GLLP Project Development Guide: A Step-by-Step Guide to GLLP Projects

Version 2, 2026

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PURPOSE

The GLLP Project Development Guide: A Step-by-step Guide to GLLP Projects that aims to support participants, instructors, and mentors in identifying, planning, and monitoring the small-on-the-job and GLLP Capstone Projects. This document provides a set of tools that can be used at each stage of project development and implementation.

INTRODUCTION

Laboratory directors, mid-level and senior laboratory managers and supervisors worldwide need specialized training in leadership and management. This is to help ensure that laboratories can effectively play their critical role in the detection, prevention and control of diseases. With this goal in mind, six leading organizations [the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO), the World Organisation for Animal Health (WOAH), the European Centre for Disease Prevention and Control (ECDC), the United States Centers for Disease Control and Prevention (U.S. CDC) and the Association of Public Health Laboratories (APHL)] have partnered to develop a Global Laboratory Leadership Programme (GLLP). The GLLP targets human and animal health laboratories, as well as laboratories with health impact (e.g. environmental, agricultural, food or chemical laboratories). The GLLP is based on a Laboratory Leadership Competency Framework that aims to harmonize and build global consensus on critical laboratory leadership competencies across human, animal, environmental, and other health-related sectors.

The GLLP is a learning and mentoring programme based on nine critical competencies that are fundamental to laboratory leadership and are outlined in the Laboratory Leadership Competency Framework:

1. Laboratory system
2. Leadership
3. Management
4. Communication
5. Quality Management System
6. Biosafety and Biosecurity
7. Disease Surveillance and Outbreak Investigation
8. Emergency Preparedness, Response and Recovery
9. Research

The GLLP may combine pre-training work with face-to-face learning and on-the-job assignments and projects supported by mentoring. It is a flexible programme, as the duration and design may vary and can be adapted to meet country-specific workforce needs. The GLLP target audience is mid to upper-level career laboratory professionals from various backgrounds and fields (human, animal, environment, etc.) with a minimum of two years of managerial and decision-making experience within their respective laboratories. Participants in the GLLP may include, but are not limited to, laboratory services managers, supervisory laboratory scientists, laboratory directors, and non-bench programme personnel in multidisciplinary private and public-sector laboratories.

GLLP project-based learning includes both small on-the-job projects,and a larger Capstone Project designed to reinforce didactic content and strengthen the national laboratory system. Throughout the programme, participants are required to complete and present at least three projects: one individual or small group project for each of the Laboratory Management and Laboratory Leadership units, and a larger Capstone Project linked to the Laboratory Systems unit. The participants will benefit and will need guidance from their mentors in designing, implementing, and completing the small-on-the-job and capstone projects.

The small on-the-job projects aim to reinforce concepts learned in the training sessions and allow participants

to practice the new tools they have learned on a small scale. Projects can focus on improving the participants' individual skills within the laboratory and should be completed before the subsequent didactic session. Additionally, the small on-the-job projects may help participants identify their GLLP Capstone Project. The tools in this Guide can be used when developing small on-the-job projects, allowing participants to become familiar with the process and tools. The mentor will provide technical guidance as the participants develop and implement their small on-the-job projects. GLLP participants will be evaluated on their small projects through reports and/or presentations during subsequent didactic in-person or virtual sessions.

The GLLP capstone projects are completed by participants at the end of all didactic sessions. The purpose of the GLLP capstone projects is for participants to improve their national laboratory systems by applying the skills and knowledge gained through GLLP. The projects are expected to take approximately six months to complete. This guide will help participants identify their GLLP capstone projects, narrow their focus, design an action plan, and carry out their projects. The mentor will provide guidance and support throughout the development and implementation of the participants' projects. One key mentor's role is to assist the participant in designing a project that is feasible within the time and administrative constraints. Participants may propose several project ideas; they will require guidance and support to prioritize those that are realistically achievable and impactful. To facilitate this process, the mentor and participant are expected to agree on a regular follow-up schedule (in-person or virtual) to discuss the project's progress, any problems encountered, and necessary adjustments. Project updates provided by participants to mentors, faculty, and/or participant cohorts should occur on a predetermined schedule.

