies varies among the case study countries. None of these countries have specific legal provisions for data sharing in their civil registration laws. Below is a brief description of the data flow process for vital statistics compilation in each case study country (excluding Bangladesh).

- In Bhutan, electronic data is transferred annually from the integrated CRVSID database (BCRS) maintained by DCRC following the end of the calendar year. This transfer is based on a memorandum of understanding (MOU) signed between the NSB and DCRC, specifying anonymized data sharing.

- In Colombia, application data filed by health facilities (for facility-based events) and designated registration centres (for events occurring outside facilities) is entered into a web-based application called RAUF-ND. This data is then transferred to a national population registry maintained by DANE. The continuous data flow enables DANE to compile vital statistics for the country.

- In Kenya, the statistics wing within the CRS compiles vital statistics using information collected from local registration centres. The compiled data is entered into Excel sheets and transferred monthly as email attachments. The Kenyan National Bureau of Statistics (KNBS) is involved in the final validation, analysis, and report writing stages.

- In Namibia, there is currently no established data exchange infrastructure between the Department of Civil Registration (DCR) in the Ministry of Home Affairs and the NSA. Civil registration data is exchanged using external hard drives. Namibia has only produced one vital statistics report for 2016-2017, published in 2020. This report seems to be a singular effort, indicating that a civil registration-based vital statistics system is yet to be fully established.

- In Rwanda, the CRVS web-based system developed by NISR is linked with the NCI-CRVS database to ensure continuous online data flow for vital statistics compilation. The CRVS web-based application also obtains data from the HMIS and combines it with civil registration data to produce vital statistics. The names of registered children within NCI-CRVS are shared with NISR, which also compiles the top twenty names of boys and girls, a unique tabulation that can be of sociological interest.

2.6 ESTABLISHING THE CRVSID SYSTEM THROUGH "STOCK" AND "FLOW' APPROACH

This report reiterates the three primary inquiries it aims to address, as previously outlined in Section 1.1 to to underscore their importance and focus. .

1. How was the stock built?

2. When was the civil registration data linked to the population register/identity database?

3. How long did the system transition from a transient to a steady state?

It is essential to acknowledge that the establishment and sustainability of a CRVSID system depend on strengthening key enabling environments and organizational capabilities. These capabilities are crucial for the system to operate at an optimal level. Specifically, three critical capabilities require significant attention and development: legal framework, institutional arrangements (including coordination mechanisms), and information technology infrastructure. A comprehensive depiction of the present status of each of these capabilities can be found in Section 2.4, providing insights into the current gaps and bottlenecks. These limitations hinder the establishment of a fully functional CRVSID system that has to operate in a steady state, achieve comprehensive coverage and deliver efficient services as expected.

Despite the somewhat restrictive enabling environments, four out of the six case study countries have successfully built a CRVSID system that operates in a steady state. However, it is important to note that this journey has been far from easy. These countries have persistently worked towards overcoming these challenges, aiming to enhance their capabilities and advance their systems to higher maturity levels. Their ongoing efforts reflect their commitment to continuous improvement and progress. For example, Namibia has taken a significant step by introducing a bill in Parliament that consolidates the different legislative aspects of civil registration and identity management into a comprehensive law. Similarly, Bhutan has made notable progress by implementing a digital identity system based on a self-sovereign identity model using decentralized ID technology. This approach empowers users with greater control over their identities and enables them to share personal data selectively.

Bangladesh is currently in the process of advancing towards the establishment of a comprehensive CRVSID system, while Kenya, having experienced several unsuccessful attempts in the past, is now in the process of developing a roadmap for building such a system.

The individual country case studies offer a detailed and chronological narrative of each country's journey towards establishing and maintaining a CRVSID system. These case studies highlight the significant milestones achieved along the way, providing valuable insights into the progress made by each country. For Bangladesh and Kenya, the journey reflects the efforts made thus far in building a CRVSID system in these countries.

