ROAD MAP OF PREPARATORY ACTIVITIES FOR DESIGNATING KLIBUR DOMIN AS THE NATIONAL CENTRE OF EXCELLENCE FOR DRUG RESISTANCE TB CARE IN TIMOR LESTE
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Abbreviations

ART anti-retroviral therapy
COE Center of Excellence
DHIS-2 district health information software, 2nd version
DR-TB Drug resistant TB
DST drug susceptibility testing
EMR Electronic medical record
HIV human immunodeficiency virus
IPC infection prevention and control
MDR/RR multidrug resistant/rifampicin resistant
MoU Memorandum of Understanding
NGO non-government organization
NRL National reference laboratory
NTP National TB programme
OR operational research
PMDT programmatic management of drug resistant TB
RCA Ryder-Cheshire Australia
rGLC regional Green Light Committee
TB tuberculosis
ToT training of trainers
WHO World Health Organization
X-Ray Chest radiography
Executive summary

To address the substantial challenges of DR-TB, the National Tuberculosis Program (NTP) intends to designate Klibur Domin as the Center of Excellence for DR-TB care by March 2024, recognizing its pivotal role in delivering DR-TB treatment services within the country.

NTP envisions Klibur Domin to provide support in three crucial areas:
1. **Provision and Monitoring of Care**: Delivering DR-TB patient care in alignment with national and international guidelines and overseeing DR-TB care countrywide.
2. **Training and Capacity Building**: Educating medical doctors and healthcare workers nationwide to facilitate decentralized DR-TB care.
3. **Data Management and Dissemination**: Undertaking systematic collection, analysis, and dissemination of data regarding DR-TB management across the country.

**Preparation and Assessment:**
In anticipation of this designation, the WHO country office conducted a thorough assessment to elucidate existing gaps and pinpoint immediate areas for improvement, leading to the following key recommendations:

**Recommendations:**
1. **Establish Collaborative Partnerships**: Forge partnerships and MOUs between Klibur Domin, NTP/MOH, WHO Country Office, and other pivotal stakeholders to ensure optimal functioning as a Center of Excellence with substantial technical and financial support.
2. **Enhance Human Resources**: Strengthen the human resource capacity at Klibur Domin to offer comprehensive clinical, psychosocial, and nutritional care for DR-TB patients, necessitating the recruitment of specialist medical officers, psychosocial counselors, and dieticians/nutritionists.
3. **Develop Coordinated Mechanisms**: NTP and Klibur Domin, in partnership with National Reference Laboratory, National Hospital, Klibur Domin, WHO Country Office and other partners to establish systems for timely provision of culture and drug susceptibility testing and specialized care for critically ill DR-TB patients, including those with co-morbidities like HIV.
4. **Leverage WHO’s Technical Support**: Seek technical guidance from the WHO country office in developing infection prevention and treatment guidelines, training of master trainers, use of IT for recording and reporting, data analysis, fostering international collaborations, and other Center of Excellence activities.
5. **Coordinate Training Activities**: NTP should facilitate Klibur Domin in executing national training activities by providing training coordinators, master trainers, and the requisite administrative, logistical, and financial support.

These recommendations aim to solidify Klibur Domin’s role as a comprehensive center for DR-TB care, serving as a hub for treatment, training, and knowledge dissemination. The collaboration of various stakeholders will be crucial in realizing this vision and addressing the multifaceted challenges of DR-TB effectively in the country.
Background

Timor-Leste is a low middle-income country in the eastern end of the Indonesian archipelago with a population of nearly 1.3 million. As per the WHO Global TB Report 2023 the TB incidence is estimated at 498/100,000 population in 2022 which translates to about 6700 TB cases annually. Timor has notified ~5200 cases in 2022 which is ~78% of the estimated incidence leaving a significant gap of ~22% i.e., ~1500 missing cases.

The estimated prevalence of MDR/RR TB is 0.67% among new cases and 5.1% among retreatment cases. This translates to an estimated incidence of 4.5 cases per 100,000, which is approximately 61 patients in 2022. Of the estimated 61 MDR/RR TB patients, only 19 patients were diagnosed and initiated on treatment in 2022.

Timor Leste’s National TB Programme (NTP) initiated Programmatic management of drug resistant TB (PMDT) services in 2008 with funding support from Global Fund and technical assistance from WHO and other partners. PMDT services are now available across all municipalities of the country. Klibur Domin, a Timorese NGO, situated in Tibar, Timor-Leste, roughly 17 km from the capital Dili, is one of the key partners supporting the provision of DR-TB treatment services in the country. All DR-TB patients diagnosed in the country are referred to Klibur Domin for initial clinical evaluation and initiation of DR-TB treatment as per the NTP guidelines. Patients are admitted for in-patient care for the initial two months and are then shifted to receive ambulatory care from the health facilities nearby to their respective homes. Community outreach workers from Klibur Domin provide support for DR-TB patients to complete their treatment.

The WHO South-East Asia Region’s regional Green Light Committee’s (rGLC) programmatic management of DR-TB monitoring mission of 2019, in its report had recommended “Establishing a Centre of Excellence (COE) at Klibur Domin for management of DR-TB and other complicated TB cases and serve as a national training center for TB, DR-TB and TB-HIV for staff at all levels”.

