



Request for Proposal #2020-047

Development of Human Resources for Health Information System (HRHIS)

I. Summary of Deadlines

Release of Request for Proposal	August 28, 2020
Fact-finding questions due	September 4, 2020
Response to fact-finding questions	September 9, 2020
Proposals due	September 18, 2020
Bidders notified of decision	September 28, 2020

Note that PATH in consultations with the Government reserves the right to modify this schedule as needed. In case of any changes in the schedule, all parties will be notified accordingly.

II. PATH Statement of Business

PATH is the leader in global health innovation. An international nonprofit organization, we save lives and improve health, especially among women and children. We accelerate innovation across five platforms—vaccines, drugs, diagnostics, devices, and system and service innovations—that harness our entrepreneurial insight, scientific and public health expertise, and passion for health equity. By mobilizing partners around the world, we take innovation to scale, working alongside countries primarily in Africa and Asia to tackle their greatest health needs. Together, we deliver measurable results that disrupt the cycle of poor health. Learn more at www.path.org.

III. Project Background

Development of Human Resources for Health Information System (HRHIS)

A. Project Background:

The Tanzanian Government, through the Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC) has formulated a Digital Health Strategy and Digital Health Investment Roadmap. The Bill and Melinda Gates Foundation is supporting the Government by contributing funding towards implementing parts of this strategy and roadmap, through a five-year project called the Data Use Partnership (DUP), which is a Government project, administered and supported by PATH. Included within the DUP is work to implement an improved HRHIS.

The following challenges are being faced in data for human resources for health:

- Unlinked data systems: Data on training and professional development, professional registration of health workers and employment of health workers is in different databases and systems which are not linked up.
- Health worker tracking: Challenges tracking and uniquely identifying health workers through pre-service training, professional registration, employment and continuous professional development.
- Health worker verification: Verification of the qualifications, registration status, employment status and continuous professional development undergone by health workers relies mostly on paper-based communication between institutions.

The Government has previously implemented HRHIS and Training Institutions Information System (TIIS) systems which were developed in 2009. However, to address ongoing challenges, the Ministry has developed requirements for an improved HRHIS, which will track human resources for health through pre-service training, professional registration, employment and continuous professional development in one system.

Instead of relying on manual entry of data which is already available in other systems, the improved HRHIS will primarily obtain data from other training, regulatory and employment systems, via Application Programming Interfaces (APIs) through Health Information Mediator (HIM).

The improved HRHIS will facilitate HRH data sharing and use, including data on how many health workers are qualified and registered, data on where workers are employed (public and private health sector), data on health workers who are qualified but not currently employed in the health sector, and data on what training and continuous professional development health workers have undergone. It will facilitate efficient and effective verification of identity, qualifications, employment history and continuous professional development across institutions. It will also serve as a platform for additional services, such as human resources for health communication services.

The Government has developed a detailed requirements document for the improved HRHIS through a series of extensive stakeholder consultations, which is attached to this Request for Proposals (RFP).

In accordance with Tanzania Health Enterprise Architecture (TzHEA), the proposed solution must leverage Fast Healthcare Interoperability Resources (FHIR) standards¹, including the Mobile Care Services Discovery (mCSD) standard². The Government is looking for a suitable open source platform which adheres to these standards, which may be leveraged to build the improved HRHIS. Proposal submitters may recommend any platform which supports agreed standards, giving strong justification.

The DUP now wishes to engage services of organizations with relevant software development expertise to develop this system.

Organizations or consortiums of organizations with the relevant expertise are encouraged to submit proposals. The work must be led by an established local Tanzanian organization with capacity to support the system in the long term. Experience with the current HRHIS will be an added advantage.

IV. Scope of Work and Deliverables

A. Scope of Work:

- To engage and work closely with the MoHCDGEC ICT team in the development of the improved HRHIS.
- To develop a system design architecture which meets requirements outlined in the requirements document.
- To develop technical specifications using agile approach, including documentation of data model and screen mock-ups.
- To work closely with the DUP team using agile or iterative development methodology to develop software in line with these specifications.
- To ensure documentation and software are kept in sync with each other.
- To track software development, issues and defects in a systematic way to be shared with the DUP team.
- To participate in technical discussions with source data organisations, and with health information mediator specialists, facilitated by the DUP team, and produce detailed specifications for data exchange modalities.
- To test the developed system against requirements and specifications, including performing test data exchanges with source data systems.
- To attend and participate in User Acceptance Testing (UAT).
- To develop user documentation in the form of user manuals, troubleshooting guides and training materials.
- To provide co-facilitation services to training events organized by the DUP, which will comprise training of trainers and key staff on the functioning, troubleshooting and maintenance of the system.
- To provide one year defect-fixing and maintenance after launch of the system.
- To provide one year 2nd tier user support (1st tier to be provided by DUP team) after launch of system.
- To provide mentorship and facilitation of technical training to MoHCDGEC ICT team on the system design, architecture and its source code implementation

¹ <https://www.hl7.org/fhir/>

² [https://wiki.ihe.net/index.php/Mobile_Care_Services_Discovery_\(mCSD\)](https://wiki.ihe.net/index.php/Mobile_Care_Services_Discovery_(mCSD))

B. Deliverables:

- Inception report and project implementation plan including:
 - o sprint plan.
 - o project team including names, roles and responsibilities of each team member.
- Detailed system design and technical specification documentation, building on requirements outlined in the attached document, and including documentation of data model and screen mock-ups.
- Beta version of the software with all major features (Minimum Viable Product), able to exchange information with other systems, suitable for sharing with users for UAT.
- Data exchange testing plan and results.
- UAT plan (including testing scenarios) and results.
- Finalized HRHIS system which meets all documented requirements and incorporates user feedback.
- System source code, detailed technical documentation, and API documentation.
- User documentation including software manuals and training materials.
- Final report one year after system launch, including summary of defect fixing.

All source code developed through this project will be owned by the Tanzanian Government, who may decide to release it under appropriate free and open source licenses.

V. Proposal Requirements - Financial

Provide itemized costs for the total scope of this project, based on the scope of work and deliverables outlined in Section IV. The final scope of work may be subject to negotiation; however, bidder selection will be made against the original scope of work. Bids should include itemized costs for key elements of the scope of work, as follows:

- Percent participation in total level of effort according to key staff.
- Rates of key staff.
- Estimated total level of effort and associated costs.
- Travel from outside Tanzania (if any) and associated costs.
- Itemization of all other costs, e.g., agency costs, agency fees, sub-contracted resources, administrative costs, supplies, tax, etc.

Special Note on Indirect costs –

Indirect costs are overhead expenses incurred as a result of the project but not easily identified with the project's activities. These are administrative expenses that are related to overall general operations and are shared among projects and/or functions. Examples include executive oversight, existing facilities costs, accounting, grants management, legal expenses, utilities, and technology support.

Indirect rate allowances: These rates are maximum allowances. If the organization has lower rates, the lower rates should be used. To the extent that indirect costs are applicable, they are subject to the following limits:

- Up to 10% for US universities and other academic institutions.

- Up to 15% for non-US academic institutions, and all private, voluntary, and nongovernmental organizations, regardless of location.
- No indirect costs will be paid to US Government agencies, other private foundations and for-profit organizations.
- Rates apply both to the primary grantee, subgrantees, and subcontracts that are part of the proposal.

Please note, in so far as possible, identifiable (allocable) costs should be documented and justified in the proposal as direct costs, including those for dedicated ongoing project management and support. Newly acquired facilities costs that can be allocable to the project are acceptable as direct costs.

VI. Proposal Template – Technical

Provide a narrative on your qualifications and approach to accomplish the Scope of Work and Deliverables per section IV, including:

Organisational profile(s) and experience Max. 7 pages	<p>Overview of the organization or organizations in the consortium, including:</p> <ul style="list-style-type: none"> • Profile of organization(s). • Year established, and number of years' experience in software development. • Annual revenue. • Profile of relevant experience, past clients and examples of related work. This should include descriptions of: <ul style="list-style-type: none"> ○ experience in leveraging FHIR standards and mCSD standards. ○ experience in enterprise level software development ○ experience in implementing best practices in software project management.
Technical approach Max. 8 pages	<ul style="list-style-type: none"> • Technical approach to meeting the requirements outlined in the attached document. • Software development approach including project management and quality control approach. • Potential risks and mitigating strategies.
Sustainability Max. 2 pages	<ul style="list-style-type: none"> • Approach to building capacity of the government and ensuring capacity of local software organisations to provide long term support and maintenance and further develop the software over time. • Proposed approach to source code openness and licensing. • Maintenance and support plan for the developed software solution.
CVs Max. 1 page per CV, max. 10 CVs	<ul style="list-style-type: none"> • CVs of key personnel envisaged for different roles, including relevant skills and experience in software development. For each CV, specify the relationship of the person with the organization, for example whether the person is a permanent employee or a sub-contracted consultant.
Project plan Max. 2 pages	<ul style="list-style-type: none"> • Project management and roles of project team, including percentage of each person's time which will be allocated to this project. • Timeline to meet the deliverables

Responders are expected to follow the above template headings, and adhere to page limits, in their response.

VII. Proposal Evaluation Criteria

The following is a list of significant criteria against which proposals will be assessed.

- Adherence to above proposal template.
- Understanding of requirements.
- Technical approach.
- Software project management approach.
- Experience and skills.
- Long term local capacity for software maintenance and further development.
- Costs (as detailed in Section V)

Note: PATH and the Government reserve the right to include additional criteria.

VIII. Instructions and Deadlines for Responding

A. PATH contacts

Procurement Contact: Teresa Gingras (tgingras@path.org)

Technical/Program Contact: Oswald Luoga (oluoga@path.org)

B. Confirmation of interest

Please send a statement acknowledging receipt of this solicitation and your intent to respond or not respond no later than September 4, 2020. Send the confirmation to the contacts listed above.

C. Fact-finding questions

Questions on this solicitation will be accepted via email to the contacts listed above through September 4, 2020. Questions and answers to all questions will be provided on September 9, 2020 to all participants who confirmed interest. Please note that responses will not be confidential except in cases where proprietary information is involved. Inquiries after this date cannot be accommodated.

D. Proposals due: September 18, 2020

Completed proposals should be submitted by email to the contacts listed above. The subject line of the email should read: **RFP # 2020-047 <Lead organization name>**.

We advise that you send files in PDF or in commonly recognized MS formats. We will not accept responsibility for resolving technical transmission problems with proposals. A hard copy of the proposal should not be sent. Your proposal should only include information specific to accomplishing the scope of work. Additional information submitted outside of the proposal requirements will be reviewed at PATH's discretion only. Elaborate materials, artwork or other information not directly related to the scope of work are not suggested.

E. Selection of short-list

PATH and the Government reserve the right to select a short list from the bids received and optionally interview and discuss specific details with the short-listed candidates.

F. Conclusion of process

Applicants will be notified of PATH/Government decision. Final award is subject to the terms and conditions included in this solicitation, as well as successful final negotiations of all applicable terms and conditions affecting this work.

IX. Terms and Conditions of the Solicitation

A. Notice of non-binding solicitation

PATH and the Government reserve the right to reject any and all bids received in response to this solicitation, and is in no way bound to accept any proposal.

B. Confidentiality

All information provided as part of this solicitation must be treated as confidential. In the event that any information is inappropriately released, PATH and the Government will seek appropriate remedies as allowed. Proposals, discussions, and all information received in response to this solicitation will be held as strictly confidential, except as otherwise noted.

C. Conflict of interest disclosure

Suppliers bidding on PATH business must disclose, to the procurement contact listed in the RFP, any actual or potential conflicts of interest. Conflicts of interest could be present if; there is a personal relationship with a PATH staff member that constitutes a significant financial interest, board memberships, other employment, and ownership or rights in intellectual property that may be in conflict with the supplier's obligations to PATH/Government. Suppliers and PATH are protected when actual or perceived conflicts of interest are disclosed. When necessary, PATH will create a management plan that provides mitigation of potential risks presented by the disclosed conflict of interest.

D. Communication

All communications regarding this solicitation shall be directed to appropriate parties at PATH indicated in Section VIII. A. Contacting third parties involved in the project, the review panel, or any other party may be considered a conflict of interest, and could result in disqualification of the proposal.

E. Acceptance

Acceptance of a proposal does not imply acceptance of its terms and conditions. PATH/Government reserves the option to negotiate on the final terms and conditions. Additionally, the two reserve the right to negotiate the substance of the finalists' proposals, as well as the option of accepting partial components of a proposal if appropriate.

F. Right to final negotiations

PATH and the Government reserve the option to negotiate on the final costs and final scope of work, and also reserve the option to limit or include third parties in such negotiations.

G. Third-party limitations

PATH does not represent, warrant, or act as an agent for any third party as a result of this solicitation. This solicitation does not authorize any third party to bind or commit PATH in any way without our express written consent.

H. Proposal Validity

Proposals submitted under this request shall be valid for 90 days from the date the proposal is due. The validity period shall be stated in the proposal submitted to PATH.