2.6.1 Building stock

As stated before, two approaches are commonly employed in building stock for a CRVSID system: a) utilizing existing data and records and b) conducting mass enrolment. In the case of all the countries studied that successfully established a CRVSID system, they used existing data to build the initial foundation (stock). The decision to adopt this approach was primarily influenced by the presence of a legacy system in each country, and none of them chose to begin from a completely blank slate. The legacy data on individuals in these countries were originally available in paper format and used for providing identity services at local levels. Some countries required proof of birth for registration into the identity register, while proof of death was necessary for identity cancellation. These operations were carried out in accordance with the existing legal frameworks of each country. The identity registers only included individuals eligible for obtaining identity credentials, typically defined by a specified age cutoff. Meanwhile, in most countries, civil registration systems functioned manually and independently from the identity systems.

It is important to recognize that the journey towards establishing a CRVSID system commences with digitizing all existing information into a centralized database (initialization of the stock), involving data entry from paper records. All the case study countries have adopted this method, albeit employing different processes to achieve it.

It is crucial to acknowledge that a modern digital national identity database must include biometric information to ensure unique identification and prevent duplication of individuals. Since transforming paper records into an electronic database does not inherently include biometric data, a separate exercise was necessary to capture biometrics for all individuals within the initial identity register. This additional step was required to enhance the accuracy and reliability of the ID database. Not all countries captured biometrics as

a mass enrolment process when the paper records were digitized or even later. Countries have employed a more demand-based approach. Below are examples illustrating the process of creating stock for several countries, encompassing three potential scenarios[24]:

- Bangladesh computerized all the voters' registers in 2007-2008 to build the National ID register and also collected voters' biometrics through a national campaign during the same period. *(The information contained in the paper-based records was converted into a digital identity database, and the collection of biometric data occurred almost simultaneously through a campaign method.)*

- In 2003-2004, Bhutan computerized the existing family diaries by creating standalone databases known as the Bhutan Civil Registration System (BCRS)[25] to provide civil registration and identity services at district registration offices/municipalities. In 2012, these standalone databases were transformed into a web-based system, establishing a national-level BCRS system that offered online services. Initially, the BCRS did not incorporate any biometric information. However, Bhutan recently initiated a campaign-based approach to collect individual biometric data as part of their national digital ID project, thus incorporating biometrics into the BCRS system. (*Information from paper-based records transformed into a digitally integrated civil registration and identity database (CRVSID) first as a standalone database at the district level and then converted into a web-based CRVSID database at the national level. Biometric data collection was introduced through a campaign method approximately ten years after the initial population database was established.)*

- In Rwanda, information on households and members within the households was available in the form of a paper-based register based at the sector offices. In 2007, NIDA collected data on the entire population through a door-to-door census using paper-based individual forms using primary teachers in 3 days. The information collected through this census-type exercise was entered (9.5 million forms) in 45 days in the computerized national population registry. Furthermore, in the same year, Rwanda initiated the collection of biometric data. Massive campaigns informed citizens about the activity and shared the timelines for each region as the teams collected the biometrics and issued the ID cards after their production. Following the massive enrolment campaigns, educational campaigns continued through electronic media and community gatherings, educating citizens on the benefits of having an ID card. (*The information gathered through door-to-door census operations was thoroughly verified and validated by cross-referencing it with the paper-based records available at the local level. Once the data was verified, it was computerized to establish the national population register. This entire process was successfully completed within two months. The collection of biometric data commenced immediately afterwards, which was conducted through a campaign method.*)

In the case of Colombia, the registers of persons were used to build an integrated CRVSID database. Namibia used a combination of South-West African (SWA) ID documents and campaign methods to initialize the stock, a long-drawn process. The approaches used for stock building in the three countries mentioned above, and those adopted by Colombia and Namibia (as detailed in the case studies) clearly indicate that although existing records were utilized in initializing the stock, each country followed a distinct pathway.   Based on

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24   The detailed description of building of stock for other countries are described in induvial case studies

25   This is essentially an integrated CRVSID database.

the case studies, no definitive evidence exists to determine the most effective approach for creating a stock. The discussion may instead revolve around which approach resulted in a more expeditious creation of the stock and its comprehensiveness.

