



**Aligning Partner Support with the Government of Malawi to
Strengthen the Integrated National Data System (INDS) for Health:
Civil registration, Vital statistics, and Geospatial Data.**





White Paper by:

UNFPA and WHO

**On behalf of the SDG3 Global Action Plan Data and Digital Accelerator
and the Health Data Collaborative**

**NOTE: This document has been reviewed for accuracy by the following units
within the Government of Malawi - National Registration Bureau, National
Statistics Office, and Ministry of Health**

Signed:

**Mr Mphatso Augustine Sambo
Permanent Secretary
National Registration Bureau**

**Dr Charles Mwansambo
Secretary for Health
Ministry of Health**



Background

In June 2022, partners of the [Sustainable Development Goal 3 Global Action Plan, Data and Digital Accelerator](#) (SDG3 GAP D&D) and the [Health Data Collaborative](#) (HDC) undertook a joint mission to Malawi to assess the status of civil registration and vital statistics (CRVS) and current capacity of geographic information systems (GIS) in the country. The key aim of the joint mission was to assess opportunities for more cohesive technical support to the Malawi government in order to advance the coverage and quality of CRVS, and maximize the effective use of GIS for improving coverage of CRVS, and essential health services.

Robust national data systems in health and population are essential for the achievement of the 2030 Agenda. Increasing the quality and coverage of CRVS is both a global SDG priority, and an explicit goal of the Malawi government, and CRVS is recognized as an essential vehicle for tracking improvements in maternal, newborn, child and adolescent health.

As health and population data systems are increasingly digitized, including in Malawi, georeferenced data are increasingly available to locate pockets of need, and support the achievement of universal health coverage (UHC), and universal civil registration coverage. Knowing the locations of both people and health facilities enables the government and its development partners to identify those furthest behind, and to target both CRVS and health services and investments for greater impact.

Aim

The aim of this white paper is to consolidate observations from the joint mission, and to lay out policy suggestions and options to be considered by the government of Malawi. The paper identifies a range of potential opportunities for improving both internal (across government) and external (donors and partners) alignment to strengthen CRVS and national health data systems in Malawi.

Current Status

Civil Registration and Vital Statistics (CRVS)

In a 5-year period, Malawi has established a strong foundation for its CRVS and legal ID systems. The National Registration Bureau (NRB) is designated as the core coordinating institution for civil registration, vital statistics and legal identity in the country. In close partnership with UNDP, the NRB has introduced a legal framework (National registration Act No 13. Of 2010) and a 5-year strategic plan for promoting universal legal identity.¹ In 2018, birth registration was estimated to be approximately 60% complete and proof of legal identity for persons above 16 years to be above 90%.² By mid-2022, completeness of birth registration and proof of legal identity for persons above 16 years was projected to be 27 % and 91 %, respectively.

¹ National Registration Bureau, Malawi (2018) National Registration Bureau, Strategic Plan - 2019-2024.

² Malawi National Statistics Office (2019) 2018 Malawi Population and Housing Census - Main Report. Government of Malawi.

In partnership with key institutions such as the Ministry of Health, the NRB has established a strategic plan for national registration (2019-2024). Working across ministries, the NRB has rolled out birth registration in 585 health facilities in 28 districts and death registration in 431 health facilities in 22 districts. The Government of Malawi with support from U.S. Center for Disease Control, Community of St Egidio, Vital Strategies, UNDP and other stakeholders has also taken the important step of bringing the legal identity and civil registration functions under one institution, the NRB, and aligning the digitization of both systems to assure an integrated registration and identity management system. Legal ID numbers are assigned at birth registration. These institutional and technological investments provide a strong platform for alignment and scale-up of the CRVS and ID management system.

As Malawi is at the midpoint in the 2019-2024 National Strategic plan on registration, progress to date can be assessed, course corrections taken, and remaining gaps systematically and holistically addressed. Opportunities to accelerate progress for Malawi's CRVS and legal identity system include: (1) strengthening collaboration between the NRB, the Ministry of Health and the National Statistical Office (NSO); (2) improving both demand for timely and universal civil registration and geospatial coverage; (3) ensuring a stronger life course approach to CRVS/ID; and (4) developing data governance standards to support the CRVS/ID systems. In 2021, WHO supported a rapid CRVS Assessment to identify areas of greatest need. However, a comprehensive CRVS assessment is urgently required to advance a holistic approach to CRVS systems scale-up.