WHO Country Office of Timor Leste in 2023 has received a letter from the Ministry of Health for providing guidance for designating Klibur Domin as a CoE for DR-TB management. In this regard, WHO Country Office along with the NTP undertook an assessment to develop a road map for designating Klibur Domin as a CoE within the next 6 months. This document describes the key observations and recommendations to be undertaken by NTP, Klibur Domin and WHO country Office to facilitate designation and functioning of Klibur Domin as a CoE.

Need for Center of Excellence for DR-TB in Timor Leste

A COE in the country can help the NTP in several different ways.

1. **Enhancing Treatment services:** The COE can assist the NTP in developing and implementing more effective and individualized DR-TB treatment regimens, that are
culturally sensitive and adapted to the local context of Timor-Leste, ensuring better acceptance and adherence to treatment regimens by the population.

2. **Policy Development and Standardization:** The COE can help the NTP to formulate and disseminate standardized management guidelines and protocols based on the latest international guidelines, improving the care for DR-TB. It can serve as a reference point for developing evidence-based policies and interventions, leading to more informed decision-making at the national levels.

3. **Capacity Building and Training:** Establishing a CoE is crucial for training all healthcare professionals to enhance the overall capacity of the health system’s response to DR-TB.

4. **Data Collection and Surveillance:** COE can facilitate systematic collection, analysis, and dissemination of data on DR-TB, supporting surveillance and research initiatives. Enhanced surveillance helps in early detection of drug-resistant cases and the monitoring of trends over time, enabling a proactive response to emerging threats.

5. **Quality Assurance:** The COE can develop and support implementation of quality assurance mechanisms for diagnostics and treatment to ensure that the patients receive high-quality care. The COE can also work towards achieving international accreditations and certifications, setting standards for TB care in the country.

6. **Research and Innovation:** A COE can serve as a hub for pioneering research and innovation to develop new diagnostic tools, drugs, and for identification of context specific diagnostic and treatment strategies for DR-TB.

7. **Public Awareness and Advocacy:** The center can play a pivotal role in developing tools and strategies for raising awareness about DR-TB among communities, influencing behavior, and reducing stigma. It can drive advocacy efforts for increased funding and commitment from governments and international agencies to combat DR-TB. Leveraging community engagement is crucial, and a COE can work closely with local communities to optimize outreach and support services.

8. **International Collaboration:** The COE can foster collaboration and partnerships with other international centers, organizations, and experts, promoting the sharing of knowledge, resources, and best practices. Such collaboration can help in leveraging global expertise and resources to address the challenges posed by DR-TB more effectively.

9. **Global Health Security:** Given the potential of DR-TB to spread across borders, a COE is essential for global health security, preventing the spread of drug-resistant strains and mitigating the impact on global health.

**Drug Resistant TB services at Klibur Domin**

Klibur Domin, situated in Tibar, Timor-Leste, roughly 17 km from the capital Dili, is a reputed Timorese non-governmental organization. Klibur Domin was established in 2000, when Ryder-Cheshire Australia (RCA) greenlighted a proposal to initiate a fresh project in Timor-Leste. This initiative was christened "Klibur Domin," translating to 'Sharing with Love' in the local dialect. A year later, in 2001, the Klibur Domin Board of Management (BoM) was instituted with Dr. Rui de Araujo at its helm as Chairman. Notably, Dr. Rui later served as the Prime Minister of Timor-Leste from 2015 to 2017 and continues to be an integral part of the BoM. The organizational/
Governance structure of Klibur Domain consists of 8 members, 5 Timorese Nationals and 3 Australian Nationals.

Recognizing the Klibur Domin's remarkable contributions in combating TB in Timor-Leste and their relentless efforts over 23 years to alleviate suffering in numerous communities, President Dr. Jose Ramos Horta honored the organization with the “Medal of the Order of Timor-Leste” in May 2023. This accolade is the pinnacle of honors presently conferred by Timor-Leste, acknowledging both East Timorese and foreign nationals who have rendered significant contributions to the nation and its people.

Klibur Domin’s facility at Tibar, has 9 cottages with the capacity of 85 beds to accommodate patients and persons with disability and their families. About 14 beds are earmarked for DR-TB patients, 40 beds for drug sensitive TB patients, and the other 40 for non-TB patients with chronic co-morbidities. The facility’s average bed occupancy rate is about 75%, with approximately 80% of patients undergoing treatment for TB or drug resistant TB. Klibur Domin is currently the only facility in Timor-Leste supporting NTP in providing treatment of DR-TB. The number of DR-TB patients initiated on treatment at the facility year-wise, the DR-TB treatment regimen used, and the number successfully treated is given in the following table.
Table 1: MDR/RR TB patient data from Klibur Domin

