Senior management of the Ministry of Health, World Bank officials and the contractors from Zhongmei Engineering Group at the ground-breaking ceremony of the National Tuberculosis Reference Laboratory.

(Above) Second floor of the NTRL after being cast.
(Inset) Artistic impression of the National Tuberculosis Reference Laboratory (NTRL) building under construction in Butabika.
The East Africa Public Health Laboratory Networking Project tackles the historical neglect of public health laboratories in East Africa. The regional project is establishing a network of efficient, high quality, accessible public health laboratories. It is being implemented in Burundi, Kenya, Rwanda, Tanzania, and Uganda, in collaboration with the East, Central, and Southern Africa Health Community and the East African Community. The project is supporting service delivery innovations and fostering evidence-based approaches. Each participating country provides regional leadership in a thematic area: Kenya is leading on integrated disease surveillance and response and operational research; Rwanda on information and communications technologies, and along with Burundi, co-leading on performance-based financing; Tanzania on training and capacity building; and Uganda on laboratory networking and accreditation.

The Uganda team has provided strong leadership of the laboratory networking and accreditation technical working group. It has led by doing, serving as a role model and demonstrating what can be achieved when there is technical leadership, commitment, and strong partnerships. On behalf of the Bank team I would like to congratulate our Ugandan colleagues for attaining international accreditation for the National Tuberculosis Reference Laboratory and for securing the prestigious qualification of serving as part of the World Health Organization network of global Supranational Reference Laboratories. I would also like to acknowledge the progress attained by the satellite laboratories in the Stepwise Laboratory Improvement Process Towards Accreditation (SLIPTA). I urge all facilities to sustain their achievements, continue to innovate, and challenge each other to reach new heights.

The EAPHLNP is working at six facilities and laboratories in the country namely; the National Tuberculosis Reference Laboratory as a centre of excellence and five satellite laboratories situated at Mulago National Referral Hospital, Mbarara RRH, Mbale RRH, Arua RRH and Lacor St. Mary’s Hospital in Gulu.

The NTRL and all the satellite sites’ laboratories will receive an assortment of laboratory equipments in addition to the eleven GeneXpert machines that have already been installed and are in use.

The project will support construction of a new laboratory at Mbale RRH. On the other hand, at Lacor St. Mary’s Hospital, the laboratories will undergo remodeling and renovation. For the Mbarara RRH and Arua RRH, the project is supporting the development of architectural and structural designs of the laboratories. In addition, discussion is underway to identify alternative sources of funding to support the construction of new laboratories at both the Mbarara and Arua RRHs.
The project is also working on the accreditation of all the laboratories that are covered by the project so as to enhance laboratory quality management. Therefore, by the end of the project period, we expect to have established a network of laboratories that are able to deliver high quality laboratory services. To date, I am happy to report that through the WHO five-tier accreditation process known as SLIPTA, we have raised the standards of all the satellite laboratories compared to the status where they were at the beginning of project implementation.

Amongst the noteworthy successes is the attainment of the ISO 15189 International Level Accreditation status by the NTRL and the attainment of at least 2-star status each of the satellite laboratories. In addition, the NTRL attained a Supranational Reference Laboratory status following recognition by World Health Organization in 2013. Given the above achievements, I would like to sincerely congratulate all the satellite laboratories for their hard work and contributions made.

Monitoring and Evaluating the achievements of the EAPHLNP
By Dr. Simon Kalyesubula, M & E Specialist

The EAPHLN project Results Framework (RF) matrix tracks progress of implementation as a central part of project supervision and progress towards the Project Development Objective and performance under the 17 (6 Project Outcome and 11 Intermediate Outcome) indicators.

This matrix is generated to: (i) Assess progress to date and continued relevance/realism of the targets; (ii) Review the experience with definition of indicators, data collection systems, analysis, and other methodological aspects. It has been progressively updated and presented during the Semi-annual MoH Reviews, biannual World Bank Missions and annual regional Steering committee meetings. This data was collected during the routine data collection and supportive supervision visits to the project sites.