Geospatial Data for the Health Sector

The foundational geospatial data to support integrated health information systems (including CRVS) are georeferenced population data, health facility data with geographic coordinates, and related common geography data (e.g. road systems, elevation, land cover, settlements, building footprints). With these foundational datasets, government analysts can integrate data in ways that are especially valuable to promoting universal access to health.

Malawi is relatively “data-rich” in terms of the availability of georeferenced population and health sector data:

- The 2018 Population and Housing Census (PHC) was fully georeferenced with GPS coordinates collected for all households. With wide adoption of geo-referenced household data, offers transformative potential to look at where populations are located, and to identify key populations through disaggregation (e.g. by age group, disability status, wealth, structure of household, etc);
- DHIS2 (District Health Information System 2.0³), the central data repository of the Health Management Information System (HMIS) includes **DHIS2 mobile** (2012), introduced to

³ www.dhis2.org

improve timeliness of data collection and reporting at facility level; and **DHIS2 GIS** (2015) introduced to enhance geospatial analysis and mapping⁴;

- The Malawi Health Facility Registry (MHFR)⁵ provides an online national registry with GPS coordinates for each health facility in the country.

Besides data collected through the central ministries of Government of Malawi, various health data are collected through international organizations, e.g. WHO's Service Availability and Readiness Assessment (SARA)⁶, ICF International's Service Provision Assessment (SPA)⁷ and Demographic and Health Surveys (DHS), etc. In Malawi:

- The 2014 SPA and 2019 SARA surveys included all health facilities (not a sample of facilities as in many countries), and included GPS coordinates for each health facility, which are paired with the detailed SPA data on facility services, commodities, equipment and infrastructure;
- Malawi DHS 2015-2016 includes GPS location of each DHS survey cluster, which allows the geographic linking of survey cluster data with health facilities. It also enables small area estimation (SAE) of DHS indicators through geostatistical modeling with other geospatial data.

The Malawi Department of Surveys has the leadership role for geospatial data coordination and sharing, including coordinating with relevant departments for cartographic data, e.g. road system, land cover, settlement locations, etc. The Department has developed the [Malawi Spatial Data Platform](http://www.masdap.mw/) (<http://www.masdap.mw/>) for data sharing and dissemination, which is helping to promote national use cases in which mapping or geospatial data have been utilized. Leadership by the Department of Surveys, however, does not extend to the MoH, or other sectors, and the geospatial data domain in Malawi is characterized by numerous public and private initiatives, including donor-driven activities, promoting different geospatial data solutions, and different platforms and portals, without shared planning or coordination.

Given the available georeferenced health and population data, Government of Malawi has many opportunities to capitalize on geospatial analysis for the health sector: (1) Coordinate agreements on Government's geospatial data solutions, including choices in software and data platforms, to streamline harmonization; (2) Improve geospatial data collection; (3) provide a Government roadmap with strategic priorities for geospatial analysis, such as population coverage of priority services, health sector forecasting, etc; (4) Improve linkages with the national GIS academic sector as a means to rapidly enhance government capacity and leadership on geospatial data systems; and (5) develop national data governance standards for quality assurance, confidentiality and data protection, and the establishment of common structures and processes.

⁴ Chikumba, P. A. (2017). Management of health information in Malawi: role of technology. *Advances in Science, Technology and Engineering Systems Journal*, 2(1), 157-166.

⁵ <http://zipatala.health.gov.mw/about>

⁶ https://www.who.int/healthinfo/systems/sara_methods/en/

⁷ <https://dhsprogram.com/methodology/Survey-Types/SPA.cfm>



Key Opportunities for Better Alignment and Support

1. Strengthen Collaboration between NRB, NSO and MOH for CRVS

Improvements in the technical coordination and data sharing arrangements between the NRB, MoH and NSO in Malawi are needed. Currently, civil registration data does not routinely flow to the NSO and the Malawi NSO does not produce routine vital statistics from civil registration data. In the course of the joint mission, the NRB identified production of vital statistics as an institutional priority, in collaboration with the Ministry of Health and NSO.