Kenya stands as a unique case study, as it has encountered numerous challenges in its continued efforts to establish a CRVSID system. Despite multiple attempts since 2005, the country has been unable to successfully develop the envisioned comprehensive system. To construct and maintain an integrated civil registration and identification management system, Kenya introduced the Huduma Bill. The primary objectives of this bill were to establish the National Integrated Identity Management System (NIIMS), enhance the efficient delivery of public services, consolidate and harmonize laws related to the registration of persons, facilitate the allocation of Huduma Namba (a unique identification number), issue identity documents, and facilitate the registration of births and deaths, among other interconnected goals. A large number of residents were registered in the NIIMS database through a mass campaign method essentially to build the 'stock'. However, the Huduma Bill encountered hurdles and faced opposition from certain sections of the general public and specific government quarters, and efforts to build the stock halted. Concerns ranged from proposed organizational and managerial reconfigurations to apprehensions regarding privacy, confidentiality, and the potential exclusion of marginalized communities. Kenya is exploring alternative approaches to building a CRVSID system, which is currently in an exploratory stage.

2.6.2 Linking of civil registration data with the population register

A CRVSID system operates under the assumption that an NPR exists and is continuously updated in real-time using data from the civil registration system, particularly for vital events such as births and deaths. The updated NPR serves as the foundation for identity management within the system. Whether the NPR and identity management database are housed in a single integrated database, or separate but interconnected databases does not alter the fundamental nature of a CRVSID system and its intended purpose. Furthermore, some case studies countries like Bhutan, Colombia, and Namibia have adopted an approach where the information from civil registration and identity systems is consolidated into a single integrated database continuously updated in real-time. In these countries, the integration of the two systems occurred from the outset, and no distinct milestone marked their linkage. As a result, these countries do not strictly adhere to the sequential steps outlined in Figure 2, as their systems were developed in intertwined manner. Bhutan and Colombia distinguish themselves by maintaining an integrated population register at the local level, even when manual systems were in use. These countries consistently updated the records within this register, incorporating information on births, deaths, and marriages. In addition, Bhutan's family diaries also documented migration details from one location to another and individual movements from one family to another. These practices demonstrate their commitment to maintaining comprehensive and up-to-date population data, even before implementing more advanced systems. These two systems were born as integrated CRVSID systems and likened to the birth of Siamese twins.

Hence, the second critical question regarding the linkage of civil registration data with the population register is relevant to Rwanda and partially to Bangladesh. In Rwanda, the NCI-CRVS database was connected to the NPR in 2020, more than 22 years after the electronic NPR was established. This delay can be attributed to the lack of digitization of the civil registration system in Rwanda.

Similarly, in Bangladesh, only birth registration was linked to the NID register maintained by the Election Commission of Bangladesh (ECB) in 2020, almost four years after the establishment of the former. It is worth noting that children born before the integration milestone and reaching 16 for national registration were excluded from the process. Bangladesh has initiated the registration of these children into the NID system through the school system, providing them with a unique identification number (UID). This initiative demonstrates Bangladesh's commitment to establishing a comprehensive national population register as outlined in the CRVSID framework.

In Namibia, the first electronic population register, known as the Namibia Population System (NAMPOS), was established in 1989 to manage the issuance and cancellation of National ID cards. The NAMPOS underwent an upgrade in 2000 (e-NCRS) and was integrated with the birth and death registration system. Furthermore, the collection of automated fingerprints commenced in 2004. However, the e-NCRS did not fully encompass birth, death, and marriage registration processes. Due to the limitations of the e-NCRS, technological advancements, and evolving governmental requirements, a new comprehensive web-based system called the National Population Registration System (e-NPRS) was introduced in 2011 to replace the e-NCRS. Consequently, the construction of the stock was undertaken in an integrated manner starting from 2000.

2.6.3 Time taken from reach from transient state to steady state

The previous two sub-sections have provided insights that broadly address this question. Determining the exact starting point for a system to transition from a transient state to a steady state is crucial in answering this inquiry. One appropriate approach is considering the initialization of the population register as the starting point, followed by its eventual linkage to the civil registration system, marking the attainment of a steady state.

Based on this perspective, Bangladesh is currently in a transient state and will require some more time before reaching a steady state. On the other hand, Bhutan took approximately ten years to integrate standalone databases into a national population register and an additional ten years to incorporate biometric data into the population register. It is worth noting that even during their manual operations before 2012, Bhutan was able to deliver all the expected services of a CRVSID system.

In the case of Rwanda, it took 22 years to transition from a transient state to a steady state. In Namibia, the National Population System (NAMPOS) was built in 2000, which later became the National Population Registration System (NPRS) in 2011. The NPRS started operating as a steady-state CRVSID system in 2012 after incorporating the death registration module. The birth registration module was introduced a year later, in 2013.