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of MDR/RR TB patients enrolled</th>
<th>DR-TB treatment regimen</th>
<th>Percentage successfully treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>2</td>
<td>Longer regimen</td>
<td>50%</td>
</tr>
<tr>
<td>2009</td>
<td>0</td>
<td>Longer regimen</td>
<td>0</td>
</tr>
<tr>
<td>2010</td>
<td>3</td>
<td>Longer regimen</td>
<td>33%</td>
</tr>
<tr>
<td>2011</td>
<td>4</td>
<td>Longer regimen</td>
<td>100%</td>
</tr>
<tr>
<td>2012</td>
<td>1</td>
<td>Longer regimen</td>
<td>100%</td>
</tr>
<tr>
<td>2013</td>
<td>0</td>
<td>Longer regimen</td>
<td>0</td>
</tr>
<tr>
<td>2014</td>
<td>0</td>
<td>20 months regimen</td>
<td>0</td>
</tr>
<tr>
<td>2015</td>
<td>4</td>
<td>20 months regimen</td>
<td>75%</td>
</tr>
<tr>
<td>2016</td>
<td>7</td>
<td>20 months regimen</td>
<td>71%</td>
</tr>
<tr>
<td>2017</td>
<td>4</td>
<td>20 months regimen</td>
<td>75%</td>
</tr>
<tr>
<td>2018</td>
<td>13</td>
<td>20 months regimen</td>
<td>92%</td>
</tr>
<tr>
<td>2019</td>
<td>9</td>
<td>20 months regimen</td>
<td>78%</td>
</tr>
<tr>
<td>2020</td>
<td>12</td>
<td>20 months regimen</td>
<td>75%</td>
</tr>
<tr>
<td>2021</td>
<td>21</td>
<td>Short regimen</td>
<td>90%</td>
</tr>
<tr>
<td>2022</td>
<td>19</td>
<td>Short regimen</td>
<td>100%</td>
</tr>
<tr>
<td>2023*</td>
<td>21</td>
<td>Short regimen</td>
<td>Still ongoing treatment</td>
</tr>
</tbody>
</table>

*till October 2023
Roadmap for designating the Klibur Domin facility as center of excellence for DR-TB in the country by March 2024

1. Memoranda of understanding
   1. The NTP may sign an MoU (or a similar agreement depending on administrative feasibility) with Klibur Domin to undertake the activities as per the following terms of reference.
      • Provide treatment services to eligible DR-TB patients referred for in-patient care at the center as per the NTP DR-TB treatment guidelines.
      • Training of health care staff in the country using latest state-of-the art methodology to improve the human resource (HR) base for the expansion of DR-TB treatment and management. Provide intensive training to programme managers, physicians, nurses, health workers on DR-TB care.
      • Systematic collection, analysis, and dissemination of data on DR-TB for supporting surveillance and operational research initiatives.
   2. Klibur Domin to sign an MOU (or a similar agreement depending on administrative feasibility) with WHO and other partners seeking technical and financial support for carrying out activities as envisaged in the MoU with NTP and for optimal functioning as COE.

2. COE advisory committee

Klibur Domin to establish an advisory committee consisting of representatives from NTP, WHO country office, National Reference Laboratory, National Hospital, and other stakeholders to guide the activities of the COE. This advisory committee to meet at least once every year, review the activities of the COE and provide guidance for its optimal functioning.
3. Enhancement of DR-TB patient care services at Klibur Domin facility at Tibar