SMALL PROJECTS

During or upon completion of each unit in the GLLP (Laboratory Management and Leadership), participants should be asked to work individually or in small groups on projects that help them apply what they have learned from the covered modules.

Each participant is expected to dedicate the time specified by the instructor to the project. Participants can seek guidance from their mentors on project work; however, the project effort is primarily designed to expand participants' learning experiences. Depending on the project, in addition to a written report, the individual or group may be required to give a presentation to the instructors, mentors and others within the larger group for reaction, feedback, and discussion.

Suggested instructions for participants:

- Participants are developing a project that is related to the subject matter presented in the didactic sessions.
- GLLP materials are to be used as background, plus any other suggested references, along with personal insights and experience, to complete the project.
- The projects are to be carried out by individuals or small groups. If a group project is undertaken, multisectoral teams are encouraged to support network building and the One Health approach.
- If working as a group, participants will first determine how the project will be carried out and how individual responsibilities will be equally shared among all group members. (This could be done with the support and help of the participants' mentors.)
- A written report and/or oral presentation should be shared with both the instructor and mentor. If a group project is undertaken, all members must provide their own individual report and must participate in an oral presentation of the work.

Examples of small on-the-job projects are provided in Appendix A. This is not an exhaustive list; participants are encouraged to think beyond the examples provided. The small projects can also be used to begin to explore ideas for the GLLP Capstone Project.

Ethical provisions on data collection and use: If the project activities include the collection or use of data relating to human beings and/or any activity considered Human Subject Research, review and approval by a relevant Ethics Review Committee (in-country or institution) may be required and the participants will need to work with their mentor and the GLLP national entity or implementer to determine the proper requirements.

Grading and Evaluation of Small Projects

The small projects enable participants to apply the knowledge, skills and GLLP competencies learned in GLLP didactic sessions to their individual laboratory work and practice their skills. These projects also allow participants to practice skills related to presentation and public speaking, understand the national laboratory system and become familiar with the requirements and standards for the GLLP Capstone Project. Implementers and instructors should work together to assign and evaluate small projects.

Evaluation and grading of the small on-the-job projects should be similar to the requirements for the GLLP Capstone Project. This will allow participants, mentors and evaluators to become familiar with the requirements and standards for the final Capstone Project. Small projects can be evaluated using a grading rubric; an example is provided in Appendix E.

GLLP CAPSTONE PROJECT

Step 1: Project identification

A. Identification of a capstone project topic based on laboratory, laboratory system or sector needs

The final GLLP didactic unit, Laboratory Systems, enables GLLP participants to develop an understanding of a model laboratory system and analyze their national laboratory systems to identify gaps within the six essential elements of a laboratory system. Participants, with guidance from GLLP instructors and mentors, will create an "Action Plan Template" using the identified gaps, needs, or opportunities, the results of the "Laboratory Sector Questionnaire," data learned from the case study, and discussions from the Laboratory Systems modules. The "Action Plan" will aid in answering the questions below and determining the topic of the GLLP Capstone Project. For more detailed instructions on Laboratory Systems, please refer to the instructor guide for the GLLP Laboratory Systems unit of the programme.

These initial project steps are performed at the end of the final didactic session, with the cohort participants working together to identify and prioritize gaps in their national health laboratory system. While this is usually done as part of a didactic session, participants can complete these activities independently with the guidance of their mentors and instructors.

For ease of use, the tables, questions, and other fields for project identification have been placed in Appendix B, allowing the printing or creation of forms.

Determine a GLLP capstone project.

The GLLP participants are encouraged to work with their mentor throughout the duration of the GLLP programme to develop an initial concept for their GLLP Capstone Project. The following suggested steps should begin during the last GLLP didactic session, after priority gaps for each laboratory essential are identified. This process, or an adapted version, may also be undertaken outside of the didactic portion of the programme and earlier in the programme, as determined by the implementer in coordination with the mentors.