**Ministry of Health, Community Development, Gender, Elderly and
Children**

**Human Resources for Health Information System
Requirements Document**

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Abbreviations

API	Application Programming Interface
AVN	Award Verification Number
BAKWATA	Baraza Kuu la Waislam wa Tanzania – National Muslim Council of Tanzania
CSSC	Christian Social Services Council
CPD	Continuous Professional Development
EHPRC	Environmental Health Practitioner Registration Council
HLPC	Health Laboratory Practitioners Council
HCMIS	Human Capital Management Information System
HRH	Human Resources for Health
HRHIS	Human Resources for Health Information System
LGA	Local Government Authority
MCT	Medical Council of Tanganyika
MRIPC	Medical Radiology and Imaging Professionals Council
MoHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
NACTE	National Council for Technical Education
NECTA	National Examinations Council of Tanzania
NIDA	National Identification Authority
NIN	National Identity Number
NTA	National Technical Awards
OC	Optometry Council
PE	Personal emolument
PC	Pharmacy Council
PORALG	President's Office Regional Administration and Local Government
POA	Prioritization and Optimization Analysis
TCU	Tanzania Commission for Universities
TNMC	Tanzania Nursing and Midwifery Council
TAHPC	Traditional and Alternative Health Practice Council
TIIS	Training Institution Information System
WAO	Workforce Allocation Optimization
WISN	Workload Indicators for Staffing Needs

1. Introduction

1.1 Background

1.1.1 Background to human resources for health (HRH) in Tanzania

In Tanzania, the health sector as a whole is under the supervision and regulation of the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC).

Health care services are provided by:

- **Public health facilities:** include health facilities which are owned and operated by Local Government Authorities (LGAs) under the supervision of the President's Office Regional Administration and Local Government (PORALG); and health facilities at Regional, Zonal and National levels operated directly by the MoHCDGEC.
- **Private health facilities:** health facilities owned and operated by the private sector, including faith-based organisations. Of the health facilities owned and operated by the private sector, some have service agreements with the Government, whereby the Government contributes some resources to the operation of those facilities, and the facilities make undertakings in respect of provision of certain services for free or at low prices. Some health workers working in private health facilities are employed by Government (seconded and granted health workers) under these service agreements, whereas other health workers are employed directly by the private organisation. Umbrella bodies such as the Christian Social Services Council (CSSC), National Muslim Council of Tanzania (BAKWATA) and Association of Private Health Facilities in Tanzania (APHFTA) play a coordination and representation role.

As well as working at health facilities or in other client-facing services, health professionals may also be employed in the health sector in managerial, policy, advisor, capacity building or tutor roles, across the public and private sectors, or may be employed outside the health sector.

Pre-service training of health workers, and training to upgrade from one cadre to another, is provided by technical training institutions and universities. Qualifications are organised into National Technical Awards (NTA) levels.

- **Technical training institutions** are registered and supervised by the National Council for Technical Education (NACTE), in collaboration with health professional councils where applicable. Both publicly and privately owned technical training institutions are regulated by NACTE. NACTE accredits training programmes from Basic Technician Certificate (NTA Level 4), Technician Certificate (NTA Level 5) to Diploma (NTA Level 6). NACTE also verifies and recognises foreign qualifications/awards at these levels.

- **Universities** are registered and supervised by the Tanzania Commission for Universities (TCU), in collaboration with health professional councils where applicable. Both publicly and privately owned universities are regulated by TCU. TCU may accredit training programmes all the way up to NTA level 10 (doctorate), and verify and recognise foreign qualifications/awards. Some universities are registered with TCU, but may have some training programmes registered with NACTE and some training programmes registered with TCU, and some universities may have all their training programmes registered with TCU regardless of level.

In-service training and continuous professional development (CPD) is provided by a range of institutions, including public and private training institutions, MoHCDGEC, development partners and employers/health facilities. To support distance learning, the Government is establishing a national eLearning Platform for health workers. The National Continuing Professional Development Framework for Health Care Providers in Tanzania provides a points-based system for recognising CPD activities.

All professional health workers must be registered under the appropriate health professional regulatory councils, which operate under the MoHCDGEC. These professional councils are:

- Medical Council of Tanganyika (MCT)
- Tanzania Nursing and Midwifery Council (TNMC)
- Pharmacy Council (PC)
- Health Laboratory Practitioners Council (HLPC)
- Optometry Council (OC)
- Medical Radiology and Imaging Professionals Council (MRIPC)
- Environmental Health Practitioner Registration Council (EHPRC)
- Traditional and Alternative Health Practice Council (TAHPC)

1.1.2 Background to digitalization

Tanzania has a strong history as a leader in exploring and utilizing digital solutions in its health sector.

The Government established a Human Resources for Health Information System (HRHIS) in 2009 for collecting data on human resources for health across public and private sectors. However, there have been challenges with ensuring that the data in this system is regularly updated. Data on training and professional development, professional registration of health workers and employment of workers in the health sector is in different databases and systems which are not linked up. There are challenges tracking and uniquely identifying health sector workers through pre-service training, professional registration, employment and continuous professional development. In addition, verification of the qualifications, professional registration status, employment status and continuous professional development undergone by health workers relies mostly on manual or paper-based documentation and communication between institutions.

Tanzania's eHealth Strategy 2013–2018 called for the establishment of health facility, provider, and client registries and master lists, with the “provider” registry consisting of a master list of health workers. In 2016, the Government finalized and launched its “Digital Health Investment Road Map—a Journey to Better Data for Better Health”. The roadmap included 17 costed investment recommendations, one of which is to “Implement a Health and Social Service Workers’ Registry”. In 2019 the Government formulated a new Digital Health Strategy 2019-2024, which highlights the existence of multiple, disconnected human resources for health systems, and calls for an improved HRH information system through a using a “health worker registry” approach linking workers throughout training, regulatory licensing and employment.

The Government has established an initiative called Data Use Partnership (DUP) with funding from the Bill & Melinda Gates Foundation and technical support from PATH to implement parts of the Digital Health Investment Roadmap. One of the investments being implemented by the Government with this support is to implement the work this document relates to i.e. an improved Human Resources for Health Information System (HRHIS) using a health worker registry approach.

A revised Digital Health Investment Roadmap, aligned with the new Digital Health Strategy 2019-2024, is currently being finalised, and this revised roadmap also includes the investment “Implement an improved HRHIS and integrate with other human resources systems”.

1.1.3 Existing digital human resources systems

The following digital human resources systems are relevant to this work:

- **HRHIS** – the current HRHIS is a system which aims to collect information on both public and private sector human resources for health. However, the need for duplicative data entry into HRHIS by local government authorities, rather than drawing information from the systems which support employment, regulatory and training processes, has resulted in the current HRHIS not being consistently updated or used.
- **Employment systems**
 - **Government employment**
 - **HCMIS - PO-PSM** uses the Human Capital Management Information System (HCMIS) to manage public sector human resources. HCMIS contains information on all public sector health workers who are paid directly by the Government. However, this does not include the health workers who are directly employed by private or faith-based health facilities.
 - **WISN/POA** – Workload Indicators for Staffing Needs (WISN) and its companion tool Prioritization and Optimization Analysis (POA) are data analysis tools to support determination of staffing needs at health facilities, and prioritise allocation of health workers among health facilities, including within each LGA.
 - **WAO** – Workforce Allocation Optimization (WAO) is a digital system which accepts applications from health workers applying for public sector positions, including their location preferences, and allocates successful applicants to locations (down to LGA level, not below). It is used by both MoHCDGEC and PORALG. There are discussions around replacing WAO with HCMIS Ajira Portal.
 - Many **private sector employers** in the health sector have their own human resources systems. Although CSSC, BAKWATA and APHFTA play a coordination role, they do not manage data on individual employees; and human resources systems of private sector employers are not standardized or linked.

- **Professional council systems** - currently each health professional council maintains its own records of legally registered health workers (spanning the public and private sectors). The Medical Council of Tanganyika and the Pharmacy Council have systems which support online applications for registration and other business processes. The Tanzania Nursing and Midwifery Council is currently re-designing their basic database into a fully featured system. Smaller councils manage their lists using Excel.
- **Training systems**
 - **TIIS** – the Training Institution Information System (TIIS) system was designed for MoHCDGEC to manage information about health training institutions. It was designed in 2009 before the establishment of NACTE and TCU. Data is often not updated in TIIS. The most accurate version of this data is currently available in NACTE and TCU systems.
 - **NACTE** system contains data on all students enrolled in technical training programmes which are pre-service or for the purpose of upgrading qualification level. It includes information on enrolment, results and graduation of students. Training institutions without their own systems enter data directly into the NACTE system, while training institutions with their own system provide data into the NACTE system via an Application Programming Interface (API).
 - **TCU** system contains data on all students enrolled in universities. It includes information on enrolment and graduation of students. Universities report data from their own systems into the TCU system via an API.
 - **Training institution systems** – many universities and private technical training institutions have systems to support their internal business processes and administration.
 - **eLearning platform** is currently being rolled out by the Government to provide online, accredited continuous professional development, as well as some pre-service/upgrading qualifications training content. Registration on this platform is not currently linked with health professional registration or national identification.
 - **TrainSmart** – a system called TrainSmart was designed to collect information about in-service trainings, however it did not have a uniform way of identifying health workers, and did not link with reporting of CPD to professional councils, providing little incentive to report.

The **National Identification Authority (NIDA)** provides national identity services to for adult citizens, residents and refugees in Tanzania. All Government health workers must be registered with NIDA and have a National Identity Number (NIN), and HCMIS is integrated with the NIDA system. However other systems mentioned above are not yet integrated with the NIDA system.

The **health facility registry** provides a master list of health facilities and the **administrative area registry** provides a master list of administrative areas.

1.2 Vision and scope

The vision of this initiative is as follows:

Stakeholders can **share and use HRH data** effectively, easily and appropriately, through

- effective **tracking of health workers** through pre-service training, professional registration, employment and continuous professional development processes
- **data consistency and exchange** of information between institutions involved in health worker training, professional registration and employment
- electronic **verification** of health worker qualification, professional registration and employment information
- availability of accurate and up-to-date **information for improved decision making** in HRH
- a platform to facilitate **communications** from MOHCDGEC to trained, professionally registered or employed workers in the health sector

Implementing the Government's vision for improved HRHIS involves transforming the current HRHIS into an API-based HRHIS, which will link other systems together. It will involve a shift in focus away from manual data entry into HRHIS towards sourcing data from other systems. The improved HRHIS will include tracking of students from the time of enrolment, and tracking of health workers working at health training institutions, with this information being drawn from NACTE and TCU. Incorporating these features into a single HRHIS will facilitate tracking of health sector workers as they move from study to work, and back to study again.

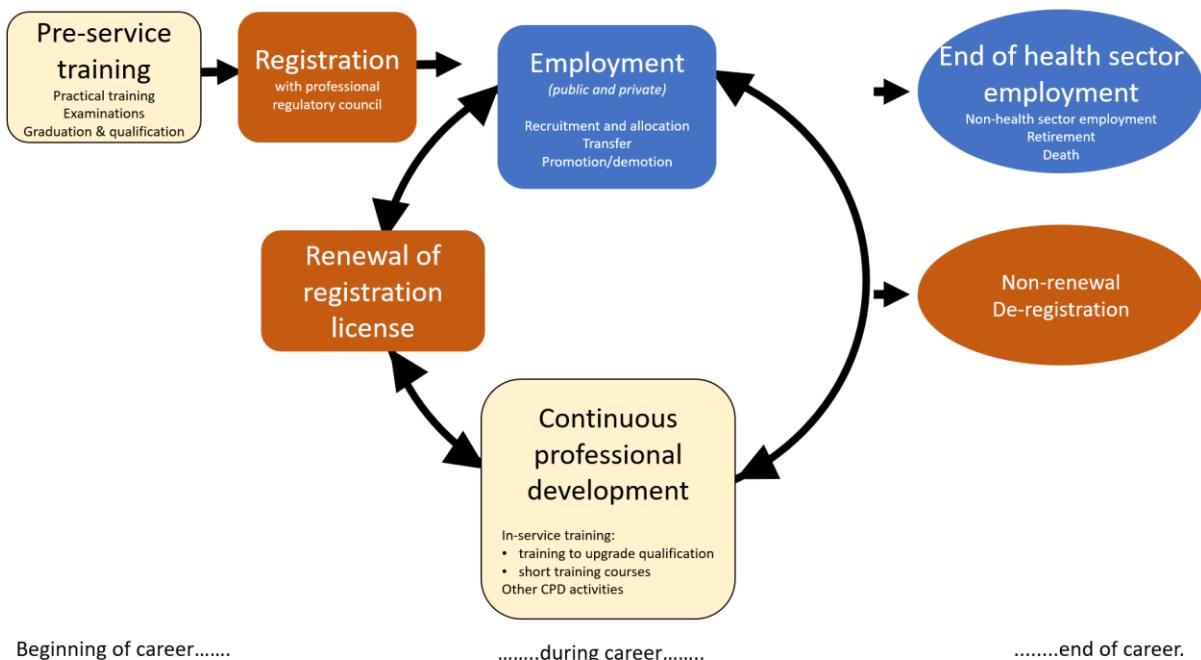
The improved HRHIS system will be complementary to other HRH related investments in the revised Digital Health Investment Roadmap, which are

- “Implement harmonised system to support health worker regulatory processes” – an initiative to extend the system successfully used at the Medical Council of Tanganyika to support business processes of other professional councils who do not yet have a system.
- “Implement system to support business processes at government health technical training institutions” – an investment to adapt systems used at universities and other training institutions to support business processes at the government owned health technical training institutions who currently do not have such a system.

