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REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

DATA MANAGEMENT STRATEGY AND ITS IMPLEMENTATION PLAN

2024/25 - 2028/29

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Data Management Strategy and Its Implementation Plan

2024/25 - 2028/29

Prepared by
**PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION
AND LOCAL GOVERNMENT**

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Foreword

This Data Management Strategy and Implementation Plan was prepared as a working tool for the President's Office – Regional Administration and Local Government (PO-RALG) for the period 2024/25–2028/29. The production of this document coincides with the implementation of the Tanzania Statistical Master Plan II (TSMP II) for the period 2022/23–2026/27, which aims to strengthen the capacity of all actors in collecting, analysing and using statistics, with a primary focus on improving administrative data systems in Tanzania.

The decision to prepare this strategic document was motivated by recognizing the limited use of data in planning and budgeting cycles in sector line ministries, districts and regions, contributing to low-quality plans and budgets being submitted for resource allocation. The limited use of data is driven, in part, by challenges in the data ecosystem that affect the availability of, access to and use of data. These challenges include skills gaps in data collection and analysis, limited digitization in data collection (which is mostly paper-based) and little synergy and collaboration between ministries, departments and agencies. This document details PO-RALG's commitment to ensure that districts and regions develop sector plans and budgets that are informed by high-quality data and analytics to improve decision-making on the use of public finances for the delivery of quality services to citizens.

The PO-RALG appreciates the contributions made by various stakeholders in the development of the strategy and its associated implementation plan. These stakeholders include the PO-RALG management team, the steering committee that oversaw the development of the strategy, PO-RALG staff, representatives of line ministries, departments and agencies and representatives of regional secretariats and local government authorities.

The preparation of this strategic document and its implementation plan involved a collaborative effort of various stakeholders. On behalf of the Government of Tanzania, I would like to express my sincere appreciation to the United Nations Children's Fund for its financial contribution. I would also like to thank Dalberg for their technical support during the development of the document.

Furthermore, I would like to appeal to all stakeholders to participate in and contribute to the implementation of the strategy, as this is essential for the successful transformation of the data ecosystem in Tanzania.

Adolph H. Ndunguru
Permanent Secretary
PO-RALG

Acronyms

iMES	integrated Monitoring and Evaluation System
LGA	Local Government Authority
MDA	Ministries, Departments and Agencies
NBS	National Bureau of Statistics
PO-RALG	President's Office – Regional Administration and Local Government
RS	Regional Secretariat
TISP	Tanzania Integrated Statistical Portal
TSMP I	Tanzania Statistical Master Plan I
TSMP II	Tanzania Statistical Master Plan I I

Glossary of terms

Data consumers	Individuals, organizations or entities that use data to support decision-making processes or derive insights and information that can inform policies, programmes and projects. These may include government organizations, private institutions, non-governmental organizations, research organizations or individuals who use data for academic, commercial or personal purposes. Data consumers can also be data producers, but data production is not their primary activity.
Data dictionary	A collection of metadata such as object name, data type, size, classification and relationships with other data assets. A data dictionary acts as a reference guide on a dataset.
Data ecosystem	The universe of data actors, including data producers, data consumers and ecosystem enablers.
Data integration	The process of combining data from multiple source systems to create unified sets of information for both operational and analytical uses.
Data processing	In this document, the term data processing is used to describe a combination of steps on the data value chain, including data transformation and data analysis. These steps are performed after data sourcing.
Data producers	Individuals, organizations or entities that are primarily involved in data generation. These may include government agencies, research institutions, private organizations or individuals who conduct surveys or research studies. Data producers can also be data consumers, but data production is their primary activity.
Data sourcing	In this document, the term data sourcing is used to describe a combination of steps on the data value chain, including data identification, data production and data collection. These are the initial steps in the data value chain.
Data use	In this document, the term data use is used to describe a combination of steps on the data value chain, including data release, data dissemination and data use for decision-making. These steps follow data processing.
Data value chain	The full data lifecycle from ideation to usage. This includes data sourcing, data processing and data use.
Decision-makers	In this document, the term decision makers primarily refers to staff of public offices, from local to the central government, who have the authority to make decisions, including approvals and rejections.
Ecosystem enablers	Individuals or organizations that facilitate the smooth functioning of the data ecosystem by providing necessary infrastructure, tools and

	resources. These may include government agencies responsible for data governance and regulation; information, communication and technology providers; academic institutions; funding agencies; or advocacy groups.
Evidence-based decision-making	A process of making the best possible decision using all the relevant information or data available.
High-quality data	Data that is accurate, complete, reliable, relevant, useful and timely.
iMES	PO-RALG's internal monitoring and evaluation system, which integrates data from different departments and units in PO-RALG.
Integrated systems	Consolidation of disparate data systems into one or a few systems.
Public facility	In this document, the term public facilities is used to refer to government-owned and managed institutions, including government schools and hospitals.
Routine data	Data that are collected in a consistent and standardized manner, such as school attendance data or the number of patient visits to a health-care facility.
TISSP	An online data analytics and visualization application that integrates data from different government sources into a single portal. The portal provides a dynamic platform that enables users to generate customized analyses.

Executive summary

The President's Office – Regional Administration and Local Government (PO-RALG) Data Management Strategy and Implementation Plan for the period of 2024/25–2028/29 is a commitment document that details PO-RALG's plan to ensure that districts and regions develop sector plans and budgets that are informed by high-quality data and analytics to improve decision-making on the use of public finances for the delivery of quality services to citizens.

High-quality data are critical to the effective use and management of public finances and, ultimately, to the livelihoods of citizens who depend on the resulting investments in development programmes in their communities. Currently, there is limited use of high-quality data by planning and budgeting officers in sector line ministries, districts and regions, which affects their ability to develop evidence-based plans and budgets to address community needs.

The Tanzanian data ecosystem faces various structural and operational challenges, affecting the availability, access and use of high-quality data by the government. Challenges include human capacity, technology and institutional systems issues affecting the data value chain at different points. For example, low levels of digitization affect data collection. Limited analytical skills affect data analysis and interpretation and disconnected data systems jeopardize the potential to conduct advanced and more impactful data analyses. These and other challenges of the data ecosystem affect the resulting planning, budgeting and decision-making processes, which depend on the availability, access and use of high-quality data and analytics.

Over the past decade, the Government of Tanzania has taken steps to strengthen the national statistics system to enhance the quality of data used for developmental planning. These steps includes the implementation of the Tanzania Statistical Master Plans I and II (TSMP I and TSMP II) under the coordination of the NBS. Recognizing the ongoing need for investment to tackle challenges within the data ecosystem, PO-RALG (President's Office - Regional Administration and Local Government) has developed the integrated Monitoring and Evaluation System (iMES) alongside other ICT systems such as PlanRep, FFARS, ASC, SIS, TAUSI, and more. These systems are geared towards addressing data accessibility and utilization challenges within the Tanzanian data ecosystem. The National Bureau of Statistics (NBS) in collaboration with other ministries including PO-RALG are developing the Tanzania Integrated Statistical Systems Portal (TISP) which will contribute to addressing data access and use challenges in the Tanzania data ecosystem. iMES and TISP will empower planning and budgeting officers at the district, regional, and sector-level ministries to extract cross-sector data from a unified platform, conduct analysis, and integrate insights derived from this data into their respective plans and budgets.

Plans and budgets that are based on data and analytics will allow regions and sector line ministries to have informed budget discussions on requested budget allocations with decision makers, including PO-RALG and the Ministry of Finance. Plans and budgets that are based on data and analytics will ensure that development priorities of sector ministries, districts and regions are adequately funded and delivered efficiently. Data and analytics will help planning and budgeting officers to establish a strong link between the needs articulated in the plans, and budget requests of sector line ministries, districts and regions to address the needs.

It is in this context that PO-RALG developed this Data Management Strategy and Implementation Plan. The strategy will create a road map for establishing a conducive

environment to ensure that data and analytics are at the core of planning and budgeting processes to inform decision-making by the government. This strategy will help PO-RALG to ensure that high-quality data is available and accessible to planning and budgeting officers, and develop their capabilities to incorporate the data into planning and budgeting processes.

PO-RALG's vision for the Data Management Strategy is "To ensure availability of, access to and use of high-quality data to develop plans and budgets based on data and analytics to inform decision-making on public finances management to deliver quality services to citizens" (see Chapter 3.2). To achieve this vision, the strategy is anchored on five interlinked pillars: to enhance data quality, to increase data access, to strengthen data management and governance, to inspire data utilization and to strengthen human capacity. The strategy is based on an ambitious theory of change, where outcomes are linked to these strategic pillars. While activities in the strategy focus on PO-RALG, the strategy can be adopted by other ministries, departments and agencies looking to make a similar data transformation.

This strategy was developed using a collaborative approach, which included input from PO-RALG senior leadership and PO-RALG staff, and consultations with other line ministries, regional secretariats and local government authorities.

The strategy is divided into the following sections: Introduction and background; Situation analysis; Tanzanian Data Management Strategy; Implementation plan; and Annex.

1 Introduction and background

1.1 Background and purpose

Effective service delivery to citizens requires planning, budgeting and decision-making based on high-quality data and analytics. When policy-makers and decision makers have access to high-quality data, they can effectively identify and prioritize areas of need, design evidence-based policies and programmes, plan and budget for these programmes, monitor progress and outcomes and measure the impact of their interventions. High-quality data is accurate, complete, reliable, relevant, useful and timely. High-quality data and analytics must be at the core of planning, budgeting and decision-making processes to have the desired impact of ensuring effective service delivery to citizens.

For the Government of Tanzania, the availability of high-quality data is critical, as it supports decision-making for efficient service delivery to citizens and increases transparency and accountability with regard to public fund allocations. For example, the Ministry of Health requires up-to-date data on patient visits and population statistics to determine the allocation of funds to construct health facilities. Water utility providers need high-quality data on population distributions for systematic water resource distribution. The Ministry of Finance gains insight on how funds are disbursed in different levels of government through high-quality data, increasing transparency and accountability in decision-making. High-quality data ensure that funding agencies can track the results of allocated funds, such as new classrooms built and changes in student enrolment. Additionally, high-quality data provide the necessary support for effective governance and service delivery to citizens.

For development partners, the availability of high-quality data is critical to programme design and monitoring and measuring results.[1] High-quality data enable development partners to conduct accurate needs assessments for target communities, which help them to design and implement effective programmes. For instance, development partners use government-produced education statistics to create programmes for educational activities. Similarly, development partners use vocational education statistics to improve planning for youth employment. In addition, high-quality data help development partners monitor and measure the impact of their interventions. Many Sustainable Development Goal indicators are compiled from administrative data collected by line ministries of countries. With the help of this data, development partners can track progress toward achieving the goals and make necessary adjustments to ensure the success of their interventions.

Over the last decade, the Government of Tanzania has taken several steps to strengthen the data ecosystem and improve the availability of high-quality data. Some of these initiatives include the implementation of Tanzania Statistical Master Plan I (TSMP I), which took place in 2011/12–2017/18 and was designed to strengthen the National Statistical System. Currently, the country is implementing Tanzania Statistical Master Plan (TSMP) II for 2022/23–2026/27[2] and aims to maintain and sustain the achievements of TSMP I in strengthening the capacity of all actors in collecting, analysing and using statistics, with a primary focus on improving administrative data systems. TSMP is coordinated by the National Bureau of Statistics (NBS).

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[1] United Nations Economic Commission for Europe, *Measuring and Monitoring Progress towards the Sustainable Development Goals*, United Nations, 2020.

[2] Tanzania, Tanzania Statistical Master Plan II (TSMP II) 2022/23–2026/27, 2021.

NBS has the mandate over the production of all statistics in Tanzania. In 2015, Tanzania established the Statistics Act. The act outlines principles for the generation, utilization, dissemination and archiving of statistics by national and local government institutions. The act was revised in 2019. In 2015, Tanzania launched the national open data portal, which has over 180 datasets.[3]

To support the government's efforts to strengthen the national data ecosystem, the NBS and other ministries have developed the Tanzania Integrated Statistical Portal (TISP) to increase access to integrated data. The TISP is an online data analytics and visualization application that integrates data from different government sources, leveraging existing data infrastructure and systems into a single portal. The portal provides a dynamic platform that enables users to generate customized analyses on cross-sectoral data. The TISP integrates social indicators sourced from administrative agencies and systems, including the District Health Information System 2 and demographic sources, such as the census, and survey data systems such as the Household Budget Survey. Figure 1 illustrates the positioning of the TISSP in the data ecosystem.