1) Using the Final Summary table, the participant works with his/her mentor to discuss an initial concept of the project, and then the participant (with help from the mentor) develops a brief Background, Aim, and Objectives for the capstone project using the GLLP Project Template (Appendix C).

2) The participants present their project ideas to the larger group and receive feedback and input from other mentors and participants.

    a. At this stage, it is important that the participant receives constructive feedback and is asked probing questions by their cohort participants, instructors and mentors.
    b. If the participant is unable to answer questions, then revisions to the project might be required.
    c. If the project objectives do not appear to be SMART (Specific, Measurable, Appropriate, Realistic, Time-bound), the participant will need to revise the project to meet SMART criteria.

3) The participants work with their mentors to revise and refine their work based on feedback provided and draft a step-by-step methodology for project implementation.

4) If needed, the participants may present again, receive feedback and revise.

5) By the end of the session, the participants should each have identified a project title and written a background, aim, objectives and methodology.

6) When the participant returns to work, the project will need to be discussed and approved by their managers. An action table should be developed and shared with the manager and the mentor for feedback and revision as soon as possible.

Note on project focus and feasibility:

Participants may tend towards very ambitious projects but should focus and define their projects clearly and carefully to ensure the project is possible within the system and the timeframe allowed. The participant should consider:

- **Relevance:** Is the proposed project aligned with existing national laboratory strategic documents, e.g., national laboratory policy or strategic plan?
- **Timeline:** How long will the project take to complete, and is the topic doable within the project's timeframe? Does this fit in the GLLP Capstone Project timeframe?
- **Resources:** Are the data, equipment, mentors, and academic support needed to research the topic and complete the project available?
- **Funding:** Is funding needed to complete the project? Is the funding available?
- **Complexity:** Is the topic neither too broad nor too narrow to allow for in-depth exploration in the given timeframe?
- **Feedback:** Review and incorporate feedback from GLLP mentor, peers, and laboratory supervisor.

B. Propose a Capstone Project for final approval

The GLLP Capstone Project Template in Appendix C will be used to submit proposed GLLP Capstone Projects for review and approval.

The information for each section of the template can be found in the work done in Section A. Participants can work with their mentors to complete the following sections of the form:

Project Title; Project Summary; General Objective (Goal); Specific Objectives; GLLP Competencies, modules, and/or essential elements of a laboratory system addressed; Materials and Methods.

The GLLP implementer will determine who will approve the GLLP capstone projects and submission requirements (written report and/or oral delivery). As a reminder:

Ethical provisions on data collection and use: If the project activities include the collection or use of data relating to human beings and/or any activity considered Human Subject Research, review and approval by a relevant Ethics Review Committee (in-country or institution) may be required and the participant will need to work with their mentor and the GLLP implementer to determine the proper requirements. Participants should review the process, requirements, and timeline to plan thoroughly.

The rest of the form will be completed during Step 2: Project Planning, with support from mentors.

Step 2: Project planning

This section of the guide outlines one suggested approach to planning the capstone project. It is a

suggestion, and the implementer can adapt the process.

1. Preplanning

a. Determine stakeholders. List all potential stakeholders who will need to be involved in the project's implementation. List their project roles, such as approval, implementation, or consultation.

b. Outline the project implementation. Use Appendix C: GLLP Capstone Project Template to complete the following:
   - Determine the scope of implementation. The scope will define what the project will and will not accomplish. It will set limits and define deliverables.
   - Define implementation milestones. A milestone is a set of tasks or actions that culminate in an accomplishment. There is no set timeline for milestones.
   - Define/estimate the duration of the implementation activity and deliverables.

2. Create an Action Plan

It is important to create an action plan before beginning the Capstone Project. Several key considerations are involved in planning and implementing a project, including schedule development, cost management, change and risk communication, and stakeholder approvals. The action plan is developed from the draft step-by-step methodology developed during the last GLLP didactic session and revised based on feedback received and information gained from participants conducting further research on their chosen projects.