2.6.4 Summary of stock and flow approach adopted by countries for building their CRVSID systems

The stock and flow approach adopted by the case study countries is detailed in Sections 2.6.1 to 2.6.3. The pathway to building the CRVSID system through this approach is summarized in Tables 7 and 8 below.

Table 7 : Pathway to building the CRVSID system – Initializing stock

COUNTRY	ESTABLISHED AND IN STEADY STATE	APPROACHES TO INITIALIZING THE STOCK	TYPE OF RECORDS AND DATABASE USED	YEAR IN WHICH THE DIGITIZED STOCK WAS INITIALIZED
Bangladesh	No, partially	Existing database	Electronic voters' database	2016
Bhutan	Yes	Existing paper records	Family diaries	2003-2004 (decentralized) 2012 (National database) (BCRS)
Colombia	Yes	Existing records	Family registers	Not known
Kenya	No, initiated; many past efforts were not successful	Three attempts Existing databases (2 times) Mass enrolment	Not applicable	Not applicable
Namibia	Yes	Existing ID database	South-West Africa ID (SWA-ID)	2000 (NAPMOS) Improved System 2011 (NPRS)
Rwanda	Yes	Existing record + census type operation	Paper-based register of households and persons verified through a census-type operation	2008

Table 8 : Pathway to building the CRVSID system – linking civil registration (flow)

COUNTRY	BIRTH AND DEATH REGISTRATION SYSTEM DIGITALIZED AT THE NATIONAL LEVEL	YEAR WHEN BIRTH AND DEATH REGISTRATION SYSTEM LINKED TO POPULATION REGISTER/ID DATABASE	TIME TAKEN TO LINK CRVS AND POPULATION REGISTER/ID DATABASE
Bangladesh	Yes Birth 2010 Death 2020 (BDRIS)	Only birth linked in 2020	4 years
Bhutan	Yes No separate database	Built as an integrated CRVSID database in 2012 (BCRS)	Built as one integrated system together

COUNTRY	BIRTH AND DEATH REGISTRATION SYSTEM DIGITALIZED AT THE NATIONAL LEVEL	YEAR WHEN BIRTH AND DEATH REGISTRATION SYSTEM LINKED TO POPULATION REGISTER/ID DATABASE	TIME TAKEN TO LINK CRVS AND POPULATION REGISTER/ID DATABASE
Colombia	Yes No separate database	Built as an integrated CRVSID database (RNEC)	Built as one integrated system together
Kenya	Yes Incomplete database	Not linked	Not applicable
Namibia	Yes No separate database	Built as an integrated CRVSID database (NPRS) Death module implemented in 2012 Birth module implemented in 2013	Built, in a phased manner, as an integrated system
Rwanda	2020-2021 NCI-CRVS	Linked with NPR in 2020	22 years

2.7 KEY ISSUES AND CHALLENGES

Table 2 offers compelling evidence that even countries that have effectively implemented and sustained their CRVSID systems face challenges in achieving complete identity coverage and deactivating records of deceased individuals. A significant hindrance in this regard is the insufficient rate of death registration observed in numerous countries. Consequently, it becomes crucial to initiate targeted and concerted efforts to ensure that the CRVSID database is all-encompassing, resilient, and accurate in its operations.

The analysis of legal frameworks in Section 2.4.1 (Table 3) reveals that all five countries have separate laws governing their civil registration and identity systems. Yet, Colombia, Namibia and Rwanda have successfully developed fully functional CRVSID systems and sustained them with a reasonably high-efficiency level. However, it is important to note that their journey to success was far from easy and required persistent and coordinated efforts. In contrast, Bangladesh and Kenya have encountered challenges in establishing a CRVSID system. Kenya has made several attempts to develop one, while Bangladesh is currently in the initial stages of this journey.

Columbia, Namibia, and Rwanda have shown that a fully functional CRVSID system can be established even with separate civil registration and identity laws. This indicates that a unified legal framework may not always be necessary for an effective CRVSID system. However, a unified legal framework can bring some benefits, such as clarity, consistency, and streamlined processes for integrating civil registration and identity functions. It can also promote a shared understanding among stakeholders, reducing confusion and potential conflicts. However, the decision to adopt a unified approach should consider each country's specific context and capacities. Interestingly, Namibia has recently introduced a new Bill in the Parliament, bringing the various pieces of legislation pertaining to civil registration and identity management under one comprehensive law.