<table>
<thead>
<tr>
<th>Domain</th>
<th>Status in September 2023</th>
<th>Recommendation for actions to be completed by March 2024</th>
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</thead>
<tbody>
<tr>
<td>Facilities for patient isolation and treatment</td>
<td>14 beds earmarked for DR-TB patients with the possibility to double/triple the number of beds to meet any increase in the demand.</td>
<td>Proactive measures and contingency plans should be developed to swiftly increase the bed capacity when an escalating demand arises, ensuring the prompt accommodation of additional DR-TB patients.</td>
</tr>
<tr>
<td>Human resource</td>
<td>Currently one senior doctor (with advanced training in DR-TB management), one junior doctor and 6 nurses are available to provide DR-TB services.</td>
<td>Identification/recruitment of one more senior doctor and junior doctor for continuation of DR-TB services in the absence the currently available medical officers.</td>
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<tr>
<td>Improvement in existing laboratory services</td>
<td>The laboratory within the facility is currently equipped with two 4 cartridge GeneXpert machines (one with 6-color module and one with 10-color module) and one microscope designated for sputum smear microscopy. There are two trained laboratory technicians who are conducting Xpert tests and sputum smear microscopy as per the NTP guidelines. No shortage of laboratory consumables reported. However, there is a noted underutilization of the biochemical analyzer provided by WHO, which has been earmarked for conducting biochemical tests. Presently, DR-TB patients are transported to the National Hospital laboratory for the conduct of such tests, despite the availability of in-house equipment. To optimize resource utilization and enhance patient convenience, the facility should prioritize the operationalization of the biochemical analyzer for conducting requisite biochemical tests. This will obviate the need for transporting DR-TB patients to the National Hospital laboratory, thus reducing logistical hassles and potentially accelerating the diagnostic process. The facility should continue to utilize GeneXpert tests and sputum microscopy effectively, ensuring accurate and timely diagnosis while also exploring opportunities for further enhancement and integration of laboratory services to meet evolving healthcare needs.</td>
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<tr>
<td>Chest X-Ray</td>
<td>Klibur Domin is equipped with a digital X-Ray machine, and this is utilized in DR-TB care. Currently, the responsibility of interpreting the X-Rays rests solely with the Senior Medical Officer. While the existing setup ensures that X-Ray services are available and interpreted, reliance on a single officer may limit the scalability and responsiveness of the service. To enhance the reliability, scalability, and accuracy of X-Ray interpretation, it is recommended to establish a linkage with the radiology department of the National Hospital. This collaborative approach will ensure that support in reading Chest X-Rays is readily available, thereby optimizing the interpretation process. It will allow for expert consultation and second opinions when needed, ensuring more accurate and reliable diagnoses and subsequently improving the overall quality of DR-TB care provided at Klibur Domin.</td>
<td></td>
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<tr>
<td>Linkages with National Reference Laboratory</td>
<td>Presently, sputum samples for both first line and second-line culture and Drug Susceptibility Testing (DST) are dispatched to the National Reference Laboratory. There are considerable delays (7-10 To address the delays in getting reports from the national reference laboratory, it is crucial to establish a more streamlined and efficient coordination mechanism with the National Reference Laboratory. Improved communication</td>
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<p>| 10 |</p>
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<tr>
<th>Linkages with National Hospital for emergency and critical care</th>
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<tr>
<td>Currently, patients necessitating critical, or emergency care are referred to the National Hospital for comprehensive management and treatment. Within this arrangement, there is a limitation at the National Hospital as only one bed is designated for the accommodation and treatment of such patients. This allocation is insufficient, especially if there is an influx of critically ill patients.</td>
</tr>
<tr>
<td>The NTP should actively liaise with the National Hospital to negotiate the allotment of a greater number of beds for the management of severely ill/critical DR-TB patients. An increase in the bed availability is essential to ensure that critical care needs are met promptly and efficiently, particularly during instances of increased demand.</td>
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<table>
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<tr>
<th>Psychosocial support</th>
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<tr>
<td>No trained counsellors for providing advanced Psychosocial support to DR-TB patients. This absence underscores a critical gap in addressing the comprehensive well-being of DR-TB patients, which is essential for their overall recovery and adherence to treatment.</td>
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<tr>
<td>Recruitment or engagement of a professionally trained counsellor, who can deliver context-specific, advanced psychosocial support tailored to the needs of DR-TB patients in the country.</td>
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<tr>
<th>Outreach activities</th>
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<tr>
<td>Klibur Domin is currently providing essential outreach services tailored for patients receiving ambulatory care. These services play a vital role in extending care beyond the healthcare facility to more accessible settings, thereby ensuring continuity and convenience in patient care. Although follow-up sputum collection and transportation are conducted utilizing cold boxes, the availability of</td>
</tr>
<tr>
<td>The continuation of outreach activities is paramount, and this activity needs to be continued. To address the inadequacy in the number of available cold boxes and to meet the diverse needs of patients effectively, it is recommended to procure an adequate number of cold boxes. Ensuring the availability of the requisite number of cold boxes will optimize the outreach services, allowing for more efficient and</td>
</tr>
<tr>
<td><strong>Drugs and laboratory consumables</strong></td>
</tr>
<tr>
<td><strong>HIV care</strong></td>
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### Continuous capacity building for clinical care management

Currently, rGLC missions from DR-TB experts are conducted annually to assess DR-TB services in the institution and to provide training and feedback based on the latest guidelines and any identified gaps in knowledge or service delivery. These missions have played a major role in the high standards in clinical care that is provided at the facility. These missions are organized by the World Health Organization (WHO) in close collaboration with the National Tuberculosis Program (NTP).

To sustain advancements in clinical care management and ensure adherence to the most current and applicable guidelines, it is crucial to continue with this system of regular assessments, training, and feedback through rGLC missions. Continuity in these missions is fundamental to fortifying the knowledge base and refining service delivery, ultimately contributing to elevated standards in DR-TB care and management within the institution.

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### 4. Enhancement of infrastructure for conducting trainings on DR-TB

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<tr>
<td><strong>Infrastructure upgradation</strong></td>
<td>Klibur Domin has a training and meeting hall designed for hosting DR-TB related trainings, with a capacity to accommodate approximately 25 individuals at a time. In addition, there are lodging facilities available that can house up to 20 people (on twin sharing basis) and a kitchen capable of preparing meals for around 100 persons. Furthermore, the campus is served by a solar electricity supply plant, backed with sufficient battery and generator facilities, ensuring uninterrupted electricity supply around the clock.</td>
<td>It is recommended to undertake necessary civil works to expand its capacity, allowing it to host approximately 40 individuals. Additionally, procuring ergonomically designed chairs and tables is crucial to ensure the comfort of around 30-40 trainees utilizing the training center, thereby enabling a conducive learning environment. These enhancements will significantly augment the facility’s capability to host larger groups, fostering increased knowledge sharing and learning opportunities, and subsequently contributing to the overall improvement in DR-TB management and care within the facility.</td>
</tr>
<tr>
<td><strong>Internet access</strong></td>
<td>The Klibur Domin facility is currently equipped with a Wi-Fi network that spans across the campus. However, the existing internet speed is suboptimal.</td>
<td>It is crucial to upgrade to the high-speed internet connection available in the country. Securing a more robust and reliable internet connection will</td>
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and has the potential to impede teaching and training activities, possibly affecting the quality of learning and information exchange within the facility.

| Human resource for training-Trainers. | Currently, there is no dedicated human resource assigned for training. As stipulated by the country’s National Strategic Plan (2020-2024/26), there is a requirement for all medical doctors and paramedical staff within the public health system, approximately 1000 persons, to undergo training on national DR-TB guidelines to facilitate decentralized care for patients. Each of these training sessions is slated to last approximately 3 days. | To effectively address the lack of dedicated human resources for training and to comply with the National Strategic Plan, it is recommended to appoint or seek support from the NTP for a Training Coordinator and 1-2 support staff. This individual will oversee the organization and execution of training programs.