This Data Management Strategy aims to create a road map for establishing a conducive environment to ensure that data and analytics are at the core of the planning and budgeting processes using the iMES and TISP tools. Access to high-quality data is not an end in itself. Users need to use the data effectively to bring about transformative change. This document will guide the President's Office – Regional Administration and Local Government (PO-RALG) to ensure the availability of high-quality data, improve access to it by planning and budgeting officers and develop their capabilities to incorporate the data into planning and budgeting processes. Part of this transformation will be positioning the TISSP as a central tool for data access and visualization for planning and budgeting officers in sector line ministries, districts and regions.

As a measure of success of the Data Management Strategy, sector line ministries and regions will be able to produce evidence-based plans and budgets based on data and analytics. Plans and budgets that are based on data and analytics will allow sector line ministries and regions to have informed budget discussions on requested budget allocations with decision makers, including PO-RALG and the Ministry of Finance. Plans and budgets that are based on data and analytics will ensure that development priorities of sector ministries, districts and regions are adequately funded and delivered efficiently. Data and analytics will help planning and budgeting officers to establish a strong link between the needs articulated in sector line ministries, districts and regions' plans and budget requests required to address these needs.

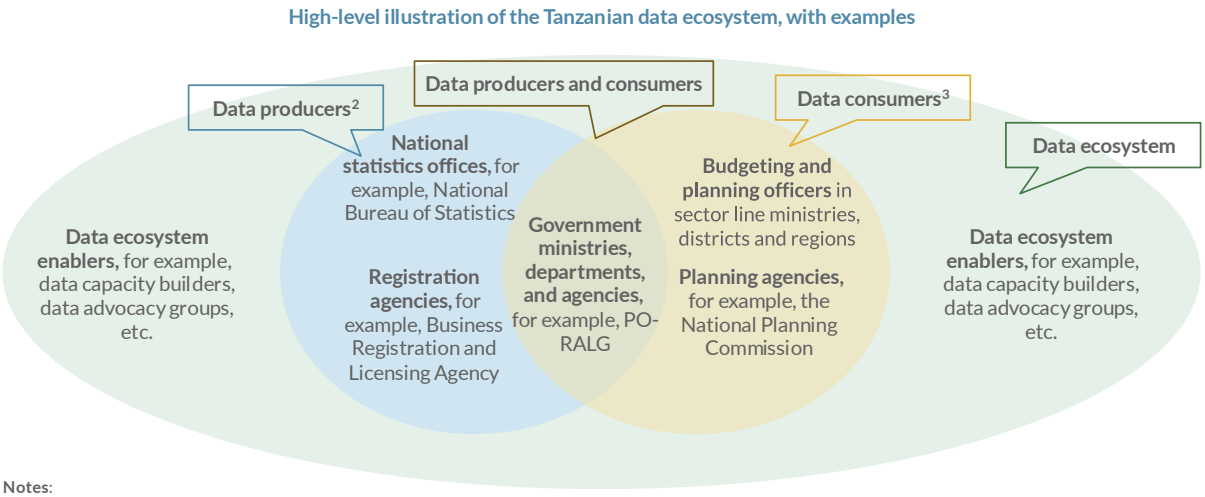
1.2 PO-RALG and the statistics unit

The Tanzanian data ecosystem is a broad network of individuals, institutions and entities that contribute to the data value chain in the country. At a high level, this ecosystem primarily comprises three major groups: data producers, data consumers and ecosystem enablers. Figure 1 provides an illustration of the Tanzania data ecosystem.[4]

[3] openAfrica, opendatago.tz, accessed 28 February 2023

[4] dLab, Building a data ecosystem in developing countries: dLab's experience in Tanzania, 2021; Dalberg Analysis.

Figure 1: The Tanzania data ecosystem



Notes:
[1]: The examples provided in this illustration are not exhaustive.
[2],[3]: Organizations and institutions depicted in the illustration above are not pure data producers or pure data consumers. These organization and institutions may play multiple roles, including as data producers, data consumers and ecosystem enablers. For this illustration, we have categorized them as such based on where they lean most between data production and consumption.
Sources: Dalberg; dLab, Building a data ecosystem in developing countries: dLab's experience in Tanzania, 2021

PO-RALG occupies a prominent position in the Tanzania data ecosystem. PO-RALG is both a major data producer and data consumer in the Tanzanian data ecosystem. The Statistics Act: Revised Edition (2019) gives PO-RALG a mandate to produce statistics without oversight from NBS.[5] Furthermore, PO-RALG has a mandate over regional secretariats (RSs), which oversee local government authorities (LGAs), and LGAs where national development programmes are implemented.

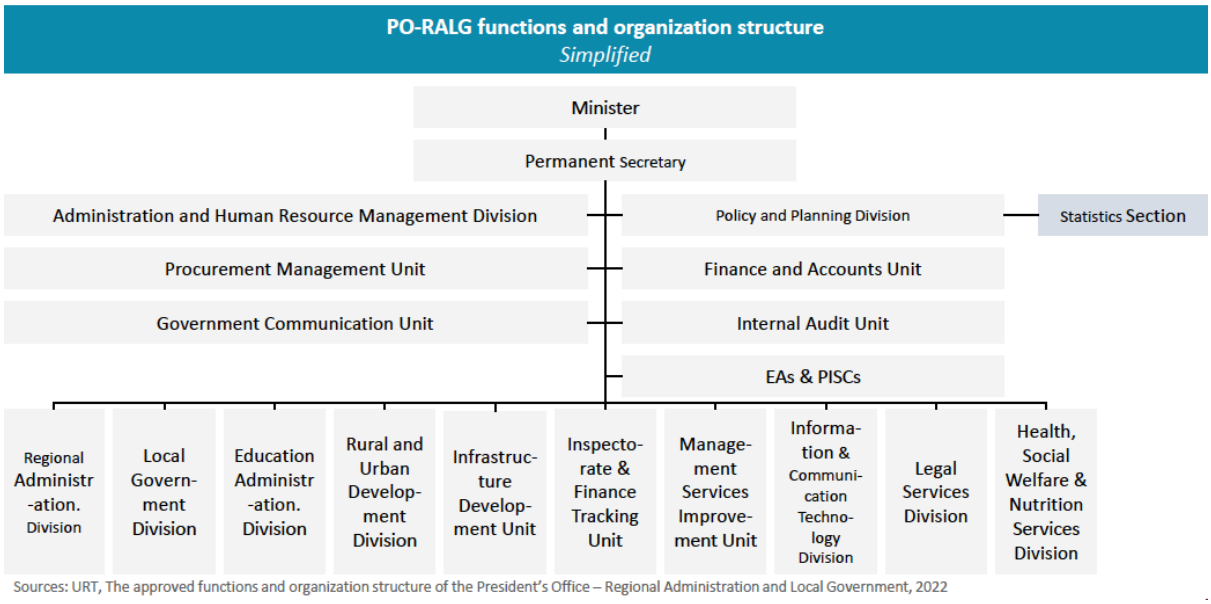
In acknowledgement of the need for a ministry-wide transition towards evidence-based planning, budgeting and decision-making, a statistics section was formed in PO-RALG. The unit, which was established in January 2022, is a new entity of the Policy and Planning Division in PO-RALG (see Figure 2).

The unit was established to help PO-RALG execute its mandate to strengthen evidenced-based budgeting, planning and decision-making in PO-RALG and at RSs and LGAs. The statistics unit's work enables PO-RALG staff in different sectors at regions and councils to fulfil their duties. The statistics unit has the following responsibilities:

- Coordinate routine data collection, analysis, interpretation, storage and dissemination to LGAs through RSs.
- Coordinate the undertaking of service delivery surveys in LGAs.
- Coordinate the implementation of TSMP II activities in RSs and LGAs.
- Prepare the PO-RALG Statistical Abstract.
- Prepare guidelines for the implementation of statistical activities.

[5] Tanzania, Statistics Act: Revised Edition (2019).

Figure 2: PO-RALG functions and organization structure



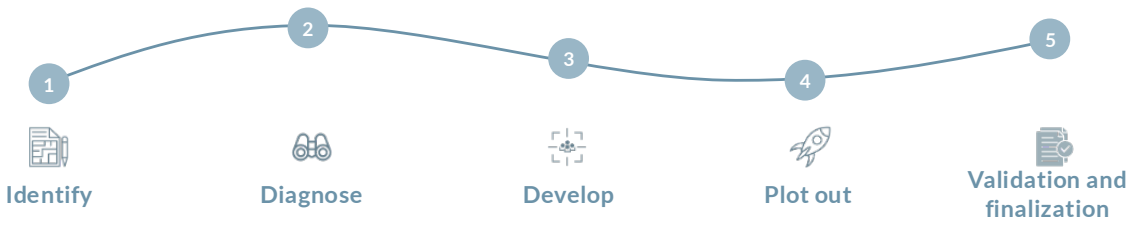
Sources: URT, The approved functions and organization structure of the President's Office – Regional Administration and Local Government, 2022

While this strategy will prioritize activities for PO-RALG, who is also the owner of the document, it is developed in a manner that other ministries, departments and agencies (MDAs) with a shared vision can adapt it.

1.3 Methodology

This strategy document was prepared using a participatory approach through consultations with various stakeholders. Stakeholder consultations included senior leadership at PO-RALG, representative staff from all PO-RALG departments, representatives from select line ministries and representatives from RSs and LGAs (see annex). The strategy development process closely followed the approach illustrated in Figure 3.

Figure 3: Approach for developing the Data Management Strategy



The first step was to identify the desired end state of an effective data management system and its role in the public data ecosystem in Tanzania, as envisioned by PO-RALG. During this step, the PO-RALG strategy team established the vision and objectives for the strategy.

The second step was to diagnose the current state of the data management ecosystem and its maturity level. In this step, the PO-RALG strategy team identified the key data systems used by PO-RALG, mapped data production and verification processes and mapped decision-making processes. Outputs from this stage are captured in Figure 15 in the annex.

In the third step, the Data Management Strategy was developed. This strategy outlines the vision, objectives, gap analysis, theory of change and partners required to achieve the desired state.

In the fourth step, a 5-year implementation plan was plotted. The implementation plan details key activities and associated subactivities. This step provides a tentative road map to implement strategic activities. This step also identifies risks and mitigation measures.

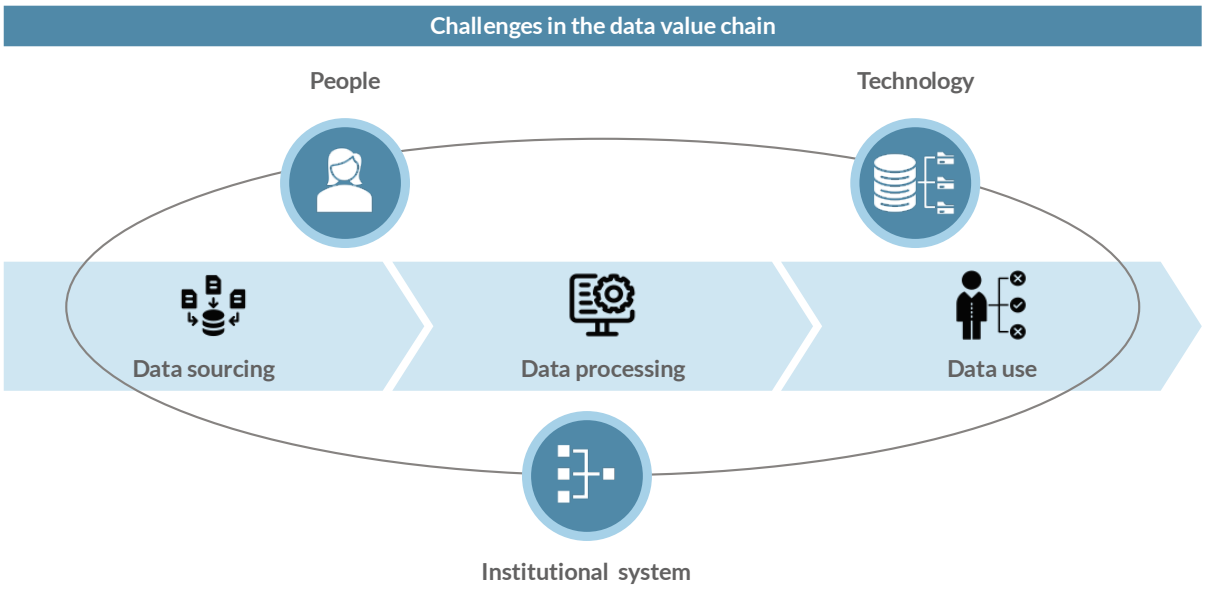
During the fifth and final step of the process, PO-RALG facilitated meetings with all relevant stakeholders to validate the strategy. This step ensures that key stakeholders in the process are aligned with the strategy and that the implementation plan is grounded in the reality of the data management ecosystem. By engaging stakeholders, the plan's finalization is both realistic and effective.