One notable factor that appears to have contributed to the successful implementation of the CRVSID system in Bhutan, Colombia, Namibia, and Rwanda is the presence of a single organization responsible for administering, managing, and operating the system at both national and local levels. This integrated organizational structure allows for better coordination, efficient data sharing, and streamlined processes, which ultimately contribute to the successful implementation and operation of the CRVSID system. This unique organizational structure is not commonly found, and many countries face significant challenges in terms of coordination and collaboration. A prime example is Bangladesh, where two separate agencies manage and operate the civil and identity registration systems. This division can lead to complications, requiring extensive coordination and communication between the two agencies to ensure smooth functioning and interoperability. The experiences of these countries highlight the importance of having a unified and cohesive organizational structure for effective CRVSID system implementation. By consolidating the responsibilities and functions under a single authority, countries can enhance coordination, improve data integrity, and overcome challenges associated with fragmented systems and disjointed operations.

An equally important element that contributed to the success in the countries where the integration of CRVS-ID systems proceeded more smoothly than in others was the leadership and political will available to make this integration possible.

One crucial issue that requires attention is the limited scope of national population registers in certain countries, which often include only citizens rather than all residents. For instance, in Bangladesh, while all births occur within the country's territory according to the birth and death registration law, the identity database only includes newborns after confirming their citizenship through their parents' identity information. National ID cards are issued exclusively to citizens. Similarly, in Bhutan, the Bhutan Civil Registration and Census (BCRC) serves as a register for citizens, while non-citizens are registered in a separate database maintained by the immigration department. Similar situations likely exist in several other countries as well.

This selective approach to population registration challenges achieving comprehensive coverage and inclusivity within the CRVSID system. It creates a gap in identifying and documenting non-citizen residents, affecting their access to essential services, legal protections, and social participation. Moreover, such situations may exacerbate inequality, foster exclusion, and hinder countries' ability to gauge population size and demographic trends accurately.

There are several ways in which residents of countries can be excluded from obtaining legal identity. Even if a CRVSID system is functioning steadily, it does not guarantee the inclusion of every resident in the country. Exclusion can arise from gaps in the legal and organizational frameworks governing CRVS and ID systems, as well as from inefficient and cumbersome registration processes and high associated costs. For instance, as evidenced in Table 2, a notable percentage of individuals do not possess birth certificates even though their births are registered. Except for Bhutan[26], all the case study countries require a birth certificate as one of the essential documents for identity application. Individuals without a birth certificate or whose births have not been registered may encounter numerous challenges in obtaining one. The other essential document required to be produced in some countries is the national ID for birth registration, posing challenges to young mothers and others who do not possess them.

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26   In Bhutan, original Health Card/Mother & Child Health Handbook has to be submitted along with the application for citzen ID

SECTION 3

Recommendations

1. The report highlights the diverse experiences of countries in their journey towards building a CRVSID system aligned with the UNLIA agenda. The case study countries have made progress in either establishing, nearing completion, or embarking on the path to building a CRVSID system that aligns with the UNLIA model. Some countries have achieved this goal relatively quickly due to their existing integrated systems, resembling the UNLIA framework. Therefore, it is crucial for UNLIA to strategically determine the criteria for identifying countries needing in-country technical assistance support. Ideally, priority should be given to countries already on their journey and closest to achieving their objectives. The mantra of "nothing succeeds like success" should guide this approach. However, this should not discourage UNLIA from engaging with countries in a state of transition. In such cases, the focus may be on understanding the challenges, engaging in dialogue with the highest levels of government, and advocating for adopting the right approach to reach the ultimate goal.

2. Multiple countries are currently utilizing the CRVS Systems Improvement Framework to assess, analyze, and enhance their CRVS systems. This framework serves as a collaborative and comprehensive guide for governments to evaluate their existing CRVS processes, identify gaps, and determine improvement areas. The ultimate goal is to strengthen the collection and utilization of vital statistics data for more effective planning and priority setting. To further enhance the CRVS process, engaging with the relevant agencies to expand the framework's scope and incorporate the identity system is crucial, making the redesigned CRVS system "ID-ready." This approach will help minimize the time required to transition from a transient state to a steady state and prevent challenges like the need to link the CRVS system to the NPR, as observed in Rwanda.