A culture of vital statistics production, dissemination and use is critical for establishing a dynamic and sustainable CRVS system. In addition to strengthening the data flow and data sharing between MoH, NRB and NSO, investment is needed to ensure a dynamic engagement between vital statistics producers and users in Malawi. Ultimately, vital statistics are a powerful tool to guide policy and program design in the areas of health, education and social protection across national, regional and local government structures. The experience of Kyrgyzstan is a useful case study in this regard.

The NSO in Kyrgyzstan has established a consultation process through press conferences, exchange of electronic mails and chat groups with its primary statistics users. There is a multi-stakeholder group of academic institutions, government departments, and NGOs that work in close collaboration with the NSO, advising on useful vital statistics products for decision makers. This has resulted in an array of official statistics outputs drawn on civil registration data in Kyrgyzstan, including the NSO's [gender statistics portal](#) and regular thematic publications such as "Youth of Kyrgyzstan". Such coordination and collaboration ensure that civil registration data are routinely produced with a view to users' needs throughout the country and across sectors.

Key priorities for Malawi are ensuring data governance to assure that civil registration data are routinely shared with the NSO, and the NSO should take the lead in the production of vital statistics that are actively used by government, civil society, academia, private industries and international partners to guide decision making and action. The NSO needs to support regular exchanges on vital statistics between producers and users to guide future improvements of the civil registration system and use of civil registration data to support the national development strategy.

2. Increase Demand and Coverage for Civil Registration

A major success of the national ID system for persons aged 16 years and above has been creating and sustaining strong community demand for national ID possession across the country. This has been facilitated by the national ID card quickly becoming a necessary credential to exercise one's right to vote in elections, access social, health and economic services, and secure employment in line with national labor laws. In contrast, a notable limitation associated with low levels of civil registration completeness in Malawi is the lack of an analogous demand for birth, marriage or death registration.

The NRB and MoH have shared explicit priorities for rolling out birth and death registration to all districts. To ensure universal coverage, community birth and death registration need to be rolled

out to the remaining 12 districts, while death registration with MCCOD to 6 districts. Other priorities include transitioning to ICD-11 coding, expanding the adoption of computer assisted coding, resolving power challenges, digitization of health information and civil registration systems in all health facilities and all registration points, and ensuring that the systems are interoperable to enhance seamless data sharing and also integrate birth, death, marriage and ID registration systems. These shortfall and infrastructure needs were underscored on several occasions by other partners in Malawi, including CDC – the main partner supporting the software and hardware technologies for the CRVS system in Malawi.

To enhance coordination, NRB and MoH have highlighted the need to put mechanisms in place to improve ownership of death and birth registration processes among health workers, motivating clinicians to medically certify causes of death, and improving the culture and competencies for such work among health workers by incorporating CRVS and MCCOD within the medical school curriculum.

In his study on Kenya, Pelowski⁸ has noted that the registration of a child's birth is a deliberate, informed choice by parents in which they weigh perceived costs versus benefits. In that vein, it is important to increase parental awareness of the notable benefits of timely and universal birth certification. Demand is enhanced where it is linked to valued interventions that already require children and their families to interact with the health, social protection and education sectors, such as early childhood immunization, HIV/AIDs prevention/treatment or early childhood nutrition and education programs.

The recent experience of South Africa is an informative case study of how incentives were harnessed to go from 24% birth registration completeness in 1991, to 75% in 2005, to 95+% in 2012.⁹ In 1998, South Africa introduced a means-tested child support grant in the form of a conditional cash transfer (targeted at poorer households), whereby applicants had to demonstrate that they were below the income threshold, and to present the official ID of the parents/guardians, and (most critically) their child's birth certificate. This created an incentive to register their child's birth and obtain the birth certificate in a timely manner (i.e., within 30 days of the child's birth). This cost-effective incentive scheme along with increased health facility access, community awareness raising and public outreach was instrumental in ensuring the births of the poorest and most vulnerable children were registered at birth.¹⁰