Subsequently, in collaboration with the NTP, a roster of qualified Master Trainers (~10 numbers) should be compiled. These Master Trainers should then receive Training of Trainers (ToT) on the latest national and international guidelines on DR-TB management, with support from the WHO country office.

These trained individuals can then be used for training medical doctors and paramedical staff, ensuring proper understanding of the national DR-TB management guidelines, thus promoting decentralized, patient-centric care. |

| Equipment purchases for conducting trainings. | While audio-visual equipment is available for conducting training sessions, the facility is currently equipped with only one projector. This limitation could potentially hinder the effective delivery of | To optimize the training delivery and accommodate concurrent training sessions, it is recommended to procure an additional two projectors and two printers specifically dedicated |
training content, especially when multiple training sessions or parallel sessions are scheduled.

for training purposes. These additional resources will ensure that the training sessions can be conducted without disruptions and that all training materials are readily available, thus contributing to the enhancement of the overall training experience and learning outcomes for the participants.

5. Infection prevention and control (IPC) guidelines

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<th>Domain</th>
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| IPC guidelines  | Currently, there are no IPC guidelines within the facility. This denotes a critical gap in standardizing preventive measures and control mechanisms to mitigate infection risks within the facility, impacting overall patient and staff safety. | To address this gap, Klibur Domin, in collaboration and with technical support from the NTP and the WHO country office, can modify the national IPC guidelines tailored for the facility. Thereafter, the development of these guidelines, a systematic and thorough training program should be initiated to ensure that all staff members are proficient and compliant with the newly established protocols.  
Additionally, to embed a culture of continuous learning and adherence to IPC principles, components pertaining to IPC should be seamlessly integrated into all training programs conducted within the facility. This incorporation will reinforce the importance of infection prevention and control, ensuring sustained awareness and adherence among staff, thereby contributing to enhanced safety and quality of care within the facility. |
### 6. Data Management and Quality Assurance

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<tbody>
<tr>
<td>Recording and reporting</td>
<td>The facility is presently maintaining all records of DR services in a paper-based system, with the recording and reporting formats aligning with the NTP guidelines. While the current system follows national guidelines, it may have limitations in terms of accessibility, efficiency, and integration across various levels of care.</td>
<td>To enhance the efficiency, accuracy, and accessibility of medical records, it is recommended to transition to an Electronic Medical Record (EMR) keeping system. Adopting an EMR system as outlined in Annexure 3 will facilitate optimal maintenance and timely reporting of medical records and ensure continuity of care for DR-TB patients as they transition between facility-based care and ambulatory care within the health system. This transition to a digitized system will streamline healthcare delivery, reduce the risk of information loss, and facilitate seamless coordination and comprehensive care across various healthcare settings.</td>
</tr>
<tr>
<td>Audit of DR-TB care provided at the facility</td>
<td>Currently, other than patient treatment outcome audit, there is no systematic medical auditing mechanism in place at Klibur Domin to assess the quality of DR-TB care provided to the patients. The lack of a formal medical audit system hampers the ability to evaluate and enhance care quality systematically and can impact the outcomes for TB patients.</td>
<td>Klibur Domin to collaborate with the NTP and the WHO country office to establish a regular and systematic medical audit mechanism (once every 6 months) for evaluating the quality of care provided at the center. Instituting a robust auditing system will facilitate ongoing assessment and refinement of care practices, ensuring alignment with best practices and standards.</td>
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### 7. Research and Development

<table>
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<tr>
<th>Domain</th>
<th>Status in September 2023</th>
<th>Recommendation for actions to be completed by March 2024</th>
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<tbody>
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<tr>
<td>Routine programme data analysis on DR-TB</td>
<td>Klibur Domin is not undertaking routine program data analysis on DR-TB. The absence of systematic data analysis limits the scope for assessing and informing the NTP for enhancing the efficacy and impact of DR-TB related programs and interventions.</td>
<td>It is imperative for Klibur Domin, in collaboration with the NTP and the WHO Country Office, to explore and implement mechanisms for enabling routine programmatic data analysis related to DR-TB. Utilizing analyzed data to inform and refine programmatic processes is crucial for enhancing the effectiveness and impact of DR-TB management in the country. Such collaborative efforts will contribute to the continuous improvement and optimization of DR-TB related interventions.</td>
</tr>
<tr>
<td>Research capacity</td>
<td>Klibur Domin has very limited capacity to conduct research, primarily due to a lack of individuals with experience or expertise in research within the institution.</td>
<td>Klibur Domin, in partnership with the NTP, Institu Nacional Saúde Públika Timor-Leste and the WHO Country Office, explores avenues to undertake programmatically relevant Operational Research (OR) related to DR-TB within the country. The established mechanism should aspire to contribute at least one publication to a peer-reviewed scientific journal annually. This collaborative approach will not only bolster the research capacity of the institution but also aid in the continuous improvement and understanding of challenges and solutions for locally relevant DR-TB management issues, ultimately contributing to scientific discourse and advancements in the field. Aiming for publication in a scientific journal will significantly enhance the credibility of the institution and also informing policy makers at the global level to pay attention to local issues.</td>
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8. Partnerships/collaborations