The HRHIS will not focus on comprehensive support for the business processes of health worker professional councils, training institutions, training institution regulators, or employers. This is the purpose of the internal administration systems of these organisations. Rather, the HRHIS will draw information from these sources, and provide verification services across these organisations, so that organisations can easily verify and communicate information about health sector workers with each other.

1.3 Conceptual framework

The following conceptual framework provides a high level view of the “story” or “journey” of an individual health worker.



Health workers undergo pre-service training, including coursework, practical training and examinations leading to a qualification. Health workers also continue to learn and develop throughout their working lives through Continuous Professional Development (CPD). During their career, they may undergo formal training to upgrade qualification level, short in-service training courses, and undertake other CPD activities as outlined in the National Continuing Professional Development Framework for Health Care Providers in Tanzania.

Health workers must register with the respective professional council in order to work as a health professional in Tanzania. Some registrations are a two-stage process consisting of provisional registration and a final registration, whereas others consist of one stage only. Professional councils may require applicants to undergo internship, work experience and/or pass a licensure examination before final registration. Health workers must periodically renew this registration (license) every 1-3 years (depending on the council). Their registration or license may lapse if it is not renewed, or they may be permanently de-registered or temporarily suspended for disciplinary reasons.

 Health workers may be employed by the Government or by non-Government employers.

They are usually employed at health facilities providing direct care to health clients, but may also be employed as tutors in health training institutions, or in other non-client-facing health sector work. As part of employment they are recruited and allocated to a particular geographical work station, and may be transferred, promoted or demoted. They leave employment in the health sector when they retire or die, or when they resign or are terminated and do not take up another health sector employment.

2. Human resources for health business processes

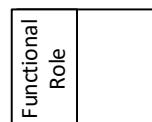
The following business process diagrams aim to provide understanding of the processes involved in human resources for health in Tanzania. HRHIS will not be designed to comprehensively support these business processes, as this is the purpose of the internal administration systems of the various organisations involved. However, the business process diagrams aim to provide background as to how and by whom the HRHIS data is generated and used. In particular, they illustrate

- stages at which data will be reported into HRHIS
- stages at which HRHIS will be used as a verification tool
-

A business process diagram is a graphical model that illustrates the activities of a business process, as well as who performs those activities, known as functional roles. The diagram provides a “story” for the business process being diagrammed. The components of the diagram are defined as listed below:

.

Swim lanes - a group, department, organization, unit or functional role that perform or are accountable for designated activities in the process.



Start—a process mapping shape used to define the “start” of the process.



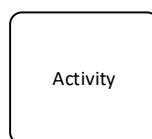
End —a process mapping shape used to define the “end” of the process.



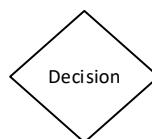
Sequence Flow—arrows show the logical flow and direction of activities.



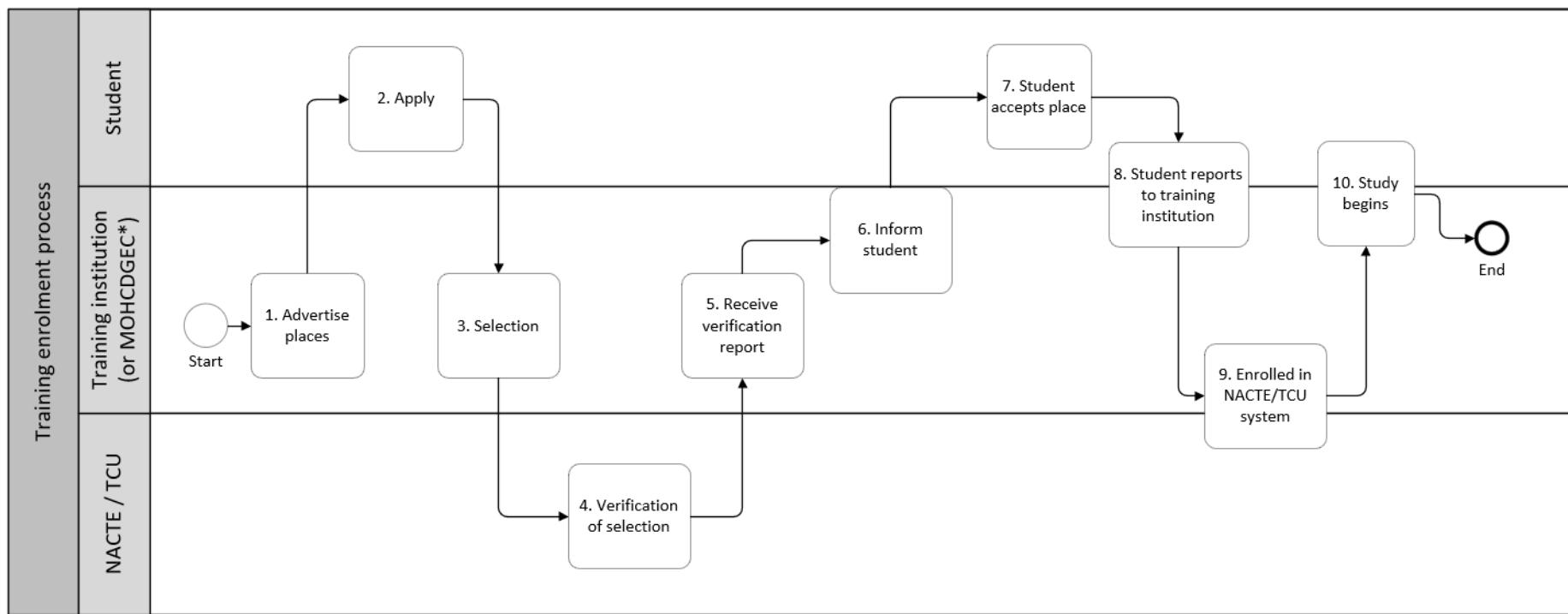
Activity—an action performed by the functional individual or group.



Condition/decision—shows the alternative flow depending on a condition or decision



2.1. Training - enrolment process



* For publicly owned technical training institutions, MOHCDGEC performs some of these activities on behalf of the training institution

1. Advertise places

Training institutions advertise training places available

2. Apply

Students apply for places. They may apply to more than one training institution. They may apply for only one course at each training institution.

3. Selection

Training institutions select students according to their qualifications and the number of available places.

4. Verification of selection

Training institution sends proposed selection to NACTE/TCU for approval. NACTE/TCU check that students are adequately qualified and that the institution is not exceeding capacity.

5. Receive verification report

Training institution receives verification report, which determines final selection.

6. Inform student

Training institution informs student that they have been selected.

7. Student accepts place

If student has been offered places in more than one training institution they can accept only one.

8. Student reports to training institution

Student reports to training institution in person

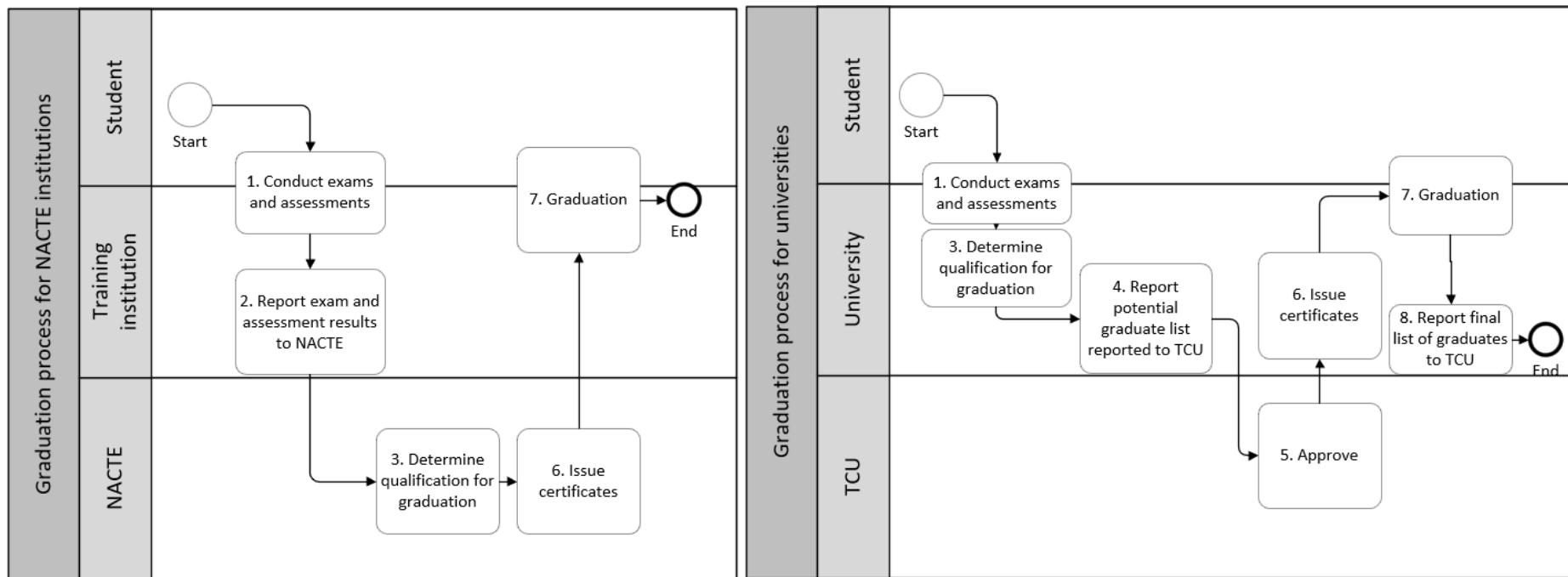
9. Enrolled in NACTE/TCU system

Training institutions report the actual enrollment lists into NACTE / TCU system. Some institutions who do not have their own systems enter data directly into the NACTE system. Institutions which have their own system report via an API into the NACTE or TCU system.

At this stage, data will be reported from NACTE/TCU system into the improved HRHIS system.

10. Study begins

2.2. Training - graduation process



1. Conduct exams and assessments

Students undergo exams and assessments at the training institution

2. Report exam and assessment results to NACTE

In the case of NACTE institutions, the training institution reports exams and assessment results each semester to NACTE

3. Determine qualification for graduation

In the case of NACTE institutions, NACTE determines qualification for graduation. In the case of universities, the universities themselves determine qualification for graduation.

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4. Report potential graduate list to TCU

In the case of universities, the training institution reports the potential graduate list to TCU.

5. Approve

In the case of universities, TCU approves the list of graduates. TCU may perform spot checks on exam/assessment results and checks to ensure that universities have followed correct procedures in determining graduation.

6. Issue certificates

In the case of NACTE institutions, certificates are issued by NACTE. In the case of universities, certificates are issued by universities.

At this stage, data on graduations will be reported from the NACTE system into improved HRHIS.

7. Graduation

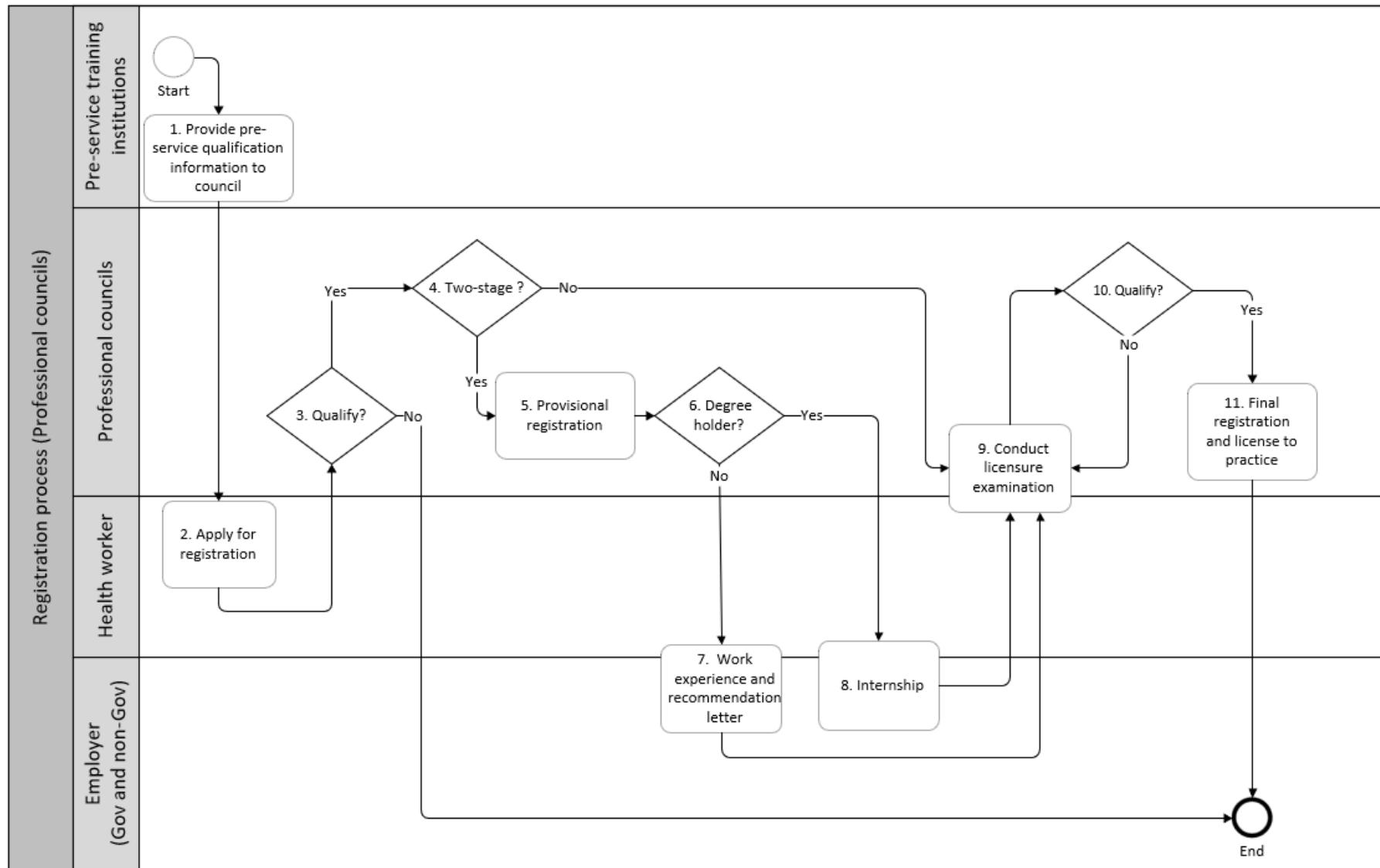
Student is informed that they have graduated, given their certificate, and may have a ceremony.