2 Situation analysis

2.1 Challenges facing the Tanzanian data ecosystem

While Tanzania has made meaningful strides in ensuring the availability of high-quality data for development planning and decision-making, there are still areas for improvement in the data ecosystem. Challenges in the Tanzanian data ecosystem fall into three core interlinked categories (people, technology and institutional systems) and affect all nodes of the data value chain, as illustrated in Figure 4.

Figure 4: Framework for understanding challenges in the Tanzanian data ecosystem



2.1.1 People

Limited capacity of data collectors. This challenge is evident when collecting complex indicators and variables. It is often due to a lack of appropriate training, resources and incentives for data collectors. Limited capacity may affect the ability of data collectors to enter data into systems effectively and accurately. As a result, the quality of the data can be substandard, leading to inaccurate analyses, insights and recommendations.

Insufficient number of data collectors in LGAs and regions, which contributes to incomplete and/or low-quality data to inform decision-making. Even when LGAs and regions have staff with the requisite skills, the number of people does not match the need, particularly in peak times.

Limited technical capacity in advanced data processing and analysis, including big data analytics. This challenge is particularly prevalent in LGAs, which often lack dedicated analytics staff, and can result in limited use of data and, hence, missed opportunities to extract valuable insights from it.

Low data literacy among support staff. Data literacy is the ability to read, interpret and analyse data. There is a data literacy gap among support staff, including data clerks and analysts in public regional offices and LGAs. This challenge limits the potential of the types of analyses conducted and the insights extracted from the data.

Inadequate advocacy on the use of data for decision-making in LGAs and RSs. Limited advocacy on data or evidence in planning, budgeting and decision-making means fewer people are aware of its value. As a result, less emphasis is placed on the use of data for decision-making. Instead, decisions are often based on other factors, such as personal opinions or experience, or political considerations.

Low awareness and understanding of the use of statistics for decision-making among decision makers. Statistics can play a crucial role in planning and decision-making, providing insights into trends, patterns and relationships in data. However, there is low awareness and understanding of the power of using statistics for decision-making among decision makers, particularly in local government. As a result, the use and appreciation of statistics is limited.

2.1.2 Technology

Limited use of technology in data collection. Despite the availability of digital systems for data collection by the government, a significant portion of the data is still collected on paper before being entered into digital systems. This extra offline step introduces transcription risks, including misreading and misentering data into systems. Furthermore, this data collection method is inefficient and time-consuming, and may lead to longer processing times.

Some LGAs and RSs do not have digital systems, so they resort to Excel-based and paper-based methods for data collection and management. Without digital systems, there is no reliable linkage between local government and central government data, leading to data silos. This challenge limits visibility of the broader data landscape and can result in inconsistencies, errors and processing bottlenecks, impeding the effective utilization of data resources.

Some sectors have many data systems, but some are disconnected from each other. With many disconnected systems in place, the risk of losing track of some data is high. For example, in the case of the health sector, disconnected systems impede the accessibility and sharing of patient information, which may lead to treatment errors and delays. The lack of integrated systems and data can result in the loss of critical health data through duplication or omission.

Poor internet connectivity, especially in remote areas. Poor internet connectivity affects the timely updating, sharing and accessibility of data and hampers the effectiveness of decision-making processes. A delay in accessing new data or updates can lead to significant drawbacks in decision-making, particularly in sectors that rely on timely and accurate data, like agriculture and humanitarian response.

Limited connectivity between primary data storage systems within and across sectors. Disparate storage systems can limit the potential to conduct complex and more insightful cross-sectoral analyses. Lack of integration and standardization of primary data storage systems can lead to unreliable data interpretation or findings. This challenge can further impede the ability to make data-driven decisions, mainly affecting cross-sectoral interventions, and lead to the misallocation of resources.

Limited availability of advanced tools for data analysis. This is particularly prevalent in LGAs. The current tools (software) available for data analysis, mostly Excel, are insufficient for handling complex and big data. Excel spreadsheets have limited analytical capabilities, with many LGA staff unable to transition to higher-level analysis or more sophisticated software. This issue causes hindrances in the capacity of statisticians to conduct in-depth data analysis across various sectors. Additionally, many local government offices do not have enough computers (hardware) to perform data analyses.

Low level of automation of routine data analysis processes. The low level of automation of routine processes, such as data cleaning and data reporting, is a significant bottleneck for data analysts, taking disproportionate amounts of time out of their schedules. Lack of automation ultimately detracts from the critical analysis and critical thinking processes, which require more time to identify patterns and data anomalies. Reducing manual processes can free up valuable time for data analysts to conduct more impactful analyses, such as trend analysis, correlations and predictive analytics, that could drive evidence-based policymaking.

Inadequate disaggregation of data from the central government level to reflect situations at the local government level. Most reports produced at the national level include aggregated statistics, which are useful for national-level discussions. Local government decision-makers require disaggregated statistics that speak to their specific needs and levels. Therefore, most reports produced at the national level are not directly applicable to decision-making at lower levels of government.

There is a gap in data dissemination from upper to lower levels of government. Most local government staff focus on data collection, verification and storage. Most analyses are conducted at the central government level. While the flow of data from the local government, the source, to the central government is established, the flow of data analyses and insights in the opposite direction is limited. As such, there is a one-way flow of information.

2.1.3 Institutional system

Data collection is habitual and not informed by user needs. In some cases, data collection is not updated to reflect evolving user needs. Therefore, outdated indicators continue to be monitored, resulting in the collection of unnecessary data that is not used in analyses. This is a drain on resources and leads to data overload.

Limited coordination and collaboration in data collection among LGAs and RSs. The lack of coordination in data collection efforts can lead to data duplication, errors and inconsistencies, thereby creating excess costs for the government. In LGAs, collaboration between statisticians and data collectors is weak. Effective collaboration ensures maximum utilization of available resources and reduces the burden of data collection on different departments.

Limited clarity, consistency and documentation of data collection and processing procedures. Limited clarity and consistency in data collection make it difficult to ensure that data are collected uniformly across different locations, time periods or areas of operation. This inconsistency leads to issues of data completeness, reliability and accuracy, which undermine the quality of the data. Also, undocumented data processing procedures hinder the ability of new staff to navigate through the data management system.

Lack of clarity on the role of e-Government Authority in data governance. The role of the e-Government Authority as a governance body in the data ecosystem and its relationship with NBS and other ministries is unclear. This challenge affects the pace of implementing data integration activities and consequently impacts momentum and interest in data integration.

Low levels of integration of datasets and data systems within and across sectors. Most government data systems are siloed, which limits data access, sharing and reuse, making it more difficult to maximize the potential of the data. Limited integration of data hinders cross-sector collaboration and prevents effective data analysis, which is critical for improved decision-making.

Limited dedicated data analysis capabilities, particularly in LGAs. Many LGAs lack specialized technical personnel to conduct in-depth data analysis, limiting their potential to perform comprehensive, customized analysis that is critical for effective data-driven decision-making, which in turn undermines the overall capability of LGAs to improve service delivery and implementation of national development programmes.

Low access to disaggregated data generated by other MDAs due to policies controlling data sharing. Most MDAs only share aggregated data on their platforms. This challenge limits external users' ability to conduct deeper and more insightful cross-sector analyses. External users must make special requests for disaggregated data, which might take time to approve.

Low levels of enforcement in the application of data in decision-making. There is no clear uniform requirement to use data for all decision-making, including planning and budgeting. Therefore, decision makers use outdated data, insights and forecasts, such as the previous year's budget estimates.

3 The Tanzanian Data Management Strategy

3.1 Rationale for the Data Management Strategy

High-quality data are essential for effective planning, budgeting and decision-making on using and managing public finances to implement development programmes. Planning and budgeting officers in sector line ministries, districts and regions need high-quality data to assess community needs effectively and prioritize programmes with the most significant impact. For example, nationally, the Ministry of Health may prioritize programming for malaria, but a district or region can make a case for programming for a different health issue, such as stunting, if data show low malaria prevalence and impact.

Currently, there is limited use of data in planning and budgeting cycles in sector line ministries, districts and regions, leading to low-quality plans and budgets being submitted for resource allocation. In some cases, planning and budgeting officers use plans for previous years with minimal modification, not necessarily reflecting the most up-to-date needs and programmatic bottlenecks in districts, regions and nation. This affects the ability of decision makers, including PO-RALG and the Ministry of Finance, to allocate public finances effectively. For example, a district plan may ask for more classroom infrastructure spending while the actual need is for teachers and textbooks.

This is driven, in part, by challenges in the data ecosystem affecting data availability, access and use. As described in the situation analysis section, planning and budgeting offices face several challenges in accessing the correct data to develop accurate insights on programmatic needs. Even when data are available, not everyone is empowered to conduct the required analyses effectively, or interpret results and incorporate them into plans and budgets.

The development of the Data Management Strategy coincides with the existence of PO-RALG's iMES that was developed to facilitate access and use of data in all interoperable systems. Also, NBS in collaboration with other stakeholders have developed TISP tool, which also seeks to address data access issues. TISP will therefore be an additional tool for facilitating implementation of the Data Management Strategy. It is important to note that the TISP does not capture data from the whole data ecosystem in Tanzania; as such, it is not the only vessel for data access. Other systems and tools will continue to be used to achieve the same objective of putting data and analytics at the centre of planning and budgeting processes.

Planning and budgeting officers in LGAs, RSs and sector line ministries can leverage the power of the iMES and TISP to incorporate data and analytics into planning and budgeting processes to enhance the quality of their plans and budgets. The data on the iMES and TISP will allow planning and budgeting officers to clearly articulate the needs of the districts, regions and nation. Plans and budgets that are based on data and analytics will allow regions and sector line ministries to have informed budget discussions and negotiations with decision makers, including PO-RALG and the Ministry of Finance, on requested budget allocations. Ultimately, this will ensure that development programmes for sector line ministries, districts and regions are adequately funded and delivered effectively to have transformative outcomes for citizens.

These factors indicated a clear need for this Data Management Strategy, which creates a road map to ensure the availability, access and use of high-quality data in developing plans and budgets for sector line ministries, districts and regions.

3.2 Vision and objectives

PO-RALG's vision for the Data Management Strategy is "To ensure availability of, access to and use of high-quality data to develop plans and budgets based on data and analytics to inform decision-making on public finances management to deliver quality services to citizens."

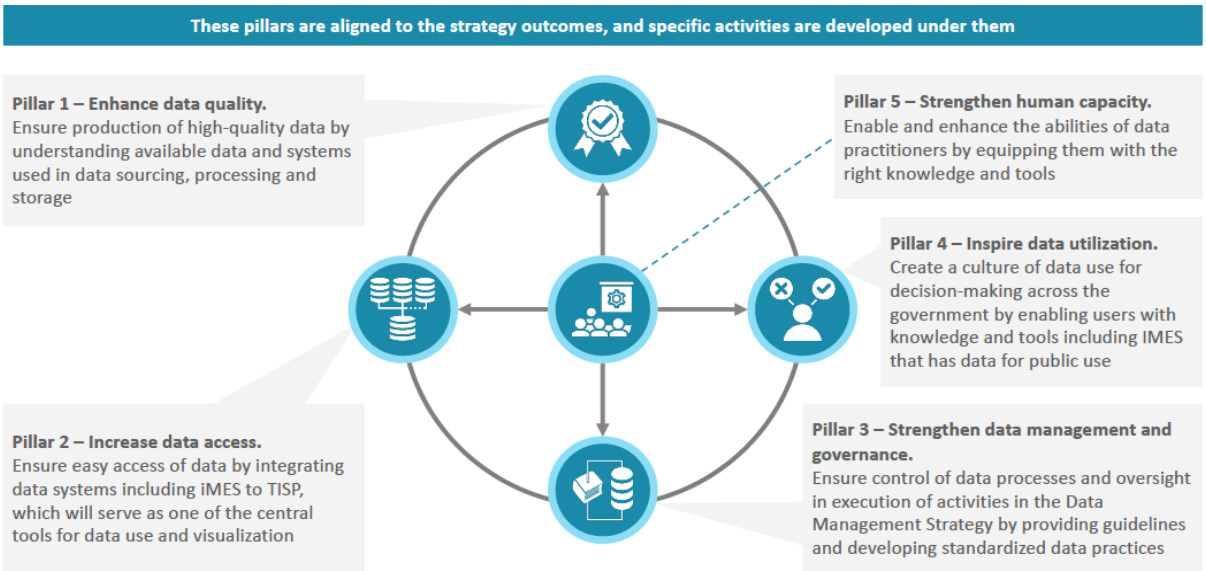
To attain this vision, PO-RALG has developed a series of objectives:

1. To harmonize procedures and systems for data sourcing and validation to ensure the availability of high-quality data.
2. To position the iMES and TISP as central tools for data access and visualization for planning and budgeting officers in LGAs and regions.
3. To inspire evidence-based decision-making on the allocation, use and management of public finances to implement development programmes.
4. To build capacity in data sourcing, processing and use among government staff, including planning and budgeting officers.