Table 1.0: EAPHLN PROJECT RESULTS FRAMEWORK SUMMARY

<table>
<thead>
<tr>
<th>INDICATORS</th>
<th>YR1 2010/11</th>
<th>YR2 2011/12</th>
<th>YR3 2012/13</th>
<th>YR4 2013/14</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Outcome Indicators (6 POIs)</td>
<td>Achieved 5/6 (83.3%)</td>
<td>Achieved 100%</td>
<td>Achieved 100%</td>
<td>Achieved 5/6 (83.3%)</td>
<td>YR 1 Disseminating Institutional Framework for Cross border Surveillance was the challenge, in YR4 TAT for TB Liquid Culture will not go below 42 days.</td>
</tr>
<tr>
<td>Intermediate Outcome Indicators 11 (IOIs)</td>
<td>Achieved 7/11 (63.7%)</td>
<td>Achieved 7/11 (63.7%)</td>
<td>Achieved 8/11 (72.7%)</td>
<td>Achieved 9/11 (81.8%)</td>
<td>Delayed Civil works and timelines for Operational Research were too ambitious, and lack of functional incinerators at 2/5 sites remain as challenges</td>
</tr>
<tr>
<td>Overall Performance</td>
<td>Achieved 12/17 (70.6%)</td>
<td>Achieved 13/17 (76.5%)</td>
<td>Achieved 14/17 (82.3%)</td>
<td>Achieved 14/17 (82.3%)</td>
<td>Delays in procurement had stalled achievements and project performance but in YR4 momentum is picking.</td>
</tr>
<tr>
<td>Remarks</td>
<td>Below par; Cross border outbreaks, HR, Civil works, TCB and OR</td>
<td>Under achieved; HR, Civil works, TCB and OR</td>
<td>Under achieved; Civil works, TCB and OR</td>
<td>Below par: Operational Research and civil works</td>
<td>Improvement in In-country TCB activities is due to improved Recording and Reporting. Delayed in-country procurements of civil works and PIs for the OR protocols are outstanding challenges.</td>
</tr>
</tbody>
</table>
Key notable achievements under this project include the following:

1. The National TB Reference Laboratory in Uganda meets all the WHO requirements for Supra-national TB Reference Laboratory, and is now a TB (Supranational Laboratory) SRL for Sub-Saharan Africa. This is the first WHO certified SRL on the continent. The NTRL/SRL is now ISO 15189 accredited facility;

2. Strengthening capacity to respond to disease outbreaks, as seen during recent Ebola and Marburg outbreaks when the country responded swiftly and collaboratively with officials from neighboring countries to contain the epidemics and minimize case fatality.

3. Uganda continues to provide strong leadership at the regional level in the Laboratory Networking and Accreditation (LABANW) Technical Working Group and has hosted two regional meetings on accreditation, facilitated training and certification by the African Society for Laboratory Medicine (ASLM) of 31 regional Laboratory assessors/Auditors.

4. Leading the LABANW TWG to conduct three consecutive rounds of peer regional assessments of 32 laboratories in the 5 EAC member states. The third round of peer regional assessment was concluded on 30th November 2013 showing that 27/32 (84%) of the Laboratories have improved from the set target of two stars at baseline, one has ISO 15189 accreditation (NTRL in Uganda) and 26 are aspiring and working towards accreditation by 2015.

5. Civil works for National Tuberculosis Reference Laboratory (NTRL) at Butabika are under way following the ground breaking on 13th March 2014, by the Hon MoH Dr. Elioda Tumwesigye.

6. 11 GeneXpert/MTB/RIF for rapid diagnosis and surveillance of Drug Resistant TB were deployed at the six project sites as well as at Gulu Regional referral Hospital and Naguru China-Uganda Friendship Hospital that have enhanced access, quality and effective of DR-TB surveillance in Uganda.

7. ICT hardware, accessories and software have been delivered and installed at the five satellite sites that have computerized laboratory information management systems in place. Video-conferencing facilities have also been set up centrally and are boosting interaction, knowledge-sharing and networking in the region.

8. Specialized critical Laboratory equipment for bacteriology/ Culture and sensitivity at the project sites has been delivered pending distribution, installation and commissioning in the near future.

9. The project has supported five cross-border surveillance meetings: (2) with Kenya, (2) with Rwanda and one for the eight districts in the West Nile during the wake of Ebola outbreak in Orientale province in DR Congo.

10. The Project has supported training and capacity building (skills and capacity enhancement) for 1,553 health workers in Uganda the majority being Laboratory work force, a performance of 165.3%. The TCB activities are under the following fora – international (eight), Regional-EAC (106), National (612) and site-specific cascades (891).

This project has achieved palpable progress towards achieving the Project Development Objective (PDO) and the targets in the RF, the challenges in procurement notwithstanding. These bottlenecks identified in this report are amenable to solution.
Training and Capacity Building
By Dr. Simon Kalyesubula and Dr. Henry Kajumbula

Current and future health challenges demand continuous updating of competencies and skills. There is palpable evidence from the results that the EAPHLN Project has provided the necessary support to promote increased number of highly qualified and trained laboratory workforce. In Uganda, the project is supporting short-term training in various disciplines and using various approaches that include, regional, national and on-site avenues (details explained in the M & E section above).

Regional trainings are prepared and coordinated by the Regional Training and Capacity Building Technical Working Group in collaboration with the ECSA-Health community. Training for a core team of experts in each country who can then be used to cascade and provide training to other health personnel at the national, in-country regional/zonal and on-site work force.