8. Final list of graduates reported to TCU

In the case of universities, after graduation, the final list of graduates is reported to TCU.

At this stage, data on graduations will be reported from the TCU system into improved HRHIS.

2.3. Professional council – registration process



1. Provide pre-service qualification information to council

Pre-service training institutions provide qualification information (including Tanzanian and non-Tanzanian qualifications) to the professional council. NACTE provides details of qualifications from technical training institutions in Tanzania and foreign training institutions at NTA levels Basic Technician Certificate (NTA Level 4), Technician Certificate (NTA Level 5) and Diploma (NTA Level 6). Universities provide qualification information direction, although plan to do this via TCU in future. Foreign university level qualifications are verified and provided by TCU.

Improved HRHIS will provide a central point for professional councils to verify qualifications with NACTE and TCU.

2. Apply for registration

Health workers apply to professional councils for registration.

Note: for some professional councils, step 2 occurs first and then step 1.

3. Qualify?

The professional council reviews applications for registration.

4. Two stage?

Some registrations involve a provisional and a final stage, whereas other types of registrations have a final stage only.

5. Provisional registration / enrolment / enlistment

For two-stage registrations, health worker is provisionally registered by a professional council.

At this stage, provisional registration information will be reported into improved HRHIS.

6. Degree holder?

Health workers who have been provisionally registered who are not degree holders undergo work experience. Health workers who have been provisionally registered who are degree holders undergo internship.

7. Work experience and recommendation letter

Health workers must gain experience through working for a specified period of time. This may be with a Government or non-Government employer. At the end of work experience, health workers must obtain a letter of recommendation from their employer.

8. Internship

Health workers undergo an internship at a health facility or other employer. Applications for internships pass through the professional council – professional councils secure internship places with employers, and allocate places to health workers on first-come-first-serve basis. Internships may be either at a Government or non-Government employers. Interns in Government are not recorded in HCMIS but rather paid allowances through Ministry of Finance. Some internships have rotations in different types of workplaces.

9. Sit licensure examination

The health worker must sit examinations set by the professional council (MCT, TNMC, PC, HLPC). Some professional councils (e.g. EHPRC, OC, MRIPC) have not yet started administering a licensure exam, but intend to. In most cases there is one exam, but in the case of the Medical Council of Tanganyika, there are exams both before and after internship.

10. Qualify?

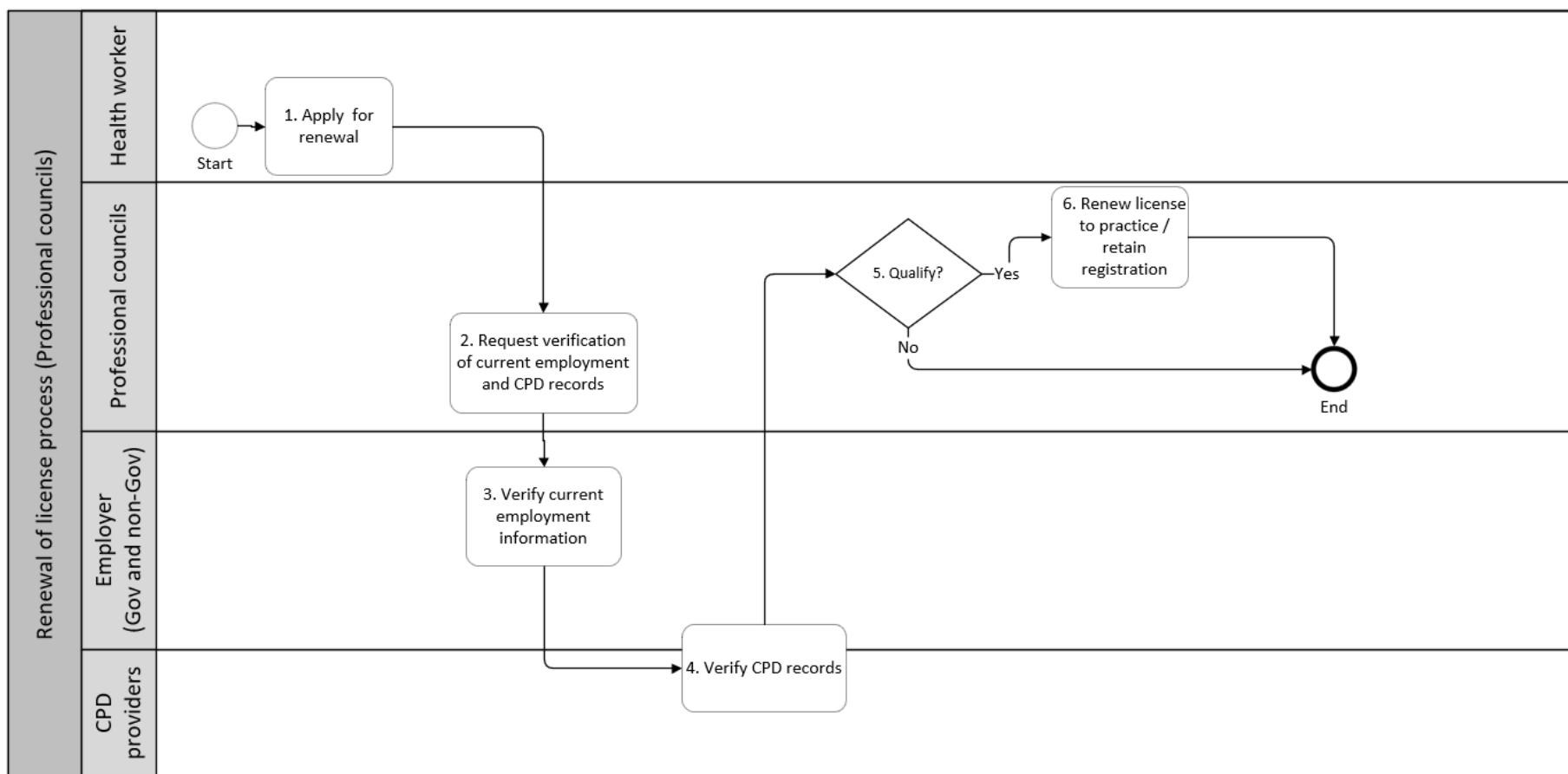
The professional council reviews pre-service qualifications, licensure examination results, as well as internship records or work experience records where applicable.

11. Final registration (Full registration / enrolment / enlistment/licensing / temporary registration) and license to practice

The professional council fully registers/enrols/enlists/licenses the health worker. In case of foreign citizens, the registration is called “temporary registration”. The health worker receives a license to practise.

At this stage, final registration information will be reported into improved HRHIS.

2.4. Professional council – renewal/retention of registration / license process



1. Apply for renewal

Health workers applies for renewal to professional councils

2. Request current employment and CPD records

The professional council may request verification of current employment and Continuous Professional Development records from the employer/CPD provider

3. Verify current employment information

The employer may provide verification of information about the health worker's employment status and employment location.

Improved HRHIS may also be used as a verification tool by professional councils to verify employment information.

4. Verify CPD records

The employer and/or CPD provider may provide verification of CPD information. MCT are planning a system whereby CPD providers will log participation at the time the CPD performed, directly in the MCT system.

Improved HRHIS may also be used as a verification tool by professional councils to verify CPD information.

5. Qualify?

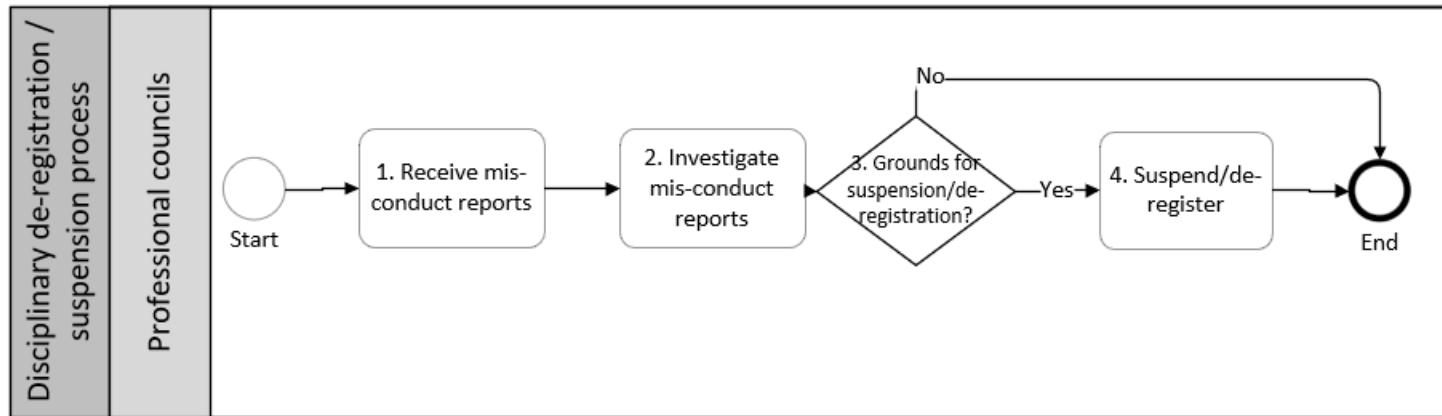
Professional council determines if the health worker is in good standing and has acquired the necessary 20 points for CPD activities according to the CPD framework

6. Renew registration

The professional council renews the license of the health worker and retains them on the register.

At this stage, the renewal of registration will be reported into improved HRHIS.

2.5. Professional council – disciplinary suspension / de-registration process



1. Receive mis-conduct reports

Professional councils may receive reports of misconduct about the health worker from various sources.

2. Investigate mis-conduct reports

The reports are investigated.

3. Grounds for suspension/de-registration?

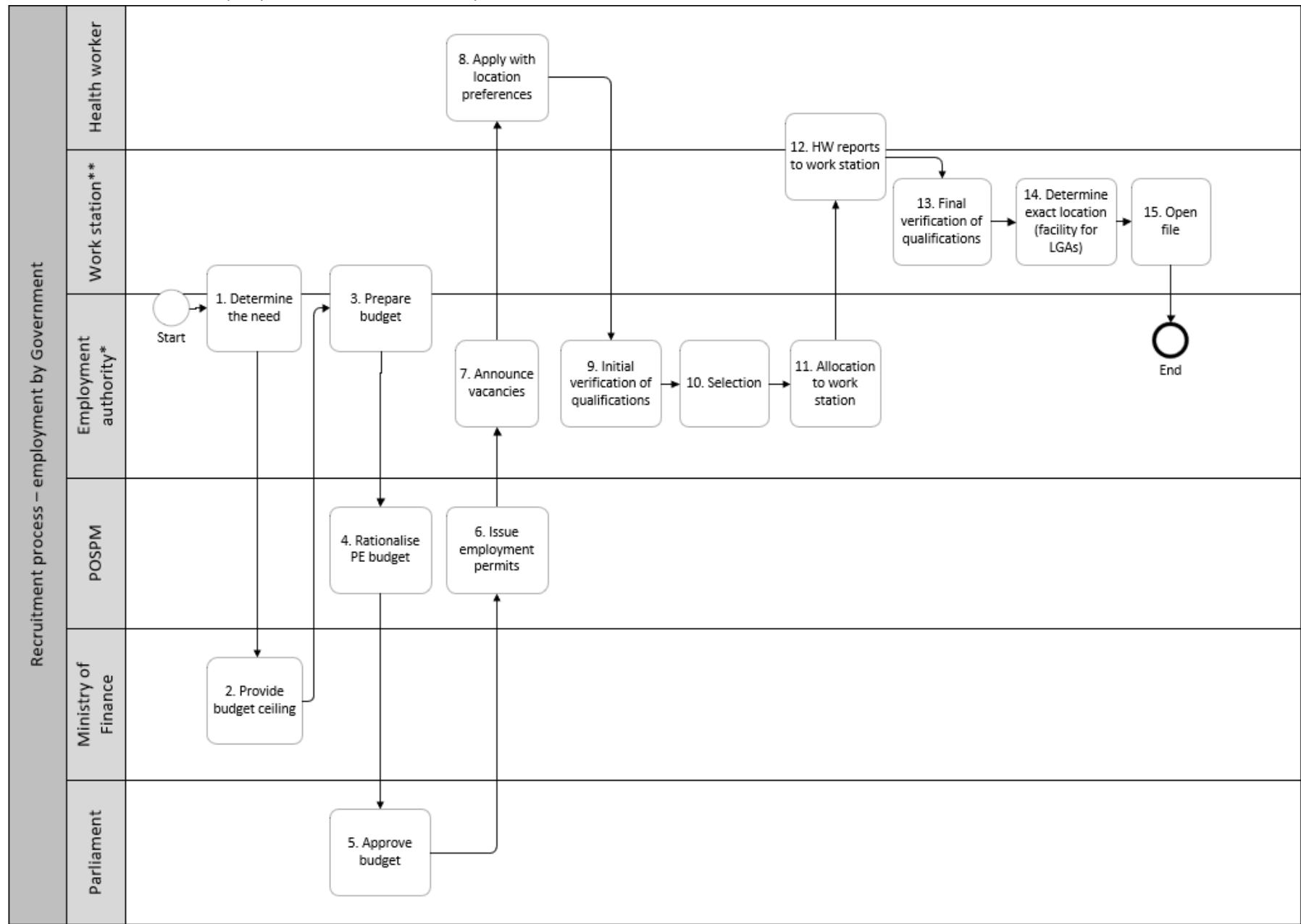
The results of the investigation indicate if there are grounds for suspension or de-registration.