3.3 Strategic pillars

This strategy is based on five key pillars that form a foundation for its implementation. These pillars, as illustrated in Figure 5, have been designed to work together, ensuring that the overall strategy is cohesive and integrated. The development of these pillars was informed by PO-RALG's objectives, ensuring that the strategy is aligned with organizational goals and objectives. Furthermore, the pillars are aligned with industry best practices, ensuring they are effective and relevant in today's data-driven world. Through effective strategy implementation, PO-RALG can achieve its desired outcomes for effective data management and ensure continued success in service delivery to citizens. The section below provides details on the strategic pillars.

Figure 5: Strategic pillars of the Data Management Strategy



Pillar 1: Enhance data quality. Pillar 1 seeks to ensure the creation of high-quality data as a foundational step for effective, evidence-based planning, budgeting and decision-making. This involves understanding the available data and systems used in data collection, storage and

verification, and associated gaps and limitations. To achieve this, LGAs, RSs and MDAs need to comprehensively understand their data infrastructure and the sources from which they gather data. By improving data quality, LGAs, RSs and MDAs can avoid errors or inaccuracies that could negatively impact their operations.

Pillar 2: Increase data access. Pillar 2 aims to increase access to data by leveraging the iMES and TISP. The portal will act as a central tool for data access and visualization, and will make it easier for users to access, visualize and compare cross-sector data. This pillar will also ensure that data are standardized for interoperability. The TISP is designed to be user-friendly, making it easy for individuals to access data without advanced technical expertise. Additionally, the portal will provide various visualization tools, such as charts, graphs and maps, to help users better understand and interpret the data. Figure 6 and 6.1 provide an illustration of the positioning of the iMES and TISP in the data value chain.

Figure 6: Ilustration of the positioning of IMES in the data value chain.

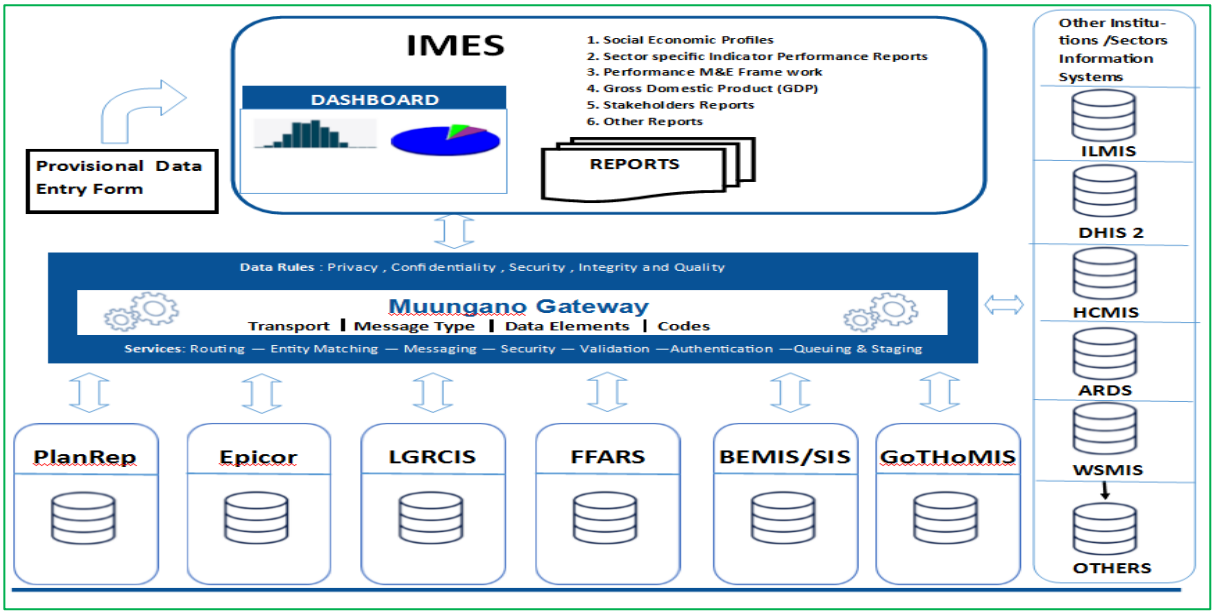
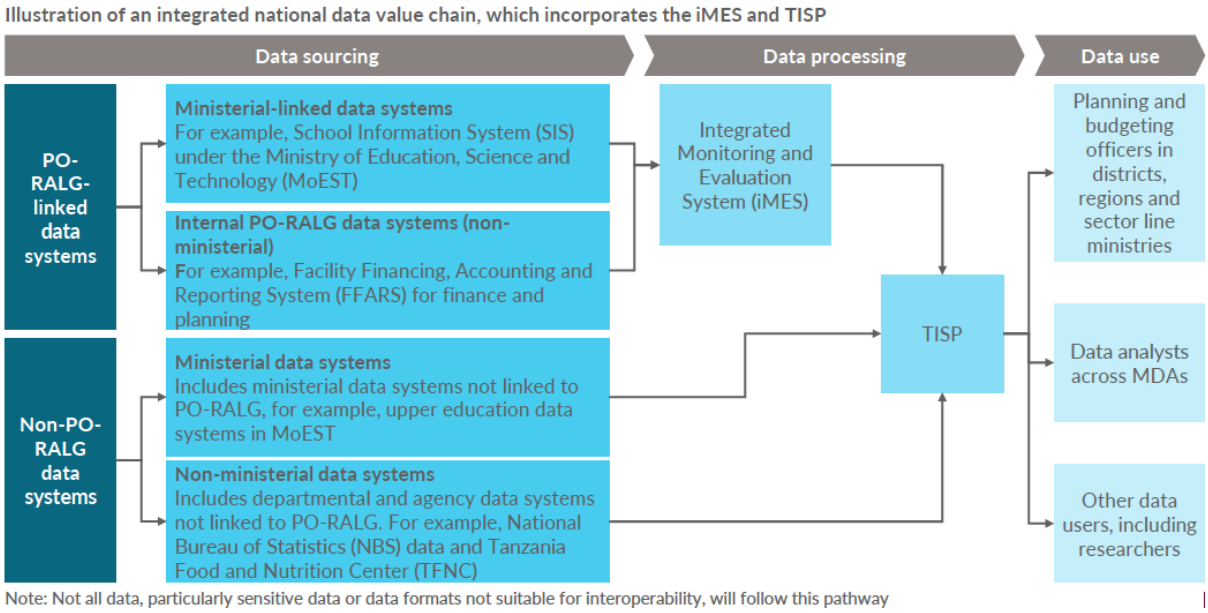


Figure 6.1: Integrated national data value chain, showing positioning of the iMES and TSP



Pillar 3: Strengthen data management and governance. This pillar seeks to ensure effective control of data processes and oversight in the execution of activities in the Data Management Strategy by providing guidelines and developing standardized data practices. This pillar reinforces the importance of having effective guidelines and standardized data practices that ensure efficient data management processes throughout the data lifecycle. Increased data governance and management will help mitigate the operational risks that come with data risks and data loss that can lead to noncompliance with regulations, data breaches and other financial and reputational hazards.

Pillar 4: Inspire data utilization. This pillar aims to create a culture of data use to inform decision-making across the government by equipping users with knowledge and tools. The pillar is essential because the value of data is in how it is used to provide insights to inform decision-making. Implementing Pillar 4 requires educating users and decision makers about the importance of data in decision-making processes. This will be critical for changing behaviours and attitudes towards data. Access to data tools, such as dashboards and data visualization software, is also crucial for enabling better data utilization. These tools improve data access and allow for easier analysis, interpretation and dissemination of data-driven insights.

Pillar 5: Strengthen human capacity. This pillar aims enhance the abilities of key actors in the data value chain. While data sourcing, processing and use are the major components of data management, human capacity is perhaps the most critical component of a successful data management strategy. Strengthening human capacity involves empowering individuals with the knowledge, skills and tools they need to perform their tasks effectively. This means not only building their technical skills but also training them on relevant legal, ethical and regulatory concepts relating to data management.

These pillars are closely linked to the strategic objectives, as illustrated in

Figure 7. Implementation of activities under the pillars will contribute to achieving the strategic objectives.

Figure 7: The linkage between pillars and strategic objectives

OBJECTIVES	PILLARS				
	Enhance data quality	Increase data access	Strengthen data management and governance	Inspire data utilization	Strengthen human capacity
To harmonize procedures and systems for data sourcing and validation to ensure the availability of high-quality data	✓	✓	✓	✓	
To position iMES and TISP as central tools for data access and visualization for planning and budgeting officers in districts, regions and sector line ministries		✓		✓	
To inspire evidence-based decision-making on the allocation, use and management of public finances to implement development programs		✓		✓	✓
To build capacity in data sourcing, processing, and use for staff across the government, including planning and budgeting officers	✓	✓	✓	✓	✓

3.4 Theory of change

To achieve the desired vision and objectives, it is essential for PO-RALG to have a clear and comprehensive understanding of the underlying assumptions and hypotheses that guide the development and implementation of the strategy. This strategy will be based on an ambitious theory of change to ensure that PO-RALG has a transformative change in data management. The theory of change will outline the key drivers, impact, outcomes, outputs and activities necessary to achieve the objectives, as well as the expected vision of the strategy.

3.4.1 Impact

The desired impact of this strategy is, "Decisions made by the Government of Tanzania and development partners yield higher positive impact on the livelihoods of Tanzanians".

3.4.2 Outcomes and outputs

This section details the outcomes that PO-RALG aims to achieve in the medium term, which together will contribute to achieving the desired impact. Underlying the outcomes are outputs, which PO-RALG aims to achieve in the short term by implementing prioritized activities.

Outcome 1: The quality of data generated by LGAs, RSs and MDAs is improved

Output 1: All data users have a shared understanding of available data and its gaps
Output 2: Data systems stewards have a broad understanding of data systems across LGAs, RSs and MDAs, and their limitations
Output 3: Data systems gaps and limitations in LGAs, RSs and MDAs are resolved
Output 4: Data generation, collection and verification processes are streamlined
Output 5: A guidance document on data quality assurance is created

Outcome 2: Data users and decision makers have quick access to cross-sector data using the iMES and TISP

Output 1: Offline data sources are fully digitized
Output 2: All datasets are harmonized for interoperability across sectors
Output 3: All government data systems are directly or indirectly linked to the TISP and/or iMES
Output 4: Data users in LGAs, RSs and MDAs at local and national government levels have near-to-real-time access to data generated at facilities

Outcome 3: Guidelines and policies governing data sourcing, processing and use are understood and enforced

Output 1: All statistics produced by LGAs, RSs and MDAs meet the standards set by NBS
Output 2: Measures to ensure confidentiality, protection and security of all data are enforced
Output 3: Overall data and data systems oversight in LGAs, RSs and MDAs is strengthened

Outcome 4: Decision-makers at all levels of government are making evidence-based decisions on service delivery to citizens

Output 1: There is an increase in the level of data use in decision-making in LGAs, RSs and MDAs
Output 2: There is full commitment and buy-in from senior leaders to incorporate data and analysis into decision-making
Output 3: Data analysis is required and is a core step in the decision-making process before approvals are given
Output 4: Current and new staff have basic analytical skills to analyse, interpret and present data

Outcome 5: Data experts and users along the data value chain are effectively trained on best data practices

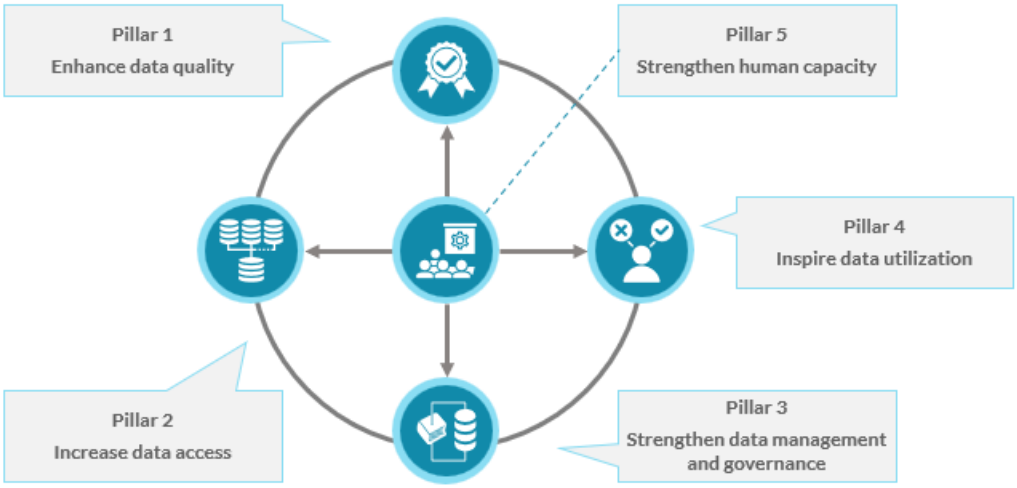
Output 1: Systems operators in MDAs, RSs and LGAs have a basic understanding of cross-ministerial, RSs and LGA data systems and tools
Output 2: Data users are trained on data governance and management procedures
Output 3: Key staff in district and regional offices and in PO-RALG are trained on the best use of the iMES and TISP
Output 4: Data collectors are trained on best practices for collecting and storing high-quality data
Output 5: Budgeting and planning officers are trained on developing evidence-based plans and budgets

4 Implementation Plan

4.1 Overview of strategic activities

The Data Management Strategy prioritizes a set of activities and subactivities under each pillar, which will help PO-RALG to achieve desired outputs and outcomes.