<table>
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<tr>
<th>Domain</th>
<th>Status in September 2023</th>
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<tbody>
<tr>
<td>Partnerships/collaborations</td>
<td>Klibur Domin's partnership network is somewhat limited, primarily collaborating with the National Tuberculosis Program (NTP) but not extending collaborations to other academic or research institutions. This limited partnership restricts the potential for cross-learning, shared expertise, and the advancement of knowledge and practices that is essential for functioning as a COE.</td>
<td>Klibur Domin, in conjunction with the NTP and the WHO country office, to proactively seek and establish collaborations with renowned centers of excellence in DR-TB and with reputable academic institutions around the world. At least one partnership to be established before February 2024. Such partnerships can facilitate a mutual exchange of learning and expertise, promoting enriched understanding and advancements in DR-TB management and research. Establishing diverse collaborations will serve to broaden the knowledge base, enhance learning opportunities, and foster improvements in DR-TB related practices and research within Klibur Domin.</td>
</tr>
</tbody>
</table>
# Summary of key activities and estimated budget

<table>
<thead>
<tr>
<th>Head</th>
<th>Description</th>
<th>Number required</th>
<th>Unit cost (USD)</th>
<th>Total Cost for 3 years in USD (include annual maintenance cost for equipment) wherever applicable</th>
<th>Source of Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory committee</td>
<td>COE Advisory committee constitution and annual meeting (5-6 members)</td>
<td>1</td>
<td>1,500</td>
<td>4,500</td>
<td>Klibur Domin/ WHO Country Office/ NTP</td>
</tr>
<tr>
<td>Human resource</td>
<td>Engagement of Full time/Part time Senior Medical Officer with expertise in clinical management of DR-TB</td>
<td>2</td>
<td>770</td>
<td>60,060</td>
<td>Klibur Domin/ NTP</td>
</tr>
<tr>
<td>Human resource</td>
<td>Junior Medical Officers</td>
<td>2</td>
<td>671</td>
<td>52,338</td>
<td>Klibur Domin/ NTP</td>
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<tr>
<td>Human resource</td>
<td>Training co-Ordinator (full time)</td>
<td>1</td>
<td>746</td>
<td>29,100.00</td>
<td>Klibur Domin/ NTP</td>
</tr>
<tr>
<td>Human Resources</td>
<td>Nurses</td>
<td>2</td>
<td>495</td>
<td>38,610</td>
<td>Klibur Domin/ NTP</td>
</tr>
<tr>
<td>Human resource</td>
<td>Training support staff/ assistants (full time)</td>
<td>2</td>
<td>350</td>
<td>27,300</td>
<td>NTP</td>
</tr>
<tr>
<td>Human resource</td>
<td>Psychosocial counsellor (part time or full time)</td>
<td>1</td>
<td>385</td>
<td>15,015</td>
<td>Klibur Domin/ NTP</td>
</tr>
<tr>
<td>Human resource</td>
<td>Dietician/Nutritionist (Part time/ full time)</td>
<td>1</td>
<td>385</td>
<td>15,000.00</td>
<td>Klibur Domin/ WHO Country Office/ NTP</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-----------------------------------------------</td>
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<td>--------------------------------------</td>
</tr>
<tr>
<td>Human resource</td>
<td>Pharmacist</td>
<td>1</td>
<td>385</td>
<td>15,000.00</td>
<td>Klibur Domin</td>
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<tr>
<td>Training-infrastructure</td>
<td>Civil works to improve the size of the training hall</td>
<td>1</td>
<td>6,000</td>
<td>6,000.00</td>
<td>Klibur Domin/ NTP</td>
</tr>
<tr>
<td>Training Equipment</td>
<td>LCD projectors</td>
<td>2</td>
<td>1,200</td>
<td>1,200.00</td>
<td>Klibur Domin/ WHO Country Office/ NTP</td>
</tr>
<tr>
<td>Training Equipment</td>
<td>Laser printers cum photocopy machines</td>
<td>2</td>
<td>1,800</td>
<td>1,800.00</td>
<td>Klibur Domin/ WHO Country Office/ NTP</td>
</tr>
<tr>
<td>Training Equipment</td>
<td>Ergonomically comfortable Training chairs and tables</td>
<td>40</td>
<td>200</td>
<td>8,000.00</td>
<td>Klibur Domin/ NTP</td>
</tr>
<tr>
<td>Training Equipment</td>
<td>Laptop/ Desktop</td>
<td>3</td>
<td>800</td>
<td>2,400.00</td>
<td>Klibur Domin/ WHO Country Office/ NTP</td>
</tr>
<tr>
<td>Human resource</td>
<td>Master trainers training for DR-TB (~12-15 participants)</td>
<td>1</td>
<td>2,700</td>
<td>8,100.00</td>
<td>WHO country Office</td>
</tr>
<tr>
<td>IPC</td>
<td>Modification of national infection prevention and control guidelines</td>
<td>1</td>
<td>20,000</td>
<td>20,000</td>
<td>WHO Country Office</td>
</tr>
<tr>
<td>IPC</td>
<td>Civil works to improve the facility to meet standards as per IPC guidelines</td>
<td>1</td>
<td>9,500</td>
<td>9,500.00</td>
<td>Klibur Domin/ NTP</td>
</tr>
<tr>
<td>IT</td>
<td>Laptops/ desktop computers for shifting to electronic medical reporting system</td>
<td>3</td>
<td>2,400.00</td>
<td>2,400</td>
<td>Klibur Domin/ WHO Country Office/ NTP</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
<td>Qty</td>
<td>Unit Cost</td>
<td>Total Cost</td>
<td>Supplier</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------------------------------------</td>
<td>-----</td>
<td>-----------</td>
<td>------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>IT</td>
<td>High speed internet services</td>
<td>1</td>
<td>417</td>
<td>15,000</td>
<td>Klibur Domin/ NTP</td>
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<tr>
<td>IT</td>
<td>CAD software for Chest X-Ray reading</td>
<td>1</td>
<td>40,000</td>
<td>40,000</td>
<td>Klibur Domin/ WHO Country Office/ NTP</td>
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<tr>
<td>Laboratory</td>
<td>Procurement of reagents for using bio-chemical analyzer at the Klibur Domin facility</td>
<td>1</td>
<td>2000</td>
<td>2000</td>
<td>Klibur Domin/ WHO Country Office/ NTP</td>
</tr>
<tr>
<td>Laboratory</td>
<td>Civil works for upgrading the laboratory</td>
<td>1</td>
<td>10,000</td>
<td>10,000</td>
<td>Klibur Domin/ NTP</td>
</tr>
<tr>
<td>Laboratory</td>
<td>Cold boxes for sputum/sample collection and transportation</td>
<td>1</td>
<td>1,000</td>
<td>1,000</td>
<td>Klibur Domin/ NTP</td>
</tr>
<tr>
<td>Drug store</td>
<td>Civil works for upgrading the drug store</td>
<td>1</td>
<td>7,000</td>
<td>7,000</td>
<td>Klibur Domin/ NTP</td>
</tr>
<tr>
<td>Drug store</td>
<td>Equipment for drug store (Refrigerator)</td>
<td>1</td>
<td>1,200</td>
<td>1,200</td>
<td>Klibur Domin/ WHO Country Office/ NTP</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$ 392,523</strong></td>
<td></td>
</tr>
</tbody>
</table>
Annexure 1: Klibur Domin—Board of Members, Organizational structure, and Organizational profile