4. Suspend / de-register

Suspension may be temporary, whereas de-registration is permanent.

At this stage, the de-registration or suspension will be reported into improved HRHIS.

2.6. Government employment – recruitment process



*Employment authority –

- MOHCDGEC is the Employment Authority for regional hospitals, some zonal and specialized hospitals, as well as for seconded health workers to private health facilities. It is also the employment authority for publicly owned health technical training institutions, and for MOHCDGEC itself
- Hospitals as employment authorities - National and some specialized hospitals are their own employment authority.
- PORALG is the Employment Authority for staff of Regional Administrative Secretariats, LGAs and health facilities at or below LGA level.

**Work station - An employment authority may have more than one work station. For workers at or below LGA level, the work station is the LGA.

1. Determine the need

Individual work stations (eg LGAs), in consultation with their employment authority (eg PORALG), determine staffing needs. WISN tool is used to determine staffing needs at health facilities at all levels (but not for administrative posts). For administrative posts, job lists are used.

2. Provide budget ceiling

The Ministry of Finance provides budget ceilings, including personal emolument (PE) budget ceilings, to each employment authority (eg to PORALG, MOHCDGEC etc).

3. Prepare budget

Individual work stations (eg LGAs), in consultation with their employment authority (eg PORALG), prepare their budgets including personal emolument (PE) budget. WISN/POA tool is used for staffing needs at health facilities at all levels (but not for administrative posts).

4. Rationalise PE budget

POPSM amalgamates and rationalises PE budgets from all employment authorities.

5. Approve budget

Parliament approves the Government budget, including PE budgets.

6. Issue employment permits

POPSM issues employment permits for each work station and for each cadre and cadre category.

7. Announce vacancies

The employment authority (eg MOHCDGEC / PORALG) announces employment vacancies for each cadre for each work station, through the WAO system. [Note POPSM have an Ajira Portal which can also perform this function but is not yet used by MOHCDGEC or PORALG].

8. Apply with location preferences

Health workers apply to the employment authority indicating three location preferences, through the WAO system.

9. Initial verification of qualifications and registration

Employment authorities (eg MOHCDGEC/PORALG) do initial checks of employee qualifications and professional registration. The WAO system connects to some of the professional council systems to verify registration, and links to TCU system to verify university qualifications. There are now discussions with NECTA (for secondary school certificates) and NACTE (for technical qualifications) on linking to their systems.

Improved HRHIS will provide a central point of reference for these verifications.

10. Selection

Employment authorities (eg MOHCDGEC, PORALG) select candidates for posts. This is done through the WAO system.

11. Allocation to work station

Employment authorities determine where to post which candidates (down to the LGA level) using their location preferences. This is automated through the WAO system. MOHCDGEC and PORALG collaborate closely on the PORALG posts, for example some candidates may be re-allocated from MOHCDGEC posts to PORALG posts.

12. Health worker reports to work station

Health worker reports to work station (eg LGA).

13. Final verification of qualifications

A final check on qualifications is done by staff at the work station (eg LGA)

14. Determine exact location

For health workers posted to LGAs, the LGA decides which individual health facility they will be allocated to. They may be guided by the budget allocation in WISN/POA. There may also be health workers who are seconded/granted to private or faith based facilities.

15. Open file

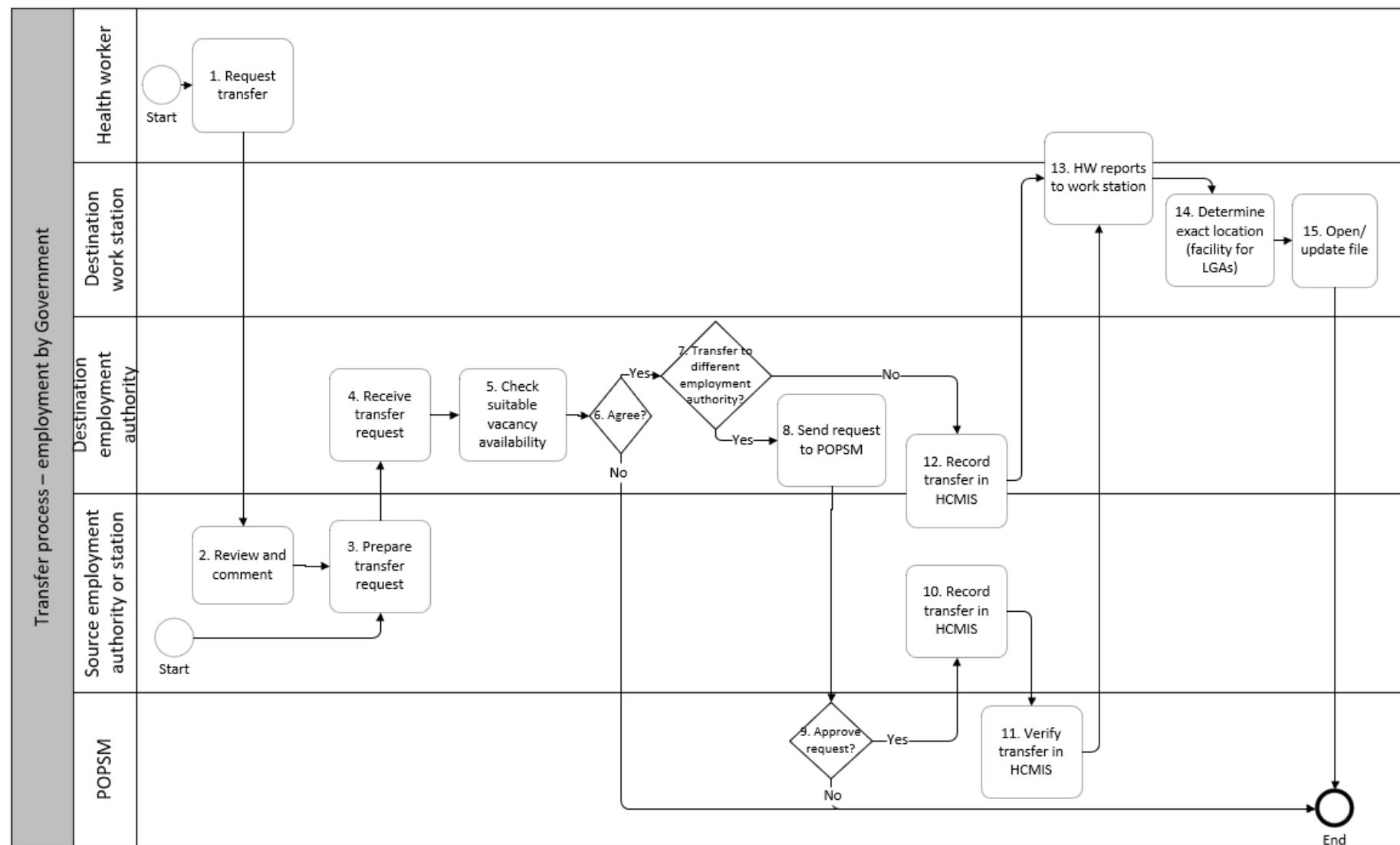
A file is opened – hard copy file and soft copy in Lawson/HCMIS and salary begins to be paid after 30 days of work. Health worker receives an MP number (medical personnel file number) and a cheque number (payroll).

In HCMIS it is recorded which sub-vote a worker is allocated to. The MOHCDGEC sub-vote sometimes indicates which health facility the worker is at. Other specialised health facilities are under the MOHCDGEC HQ sub-vote, but the particular hospital is also recorded in HCMIS. For LGAs, the sub-votes are CHMT / LGA level hospital / health centre / dispensary. It is currently not recorded which individual health centre or dispensary a health worker is posted to in HCMIS, however it is planned to implement this shortly.

Note – as-is: at present step 15 sometimes done before step 14. to-be: advantage to have step 15 after step 14.

At this stage, the employment and work station information with exact location will be reported from HCMIS into improved HRHIS.

2.7. Government employment – transfer process



***Employment authority –**

- MOHCDGEC is the Employment Authority for regional hospitals, some zonal and specialized hospitals, as well as for seconded health workers to private health facilities. It is also the employment authority for publicly owned health technical training institutions, and for MOHCDGEC itself
- Hospitals as employment authorities - National and some specialized hospitals are their own employment authority.
- PORALG is the Employment Authority for staff of Regional Administrative Secretariats, LGAs and health facilities at or below LGA level.

****Work station -** An employment authority may have more than one work station. For workers at or below LGA level, the work station is the LGA.

1. Request transfer

Some transfers are requested by health worker, others are decided on by the employer.

2. Review and comment

Transfers requested by the health worker can be reviewed by the health worker's current employment authority and work station, and their comments attached to the transfer request.

3. Prepare transfer request

The source employment authority or work station prepares the transfer request

4. Receive transfer request

The employment authority of the place the worker wishes to be transferred do receives the request.

5. Check suitable vacancy availability

The employment authority checks if there is a vacancy suitable for the qualifications of the health worker.

6. Agree?

The employment authority the health worker is moving to must agree to the transfer.

7. Transfer to different employment authority?

If the transfer is from one employment authority to another, the transfer request must be sent to POPSM for approval.

8. Send request to POPSM

9. Approve request

10. Record transfer in HCMIS

Source employment authority records the transfer in HCMIS

11. Verify transfer in HCMIS

POPSM verifies the transfer in HCMIS

12. Record transfer in HCMIS

If the transfer is within the same employment authority, the employment authority records the transfer in HCMIS.

13. Health worker reports to work station

Health worker reports to new work station (eg LGA).

14. Determine exact location

For health workers posted to LGAs, the LGA decides which individual health facility they will be allocated to.

15. Open/update file

Hard copy file is opened or updated. Work station confirms transfer in HCMIS.

At this stage, the transfer will be reported from HCMIS into improved HRHIS

2.8. Government employment – note on end of employment

A Government employee may leave employment in Government in the following ways:

- resignation
- termination
- retirement
- death

Leave without pay: A government employee may also take leave without pay for up to two years, after which they must make a decision on whether to resign or return to work.

Retirement is optional or compulsory at specified ages for specified cadres, for example medical specialists the compulsory retirement age is higher. Retirement processes are usually started six months in advance. The HCMIS ensures compulsory retirement is adhered to at the specified age. Employees are retired in the HCMIS system and no longer paid through that system, instead they are paid through retirement scheme systems.

Resigning and re-joining: It is possible for a government employee to resign and then re-join Government employment at a later stage if they are in good standing, through normal recruitment processes. In these circumstances, they continue to use the same “cheque number” in HCMIS.