Figure 8: Strategic pillars of the Data Management Strategy



The following section provides an overview of key activities for each pillar, detailing how these contribute to a desired output and outcome.

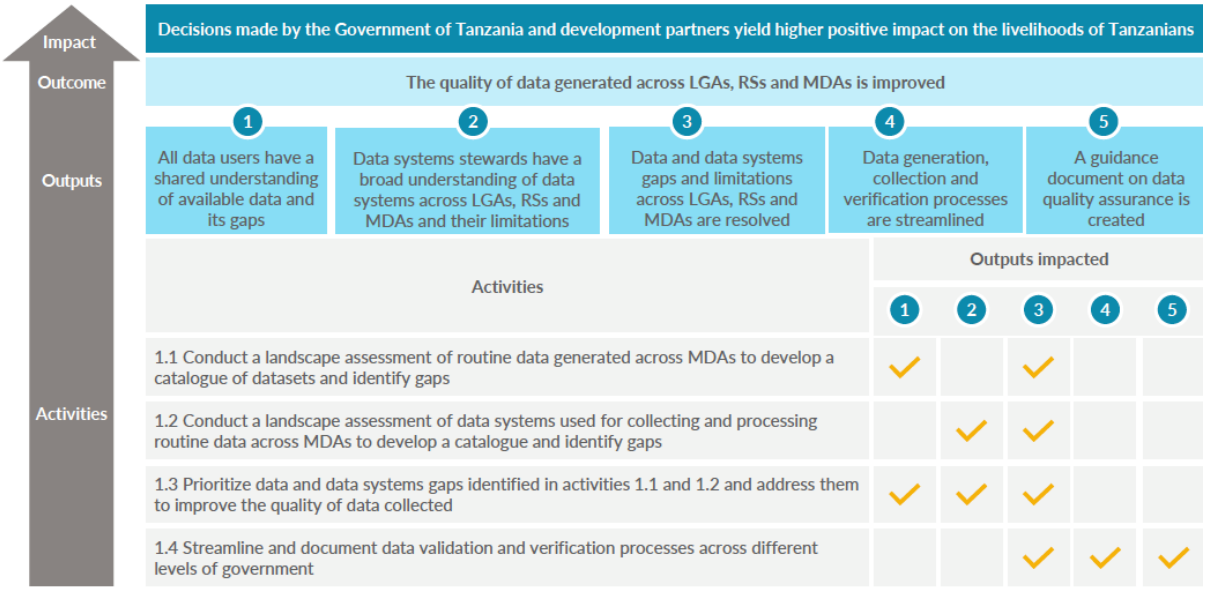
4.1.1 Pillar 1 – Enhance data quality

Figure 9 shows how strategic activities under Pillar 1 map to the outputs. For example, activity 1.1 contributes to outputs 1 and 3. Similarly, these outputs contribute to the outcome, which contributes to the vision. The subsequent discussion details each activity, including the description, underlying subactivities and potential activity deliverables.

Activity 1.1: Conduct a landscape assessment of routine data generated by LGAs, RSs and MDAs to develop a catalogue of datasets and identify gaps

Currently, many data analysts and data users working at PO-RALG and other LGAs, RSs and MDAs, including planning and budgeting officers, have a limited understanding of the knowledge generated by other LGAs, RSs and MDAs, which limits opportunities for cross-sector analyses and interventions. This activity will ensure that there is a shared understanding of available data in relevant LGAs, RSs and MDAs, allowing for more comprehensive and impactful interventions.

Figure 9: Pillar 1 strategic activities



Sources: Stakeholder consultation

To complete this activity, PO-RALG will focus on the following subactivities:

- Identify MDAs that could benefit from integrating their data with PO-RALG data.
- Conduct a comprehensive landscape assessment of datasets generated by those MDAs together with RSs and LGAs.
- Develop a 'living', constantly updated, catalogue of available datasets in the relevant MDAs, RSs and LGAs.
- Develop data dictionaries for available datasets.
- Share the data catalogue and data dictionaries with relevant data stewardsin MDAs, RSs and LGAs.

Key deliverables of this activity will include:

- a catalogue of all datasets in relevant MDAs, RSs and LGAs;
- data dictionaries; and
- an internal online platform for accessing the data catalogue, data dictionaries and datasets.

Activity 1.2: Conduct a landscape assessment of data systems used by LGAs, RSs and MDAs for collecting and processing routine data to develop a catalogue and identify gaps

Currently, PO-RALG data system stewards have a limited understanding of available data systems and their capabilities in PO-RALG and related LGAs, RSs and MDAs, which limits opportunities for collaboration. This activity will ensure that there is a shared understanding of available data systems, where data system stewards will have a high-level understanding of other systems, in addition to a deep understanding of their own systems.

To complete this activity, PO-RALG will focus on the following subactivities:

- Identify MDAs that could benefit from integrating their data with PO-RALG data.
- Conduct a comprehensive landscape assessment of data systems used by these MDAs, RSs and LGAs.

- Develop a 'living' catalogue of data systems in the relevant MDAs, RSs and LGAs.
- Share the data catalogue with relevant systems stewards in LGAs, RSs and MDAs.

Key deliverables of this activity will include:

- a catalogue of data systems used by relevant MDAs, RSs and LGAs, describing relevant features of each system, such as types of data collected and data access rights for external users (for example, granting view-only rights to others in the network); and
- an internal online platform for accessing the data systems catalogue (this could be the same platform for accessing the data catalogue).

Activity 1.3: Prioritize data and data systems gaps identified in activities 1.1 and 1.2 and address them to improve the quality of data collected

The landscape assessment of data generated and systems used by LGAs, RSs and MDAs will identify gaps in the types of data collected and systems used, or lack thereof. This activity aims to develop a plan to address gaps in data generation and data systems use.

To complete this activity, PO-RALG will focus on the following subactivities:

- Synthesize findings on gaps from the landscape assessment of datasets and data systems in LGAs, RSs and MDAs.
- Prioritize data and systems gaps to be addressed in the short, medium and long term. For example, focus on low-cost, low-complexity and medium-to-high-impact gaps or challenges.
- Develop an implementation plan for executing priorities, including setting targets and milestones, and identifying champions who will lead implementation in each relevant MDA.

Key deliverables of this activity will include:

- prioritization criteria for data and data systems gaps;
- prioritization of gaps in data collection and systems use that are affecting the resulting quality of data; and
- an implementation plan for addressing the gaps.

Activity 1.4: Streamline and document data validation and verification processes in different levels of government

Before data are available to end users, including data analysts, planning and budgeting officers and decision makers, they undergo a process of verification and validation at different levels of government, from facility to national level, including checking for accuracy and suitability for use by the end user. This activity will ensure that the process runs efficiently to ensure the timely availability of accurate data.

To complete this activity, PO-RALG will focus on the following subactivities:

- Identify all departments and units where routine data are collected.
- Map data pathways from collection at facilities in LGAs, RSs and MDAs, including health centres and schools, through the different verification and validation steps, to approval

for consumption/use. The mapping should include turnaround times and highlight inefficiencies, such as failure to use system approvals.

- Develop an action plan to address the inefficiencies, such as setting strict timelines for verification and validation.

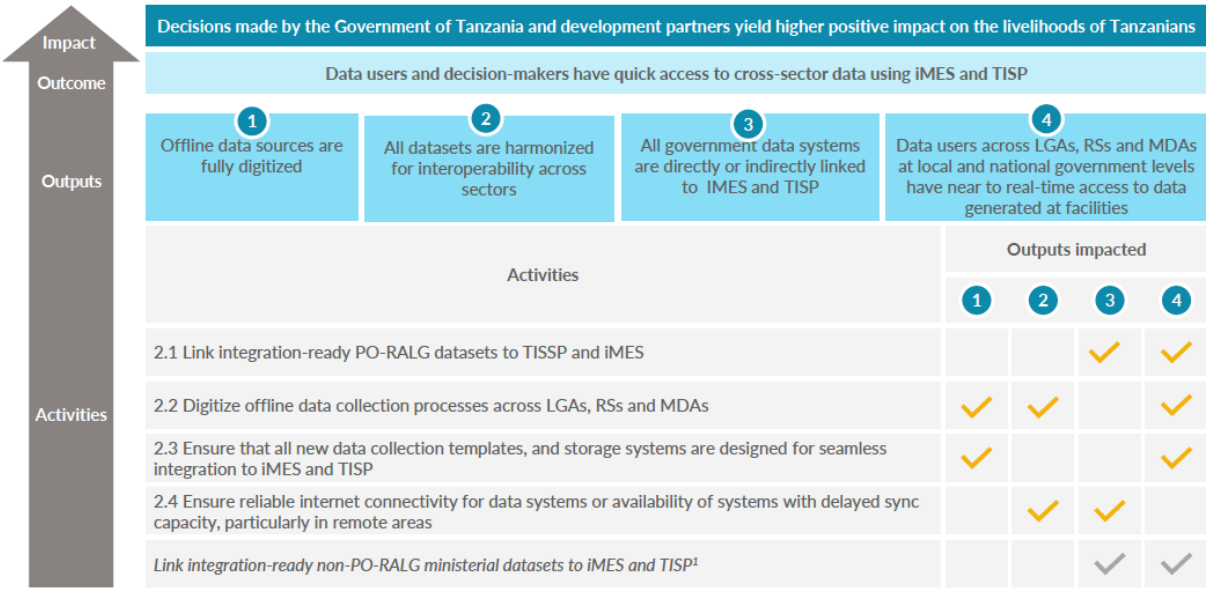
Key deliverables of this activity will include:

- data processing pathway maps indicating timelines and key actors; and
- synthesis of drivers of inefficiencies and mitigation plans.

4.1.2 Pillar 2 – Increase data access

Figure 10 shows how strategic activities under Pillar 2 map to the outputs. For example, activity 2.1 contributes to outputs 3 and 4. Similarly, these outputs contribute to the outcome, which contributes to the vision. The subsequent discussion details each activity, including the description, underlying subactivities and potential activity deliverables.

Figure 10: Pillar 2 strategic activities



Notes: [1] This is a non-PO-RALG activity, but it will need to be implemented by other ministries to have an integrated data ecosystem. As such, it will not be detailed in this strategy

Activity 2.1: Link integration-ready PO-RALG datasets to the TISP via the iMES

In the new integrated data ecosystem, users, including planning and budgeting officers and decision makers, will be able to access the public data of different MDAs, including PO-RALG, using a centralized platform, the TISP. PO-RALG data will be sourced from the internal monitoring and evaluation system (iMES). This activity will ensure that all PO-RALG datasets that meet integration requirements are linked to the TISP.

To complete this activity, PO-RALG will focus on the following subactivities:

- Conduct a review of routine data generated by PO-RALG data systems to assess readiness to integrate into the iMES. This could include understanding the current format of data relative to formats compatible with the iMES.