South Africa is not alone in aligning its health system and social protection system with its efforts to strengthen civil registration. Argentina, Chile, Namibia, South Korea and Tunisia have also linked their civil registration systems to public social protection schemes. The success of this linkage, in facilitating sustainable and universal legal identity in a diverse array of settings, has been attributed to political will to reduce poverty, coherent national development goals,

⁸ Matthew Pelowski, Richard G. Wamai, Joseph Wangombe, Hellen Nyakundi, Geoffrey O. Oduwo, Benjamin K. Ngugi & Javier G. Ogembo (2015) Why Don't You Register Your Child? A Study of Attitudes and Factors Affecting Birth Registration in Kenya, and Policy Suggestions, *The Journal of Development Studies*, 51:7, 881-904

⁹ University of Toronto (2016) Reaching the hard to reach: A case study of birth registration in South Africa.

¹⁰ Munk School of Global Affairs (2016) "Reaching the Hard to Reach: A case study of birth registration in South Africa." Available at: <https://munkschool.utoronto.ca/wp-content/uploads/2016/11/South-Africa-Reach-Report-compress.pdf>

institutional stakeholder coordination as well as the quality and accessibility of registration services.¹¹

The NRB has raised the question of whether immunization can be a vehicle for motivating and enhancing parental demand for birth registration, and a key result area for the Malawi registration strategy (2019-2024) is “public awareness and civic education”, providing a framework for exploring mechanisms to increase demand.

Geospatial information on service coverage can provide critically valuable information on three dimensions: the optimal location for registration services (targeting “supply”), priority areas where demand creation is needed; and future challenges for population coverage. When used in combination, georeferenced registry service locations and georeferenced population data provide high-resolution data on subnational areas characterized by low coverage, and can provide insights to whether low coverage reflects limitations of geographic access to registration - or whether demand is the more likely the limiting factor. For future planning, sub-national population projections also provide forecasting data on regions of accelerating population growth, population displacements, or excess mortality, allowing planners to anticipate and mitigate potential shortfalls in registration coverage that demand augmented programming and investment.

3. Advance a Life Course Approach to CRVS/ID System Roll-out

A life-course approach to CRVS is a key strategy in harnessing the full potential of civil registration, vital statistics and legal identity for individuals and for society at-large.¹² Civil registration and legal identity facilitate access to basic rights such as health care, primary and secondary education, and social support. As highlighted within the seminal research supported by the Centre of Excellence on CRVS Systems, the under-registration of women’s vital events hinders gender equality and adds gendered barriers to social and economic opportunity - including access to property rights, inheritance and parental custody. The under-registration of female deaths relative to male deaths hinders the efficacy of evidence-based health programs for women and girls and can fuel health inequalities.

Malawi is well-positioned to scale up its civil registration, vital statistics and legal identity system to ensure universal legal identity across the life course - from birth to death, including registration of marriages and divorces. The establishment of the NRB and its strong working relationship with the MoH has positioned the country well in scaling up birth and death registration in the coming years and ensuring alignment with the national identity system.

However, additional efforts are needed to promote the progressive roll out of marriage registration around the country - both in terms of raising awareness and public demand for marriage registration, and ensuring that the NRB and local government can respond to public demand.