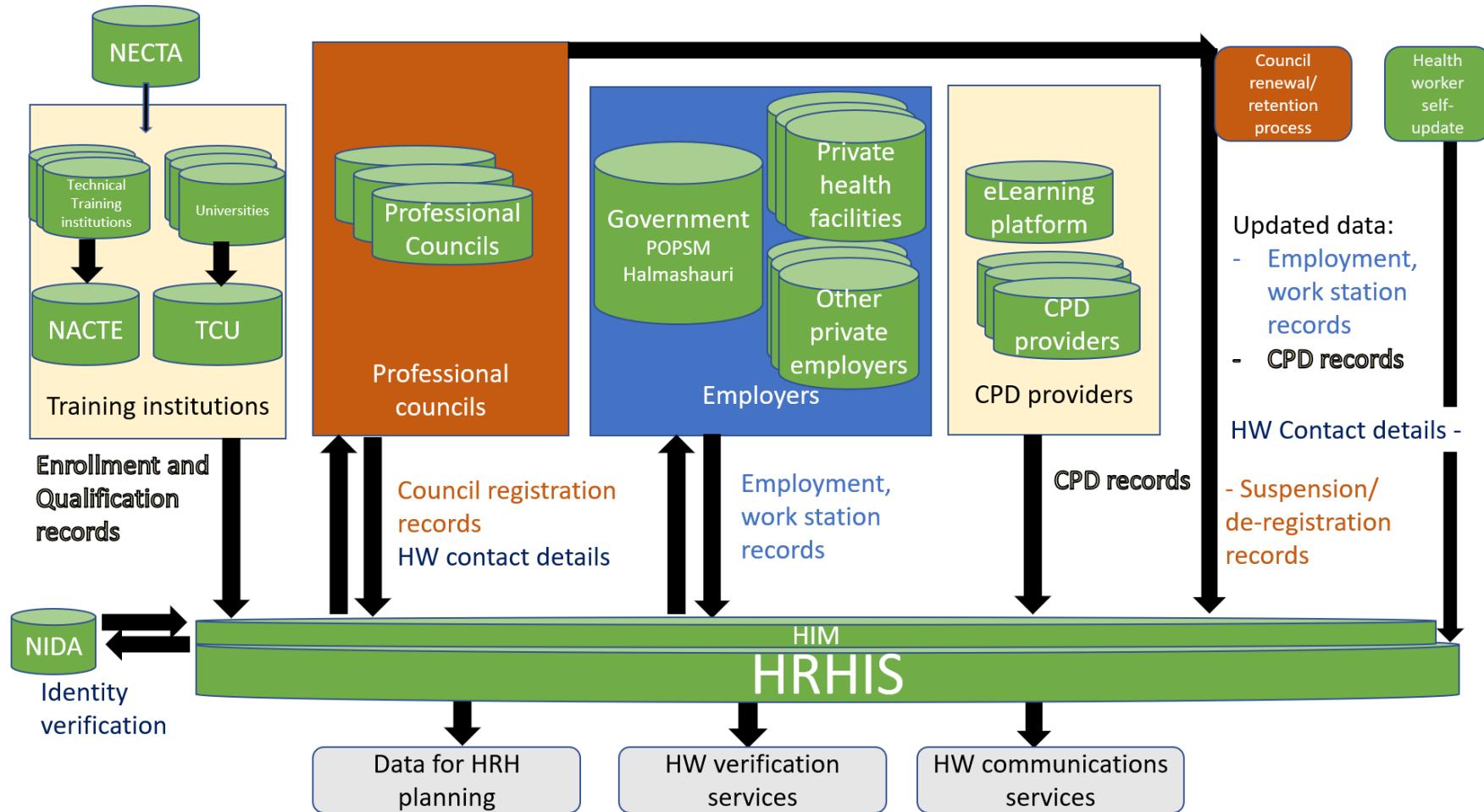
3. User stories

The following are user stories, illustrating the desired functionalities of the improved HRHIS from the targeted end users' points of view. These user stories provide a high- level summary of how each user will use the system, focusing on the value a user gains from using the system. User stories help in shaping better communication and collaboration between the technical software development team and interested stakeholders and users.

- (i) As a training institution, I want to share information on student enrolment and graduation, so that others can use this information for planning, decision making, coordination and verification.
- (ii) As a professional council, I want to verify health worker qualification status, continuous professional development and employment status so that I can determine whether to register health workers or renew their registration/license.
- (iii) As a professional council, I want to share information on health worker registration status so that others can use this information for planning, decision making, coordination and verification.
- (iv) As an employer of health workers, I want to verify health worker qualifications, registration status and continuous professional development as part of employment processes.
- (v) As an employer of health workers, I want to share employment status and work station of health workers, so that others can use this information for planning, decision making, coordination and verification.
- (vi) As a provider of continuous professional development, I want to access information on which health workers have been trained in what topics so that I can better plan CPD interventions.
- (vii) As a health worker, I want to ensure that my personal information is correct and up to date with employers, professional councils and training/CPD institutions, so that I can access training and employment opportunities, efficiently pass through registration and renewal/retention processes, and receive professional updates and communications.
- (viii) As a health facility registration authority, I wish to verify lists of proposed staff submitted by applicant health facilities, to ensure the proposed staff are qualified and registered with professional councils
- (ix) As a human resources for health coordinator, I wish to communicate professional updates and announcements with relevant health workers.
- (x) As a human resources for health planner/policy maker, I want to access up-to-date, accurate information on health workers to use in decision making.

4. Data and data flow

4.1. Data flow



The above diagram illustrates the overall data flow in and out of the improved HRHIS.

- Training regulatory institutions (NACTE and TCU) will share **enrollment, graduation and qualification information** electronically to HRHIS.
- HRHIS will consolidate information about health workers from different professional council databases. **Initial registration** and **renewal/retention of registration** processes will be key sources of information. In cases where employment and CPD information has not been captured directly from employers and CPD providers, it will be captured at the time of renewal/retention of registration license.
- HRHIS will consolidate **employment information** about public sector employees and about employees who work for those private health sector employers who can share information electronically. For Government employees, their employment record can be obtained from POPSM HCMIS. For private health facilities, they can be required to update employment records at the time they renew their health facility registration. Training institutions will also be required to submit information as employers, on the staff they employ. For health workers working for other employers, even if information is not obtained immediately at the time there is a change of employment, this information may be obtained when they renew their license with the professional council, as they can also provide updated employment information at that time.
- HRHIS will facilitate tracking of **CPD and in-service training**, including training provided via the eLearning platform, through unique identification of health workers. It will draw information from those CPD providers who can provide information electronically, and also gather CPD information from professional councils at the time of renewal/retention of health worker license.
- Workers themselves will also be able to **self-report** changes to contact details, and can flag if other information about them in HRHIS is not correct, via a login user interface where they can view their own records.
- HRHIS can also be used as a platform for **health worker communications** services, for example, to send professional updates, notifications of changes to guidelines, disease outbreak information or other useful information to all health workers or to health workers targeted by type or location.

4.2. Technical mechanisms for obtaining data

The majority of the data in the improved HRHIS will be sourced from other systems. For this reason, the improved HRHIS will be an API based system, primarily designed to integrate with and draw data from other systems. The system will allow data to be submitted:

- Through API from an approved system using standards
- Through import of data files in pre-defined formats, submitted by an approved institution
- Through a user interface using log-in access (if volume of data is small and/or the other two options above are not available)

These mechanisms will be used to obtain current data, and also to obtain legacy data.

4.3. Data records and data elements

4.3.1. Core health worker data

Record type	Record description	Data points
Personal identification record	Details which do not change about a person's identity	Names, sex, date of birth, NIDA NIN, photo, nationality, date of death. HRH person ID generated.
Personal details record	Past and present details which can change about a person, such as residential location and contact details	HRH person ID, Detail type (physical address, country of current residence, administrative area ID (if resident in Tanzania), postal address, phone number(s), email(s)), detail
Training enrolment record	Link between a person and a training program and their enrolment number, and their award verification details after graduation	HRH person ID, training program ID, enrolment ID (such as NACTE ID), award verification number (AVN), award class/grade, CPD points awarded (for CPD trainings)
Training enrolment status record	Past and present status and details of a person in a training program, including whether they are currently enrolled and the year they are in, or whether they have postponed, dropped out or graduated.	HRH person ID, status date, current mode of learning (full-time/ part-time/ distance/ eLearning etc), year number reached (1 st year ,2 nd year etc), current enrolment status (enrolled, postponed, dropped out, graduated), current sponsorship status
Other qualification record	Qualifications a person has received from non-recognised institutions, for example training institutions outside Tanzania	HRH person ID, qualification, institution, study start date, qualification date, award verification number (AVN), award class/grade, CPD points awarded (for CPD trainings)
CPD record (excluding training)	Details of other CPD activities undertaken by a person, besides training	HRH person ID, CPD activity type, CPD activity details, date started, date completed, CPD points awarded

Record type	Record description	Data points
Professional council registration record	Registrations and renewals/retentions of a person with professional councils	HRH person ID, professional council's org ID, registration number, registration cadre, registration name, date issued/renewed, date expires
Professional council disciplinary record	Disciplinary de-registrations or suspensions of a person by professional councils	Reference to registration record, date disciplinary measure taken, type of disciplinary measure (suspended/de-registered), reason, expiry date, date ended (ie registration restored)
Employment record	Past and present organisations (legal entities) which employ a person	HRH person ID, organisation id, employment number (cheque number if government), date employed, date employment ended
Employment work station record	Past and present work station, working mode and role of a person (which may change even while a person is employed by the same employer)	HRH person ID, organisation id, station id, administrative area ID if station_id not available, date deployed, role (if not government), employment cadre (if government), grade (if government), employment cadre category (if government), employment sub-status (see appendix B), employment mode (full-time/part-time), placement status (intern/volunteer/seconded/granted/directly employed), date deployment ended
Employment long-term leave record	Past and present periods of long term leave taken by a person	HRH Person id, org id, date long term leave started, reason for long term leave (maternity/paternity, illness, study, other employment/self-employment, other), date long term leave ended
Employment status record	Past and present overall employment status of a person, which can be derived from the person's other records, but in some cases (such as when person is not working) is updated directly	HRH person ID, date employment status changed, employment status, employment sub-status (see appendix B for list)

4.3.2. Configuration data

Category	Data set	Data points
Administrative Area Configuration	Administrative areas	Administrative area ID, area name, area type, parent area ID
Organisations and stations configuration	Organisations	Organisation name, type (Government, NGO, company, other), legal registration number, for profit/not for profit, organisation works in health sector (yes/no). Org ID generated
Organisations and stations configuration	Organisation details (which change over time)	Detail type (physical address, administrative area ID, postal address, phone number(s), email(s) etc), detail
Organisations and stations configuration	Organisation recognition	Org ID, type of recognition, recognition date, recognition registration number
Organisations and stations configuration	Work stations	Station name, type, health sector station (yes/no), owning organisation (org id), geo location (coordinates), geo location (administrative area). Station ID generated.
Organisations and stations configuration	Work station details (which change over time)	Detail type (physical address, postal address, phone number(s), email(s) etc), detail
Organisations and stations configuration	Work station recognition	Station ID, type of recognition, recognition date, recognition registration number
Health professional registration cadre configuration	Health professional registration cadres and registration names	Org ID of health professional council, health professional registration cadre, Provisional registration name (provisional, N/A), activity while provisional (internship, work experience, N/A), Final registration name for Tanzanians, Final registration name for non-Tanzanians. See appendix B for current configuration.
Training programme / qualification configuration	Training programmes and qualifications	Full training programme title, training institution (if Tanzania), country (if foreign), NTA level (4-10), discipline (see appendix B), duration, enrolment capacity, normal mode (full time, part time, distance, eLearning), CPD points value (for CPD), summary of entry requirements
Training programme / qualification configuration	Training programme / qualification recognition	Training programme ID, type of recognition, recognition date, recognition registration number (code)

4.3.3. Administrative data

The system will also store

- Full records of which data was updated by which user or by which system at which date/time
- NIDA verification results and date/time
- Details of when a person flags details in their own record as incorrect, including date flagged, which record was flagged, which data was flagged as incorrect and notes
- User management data including role assignments
- Details of systems which are accredited to exchange data with this system

5. Requirements for improved HRHIS

This section details high level system requirements. These stipulate on the services, functions and features that system users need.

The first part contains functional requirements which are functions and features that correspond to the business processes in section 3. An activity in the business process has one or more requirements for how the system should be used or updated in light of that activity. The table below lists the functional requirements together with the process, activity and entity/user the requirements correspond with.

Requirements - health worker data

Note, as specified in requirements in section “API, interoperability and data import/export”, all requirements in this section on health worker data should be capable of being executed via API and data import, as well as data entry.

Requirement No.	Process type	Triggers	Requirement (The system should)	Entity providing information	Record type
1.0.1	All processes	New student, new health worker or new HRHIS user; additional information available	Allow adding and updating of personal identification record, and generation of an internal HRH person ID.	All authorised sources	Personal identification record
1.0.2	All processes	New student, health worker or HRHIS user, or update in their details	Allow adding and updating of personal details	All authorised sources, including person themselves (for contact details only)	Personal details record
1.0.3	All processes	Health worker notices details out of date	Allow person to flag details about themselves which are out-of-date or incorrect.	Health worker	All records

Requirement No.	Process type	Triggers	Requirement (The system should)	Entity providing information	Record type
1.1.1	Training/CPD	Student enrolled; student graduated	Allow adding and updating of a person's training enrolment record	Training regulatory organisations (NACTE/TCU) MoHCDGEC / Health professional councils (for CPD)	Training enrolment record
1.1.2	Training/CPD	Student enrolled; change in enrolment status	Allow adding and updating of enrolment status of a person in a training program, including adding new status updates over time	Training regulatory organisations (NACTE/TCU) MoHCDGEC / Health professional councils (for CPD)	Training enrolment status record
1.1.3	Training/CPD	Other health qualification recognised (eg foreign qualification)	Allow adding and updating of other qualifications of a person (eg foreign qualifications)	Training regulatory organisations (NACTE/TCU) MoHCDGEC / Health professional councils (for CPD)	Other qualification record
1.1.4	Training/CPD	Student submits non-training CPD activity to health professional council or employer	Allow adding and updating of non-training CPD activities a person has undertaken and CPD points awarded	Professional councils Employers eLearning Platform	CPD record (excluding training)
1.2.1	Health professional registration	Professional council registration and renewal/retention	Allow adding and updating of a person's health professional registration/retention records	Professional councils	Professional council registration record

Requirement No.	Process type	Triggers	Requirement (The system should)	Entity providing information	Record type
1.2.2	Health professional registration	Professional council disciplinary suspension/de-registration	Allow adding and updating of a person's disciplinary (suspension / de-registration) record	Professional councils	Professional council disciplinary record
1.3.1	Employment	Recruitment, end of employment	Allow adding and updating of a person's employment record	Employer or professional council	Employment record
1.3.2	Employment	Recruitment, transfer, end of employment	Allow adding and updating of a person's employment work station record	Employer or professional council	Employment work station record
1.3.3	Employment	Long term leave begins or ends	Allow adding and updating of a person's long term leave record	Employer or professional council	Employment long-term leave record
1.3.4	Employment	Change in employment status	Allow updating of a person's employment status	Employer or professional council or person themselves	Employment status record
1.3.5	Employment	Change in employment status	Where possible, derive a person's employment status from the person's other records (see appendix B)	Employer or professional council or person themselves	Employment status record

Requirements – data reconciliation and merging

Requirement ID	Category	Requirement (The system should)
2.1	Data reconciliation and merging	Provide tools for highlighting possible duplicate personal identification records, and allow merging of records
2.2	Data reconciliation and merging	Allow verification of personal identification record with NIDA system
2.3	Data reconciliation and merging	Provide user interface for authorised users to perform reconciliation processes in case of conflicts between data from different sources
2.4	Data reconciliation and merging	Provide tools to ensure consistency between employment records, work station records, employment status and sub-status, and date of death in personal identification record.