- Where there are gaps, acquire new technical staff or upscale the skills of existing staff to support the integration of data systems.
- Link integration-ready PO-RALG datasets to the iMES.
- Link iMES data to the TISP.

Key deliverables of this activity will include:

- a comprehensive list of PO-RALG datasets and an assessment of the readiness level to integrate into the iMES;
- linking PO-RALG datasets to the iMES; and
- linking the iMES system to the TISP.

Activity 2.2: Digitize LGAs RSs and MDA offline data collection processes

Some LGAs, RSs and MDA datasets are still collected on paper before being inputted into digital data systems. This extra step delays the availability of data and increases the likelihood of mistakes. This activity aims to ensure that all data are directly collected digitally, i.e., on tablets, computers and smartphones.

To complete this activity, PO-RALG will focus on the following subactivities:

- Review all datasets generated by LGAs, RSs and MDAs to identify processes and teams that apply paper-based methods in data collection.
- Review best practices of other MDAs or regional governments, such as Uganda, to digitize offline data collection processes, including the use of specific tools and methodologies.
- Assess the feasibility of digitizing paper-based activities, including at facilities such as schools and health centres in rural areas.
- Develop a plan for procuring, distributing and managing digital tools.

Key deliverables of this activity will include:

- a report detailing all processes that apply paper-based data collection methods;
- a plan on how to digitize offline data collection processes, including identifying key institutions to be involved or guidelines to be followed; and
- a plan for procuring, distributing and managing digital tools.

Activity 2.3: Ensure that all new data collection templates and storage systems are designed for seamless integration into the iMES and TISP

Future data creation should be done with a view to integrating into the iMES and TISP. This activity aims to ensure that there is a clear foundation for data collection, such that integration becomes seamless.

To complete this activity, PO-RALG will focus on the following subactivities:

- Understand data collection templates and formats for all routine and periodic data collected by PO-RALG departments and units.
- Understand the minimum data requirements for the iMES and TISP, such as specific formats.

- Develop standard templates for data collection in line with requirements for the iMES and TISP.
- Roll out the templates to RSs and LGAs, and within PO-RALG.
- Create a feedback mechanism, such as workshops, to solicit feedback from users on how to improve the data collection templates.

Key deliverables of this activity will include:

- standardized data collection templates; and
- detailed requirements for data collection systems that meet integration requirements.

Activity 2.4: Ensure reliable internet connectivity for data systems or availability of systems with delayed sync capacity, particularly in remote areas

Primary collectors of routine administrative data and data on development indicators include LGAs and RSs. Many LGA and RS facilities, including schools and hospitals, do not have reliable, continuous internet connectivity, which is required to share real-time data. This activity aims to ensure that lack of reliable connectivity is not a barrier to accessing data.

To complete this activity, PO-RALG will focus on the following subactivities:

- Assess the level of internet connectivity, including speed and reliability, of data systems in LGAs and RSs.
- Check if current systems have delayed-sync capabilities (not requiring immediate availability of internet).
- Develop a plan to strengthen or update connectivity infrastructure in LGAs and RSs, including prioritization of locations and facility types.
- Strengthen or update connectivity infrastructure in LGAs and RSs.
- Implement a monitoring plan for data system connectivity in RSs and LGAs.

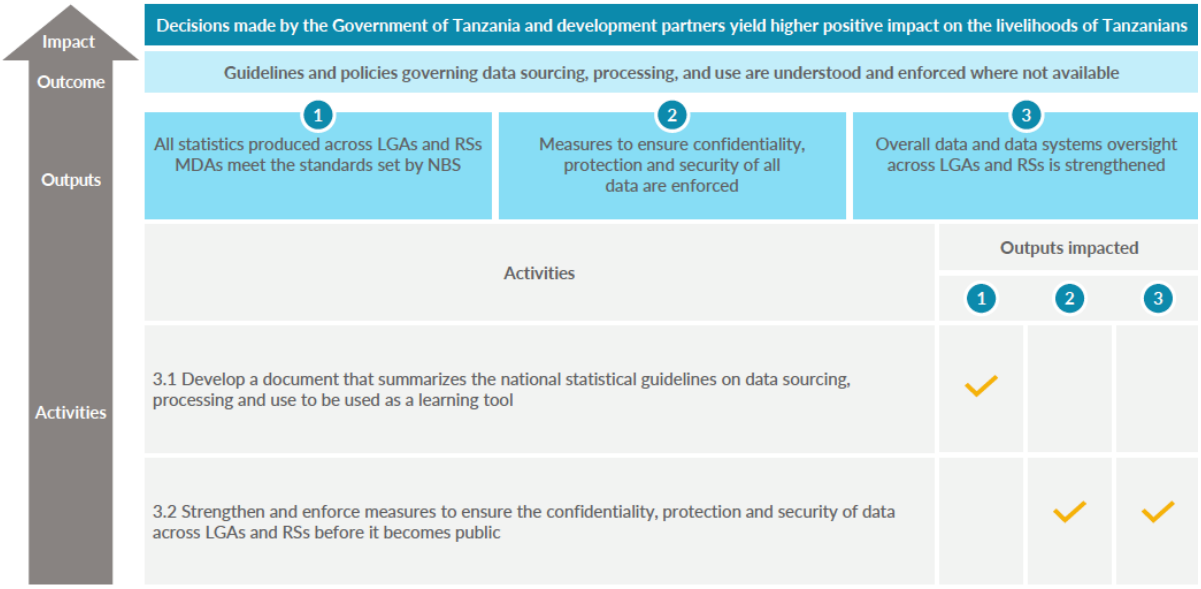
Key deliverables of this activity will include:

- a map of internet connectivity for all LGAs and RSs facilities across the country; and
- a strategy for strengthening and updating internet connectivity infrastructure for all facilities in RSs and LGAs.

4.1.3 Pillar 3 – Strengthen data management and governance

Figure 11 shows how strategic activities under Pillar 3 map to the outputs. For example, activity 3.1 contributes to output 1. Similarly, these outputs contribute to the outcome, which contributes to the vision. The subsequent discussion details each activity, including the description, underlying subactivities and potential activity deliverables.

Figure 11: Pillar 3 strategic activities



Sources: Stakeholder consultation

Activity 3.1: Develop a consolidated document that summarizes the national statistical guidelines on data production, processing, dissemination and use

A range of guidelines and frameworks, including the Data Quality Assessment Framework for Tanzania Mainland, has been developed by NBS to ensure the production of high-quality statistics, but not all data producers and users have a complete understanding of these frameworks and guidelines. This activity aims to ensure that there is an easily accessible and easy-to-use consolidated tool or document to help data producers and users understand the nationally required principles for statistics production and use.

To complete this activity, PO-RALG will focus on the following subactivities:

- Review the existing national statistical guidelines published by NBS on data production, use and dissemination, including those covered in the Statistics Act: Revised Edition (2019).
- Conduct a survey to assess the level of understanding of the national statistical guidelines by data producers and users across LGAs and RSs.
- Synthesize the national guidelines into a single document or module that captures the core guidelines for data production, processing, dissemination and use, leveraging feedback from the assessment.
- Pilot the guidelines with select staff across LGAs and RSs to assess the level of clarity and usefulness.
- Roll out the document to data producers and users in across LGAs and RSs.

Key deliverables of this activity will include:

- a document detailing key guidelines for data sourcing, processing and use.

Activity 3.2: Strengthen and enforce measures to ensure the confidentiality, protection and security of data in LGAs and RSs before they become public

As the government moves towards an integrated data ecosystem, there will be more sharing of data among LGAs and RSs. As such, there is a risk of sharing sensitive data with an unintended audience. This activity aims to create guard rails to manage data sharing and protect sensitive data.

To complete this activity, PO-RALG will focus on the following subactivities:

- Review all national guidelines on data protection, including the Personal Data Protection Act (2022).
- Develop training material and resources for familiarizing staff with the data protection and management guidelines.
- Ensure that consequences for failure to adhere to data protection and management guidelines are clearly communicated.
- Identify data management and protection champions to serve as points of contact for data specialists in LGAs and RSs.

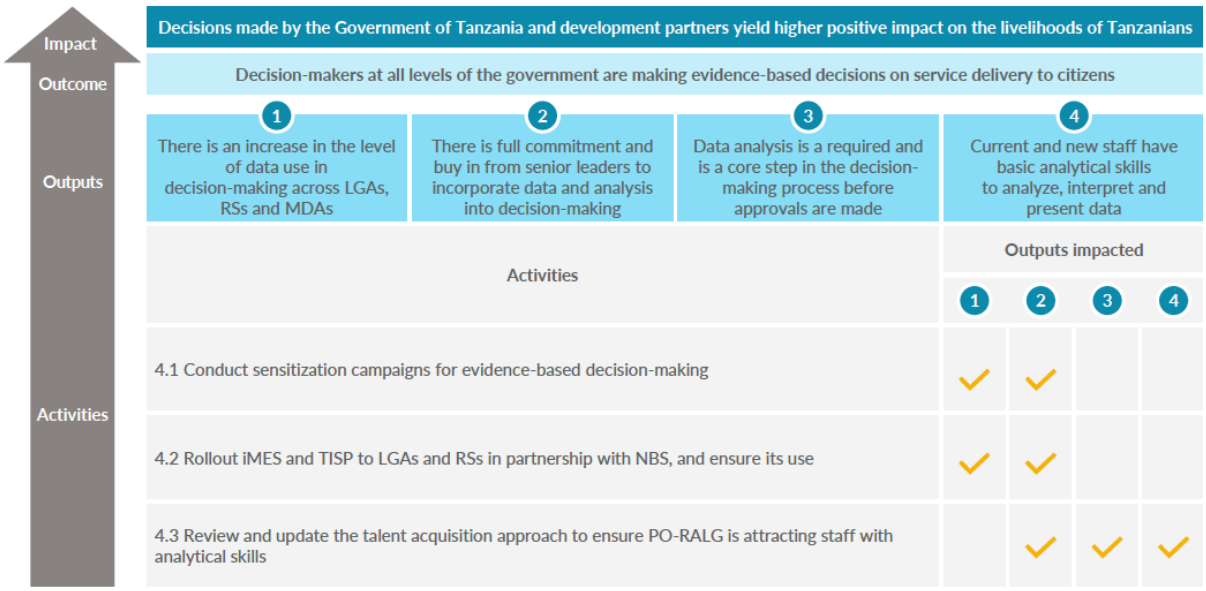
Key deliverables of this activity will include:

- training modules on data protection;
- a list of data management and protection champions; and
- a training programme for data producers and data managers.

4.1.4 Pillar 4 – Inspire data utilization

Figure 12 shows how strategic activities under Pillar 4 map to the outputs. For example, activity 4.1 contributes to outputs 1 and 2. Similarly, these outputs contribute to the outcome, which contributes to the vision. The subsequent discussion details each activity, including the description, underlying subactivities and potential activity deliverables.

Figure 12: Pillar 4 strategic activities



Sources: Stakeholder consultation

Activity 4.1: Conduct sensitization campaigns for evidence-based decision-making

Planning and budgeting officers in sector line ministries, districts and regions and government decision makers may be familiar with the global institutional push for evidence-based decision-making in private and public sectors, but only a minority might have an appreciation of its importance in effective service delivery. This activity aims to help decision makers understand the positive impact of evidence-based decision-making, internalize the practice and use it consistently.

To complete this activity, PO-RALG will focus on the following subactivities:

- Create a unit of 'data change' champions with clear roles and responsibilities to lead targeted sensitization efforts for planning and budgeting officers in LGAs and RSs.
- Develop a plan for continuous learning for planning and budgeting officers on evidence-based decision-making, including an ongoing learning programme on required analytical skills for existing and new staff.
- Establish an annual 'data week' to celebrate and promote data use for planning and budgeting just before the annual budgeting process begins.

Key deliverables of this activity will include:

- a unit of data change champions representing RSs and LGAs across the country; and
- scheduled annual 'data week' events.

Activity 4.2: Roll out the iMES and TISP tools to LGAs and RSs, in partnership with NBS, and ensure its use

iMES and TISP will be the consumer-facing platform for integrated data. Users, primarily planning and budgeting officers in sector line ministries, districts and regions, will need to be introduced to the iMES and TISP portal. This activity aims to ensure the rollout process is designed to generate interest and drive adoption.