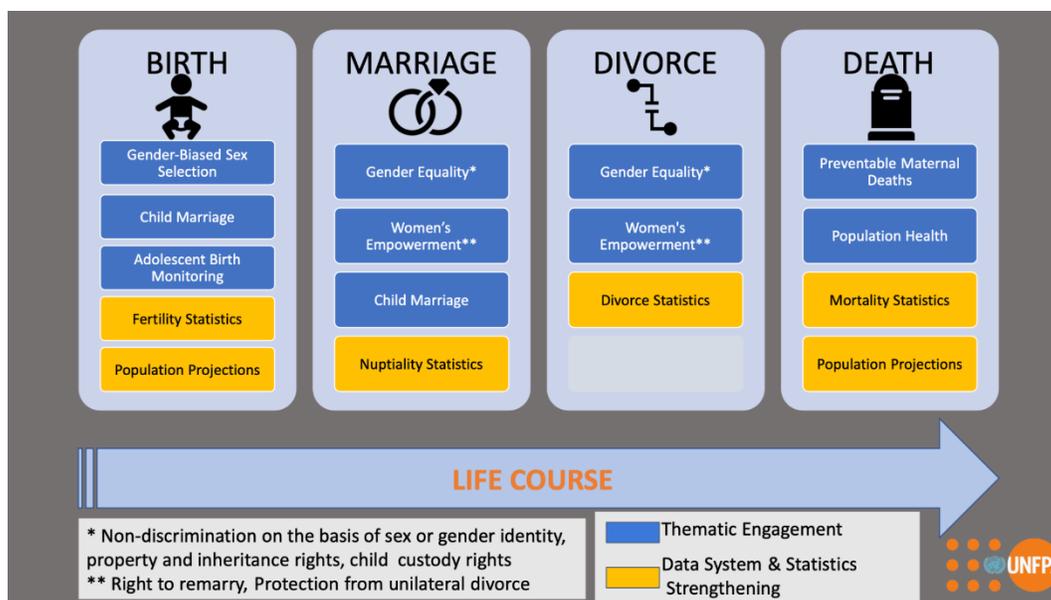
¹¹ Centre of Excellence for CRVS Systems (2020) “The nexus between civil registration and social protection systems: five country practices” Available at: <https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/60096/IDL%20-%2060096.pdf?sequence=2&isAllowed=y>

¹² Silva, R., & Snow, R. (2019). [Knowledge briefs on gender and CRVS: life-course approach to CRVS: a crucial tool to advance gender equality](#). Centre of Excellence for CRVS Systems.

Among CRVS priorities for the NRB was an explicit request for technical assistance to support the roll-out of marriage registration in Malawi.

Secondly, the National Registration Act (2010) does not cover the registration of divorces. Hence the legal framework underpinning civil registration needs to be expanded to include universal registration of divorces. Thirdly, legal identity at the start and end of life - to ensure that persons under 16 years have proof of legal identity from birth and all deaths are registered in a timely and accurate manner.

Figure 1: Life-course approach to Civil Registration and Vital Statistics System Strengthening



Ensuring a robust legal framework to support marriage and divorce registration is challenging. A review of six countries across the African continent has shown that, regardless of the type of legal system, each of these legal systems fails to recognize various marriages embraced by the population - in turn, denying important basic rights to women in these marriages¹³. In these countries, the registration process itself creates opportunities for marriages to remain unregistered and in other instances the legal system has opted not to recognize certain marital relationships despite their continued prevalence throughout the community. In addition, child marriage remains a persistent challenge in Malawi - approximately 42% of women aged 20-24 years were married before age 18. Recent research on the perception of Malawi's marriage laws suggest that existing regulations and penalties may be leading to unintended consequences for

¹³ Polavarapu, A. (2016). Gendered dimensions of marriage and divorce registration laws in Africa.

adolescent girls - such as child marriage shifting underground and elaborate community practices to evade fines¹⁴.

Universal birth and death registration are critical for a sustainable legal identity system. Ensuring people's proof of legal identity at birth and through to death requires that the civil registration system and identity management system are accessible, aligned and up-to-date. Currently, birth and death registration completeness (estimated to be 26% in 2018 and unknown, respectively) lag far behind the coverage of the identity management system (estimated to be 97%).¹⁵ As a result, the rights, entitlements and opportunities that universal birth registration and certification affords young Malawians before age 16 years are not yet fully realized. Incomplete death registration results in incomplete and biased information on population health and hampers effective health interventions. Incomplete death registration also precludes timely removal of individuals from the identity management system. Systems-level solutions are needed to improve birth and death registration completeness. The structural deficiencies that lead to systematic under-registration of births and deaths will not be solved by ad-hoc mass registration campaigns, as such short-term solutions are temporary, unsustainable and expensive. The transition to universal birth, death and marriage registration will require applied research on demand creation for birth and death registration, more applied use of GIS to assure universal geographic access, pilot testing and systematic scale-up.