Laboratory staff from Uganda have so far participated in 25 regional training since project inception in 2011. These trainings were supported and convened under the project, with participants from all the participating countries, fifteen in the year 2011-12, seven in 2012/13 and five between July and December 2013.

The trainings were in the following disciplines; Molecular diagnostics for enterics, Laboratory management, Disease Surveillance and outbreak investigations, Bio-risk Management, Basic & Advanced ICT, Procurement training and Laboratory Assessors (auditors) training, Operational research, ICT-TYPO3, Typo3 refresher course, Procurement, Biosecurity Assessors training, Quality Management Systems; and Monitoring and Evaluation.

Some trainings were cascaded, utilizing the expertise from other partners in the countries; TB Microscopy & liquid culture, Tuberculosis culture and identification, MDR-TB, Strengthening Laboratory Management towards Accreditation (SLMTA), Specimen collection and shipment, Performance Based Financing, Diagnostic Molecular Biology, Research Methodology and Scientific Writing, Laboratory Mentorship and malaria microscopy, Disease Surveillance and outbreak investigations, Bio-risk Management, Laboratory Management, New diagnostic techniques (GeneXpert), Good Clinical Laboratory practice, and Project specific Monitoring and Evaluation.

The need to improve monitoring the implementation of the national training plans and following up to assess training outcomes at project sites persists. Tools for monitoring the implementation of participant’s action plan and monitor the training outcomes has already been developed.
The mentors hired by the project at national level are supporting the zonal and regional teams that have been trained at the regional or national level to cascade training in-country in the satellites’ catchment areas.

The participating countries agreed to expand TCB using the e-learning platforms by developing some training modules for different courses, each country was tasked to take lead in developing one of these training modules following regionally agreed standardized structures.

Modules developed were on the following courses: Laboratory Management (Developed by Tanzania), Bio risk management (Uganda), Laboratory Based Surveillance (Kenya), ICT (Rwanda) and Operations research (Kenya-KEMRI). Laboratory Based Surveillance, Laboratory Management and Operations research, have been successfully piloted for training laboratory staff in the region.

The five modules are ready for conversion to multi-media formats so that they can be accessed online by staff from the satellite sites and other health personnel in the region and beyond as a means of alternative training and building capacity for laboratory personnel in the member states.

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**Laboratory Networking and Accreditation**

By Prof. Moses Joloba and Hasfah S. Musisi

Uganda is spearheading the Laboratory Accreditation and Networking (LABANW) component of the EAPHLNP in the region. A technical working group chaired by Uganda was established to do the following; To provide a forum for laboratory personnel in the East African region to discuss technical aspects, set objectives, draw common workplans and; To monitor overall progress of accreditation and networking in the region.

As stated earlier under the M & E section, there is improved diagnostic capacity at the satellite laboratories. Turnaround time for generation of results has been reduced to two days with the supply and installation of 11 GeneXpert machines and 25,000 cartridges.

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WHERE ARE UGANDA’S EAPHLNP SATELLITE SITES?

Figure 1: Map of Uganda showing the EAPHLN Satellite Laboratories

A forklift offloads critical laboratory equipment in preparation for delivery to the satellite laboratories.
The World Health Organisation (WHO) standard operating procedures have been uploaded on the web portal (www.eaphln.go.ug) as well as a list of key human resource persons in the laboratory sector in East Africa.

Laboratory Mentors recruited by the EAPHLN and assigned to specific satellite laboratories have assisted greatly in the improvement of quality management systems, diagnostics and mentorship training for management at their sites.

Milestone achievements of the laboratory accreditation and networking technical working group are the regular conducting of regional peer assessments amongst the five EAC countries and the attainment of Supranation Laboratory status (SRL) by Uganda’s National Tuberculosis Reference Laboratory (NTRL).}

![Figure 2: Graph Showing Proportion of EAC satellite laboratories with 2 stars and above in 2011 and 2012.](image)

**(L-R)** Max Orama, Laboratory Manager of Mbarara RR Hospital and Patrick Ademun, Laboratory Mentor award a certificate of attendance to Christine Atuhaire, the laboratory data clerk after a recent training in BASIC ICT skills.

**Video Conferencing Equipment installed at CPHL. (Connection through Internet Protocol address 196.0.32.26 - Contact ICT Officer for details).**

**A Team from the World Bank meeting the Permanent Secretary Mr. Asuman Lukwago (2nd from right) during the mid-term review of the project in March 2014.**
World Bank Lead Health Specialist and Task Team Leader for the EAPHLN Miriam Schneidman poses with the Ugandan team in Kigali (Kenneth Musisi - Lab Manager NTRL and Ponsiano Ayika - Lab Manager Mulago NRH) who jointly received 14 awards 2013.

Home page of the new project website accessible at: www.eaphln.go.ug

Members of the Regional Laboratory Accreditation and Networking Technical Working Group at a meeting in Entebbe, February 2012.

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