To complete this activity, PO-RALG will focus on the following subactivities:

- Engage NBS to align with its TISP rollout plan and develop a collaboration plan.
- Identify senior leadership of LGAs, RSs and MDAs who will be invited to launch events.
- Identify other potential users of the iMES and TISP, including data analysts, who will be invited to launch events.
- Develop customized demonstrations to illustrate the functionality of the iMES and TISP portal for different audiences, including in LGAs and RSs. This could include standard monthly reports, sector profiles, monthly bulletins and information on how to extract data.
-

Key deliverable of this activity will include:

- customized iMES and TISP demonstrations; and

Activity 4.3: Review and update the talent acquisition approach to ensure that PO-RALG is attracting staff with analytical skills

Ensuring that new staff joining public offices, including planning and budgeting officers in district and regional offices, have the required analytical skills will be vital to establishing a culture of including data and analytics in plans and budgets. This activity considers upskilling existing staff and rethinking the talent acquisition approach to ensure that public offices have sufficient staff with analytical skills.

To complete this activity, PO-RALG will focus on the following subactivities:

- Review all job descriptions for technical staff in public offices, particularly planning and budgeting officers, to check for the analytical skills that are required to develop plans and budgets that are grounded by data and analytics.
- Define the expected analytical skills that candidates should possess, such as having completed basic statistics or Excel data analysis courses.
- Update and standardize job descriptions to ensure that basic analytical skills are a core requirement for applicants.
- Roll out the updated job descriptions to public offices.

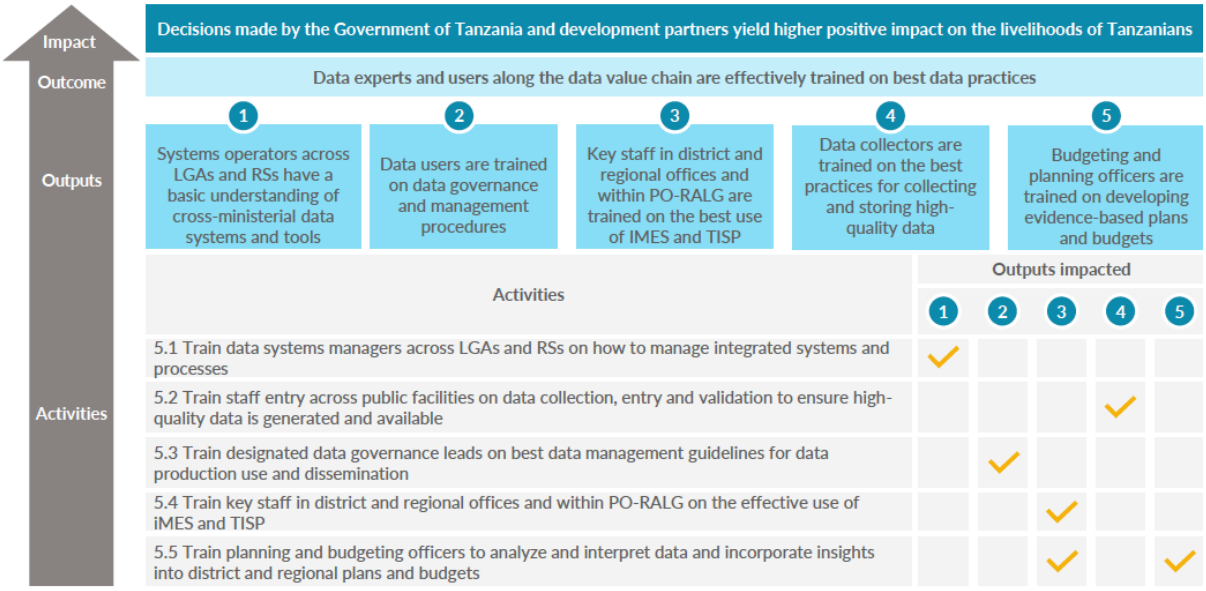
Key deliverables of this activity will include:

- updated job descriptions.

4.1.5 Pillar 5 – Strengthen human capacity

Figure 13 shows how strategic activities under Pillar 5 map to the outputs. For example, activity 5.1 contributes to output 1. Similarly, these outputs contribute to the outcome, which contributes to the vision. The subsequent discussion details each activity, including the description, underlying subactivities and potential activity deliverables.

Figure 13: Pillar 5 strategic activities



Sources: Stakeholder consultation

Activity 5.1: Train data systems managers in LGAs and RSs on how to manage integrated systems and processes

The new integrated data ecosystem will have new system requirements and processes. Therefore, data systems engineers will need to be trained on the changes to ensure post-integration sustainability through developing internal capabilities.

To complete this activity, PO-RALG will focus on the following subactivities:

- Conduct a knowledge needs assessment through a survey.
- Develop training materials based on the needs assessment.
- Develop a training programme for data systems engineers in PO-RALG and prioritized LGAs and RSs.
- Conduct training sessions on the effective management of data systems.
- Conduct periodic refresher training sessions on the effective management of data systems, for example, semi-annually.
- Identify and build capacity for training champions in regions to ensure the sustainability of the programme.

Key deliverables of this activity will include:

- a summary of data management needs;
- training modules on managing integrated data systems; and
- training schedules for data systems managers.

Activity 5.2: Train entry staff in public facilities on data collection, entry and validation to ensure high-quality data are generated and available

Most routine data are first collected at facilities, such as health-care centres, schools and public offices. If data experts and data clerks at these facilities are not well trained, the resulting data and subsequent analyses will not be useful. This activity seeks to ensure that, to effectively complete their tasks, experts and data clerks at facilities have sufficient and up-to-date training.

To complete this activity, PO-RALG will focus on the following subactivities:

- Conduct a knowledge needs assessment for staff involved in data collection, entry and verification in facilities. This could be a survey of facilities across the country.
- Develop training modules appropriate to the identified needs.
- Identify 'champions' to facilitate subnational training and serve as ongoing points of contact for trainees.
- Train the 'champions' on best practices in data collection, entry and verification and empower them to train others in their respective areas.

Key deliverables of this activity will include:

- a knowledge gap assessment report; and
- training modules with best practices for data collection, entry and verification.

Activity 5.3: Train designated data governance leads on best data management guidelines for data production, use and dissemination

In the integrated data ecosystem, data users will have access to data from different MDAs. Not all data generated will be fit for public consumption. Therefore, there will be a need for data governance leads who will serve as data gatekeepers. The data governance leads will have to be trained on appropriate data management practices to effectively monitor data use in their areas.

To complete this activity, PO-RALG will focus on the following subactivities:

- Define roles and responsibilities for data governance leads, if none exist.
- Identify data governance leads, if none exist.
- Review existing national guidelines for data production, use and dissemination, including those covered in the Statistics Act: Revised Edition (2019).
- Develop training material on data production, dissemination and use, in line with national requirements, to train data governance leads for their own use and for them to use in training others.
- Conduct periodic (for example, annual) training programmes for designated data gatekeepers in LGAs and RSs.

Key deliverables of this activity will include:

- training material on data management and governance; and
- data governance leads who are trained in nationally accepted data management and governance principles.

Activity 5.4: Train key staff in district and regional offices and PO-RALG on the effective use of the iMES and TISP tools

The TISSP is a new tool in the Tanzania data ecosystem. Users, primarily planning and budgeting officers in district and regional offices, will need to be trained on the effective use of both iMES and TISP tools in order to generate insights that will be used to develop evidence-based plans and budgets. The training should be recurring to ensure that TISP is successfully adopted as the tool for data access and visualization.

To complete this activity, PO-RALG will focus on the following subactivities:

- Identify data and analysis requirements for preparing strong district and regional plans and budgets. This could be done by reviewing examples of the best plans and budgets submitted to PO-RALG.
- Develop training modules to guide planning and budgeting officers to independently navigate iMES and TISP to access data, conduct relevant analyses and extract data.
- Develop a customized learning module for senior decision makers who wish to use iMES and TISP, including developing easy to understand data dashboard.
- Identify TISP champions in districts and regions who will serve as resources for their peers in their areas.
- Conduct training sessions on the use of iMES and TISP for planning and budgeting officers, district and regional champions and decision makers.

Key deliverables of this activity will include:

- a customized learning module on iMES and TISP for planning and budgeting officers and decision makers.

Activity 5.5: Train planning and budgeting officers to analyse and interpret data and incorporate insights into district and regional plans and budgets

The main purpose of this strategy is to help planning and budgeting officers develop plans and budgets based on data and analytics. Accessing high-quality data is critical to achieving the objective, but not an end. Planning and budgeting officers need the skills to analyse the data, interpret it and generate insights that will inform recommendations for plans and budgets that effectively articulate the needs of citizens.

To complete this activity, PO-RALG will focus on the following subactivities:

- Identify insights and other general requirements for preparing strong district and regional plans and budgets. This could be done by reviewing examples of the best plans and budgets submitted to PO-RALG.
- Conduct a needs assessment for training among planning and budgeting officers in district and regional offices. This could be done through a survey.
- Develop training modules on how to analyse and interpret data to generate the required insights. The training modules should also provide guidance on how to package information to make easy-to-follow and compelling arguments, such as using visuals where applicable.
- Conduct periodic training sessions to ensure lessons are internalized.

Key deliverables of this activity will include:

- examples of best-practice plans and budgets;
- a training needs assessment report for planning and budgeting officers in district and regional offices;
- training modules on developing effective plans and budgets; and
- scheduled training sessions with planning and budgeting officers in district and regional offices.

4.2 Potential engagement partners

PO-RALG will engage private sector and public sector partners to ensure the successful implementation of the strategy.

Table 1: Summary of potential partners for implementing the Data Management Strategy

	Support area	
	Capacity building	**Technology investment**
Government institutions	• NBS • Eastern African Statistical Training Centre (EASTC) • Vocational Education and Training Authority Tanzania • Tanzania Communication Regulatory Authority	• Ministry of Information, Communication and Information Technology
Private sector	• Consultancy firms (e.g., KPMG, EY and PwC) • Tech for Development • Tanzania Data Lab	• Mobile network operators (Vodacom, Airtel, Tigo, Halotel, etc.)
International development institutions	• Tony Blair Institute • United States Agency for International Development • The Bill & Melinda Gates Foundation • Swedish International Development Cooperation Agency • The Canadian International Development Research Centre	• Japan International Cooperation Agency • Federal Ministry for Economic Cooperation and Development • Foreign, Commonwealth & Development Office of the United Kingdom • World Bank Group • United Nations Development Programme

These partners play key roles in the Tanzania data ecosystem.

4.2.1 Government institutions

The *Vocational Education and Training Authority Tanzania* provides training for youth in Tanzania, including in data analysis and business intelligence.

The *NBS* has a mandate on content, including frameworks, that guide the production, processing and use of statistics.

Eastern African Statistical Training Center (EASTC) - provides training of official Statistics, including training in data analysis.

The *Tanzania Communication Regulatory Authority* offers capacity-building training programmes in data analytics, data security and other fields related to information, communication and technology.

4.2.2 The private sector

Vodacom Tanzania has been involved in several initiatives aimed at improving the use of data in various sectors in Tanzania. The company has partnered with the Tanzanian government to deploy a mobile data platform that allows Tanzanian citizens to access information on public services.

Tigo Tanzania has supported several initiatives aimed at improving the use of data in Tanzania, including through its Digital Changemakers programme, which is focused on empowering youth with digital skills.

KPMG Tanzania is a consulting firm that provides advisory services to businesses and organizations in Tanzania. One of their focus areas is data analytics and business intelligence.

EY Tanzania is a consulting firm that provides a range of professional services, including technology advisory services. EY Tanzania has worked with various organizations in Tanzania to provide technology advisory services, including data transformation.

PwC is a consulting firm that provides a range of professional services, including data analytics and technology consulting. PwC Tanzania has worked on several technology projects in Tanzania, including data analytics projects.

Tech for Development is a Tanzania-based civil society organization that focuses on using technology to support social and economic development in Tanzania, including through promoting data literacy and capacity-building initiatives.

Tanzania Data Lab is a data innovation hub that offers training and capacity-building programmes for data analysis, visualization and storytelling.

4.2.3 International development institutions

The *World Bank Group* has several initiatives aimed at supporting data transformation and use in Tanzania, including support for the NBS in Tanzania.

The *United Nations Development Programme* has provided support for developing data systems in Tanzania, including through its Strengthening Tanzania's National Data Ecosystem project.

The *United States Agency for International Development* has supported data transformation in Tanzania in various ways, including through its Data for Development programme.

The *Foreign, Commonwealth & Development Office of the United Kingdom* (formerly the United Kingdom Department for International Development) has supported the use of data in Tanzania in various sectors through initiatives like the Tanzania Development Data Lab.

The *Bill & Melinda Gates Foundation* has a focus on data use in Africa, including in Tanzania, and has supported various initiatives aimed at using data to drive development progress.