3. UNLIA may undertake operational research paertaining to some of the processes that hinder in building an mainataining a complete and efficient CRVSID systems. These are briefly describe below:

   a. Despite significant improvements in birth registration completeness in most countries, death registration lags. This discrepancy affects not only the accuracy of coverage estimates but also the deactivation of identities. In low- and middle-income countries (LMICs), the problem of low death registration persists, which hampers the ability to deactivate deceased individuals' identities effectively. The passive nature of current business processes does not provide sufficient incentives for registration across all age groups. The UNLIA may consider conducting (in collaboration with other relevant partners) operational research on successful strategies employed by certain countries to enhance death registration rates. Understanding these approaches can lead to better coverage estimates and more reliable identity deactivation processes.

   b. The absence of birth certificates is expected to pose a significant obstacle to ID registration. To address this issue, the UNLIA may want to undertake operational research to study the process of birth certificate issuance and propose enhancements to improve the efficiency and timely delivery of

these certificates. This research is crucial for identifying bottlenecks and implementing measures to facilitate smoother and more effective issuance procedures.

    c. It is crucial to conduct further research to examine the extent and causes of exclusion and the pathways that lead to such exclusions. Therefore, it is recommended that the UNLIA initiate research in this significant area to systematically address these issues and achieve the goal of "legal identity for all, including birth registration".

4. UNLIA may take the initiative to develop concise CRVSID profiles for countries and widely disseminate them through their websites and other platforms. These profiles should encompass key aspects such as the current status of the CRVSID system, challenges faced, best practices, and ongoing efforts. By providing these profiles, UNLIA can facilitate knowledge sharing and promote transparency among countries, fostering a collaborative approach towards strengthening CRVSID systems worldwide

5. UNLIA may consider organizing regular seminars on various topics related to CRVSID, where countries can present examples of their successes and challenges. These seminars would serve as valuable platforms for sharing knowledge, exchanging experiences, and learning from each other's approaches. By facilitating these discussions, UNLIA can foster a collaborative environment where countries can collectively work towards addressing the common challenges and advancing the field of CRVSID.

6. There is a need to advocate with the UN Economic Commission for Africa (ECA) and UN Economic and Social Commission for Asia and the Pacific (ESCAP) for the formal expansion of the narrative from CRVS to CRVSID to include identity systems as an integral component. This expansion would create a win-win situation for both CRVS and ID systems on the African and Asian continents. It is strategically beneficial to leverage a program that has already successfully built and maintained momentum across African and Asian countries in strengthening CRVS systems.

7. Advocate for adopting a standard definition of the "Population Register" so that all residents in the country's territory are included without considering citizenship as an eligibility criterion.

8. It is crucial to establish a pool of global experts and provide them with the necessary tools to offer technical assistance whenever needed. These experts do not necessarily have to possess expertise in the technological aspects of the CRVSID system. Still, they should have a strong understanding of the entire process involved in establishing and maintaining such a system and the organizational capabilities required to do so.

9. The case study clearly shows that the data on the completeness of identity coverage provided by the World Bank suffers from incompleteness due to low birth registration and identity registration. On the other hand, it is inflated on account of incomplete death registration. It is recommended that UNLIA engage with the World Bank in working on a methodology for proper estimation of completeness of identity coverage.

References

1. Implementation of the United Nations Legal Identity Agenda; United Nations Country Team- Operational Guideline UNDESA, UNICEF and UNDP; May 2020. See link: UNCT-Guidelines.pdf

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3. ID4D Practitioner's Guide : The World Bank Group, October 2019. See link: World Bank Document

4. Implementation of the UN Legal Identity Agenda in selected African Countries: Synthesis Report Review of the 10 Country Assessment Report (Draft); Prepared by UNLIA Task Force as a Background Document for the 53rd Meeting of the Statistical Commission- March 2020 See link: BG-3f-UN-Legal-Identity-Agenda-in-selected-African-Countries-E.pdf

Note: The references for the country case studies are provided in the individual case study reports

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