KLIBUR DOMIN BOARD OF MANAGEMENT

1. Dr Rui Araujo, Board Chair
2. Mr. Peter Newton, Vise Chair
3. Ms. Sara Maria Pereira, member
4. Ms Afliana Lisnahan Reis, member
5. Ms Jorginha Marins
6. Mr John Kirby, Treasurer
7. Dr. Jeremy Becket
8. Mr Joaquim Freitas Soares, Secretary and Managing Director

KLIBUR DOMIN ORGANIZATIONAL STRUCTURE

Below is the current Klibur Domin Organizational Structure. Please note the Organizational Structure is reviewed as required and may change in 2024.

KLIBUR DOMIN ORGANIZATIONAL PROFILE

Klibur Domin Foundation is a Timorese Non-Government Organisation (Registration Number 30/DNRN-MJ/XII/2011) which has a range of long-term programs for inpatient care for the sick, elderly, and disabled, Tuberculosis (TB) treatment, and community-based rehabilitation (CBR) and care for people with disabilities. Klibur Domin is supported by a strong partnership with Ryder Cheshire Australia, Ministry of Health Timor-Leste and Ministry of Social Solidarity and Inclusion Timor Leste and various other donors and supporters.

The mission of Klibur Domin is: To relieve suffering among sick, disabled and destitute Timorese people without discrimination. Klibur Domin is located in Tibar, 17kms from Dili, and works primarily works in the Liquisa, Ermera, Dili, Baucau, Viqueque and other districts (subject to funding).

Klibur Domin History

In 2000, the Ryder-Cheshire Australia (RCA) approved a proposal to set up a new project in Timor-Leste. This project became known as Klibur Domin, which means ‘Sharing With Love’ in the local dialect. It was initially established to care for low priority patients from the Dili Hospital, due to the demand for beds for high priority patients at the Hospital. In 2001, the KD Board of Management was established with Dr
Rui de Araujo as Chairman. Dr Rui became the Timor-Leste Prime Minister from 2015 to 2017 and is still a member of the BoM. In 2004 RCA handed management of Klibur Domin to the Timorese and Joaquim Freitas Soares was appointed Managing Director.

Klibur Domin’s focus has shifted more towards the detection and treatment of tuberculosis (TB) and providing support for people with disabilities. In 2008, KD established a Mobile TB team and a Community Based Rehabilitation (CBR) team to work in the villages in Liquisa and Ermera districts. In 2011 Klibur Domin expanded its TB program to include treatment for patients with Multi Drug Resistant TB (MDR-TB).
Annexure 2: Checklist used to prepare the COE road map

1. Organizational Profile of Klibur Domin
   - Background: Brief history, including the year of establishment and key milestones.
   - Vision: Long-term objectives and aims.
   - Mission: Core mission statement and short-term goals.
   - Values: Ethical and professional standards the center adheres to.