Requirements – configuration and meta data

Requirement ID	Category	Requirement (The system should)	Entity
3.1.1	Administrative Area Configuration	Allow adding and de-activating of administrative areas	PORALG via administrative area registry
3.2.1	Organisation and station configuration	Allow adding, updating and de-activating of organisations	All authorised sources
3.2.2	Organisation and station configuration	Allow adding, updating or de-activating of organisation details	All authorised sources
3.2.3	Organisation and station configuration	Allow adding and de-activating of organisation recognition	See appendix A
3.2.4	Organisation and station configuration	Allow adding, updating and de-activating of stations	All authorised sources, including health facility registry for health facilities
3.2.5	Organisation and station configuration	Allow adding, updating or de-activating of station details	All authorised sources
3.2.6	Organisation and station configuration	Allow adding and de-activating of station recognition	See appendix A
3.3.1	Health professional registration type configuration	Allow adding and de-activating of health professional registration types	Professional councils
3.4.1	Training programme / qualification configuration	Allow adding, updating and de-activating of training program	Training regulatory organisations (NACTE/TCU) MoHCDGEC/ Professional councils (for CPD training)
3.5.1	Training programme / qualification configuration	Allow adding and de-activating of training program recognition	See appendix A
3.6.1	Other meta data	Allow configuration of other meta data and lists	MoHCDGEC

Requirements – user management and access control

Requirement ID	Category	Requirement (The system should)
4.1	User management and access control	Provide role-based access
4.2	User management and access control	Allow roles to be associated with users who have specific stations or employers
4.3	User management and access control	Allow sending of a user account activation link by email to a person, in order to convert a person into a user (note – creating a person in the system is covered under requirements section 1.0)
4.4	User management and access control	Allow cascading assignment of roles to and removal of roles from users
4.5	User management and access control	Allow the user to change their own password
4.6	User management and access control	Allow administrative user to reset password of another user
4.7	User management and access control	Allow user to reset their own password
4.8	User management and access control	Provide login access for authorized users
4.9	User management and access control	Provide ability for allowed users to view authorised data

Requirements – API, interoperability and data import/export

Requirement ID	Category	Requirement (The system should)
5.1	API and interoperability	Allow the registration of accredited systems to be interoperable with this system
5.2	API and interoperability	Allow assignment of roles to systems, to control which data the systems can submit, update and read
5.3	API and interoperability	Provide lookup services for system IDs, including IDs of people, organisations and stations
5.4	API and interoperability	Allow exchange of information with other authorised systems via API using agreed standards, including all transactions specified in requirements sections 1 and 2, and including legacy data and current data

Requirement ID	Category	Requirement (The system should)
5.5	API and interoperability	Allow all transactions specified in requirements sections 1 and 2 to be performed through importing of data files in pre-set formats, including legacy data and current data
5.6	API and interoperability	Record which system submitted each data record
5.7	API and interoperability	Allow read-only access to individual health worker records by authorised external systems, for purposes of verification of individual health worker qualifications, registration status and employment record.
5.8	API and interoperability	Allow access to or export data to data warehouse systems such as DHIS2
5.9	API and interoperability	Allow the system to be used as a single-sign-on service by other software, whereby a health worker can use their login for this system to be authenticated in other systems
5.10	API and interoperability	Utilise and be compliant with Fast Healthcare Interoperability Resources (FHIR) standards

Requirements – outputs: indicators, reports and analysis, and viewing records

Requirement ID	Category	Requirement (The system should)
6.1.1	Training / CPD	<p>Provide numbers and lists of recognised health training institutions and providers of training programmes, by</p> <ul style="list-style-type: none"> - Whether training institution and programme is recognised by NACTE or TCU or professional councils - Administrative area(s) of station(s) - Ownership of institution - Enrolment capacity of training programme

Requirement ID	Category	Requirement (The system should)
6.1.2	Outputs – training / CPD	<p>Allow analysis of all students who have ever enrolled pre-service training in the past or present, or who have recognised qualifications, as follows. Note pre-service training is the first recognised pre-service training a person did. Break down by</p> <ul style="list-style-type: none"> - Age group - Sex - Nationality - Current pre-service training status (enrolled, graduated, dropped-out) - Year enrolled - Expected year of graduation (year enrolled plus duration of training programme) - Year graduated - Training institution ownership (government, private for profit, private not-for-profit) - Training institution - NTA level - Training program - Training program discipline - Whether qualification was from inside or outside Tanzania - Current residential administrative area or country - Current employment status (see appendix B) - Employment status specified period (eg one year) after graduation
6.1.3	Outputs – training / CPD	Allow analysis of ratio of staff to students at training institutions, broken down by employment status (tutor or not), employment type (contract / permanent) and employment mode (full time/part time).
6.1.4	Outputs – training / CPD	Allow analysis of number of students completing all types of training (including short courses) by training discipline.
6.1.5	Outputs – training / CPD	<p>Allow analysis of CPD points awarded, by</p> <ul style="list-style-type: none"> - CPD activity type, or training programme - Registration cadre

Requirement ID	Category	Requirement (The system should)
6.2.1	Outputs – Health Professional Registration	<p>Allow analysis of registered health workers by combinations of different variables, as follows</p> <ul style="list-style-type: none"> - Age group - Sex - Nationality - Has any foreign qualification? (yes/no) - Year first attained this registration - Professional council - Registration cadre - Registration type - Current residential administrative area or country - Currently de-registered or suspended - Current employment status (see appendix B)

Requirement ID	Category	Requirement (The system should)
6.3.1	Outputs – employment	<p>Allow analysis of employed health workers by combinations of different variables, including trends over time, as follows</p> <ul style="list-style-type: none"> - Employment status (see appendix B) - Age group - Sex - Nationality - Has any foreign qualification? (yes/no) - Cadre - Employing organisation ownership (government, private for profit, private not for profit) - Individual organisation - Individual work station - Work station type (training institution, health facility, other) - Health facility type (if applicable) - Work station's organisation's ownership (government, private for profit, private not for profit) (<i>this may be different to employing organisation ownership if a health worker is employed by government but work station is a private health facility</i>) - Administrative area of work station, or if not available, administrative area of person's residential location, including by region and by rural/urban (<i>urban = located in mtaa admin area, rural = located in village admin area; or urban = located in urban council, rural = located in rural council</i>) - Placement status (employed directly, seconded, granted, intern, volunteer) - Employment type (self-employed / permanent employment / contract employment) - Employment mode (full-time/part-time)
6.3.2	Outputs – employment	<p>Allow analysis of newly employed health workers [a) working/self employed providing health services to clients for first time or b) working/self-employed in health sector for the first time in past year], by</p> <ul style="list-style-type: none"> - Nationality - Has foreign qualification? (yes/no)

Requirement ID	Category	Requirement (The system should)
6.3.3	Outputs – employment	Allow analysis of changes in employment for a particular employer or for a particular work station during a period, showing total number employed at the start of the period, number leaving during the period broken down by employment status after leaving, and number employed at the end of the period.
6.3.4	Outputs – employment	Allow analysis of changes in employment statuses between one date and another date, by cross tabulating old employment status and new employment status
6.4.1	View individual records	Allow access to individual health worker records by authorised users, for purposes of verification of individual health worker qualifications, registration status and employment record.
6.4.2	View individual records	Allow read-only log-in access by individual health workers to view their own record.
6.5.1	System activity reports	Provide visibility, reports and analysis of system activity, transactions and logs, including reports on how often different reports and analysis features are used

Requirements – communications

Requirement ID	Category	Requirement (The system should)
7.1.1	Communications	Allow selection of groups of health workers by different criteria including employment type, employment geographical location, cadre, registration type, for the purposes of sending out mass communications
7.1.2	Communications	Allow sending of email communications to selected health workers, including regular newsletters, professional updates and announcements
7.1.3	Communications	Allow sending of SMS communications to selected health workers, such as short updates and announcements, via the mHealth Platform

Requirements – other

Requirement ID	Category	Requirement (The system should)
8.1.1	Audit trail and logs	Log all activities performed by the user
8.1.2	Audit trail and logs	Log exchange of data with other systems
8.1.3	Audit trail and logs	Allow recording of whether changes to records are corrections of mistakes or updates due to change in circumstances
8.1.4	Audit trail and logs	Log access to data summaries, reports, analysis and visualization features
8.1.5	Audit trail and logs	Generate analysis of the usage of different system features and reports
8.2.1	Scalability	Be scalable to accommodate new demands
8.2.2	Scalability	Be able to accommodate at least 1,000 concurrent users
8.3.1	Usability	Provide informative error messages and tooltips.
8.3.2	Usability	Support real time data entry validation and feedback to prevent data entry errors from being recorded
8.3.3	Usability	Simplify data recording and data reconciliation through user friendly interfaces
8.3.4	Usability	Use industry standard user interface practices and apply them in a consistent manner throughout the system
8.3.5	Usability	Be easy to learn and intuitive to enable user to navigate
8.3.6	Usability	Provide access to on-line help

6. Requirements - other source-data systems

In order for the improved HRHIS to become functional, it will be necessary for the systems which act as source-data systems for the HRHIS to be modified as needed to ensure they can communicate with HRHIS. The systems include:

- NACTE system
- TCU system
- Professional council systems
- HCMIS
- eLearning platform
- Any other employer, training institution or CPD provider systems which are approved to exchange data with HRHIS

It will be necessary for these systems to be modified to:

- Ensure NIDA NIN is collected for all health workers in all systems. Currently POPSM HCMIS collects NIN and verifies it using NIDA API. However, other systems listed above currently do not. These organisations will all have to ensure that the NIN is collected as part of their forms and processes and entered into their systems or lists.
- Ensure data being reported by the system is mapped to the data formats required by HRHIS, as specified in this document
- Ensure the system's API can exchange data with the HRHIS API, including providing information and receiving information and verification services

It will also be beneficial to modify the health facility registry as follows:

- At time of initial application for registration of health facilities, health facility registry to use verification services of HRHIS to verify proposed staff of the applicant health facility
- At the time of renewal/retention of health facility registration, health facility registry to prompt private health facilities to ensure they have provided up to date information into HRHIS on their current employees

Appendix A - Recognition of organisations, stations and training programmes

Organisations are legal entities. They include government institutions such as MoHCDGEC, PORALG, professional councils, NACTE and TCU. They also include non-Government organisations such as any legally registered organisation who employs health workers or who provides training or CPD.

A station is a particular location of an organisation. One organisation may have multiple stations. Stations include individual health facilities and individual stand-alone laboratories and pharmacies. Stations may also include individual campuses of training institutions.

Both organisations and individual stations of an organisation can be “recognised” in the system in several ways:

Type of recognition for organisations/stations	Recognised by
- Recognised as a professional council	- Pre-set by MoHCDGEC
- Recognised as health training institution regulatory body (ie NACTE and TCU)	- Pre-set by MoHCDGEC
- Recognised as a health training institution in Tanzania	- NACTE/TCU - Professional council
- Recognised as a foreign health training institution	- NACTE/TCU - Professional council
- Recognised as a CPD provider	- MoHCDGEC - Professional council
- Recognised as a health facility	- MoHCDGEC via health facility registry
- Recognised as a stand-alone laboratory	- Private Health Laboratories Board (also in health facility registry)
- Recognised as an optometry clinic	- Optometry Council (also in health facility registry)
- Recognised as a pharmacy	- Pharmacy council
- Recognised as an employer	- MoHCDGEC
- Recognised as an internship provider	- Professional council
- Recognised as a practicum location	- NACTE/TCU

One organisation or one station can have multiple recognitions.

Training programs

A training program is any program of training or CPD, whether pre-service or in-service, whether formally recognised by NACTE/TCU or professional councils or informal.