Steps in the Action Plan:

1. List of actions to take
2. Assign accountability (RACI)
3. Set timeline (Gantt chart)
4. Designate resources needed
5. Monitor progress

At the project planning stage, complete the following actions to define the action plan:

1) List actions. Create a list of all the actions that need to be completed to fully implement the project plan.

2) Assign accountability. Use the RACI model to determine who must be involved in each action. RACI determines who is responsible (R), who is accountable (A), who needs to be consulted (C), and who needs to be informed (I) for each project implementation step. Use the stakeholder list created during pre-planning and the action list above to complete the table.

   Example of a RACI chart (Source: https://racichart.org/):

RACI Chart (Roles and Responsibilities Matrix)
For instructions / training material visit http://www.raci-chart.org

Process Name / Description: *Plant maintenance project: Repair and resurface plant parking lot during plant shutdown in July*

Created On: *1-Jan-23* Revision: *3/12/2023*

Created by: *Kelly Bradley (facilities mgr), Mike Cole (plant manager), Joe Pallino (HR), Brian Sullivan (security), Billy Ownens (project manager)*

	Facilities	Plant Mgr	HR	Security	Project Mgr
Identify a minimum of three asphalt contractors from Angie's List	C	-	-	-	R
Arrange for contractor visits and quotes	I	-	-	-	R
Review quotes and references, make contractor selection	A	I	I	-	R
Review and finalize contract, lock in plant shutdown week	I	I	-	-	R
Communicate project to shutdown maintenance crew, make sure all vehicles are removed from the lot	I	I	R	I	I
Provide security gate access codes for asphalt crew by June 15	I	-	A	R	I
Oversee the project during the plant shutdown week, ensure it is completed on time	A	I	I	-	R

R = Responsible, A = Accountable, C = Consulted, I = Informed

3) Create a timeline for the project implementation plan by listing the necessary action steps and specifying the duration of each action. A Gantt chart can be used to estimate the duration of each step in the action plan and keep track of steps to determine if they are on schedule for completion.
Example of tools for Gantt chart:

- Microsoft Excel template: Search templates for your next project | Microsoft Create
- Google Sheets template: GANTT CHART TEMPLATE - Google Sheets

4) Designate resources needed for each action in the project list.

5) Define indicators to monitor the progression of the project. WHO Guidelines for Health Programme Evaluation define an indicator as "variables which help to measure changes". Indicators also known as Key Performance Indicators (KPIs) are the critical (key) indicators of progress toward an expected result. KPIs provide a strategic and operational improvement target, create an analytical basis for decision-making, and help focus on what matters most.

There are many references to what ideal indicators should be. One of the most recognizable is SMART., standing for:
S: Specific: Targets a specific outcome, indicator, or area for improvement. A specific objective answers the questions of who, what, and how.
M: Measurable: Quantifies the indicators to track progress. It provides a way to know how much change is expected.
A: Achievable/Attainable: States what results can realistically be accomplished with the available resources.
R: Relevant: Provides meaning and importance to the target community or objective. The goal should be important to the people involved,
T: Time-Bound: Specifies a timeframe by which the desired result will be achieved. It includes

deadlines to help guide the process.

Examples of Indicators:

GLLP Capstone Project Examples	Indicators
Development of an Animal Specimen Transportation Guideline	• Number of stakeholders who received the finalized guideline (digital or print). • Number of staff trained/oriented on the guidelines. • % of trained staff reporting application of at least one guideline procedure within X months.
A pilot of an alternative analytical method that can easily track the impacts of human activities and pollution on freshwater quality through Macroinvertebrate Kick sampling	• Number of freshwater sites selected for pilot testing. • Number of sampling events are conducted at pilot sites. • % of trained participants who demonstrate correct sampling technique during field assessment. • Number of species or taxonomic groups identified per sampling event (biodiversity indicator). • % of pilot sites where Kick Sampling data were successfully used to assess freshwater quality.
Define standard operating procedures (SOPs) and agreements for specimen collection and transportation from the peripheral level to the central level and train laboratory technicians accordingly at all levels	• Number of formal agreements established between peripheral and central levels. • Number of SOP copies (digital or print) distributed to laboratories at peripheral and central levels. • Number of laboratory technicians trained on the SOPs (disaggregated by level: peripheral vs. central). • % of facilities that demonstrate correct application of SOPs during supervision or checklist review.
Establish and implement a communication plan to advocate for the role of the veterinary laboratory in rabies control, targeting the ministerial level and the general public	• Number of stakeholders engaged in drafting/reviewing the communication plan. • % of ministerial stakeholders who acknowledge the veterinary laboratory role during/after advocacy events (via feedback forms or meeting notes). • Number of communication products developed (flyers, social media posts, radio spots, press releases, etc.). • Number of feedback responses collected from stakeholders (ministerial and public) on communication activities.

6) Identify 2 to 3 KPIs to meet the Capstone Project goal(s)

With the Action Plan defined, the following sections of the GLLP Capstone Project Template (Appendix C) can be completed:

- Key Deliverables
- Key Indicators
- Timeline
    - Project Phases
    - Key Milestones
- Project Team (if applicable)

3. Communicate with Key Stakeholders and Potential Collaborators

1) Data Sharing: Identify potential data that could be useful to improve the national laboratory system, which may not currently be available or accessible. Discuss potential sources of data from stakeholders and how to request it.
2) From the stakeholders identified above, discuss why they are important to the success of the project and how to seek their support and/or communicate.

To carry out the Capstone Project, it is essential to communicate effectively with stakeholders, including those at the ministerial level, internal stakeholders, the GLLP mentor, and the GLLP implementer. Review GLLP modules 3.A.5 Partnerships and Coalition Building and 3.B.1 General Communications that will support communication planning and activities. The activities that follow may be undertaken to help communicate and advocate for the project.

Steps in Advocacy	Actions
Define the Goal and Objective	Describe the capstone project needs.
Build Support and Bring People Together	Identify internal (laboratory) and external (GLLP Mentor, other participants, etc.) collaborators as part of an advocacy team.
Get the Facts and Figures	Answer and summarize: • What gap/need/opportunity is the capstone addressing? • What issues does this gap create? • Define the scope of the Capstone Project What will be the intended outcomes of completing the Capstone Project?
Decide who to Influence	Answer: • Identify stakeholders • Who is needed to influence for support? Who are the four most important groups to engage with for the Capstone Project ?
Develop a Message	• Short, succinct, clear message • Stated in 10 seconds to a minute as an “elevator pitch” for the project, including the need, purpose, and its importance. Identify the benefit for the audience or community, as this is a crucial aspect of effective communication. • Develop a visual tool or picture

Importantly, if the project covers only one sector (Human Health, Animal Health, or Environmental Health), identify a project component that could be leveraged or adapted to incorporate a One Health approach. Consider contacting a laboratory in another sector to discuss a potential collaboration or to explore data from a study in that sector that may help you understand and contextualize the situation in your own sector. If there was useful information found in another sector, incorporate it in the project and review the project indicators and communication plan accordingly.

STEP 3: PROJECT IMPLEMENTATION AND REPORTING OF RESULTS

The final evaluation for GLLP participants is recommended to be a written report and presentation on their chosen Capstone Project. The participants will present the results of their project, which will be assessed by GLLP implementer, mentors, ministry representatives, and/or others determined by the GLLP national entity or implementer. All GLLP participants are required to complete a Capstone Project to complete the programme.

Appendix D (Model outline of project report) outlines the sections that should be included in the Capstone Project written report at a minimum (other sections may be added). Sections 8-10 will be completed after the project is implemented. The final section that should be written is the abstract, after completing all other sections.