2. Governance and Management Structure
   - Organizational chart detailing the governance structure.
   - Names and qualifications of the leadership team, board of directors, and any advisory committees.
   - Description of roles and responsibilities for key staff.

3. Sources of Funding
   - List of all current funding sources, including grants, endowments, and government funding.
   - Information on past funding sources, if relevant.
   - Financial reports and sustainability plans, if available.

4. Human Resource Structure
   - Total number of staff members, categorized by roles related to DR-TB.
   - Number and qualifications of specialized physicians, nurses, lab technicians, etc.
   - Recruitment and training protocols for staff.

5. DR-TB Specifics
   a. Patient Data
      - Total number of DR-TB patients diagnosed and treated since inception.
      - Treatment success and failure rates, if available.
   b. Infrastructure
      - Detailed inventory of diagnostic and treatment facilities specifically for DR-TB.
      - Isolation facilities for DR-TB patients, including bed count.
   c. Training Courses
      - Number of training courses held to date, with attendance figures.
      - Infrastructure dedicated to training, including lecture halls, simulation labs, etc.

6. Existing Partnerships
   - List of partnerships with other national/ international institutions related to DR-TB.
   - Type of collaboration: research, treatment referral, training, etc.
   - Any Memoranda of Understanding (MoUs) or other formal agreements.

7. Infrastructure
• Facilities for patient isolation and treatment
• Laboratory for drug susceptibility testing and molecular diagnostics
• Radiological facilities including X-ray and CT scan.
• Pharmacy services with adequate stock of first and second-line anti-TB drugs
• Infection, prevention, and control protocols being followed in the center.

8. Clinical Services
• Availability of specialized physicians with experience in DR-TB
• Presence of a multi-disciplinary team including pulmonologists, infectious disease specialists, pharmacists, and social workers
• Clinical protocols followed for management as per national and international guidelines.
• Mechanism for emergency care and critical care support

9. Patient Support Services
• Nutritional support and counseling
• Psychological counseling services
• Community outreach and support groups

10. Research and Development
• Ongoing research projects in DR-TB
• Publications in peer-reviewed journals
• Collaboration with national and international research institutes
• Ethics committee oversight for all research activities

11. Education and Training
• Training programs for healthcare providers
• Educational materials and outreach programs for patients and the community
• Any partnerships with national/international universities or other educational institutions for specialized training

12. Data Management and Quality Assurance
• Electronic Medical Record (EMR) system for tracking patient progress
• Regular audits to assess adherence to treatment protocols.
• Key Performance Indicators (KPIs) to measure outcomes.

13. Regulatory Compliance
• Compliance with national and international standards for TB care
• Accreditation by relevant bodies, if available
• Regular reporting to health departments and regulatory bodies

14. Major Facilitators and Barriers for becoming a Center for Excellence
15. Road map for transitioning Klibur Domin into a Center for Excellence.
Annexure 3: Situational analysis of the DR-TB recording and reporting systems

The development of an integrated information system for tuberculosis in Timor-Leste is an essential component of the WHO Technical Assistance MoU with the Ministry of Health. WHO country office had invited HISP India to support the ministry in establishing and further expanding electronic case-base surveillance for MDR-TB using DHIS2 and integrating with the IHIP-TL (Integrated Health Information Platform).

In Timor-Leste, TB is a high-priority health issue due to malnutrition and smoking. The following institutions are the main state-sector entities that are partnering in TB prevention and control activities:

1. National Tuberculosis Reference Laboratory (NTRL)
2. Central Management Unit of Tuberculosis (CMU-TB)
3. Municipality Health Services (DHS)
4. Municipality TB Coordinator (DTC)

The national TB control program is coordinated by the program manager, who reports to the ministry of health. At each municipality level, District TB Coordinator (DTC) posts have been set up who are responsible for the disease surveillance and reporting in the respective districts. Several NGO partners are involved in TB screening and treatment; those include Klibur Domin, Bairo Pite Clinic Lanud, and Maluk Timor.

MDR-TB surveillance currently consists of a manual data flow. Outreach TB patients who have been identified as having DR-TB will be referred to Kilbur Domin, where they are further assessed and treated. Data capture is mainly done through manual, paper-based treatment cards and registries.

**Difficulties Identified for monitoring and evaluation.**

- Tardiness of manual data collection method. Stakeholders highlighted that the reports not receiving in timely manner which affects the overall care.
- Lack of IT infrastructure
- Lack of proper internet hosting
- Lack of trained personnel for Digital record keeping.

WHO, Klibur Domin, and the Ministry of Health discussed and agreed to incorporate DR-TB into the current integrated health information platform. The program will benefit from timely reporting and accurate data analysis, which will uplift the quality of treatment for DR-TB patients and improve the overall impact on data quality.

The scope of the proposed work includes,
- Assessment of current information flow and elicitation of requirements.
- Necessary upgrades to existing DHIS2 instance.
- Creating web application for case-based data capture of MDR TB patients.
- Design of analytic outputs & dashboards.
- Training of Health care workers and TB core team.
- Piloting of DHIS2 program.
- Incremental implementation & scaling.
- Conducting of advance training programmes.
- Evaluation of the implementation.

**Proposed Data Integration to IHIP-TL**