The *Swedish International Development Cooperation Agency* has supported data-for-development initiatives in Tanzania, including projects aimed at improving statistical capacity.

The *Canadian International Development Research Centre* has supported initiatives for building capacity in data science in Tanzania.

The *African Development Bank* has supported Tanzania's NBS in enhancing its statistical systems.

4.3 Timeline for implementation

Table 2: Activity implementation plan

##	Activity	Year				
		2023	2024	2025	2026	2027
Pillar 1: Enhance data quality						
1.1	Conduct a landscape assessment of routine data generated by LGAs and RSs to develop a catalogue of datasets and identify gaps					
1.2	Conduct a landscape assessment of data systems used for collecting and processing routine data across LGAs and RSs to develop a catalogue and identify gaps					
1.3	Prioritize data and data systems gaps identified in activities 1.1 and 1.2 and address them to improve the quality of data collected					
1.4	Streamline and document data validation and verification processes at different levels of government					
Pillar 2: Increase data access						
2.1	Link integration-ready PO-RALG datasets iMES to TISP					
2.2	Digitize offline LGAs and RSs data collection processes					
2.3	Ensure that all new data collection templates and storage systems are designed for seamless integration into the iMES and TISP					
2.4	Ensure reliable internet connectivity for data systems or availability of systems with delayed sync capacity, particularly in remote areas					
Pillar 3: Strengthen data management and governance						
3.1	Develop a consolidated document that summarizes the national statistical guidelines on data production, processing, dissemination and use					

##	Activity	Year				
		2023	2024	2025	2026	2027
3.2	Strengthen and enforce measures to ensure the confidentiality, protection and security of data across LGAs and RSs before they become public					
Pillar 4: Inspire data utilization						
4.1	Conduct sensitization campaigns for evidence-based decision-making					
4.2	Roll out the iMES and TISP to LGAs, and RSs, in partnership with NBS, and ensure its use					
4.3	Review and update the talent acquisition approach to ensure that PO-RALG is attracting staff with analytical skills					
Pillar 5: Strengthen human capacity						
5.1	Train data systems managers in LGAs and RSs on how to manage integrated systems and processes					
5.2	Train entry staff in public facilities on data collection, entry and validation to ensure high-quality data are generated and available					
5.3	Train designated data governance leads on best data management guidelines for data production, use and dissemination					
5.4	Train key staff in district and regional offices and PO-RALG on the effective use of the iMES and TISP					
5.5	Train planning and budgeting officers to analyse and interpret data and incorporate insights into district and regional plans and budgets					

Year of activity implementation

Continuation of activity implementation

4.4 Risks and mitigation plan

Mitigation measures can be taken to minimize risks associated with the implementation of these activities. Table 3 provides a summary of the risks and mitigation measures of the strategy.

Table 3: Risks and mitigation measures

Risks (factors or conditions that may negatively affect the implementation of activities)	Estimate of risk level	Mitigation measures
Slow pace of digitization of records due to gaps in offline data records	Medium	Data audits will be used to triage offline data, and implementation will start with more complete data.
Incompatibility of data systems, affecting integration	High	Compatible systems will be prioritized to demonstrate proof of concept, after which systems can be updated.
Insufficient funds to facilitate strategic activities	High	Develop a resource mobilization strategy, exploring partnership ideas presented in this strategy (see description of activities).
Lack of buy-in from other MDAs to participate in the data integration process	Medium	Involve MDAs in the process early, starting with MDAs with some linkage to PO-RALG, for example, the Ministry of Health and Ministry of Education, Science and Technology, as part of the pilot as proof of concept.
Lack of cooperation from practitioners in RSs and LGAs in transforming offline data	High	Inform about the benefits of integration and tie activity outcomes to performance measures of responsible persons.
Low adoption of the TISP tool despite awareness-raising and capacity-building efforts	High	Mandate sign-off from analytics lead before advancing or approving proposals.
Lack of buy-in from decision makers to use the TISP tool	Medium	Tie activity outcomes to performance measures of responsible persons.
Slow process of integrating ministerial systems	High	Ensure buy-in from the senior leadership of MDAs.
Insufficient technical staff to support implementation at lower levels of government	Medium	Partner with local tertiary education institutions to develop internship programmes.
Competing priorities at PO-RALG, taking away resources from the implementation of strategy	Low	The Data Management Strategy will be positioned as a core guiding tool for PO-RALG.

5 Annex

5.1 List of participants

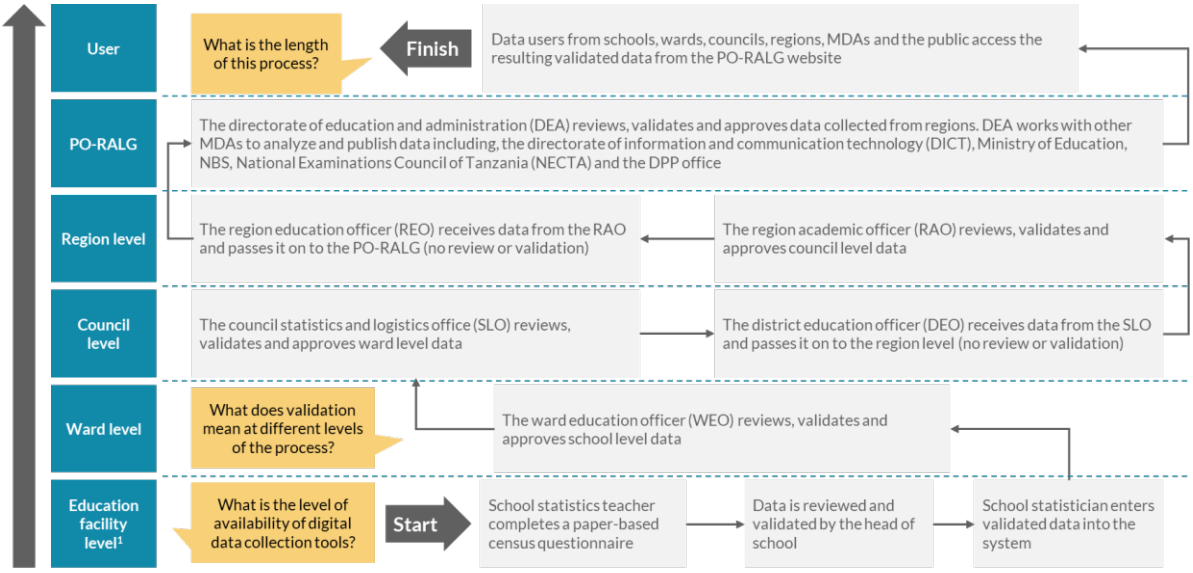
Name	Organization/ location
Morgan Simkanga	Ministry of Finance
David Edward	Ministry of Health
Florence Swella	Prime Minister's Office
Tumaini Masinsi	e-Government Authority
Ally Kananika	PO-RALG
Amaan Chilala	PO-RALG
Angela Nyoni	PO-RALG
Avelina Kapologwe	PO-RALG
Bibiana Patrice	PO-RALG
Charles Mbuli	PO-RALG
Clara Mlowe	PO-RALG
Elgiva Florence	PO-RALG
Edward Chengula	PO-RALG
Fatuma Nassoro	PO-RALG
Felix Changwe	PO-RALG
Filiakus Kilatu	PO-RALG
George Miringay	PO-RALG
Jakweli Juma	PO-RALG
Jeremiah Mwamboje	PO-RALG
Joseph Mushi	PO-RALG
Joseph Mwacha	PO-RALG
Khalid A. Khalid	PO-RALG
Lucas Gervas	PO-RALG
Marco Ngajua	PO-RALG
Rhobi Biras	PO-RALG
Rosemary Mbele	PO-RALG
Seraphini Kamilly	PO-RALG
Sharifa Mohammed (CPA)	PO-RALG
Stalaton Ndabikunze	PO-RALG
Josephine Manase	Tanzania Food and Nutrition Centre

Name	Organization/ location
Heri Hassan Suba	Kondoa District Council
Ruhinda Constatine	Mwanza City Council
Daimon Songa	Mwanza City Council
Emson Noel Secha	Bunda District Council
Goodluck Zawadi Mtae	Kondoa District Council
Boniface John Hillary	Njombe Town Council
Musa Joram Sololo	Mwanza City Council
Jacobo Lucas Francis	Mbogwe District Council
Odetha Christopher	Rombo District Council
Sophia Juma	Itigi District Council
Mollel Lomnis	Moshi District Council
Maneno Maziku	Arusha City Council
Richard Kalulu	Biharamulo District Council
Juma Mkombozi	Tanga City Council
Innocent Mariki	Longido District Council
Agustino Ngetwa	Tunduma Town Council
Mosses Sumbi	Mwanza City Council
Ramadhan Ramadhan	Mwanza Regional Secretariat
Edga Madeje	Manyoni District Council
Atufigwege Mwakitega	Nkasi District Council
Hamisi Halifa Mwambe	Morogoro District Council
Kelvin Makenya	Bariadi Town Council
Agrey Kyando	Siha District Council
Upendo Jacob Bonomali	Songea Municipal Council
Athanas Malatabu	Ifakara Town Council
Magembe Jackson	Geita Regional Secretariat
Musa Mwanja	Songwe Regional Secretariat
Lugambwa Matui	Chalinze District Council
Deus Kimario	Babati District Council
Mahega Katani	Tanga City Council
Sunday Hebuka	Ruvuma Regional Secretariat
Zena Mayange	Bumbuli District Council
Shukran Kyando	Kigoma Regional Secretariat

Name	Organization/ location
Denis Chiwangu	Ruvuma Regional Secretariat
Railu Ramadhani Bonya	Kigamboni Municipal Council
Fredy Okoth Philimon	Msalala District Council
Adam Chinyuka	Tanga Regional Secretariat
Scola Mwalyanzi	Lindi Regional Secretariat
Ephraim Kasamala	Karagwe District Council
Deborah Yonas Muwinje	Dodoma City Council
Jonas Paul Mwita	Arusha Regional Secretariat

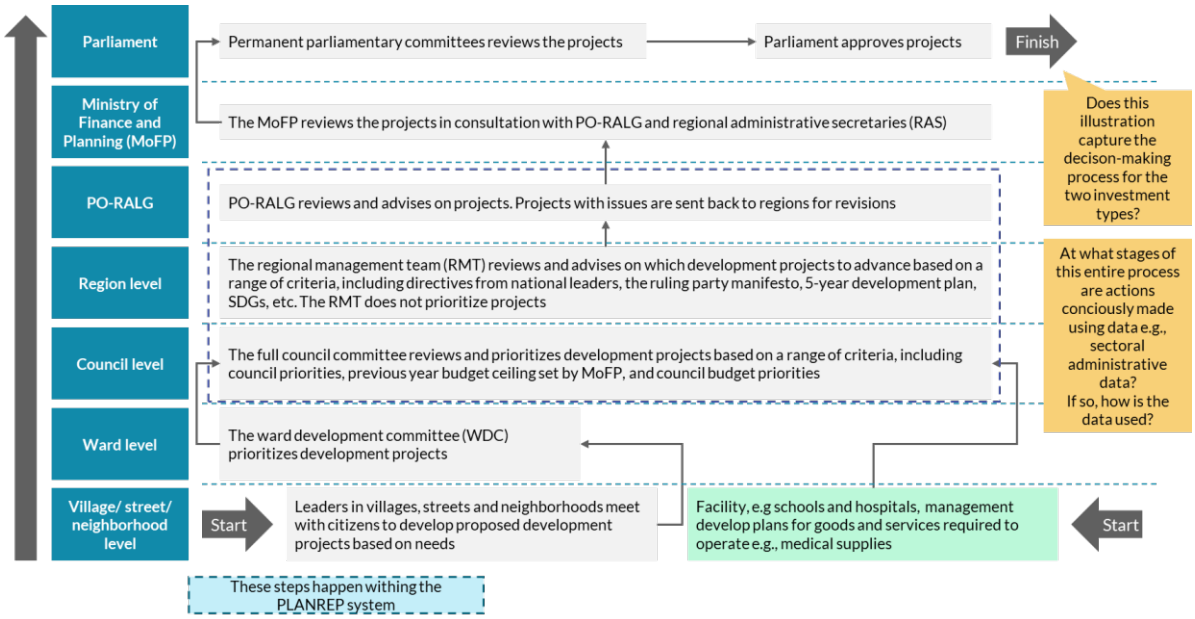
5.2 Figures

Figure 14: Illustration of the pathway for education data



Notes:
[1] PO-RALG collects data from primary schools, secondary schools, pre-primary schools, adult education and non-formal education

Figure 15: Illustration of the decision-making process



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