4. Coordinate Government Geospatial Data Solutions

Different government sectors manage different sources of geospatial data in Malawi, but without systems for coordination and alignment. In addition, there appears to be a scattering of donor investments in geospatial data solutions and data portals (some through the private sector), that lack interoperability, and in some cases, duplicate efforts. For example, georeferenced *population and housing census data* is under the leadership of National Statistics office (NSO); DHIS GIS, the Malawi Health Facility Registry, and SPA/SARA data are managed by the MOH; and the Department of Surveys manages common geography data. In addition, there are multiple national geospatial data platforms e.g. Malawi Spatial Data Platform¹⁶, Master Health Facility Registry¹⁷, as well as a online apps and dashboards supported by external agencies, e.g. Malawi Analytics Platform¹⁸ supported by the Elizabeth Glaser Pediatric AIDS Foundation and PEPFAR. Therefore, a stronger coordination mechanism among different departments on geospatial data and data interoperability is needed. Potentials of georeferenced household data from the population and housing census has not been exploited by other departments and stakeholders.

The UN has provided guidance on national streamlining of geospatial solutions. In 2020, the Committee of Experts on Global Geospatial Information Management (UN GGIM) adopted the *Implementation Guide of the Integrated Geospatial Information Framework (IGIF)*¹⁹ as a means

¹⁴ Melnikas, A.J., Mulauzi, N., Mkandawire, J. *et al.* Perceptions of minimum age at marriage laws and their enforcement: qualitative evidence from Malawi. *BMC Public Health* 21, 1350 (2021). <https://doi.org/10.1186/s12889-021-11434-z>

¹⁵ Malawi National Statistics Office, Population and Housing Census, 2018.

¹⁶ <http://www.masdap.mw/>

¹⁷ <http://zipatala.health.gov.mw/>

¹⁸ <https://analytics.hismalawi.org>

¹⁹ Integrated Geospatial Information Framework (IGIF), available from: <https://ggim.un.org/IGIF>

of strengthening national geospatial information management arrangements. UN-GGIM Secretariat, UNFPA and WHO coordinate joint workshops to support member states to strengthen the national capacity on IGIF, particularly for the use of common geography, population data and health data. The Framework and its implementation guidance for developing, integrating and strengthening national geospatial information management could be a helpful reference when Malawi considers strengthening geospatial data governance.

5. Strengthen Geospatial Data Collection

The GPS coordinates for the registration office, even if available, have not been mapped in the CRVS database. Furthermore, according to MEHIS 2017-2022²⁰, reliance on manual data collection for health data, intermittent supply of data collection and reporting tools are persistent challenges for geospatial data coverage and use. Availability of location information for all health facilities and registration offices from NSO, MOH and other organizations, would allow mapping the coverage and people's geographic proximity to the registration locations apart from identifying focused areas. This would require resources to equip the stakeholders and a closer coordination to meet the desired objectives.

Furthermore, the location data that is captured within the civil registration system warrants improvement. Currently, although people's physical address is collected within birth and death registration forms, there is no local "place code" of the local administrative unit included on the forms. To map people's residential locations e.g., District level, traditional Authority (TA) level, or Enumeration Area (EA) level, it is important to apply the "place code"; such georeferenced residential data would identify from where people are coming for registration, and enhance strategic knowledge and planning to address shortfalls.

National HMIS (e.g., DHIS2 data, health facility registry data), Service Provision Assessment (SPA) and Service Availability and Readiness Assessment (SARA) surveys have Comprehensive assessments of health facility capacity and coverage, with all the health facilities collected as geo-coded data. To integrate all the health facility-based data, a unique Health Facility ID across different health facility data sources is needed. By this way, for example, infrastructure data collected during the census cartographic phase and master health facility registry data can be used to ensure the coverage of SPA and SARA survey data; the health services information collected through SPA and SARA can also be integrated into DHIS2 data and achieve data harmonization.