Type of recognition for training programmes	Recognised by
- Recognised as a formal training programme (pre-service training program or “upgrading” training programme to upgrade from one NTA level to another)	- NACTE/TCU - Professional council
- Recognised as a foreign formal training programme	- NACTE/TCU - Professional council
- Recognised as a CPD programme	- MoHCDGEC - Professional council

Appendix B - Lists

Disciplines

Discipline name	Discipline name NACTE	Professional council	
Medicine	Clinical Medicine	MCT	Medical Council of Tanganyika
Dentistry		MCT	Medical Council of Tanganyika
Occupational Therapy		MCT	Medical Council of Tanganyika
Physiotherapy		MCT	Medical Council of Tanganyika
Prosthetics / Orthotics		MCT	Medical Council of Tanganyika
Psychiatry		MCT	Medical Council of Tanganyika
Speech Therapy		MCT	Medical Council of Tanganyika
Pharmacy	Pharmaceutical Sciences	PC	Pharmacy Council
Nursing and Midwifery	Nursing and Midwifery	TNMC	Tanzania Nursing and Midwifery Council
Health Laboratory	Medical Laboratory Sciences	HLPC	Health Laboratory Practitioners Council
Medical Radiology and Imaging		MRIPC	Medical Radiology and Imaging Professional Council
Environmental Health	Environmental Health Sciences	EHPRC	Environmental Health Practitioner Registration Council
Optometry		OC	Optometry Council
Traditional Medicine		TAHPC	Traditional and Alternative Health Practice Council
Community Health	Community Health		
Health Informatics	Health Records and Information		
Public Health / Epidemiology / Health Policy and Management			
Biomedical Engineering			
Nutrition			
Psychology			
Social Welfare			
Other			

Training programme levels

NTA Level	Award
NTA Level 4	Basic Technician Certificate
NTA Level 5	Technician Certificate
NTA Level 6	Ordinary Diploma
NTA Level 7	Higher Diploma
NTA Level 8	Bachelor Degree
NTA Level 9	Master's degree
NTA Level 10	Doctorate

CPD activity types

CATEGORY A: 1 point for each separate activity

- Interdepartmental meeting or update
- Case study discussion
- Clinical meeting
- Membership of professional association or society
- Attending a journal club meeting
- Being mentored or coached to acquire a specific skill
- Participation in commemorations or special events relevant to work role
- Reading professional journals and books and making a summary of learning and how it will be applied in practice
- Community service or voluntary work relevant to practice

CATEGORY B: 2 points for each separate activity

- Executive member of professional association or society
- Journal club presentation
- Undertaking a short course 1-3 days
- Being a member of a workplace committee
- Attending workplace education, in-service sessions or skills development program
- Facilitating a journal club meeting
- Attending a conference, lecture, seminar or professional meeting outside the workplace
- Keeping a monitored practice journal or reflective diary
- Participating in clinical audits

CATEGORY C: 3 points for each separate activity

- Presenting at a conference, workshop, seminar or in-service session
- Being a member of a national or regional health care committee or taskforce
- Reviewing health related educational material: book chapter or research paper
- Undertaking a short course up to one week in length
- Participating in research or project work as a team member
- Participating in the development of policies, protocols and guidelines
- Acting as a preceptor, mentor, coach, or supervising staff or students

CATEGORY D: 4 points for each separate activity

- Chairing a workplace committee
- Undertaking a short course; greater than one week but less than 3 months
- Organising commemorations or special events relevant to work role
- Being an expert examiner

CATEGORY E: 5 points for each separate activity

- Publishing a paper or report as co-author
- Assuming a leadership role in developing policies, protocols or guidelines
- Writing a research paper, book chapter or report as first author and submitting for publication
- Consultant work (internal and external)
- Attending a short course equivalent to three to six months in length
- Planning, running or facilitating a seminar, workshop, in-service session, or lecture
- Planning, running or facilitating a short course: classroom distance or online
- Planning, running or facilitating a conference

CATEGORY F: 10 points for each separate activity

- Conduct research as principal investigator
- Conduct a project as principal coordinator
- Publishing a paper, book chapter or report

[Employment grades - Government](#)

grade
TGHS A
TGHS B
TGHS C
TGHS D
TGHS E
TGHS F
TGHS G
TGHS H
TGHS I
TGHS J
TGHS K

grade
TGS A
TGS B
TGS C
TGS D
TGS E
TGS F
TGS G
TGS H

grade
TGHOS A
TGHOS B
TGHOS C

Employment cadre categories - Government

Government employment cadre category (English)	Government employment cadre category (Kiswahili)	Highest grade for this cadre category	Discipline(s)
Medical specialist / consultant	Madaktari bingwa/madaktari bingwa wa meno	TGHS K	Medicine, Dentistry
Medical doctor / dental surgeon	Madaktari/ madaktari wa meno	TGHS I	Medicine, Dentistry
Assistant medical officer	Madaktari wasaidizi/madaktari wa meno wasaidizi	TGHS G	Medicine, Dentistry
Clinical officer / dental therapist	Tabibu/tabibu meno	TGHS F	Medicine, Dentistry
Clinical assistant	Tabibu wasaidizi	TGHS C	Medicine
Pharmacist	Wafamasia	TGHS H	Pharmacy
Chemist	Wakemia	TGHS H	Pharmacy
Health scientist	Maafisa wateknolojia wa afya (maabara, radiolojia, macho na viungo bandia)	TGHS G	Health Laboratory, Medical Radiology and Imaging, Optometry, Prosthetics / Orthotics
Health technologist	Wateknologia wa afya (maabara, radiolojia, dawa, macho, meno na viungo bandia)	TGHS F	Dentistry, Pharmacy, Health Laboratory, Medical Radiology and Imaging, Optometry, Prosthetics / Orthotics
Assistant health technologist	Wateknologia wasaidizi (maabara, radiolojia, dawa, macho, meno, na viungo bandia)	TGHS C	Dentistry, Pharmacy, Health Laboratory, Medical Radiology and Imaging, Optometry, Prosthetics / Orthotics
Nursing officer	Maafisa uuguzi	TGHS G	Nursing and Midwifery
Assistant nursing officer	Maafisa wauguzi wasaidizi	TGHS F	Nursing and Midwifery
Nurse	Wauguzi	TGHS E	Nursing and Midwifery
Environmental health officer	Maafisa afya mazingira	TGHS G	Environmental Health
Assistant environmental health officer	Maafisa afya mazingira wasaidizi	TGHS F	Environmental Health
Environmental health assistant	Wasaidizi wa afya	TGHS C	Environmental Health
Health secretary	Makatibu wa afya	TGHS G	Public Health / Epidemiology / Health Policy and Management
Biomedical engineer	Wahandisi wa vifaa tiba	TGHS H	Biomedical Engineering
Biomedical engineering technician	Mafundi sanifu vifaa tiba	TGHS F	Biomedical Engineering
Assistant biomedical engineering technician	Mafundi sanifu wasaidizi vifaa tiba	TGHS C	Biomedical Engineering
Physiotherapist / occupational therapist	Wafiziotherapia/ watoa tiba kwa vitendo	TGHS F	Physiotherapy, Occupational Therapy

Government employment cadre category (English)	Government employment cadre category (Kiswahili)	Highest grade for this cadre category	Discipline(s)
Physiotherapist / occupational therapist assistant	Wafiziotherapia/ watoa tiba kwa vitendo wasaidizi	TGHS C	Physiotherapy, Occupational Therapy
Nutrition officer	Maafisa lishe	TGS H	Nutrition
Nutrition assistant	Wasaidizi lishe	TGS C	Nutrition
Social welfare officer	Maafisa ustawi wa jamii	TGS H	Social Welfare
Welfare assistant	Wasaidizi ustawi wa jamii	TGS G	Social Welfare
Child care worker	Walezi wa watoto	TGS E	Social Welfare
Catering officer	Maafisa wandaazi	TGS G	Other
Launderer	Madobi	TGHS D	Other
Medical attendant	Wahudumu wa afya	TGHOS C	Other

Registration cadres and types

Council	Registration cadre	NTA level	Provisional first?	After provisional	Final registration
MCT	Medical Doctor	8 Bachelor Degree	Provisional	Internship	Full registration
MCT	Assistant Medical Officer	7 Higher Diploma			Enrollment
MCT	Clinical Officer	6 Ordinary Diploma			Enrollment
MCT	Clinical Assistant	5 Technician Certificate			Enlistment
MCT	Dental Surgeon	8 Bachelor Degree	Provisional	Internship	Full registration
MCT	Assistant Dental Officer	7 Higher Diploma			Enrollment
MCT	Dental Laboratory Technologist	6 Ordinary Diploma			Enrollment
MCT	Dental Therapist	6 Ordinary Diploma			Enrollment
MCT	Assistant Dental Technologist	5 Technician Certificate			Enlistment
MCT	Dental Assistant	4 Basic Technician Certificate			Enlistment
MCT	Occupational Therapist	6 Ordinary Diploma	Provisional	Internship	Full registration
MCT	Physiotherapist	8 Bachelor Degree	Provisional	Internship	Full registration
MCT	Physiotherapist Assistant	6 Ordinary Diploma			Enrollment
MCT	Prosthetics and Orthotic Practitioner	8 Bachelor Degree	Provisional	Internship	Full registration
MCT	Clinical Psychiatrist	8 Bachelor Degree	Provisional	Internship	Full registration
MCT	Speech Therapist	8 Bachelor Degree	Provisional	Internship	Full registration
PC	Pharmacist	8 Bachelor Degree	Provisional	Internship	Full registration
PC	Pharmaceutical Technician	6 Ordinary Diploma			Enrollment
PC	Pharmaceutical Assistant	5 Technician Certificate			Enlistment
PC	Pharmaceutical Dispenser	4 Basic Technician Certificate			Certification
TNMC	Nursing and Midwifry Officer	9 Master's Degree			Full registration
TNMC	Nursing Officer	8 Bachelor Degree	Provisional	Internship	Full registration
TNMC	Assistant Nursing Officer	6 Ordinary Diploma			Full registration
TNMC	Enrolled Nurse	5 Technician Certificate			Enrollment
HLPC	Health Laboratory Scientist	8 Bachelor Degree	Provisional	Internship	Full registration
HLPC	Health Laboratory Technologist	6 Ordinary Diploma	Provisional	Work experience	Full registration
HLPC	Assistant Health Laboratory Technologist	5 Technician Certificate	Provisional	Work experience	Enrollment

Council	Registration cadre	NTA level	Provisional first?	After provisional	Final registration
MRIPC	Radiologist	9	Master's Degree		Full registration
MRIPC	Radiation/Clinical Oncologist	9	Master's Degree		Full registration
MRIPC	Nuclear Medicine Physician	9	Master's Degree		Full registration
MRIPC	Radiotherapy Technologist	8	Bachelor Degree	Provisional	Internship
MRIPC	Radiopharmacist	8	Bachelor Degree	Provisional	Internship
MRIPC	Medical Physicist	8	Bachelor Degree	Provisional	Internship
MRIPC	Radiographer (Radiology Scientist)	8	Bachelor Degree	Provisional	Internship
MRIPC	Nuclear Medicine Technologist	6	Ordinary Diploma	Provisional	Work experience
MRIPC	Radiographer (Radiology Technologist)	6	Ordinary Diploma	Provisional	Work experience
MRIPC	Assistant Medical Officer Radiology	4	Basic Technician Certificate		Enrollment
MRIPC	Radiographic Assistant	4	Basic Technician Certificate		Enlistment
MRIPC	Ultrasonographer	4	Basic Technician Certificate		Enlistment
EHPRC	Environmental Health Officer	8	Bachelor Degree	Provisional	Internship
EHPRC	Assistant Environmental Health Officer	6	Ordinary Diploma		Enrollment
EHPRC	Environmental Health Assistant	5	Technician Certificate		Enlistment
OC	Optometrist Technologist Officer	8	Bachelor Degree	Provisional	Internship
OC	Optometrist Technologist	6	Ordinary Diploma	Provisional	Work experience
TAHPC	Traditional Practitioner			Provisional	Work experience
TAHPC	Alternative Practitioner			Provisional	Work experience
TAHPC	Assistant Alternative Practitioner			Provisional	Work experience
TAHPC	Traditional Medicine Seller			Provisional	Work experience
TAHPC	Assistant Traditional Practitioner			Provisional	Work experience

Employment statuses

Employment status	Employment sub-status	Can be derived from which records
Employed and working in Tz	Employed - providing services directly to health clients	“Employment sub-status” in work station record
Employed and working in Tz	Employed – as health sector tutor	“Employment sub-status” in work station record
Employed and working in Tz	Employed – working in health sector but not providing services directly to health clients and not health sector tutor	“Employment sub-status” in work station record
Employed and working in Tz	Employed – working outside health sector	“Employment sub-status” in work station record
Self-employed in Tz	Self-employed – providing services directly to health clients	“Employment sub-status” in work station record
Self-employed in Tz	Self-employed – in health sector but not providing services directly to health clients	“Employment sub-status” in work station record
Self-employed in Tz	Self-employed – outside health sector	“Employment sub-status” in work station record
Not in Tanzania	Not in Tanzania	Not derived – provided directly
Not working	Not working – looking for work	Not derived – provided directly
Not working	Not working – not looking for work (eg studying, illness, family reasons, other reasons)	Not derived – provided directly
Not working	Not working – on long term leave (maternity/paternity leave, illness leave, study leave)	Employment leave record
Retired	Retired	“Reason employment ended” in employment record
Died	Died	“Reason employment ended” in employment record Also Date of death in personal identification record
Unknown	Unknown	