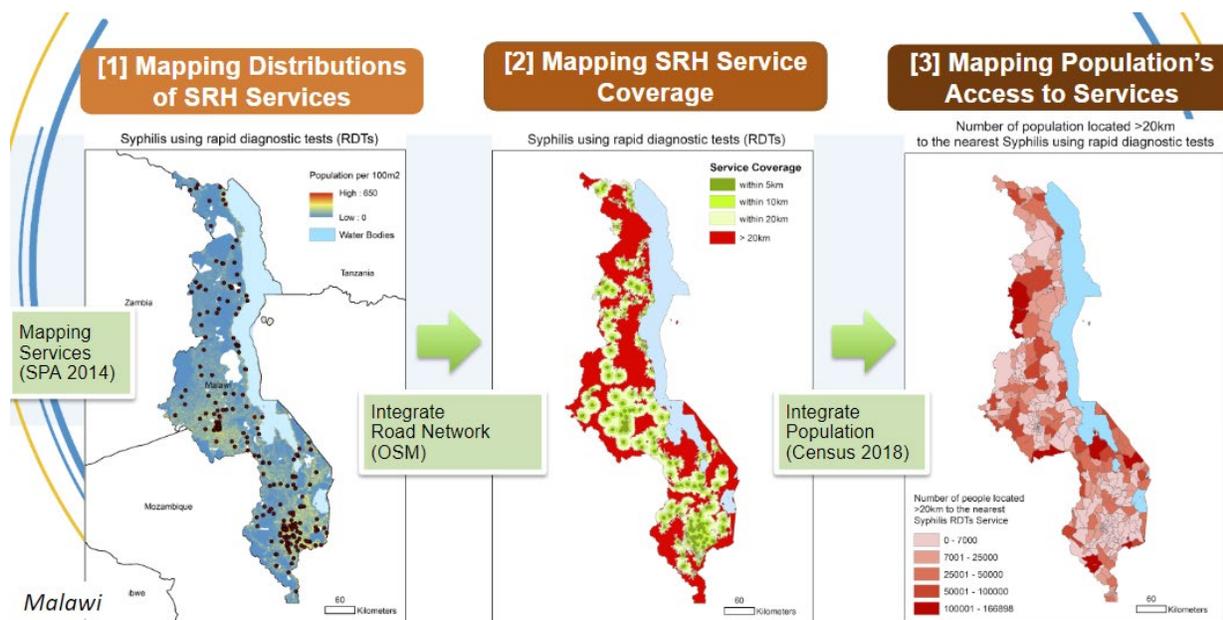
6. Set Government Priorities for Enhanced Use of Geospatial Data

The goals of sustainable development place a huge demand for data that can reveal geographic inequalities in coverage of health service - and Governments could add value to current investments by setting out a roadmap of priority mapping and analytical use cases.

²⁰ Monitoring, Evaluation and Health Information Systems Strategy (MEHIS), 2017-2022, available from: https://www.healthdatacollaborative.org/fileadmin/uploads/hdc/Documents/Country_documents/Malawi_MoHP_MEHIS_Strategy_Signed_copy_October2018.pdf

For example, mapping current coverage of different health services, particularly at sub-national levels, is essential for future forecasting and addressing gaps for attaining universal coverage; Government should triage the most essential health services for mapping and analytics. In Malawi, there is still a lack of information for assessing service coverage and quality of care, and insufficient resources to collect such information periodically. These gaps can be filled in through geospatial analysis bridging population and health data systems²¹. Examples of such use cases include: (1) Mapping population coverage of primary health care and essential SRH health services and identifying the vulnerable groups; (2) Mapping future recommended locations of civil registration or health services; (3) Mapping the impact on people's access to services by climate change-related hazards²², among others. Once government priorities are established, partners within the SDG3 GAP/HDC initiative can support Malawi governments on use cases, innovative data visualization and advanced geospatial analytical methods. An example of using geospatial analysis to bridge population and health data for leaving no one behind in SRH services is shared below, as recently generated by UNFPA and Government of Malawi, including the MOH, NSO and the National Planning Commission:

Figure 2: Linking Population and health facility data for accessibility mapping



7. Strengthen In-country Capacity Development on GIS

²¹ Geospatial Accessibility to Quality Sexual and Reproductive Health (SRH) Services. Available from: <https://ipc2021.popconf.org/uploads/211771>

²² Guzmán, J. M., Schensul, D., & Zhang, S. (2013). Understanding vulnerability and adaptation using census data. *The demography of adaptation to climate change*. New York, London and Mexico City: UNFPA, IIED e El Colegio de México.



To enhance the technical and institutional capacity on geospatial data collection and analysis, bridging academic institutions and government is important for sustainability. In Malawi, linkages between GIS academics and the central government appear to be relatively undeveloped. Geographic science programs are established within the country, for example at the University of Malawi, but they are not linked to in-service training for government staff, nor does there appear to be a career pipe-line between universities and the national authorities generating and using geospatial data.

Numerous schemes are being implemented in other countries that offer models for Malawi, including undergraduate programmes in GIS and official statistics, online training, combinations of self-directed and in-service training, and staged learning over a longer time-horizon for professional development. Training particularly around the following could be helpful: application of GIS in geospatial data collection; harmonization of geospatial datasets; integration of population, health, and other geospatial data for SDG3; and data visualization and sharing platforms.

HDC/SDG3 GAP partners have a variety of training modalities and materials that can be brought to bear: these include UN-GGIM training curricula; webinar curricula provided by the WHO and UNFPA geospatial teams, online self-directed training thru Esri, and numerous others; the August 2022 gathering of the UN-GGIM underscored that UN-supported GIS training is increasingly available for Member States. As government GIS training priorities and modalities are better defined, international partners within the SDG3 GAP/HDC initiative should be able to support geospatial training in Malawi.

The Department of Surveys being the nodal agency and repository of all GIS data needs strengthening to meet its goals and for enforcing geospatial data standards. The department should also be responsible for dissemination of GIS data for evidence-based planning and training of officials within the country. The provision for indexing and availability of all GIS based data to stakeholders be established to avoid duplication and for optimum use of resources, apart from aligning scattered donor's investment.

8. Data Governance - Standards, Structures and Processes

As population, geospatial and health data systems mature and an increasing number of entities produce, disseminate and use these data, data governance is critical. Governance systems are needed to ensure that standards, policies, institutional arrangements and practices are well-defined, with mechanisms for tracking compliance. Currently, the Malawi data protection standards bill - which was drafted in 2018 - is yet to be brought before parliament. The lack of an established data governance policy and data protection standards poses a number of challenges and risks.

Firstly, a lack of defined standards and authorities for data production, sharing and archiving can result in uncoordinated data sharing practices. In the area of CRVS, under-developed data governance standards and institutional arrangements has resulted in suboptimal data sharing and coordination arrangements between the National Registration Bureau, Ministry of Health, and National Statistics Office. The end result being that the Malawi NSO does not routinely receive





usable civil registration data and therefore is unable to produce regular vital statistics reports, in line with its official statistics mandate.

Secondly, the decentralized nature of data and lack of government standards for data release increases the risk of data practices that may compromise privacy and confidentiality of individuals; this is particularly salient for identity data that is linked to geospatial information.

As more data is disseminated digitally, more opportunities arise to integrate disparate data sources; breaches of data privacy and confidentiality are enhanced. Breaches have the potential to quickly erode public confidence in the national data system and may undermine people's willingness to cooperate with official data collection and their trust in official statistics.

As the government of Malawi enriches and enhances its official national integrated data systems, further investment is needed in data governance, including legislation, institutions and practice. Through strengthened institutional coordination, roles and responsibilities between data producers and data users need to be more clearly delineated. The NSO, broadly in the area of official statistics, and the Department of Surveys, specifically in the domain of geospatial data, are critical institutions in leading the enhancement of data governance across Malawi.

9. Financial Sustainability

At the establishment of the Global Financing Facility (GFF), CRVS was identified as an important global good, and a means for tracking progress in maternal, newborn, infant, child and adolescent health. Integrated analysis of geospatial health and population data provide further value for meeting health sector goals, because analyses of these data make it possible to locate those furthest behind in health or civil registration coverage. As registration data improve in coverage and quality, they provide the most timely data for tracking progress in maternal, newborn, infant and child mortality. Hence, discussion with the GFF is warranted to explore potential collaboration through CRVS and GIS data and technologies.

Also, with regard to financing, Malawi is among the eligible counties under a Memorandum of Understanding (MoU) between UNFPA and Esri to provide access to the Esri ArcGIS software at highly subsidized rates. UNFPA is exploring options to provide ArcGIS licensing to the Government of Malawi's NSO under this agreement.