A. Implementing the Project

To monitor the project's implementation, follow an established action plan. Update the status of each task as on track, at risk, on hold, or completed periodically and before each mentor meeting. Before each periodic meeting with the GLLP mentor, summarize the implementation steps and discuss how data is being collected for evaluation using the KPIs identified above. If data is not being collected on the KPIs, develop a plan to start collecting data. Discuss any potential barriers or issues and explore ways to address and improve them.

B. Evaluating the Project

1) At the end of the project, based on the KPIs and overall project objectives and goals, evaluate the project. The evaluation should include:
    a. Data analysis for the project indicators and answer the question(s) posed.
    b. The overall results of the capstone project AND whether objectives were met.
    c. Challenges and how they were overcome
    d. New gaps/opportunities identified through the capstone project
    e. Next steps

C. Disseminating the Project Findings

1) If the Capstone Project is focused on changes in a specific laboratory or region, discuss how the project fits into the needs and possibilities for replicability in the national laboratory system. Identify opportunities to share the project results with the broader system.

2) What could be the use of the data or results generated in this project?

3) Prepare a written report with an abstract and a PowerPoint presentation of the completed project using the templates provided and submit as defined by the programme implementer. Appendix E is an example of a Project scoring rubric that may be adapted for use.

APPENDICES

Appendix A – Individual and group small projects implemented in past cohorts.

The following list of prior small on-the-job projects is not exhaustive, and programmes are encouraged to engage participants in projects other than those listed here. Instructors/mentors should identify projects that are directly related to the specific context and needs of the country where the training is taking place. Projects that incorporate a One Health perspective are most desirable and beneficial. To this end, instructors/mentors are also encouraged to assist participants in identifying components of projects that can be leveraged or adapted to incorporate a One Health approach. Small projects can also serve as building blocks for the GLLP capstone projects.

2.A General Management Principles

2.A.1 General Management Skills

- Create a job description for a specific new laboratory position, e.g. Quality Assurance Officer, Safety Officer, Training Coordinator. This could be a position within a specific laboratory or a position within a laboratory network or the national laboratory system.
- Harmonization of personnel management in the laboratories of health care settings of the Institution XXX in Country X.

2.A.2 Financial Management

Develop a budget-tracking process for the laboratory's annual budget. Assume that the laboratory must meet its budget target and cannot exceed the amount allocated in the annual budget.

2.A.3 People Management

- Create an onboarding or induction process for all new laboratory employees. In addition to any existing requirements of the personnel department or human resources, what specific orientation processes should be in place for all new laboratory employees?
- Improving the process of hiring new specialists with higher medical and non-medical education to work in the laboratory.

2.A.4 Laboratory Information Systems

Prepare a set of specifications that are required for a new laboratory information management system. Detail the reasons why the specifications as written are essential.

2.B Quality Management System

2.B.1 Introduction to QMS for Laboratory Leaders

Develop and implement a laboratory quality culture strengthening plan

2.B.2 Quality Management: Policies, Processes and Procedures

Create a document control process to include the need for unique identifiers, document storage and retrieval policies, document revisions and other components of a complete document control process.

2.B.3 Laboratory Quality Standards

Review and revise your Laboratory Quality Manual

Implement a laboratory risk management program for a specific testing area

2.B.4 QMS Accreditation

Develop a standard operating procedure that lays out the requirements for instrumentation calibration.

2.B.5 Audits

Select an area of the laboratory and describe what would be included in an internal audit of that area of the laboratory. A simulated audit could encompass any of the quality system essentials.

2.B.6 Continual Quality Improvement

Create an internal and external turnaround time (TAT) monitoring programme. Demonstrate how monitoring TAT can contribute to continuous quality improvement.

2.B.7 Nonconforming events management

Define root-cause analysis and establish the process to complete a root-cause analysis of a nonconforming event.

2.B.8 Building Trust and Quality: Customer Focus and Strategies for QMS Advocacy

Develop a customer feedback tool. Demonstrate how it can be used to monitor both internal and external customer satisfaction.

2.C Safety

2.C.1 Biosafety

Develop a waste management protocol that addresses both biohazardous waste and chemical waste. Incorporate any applicable laws and regulations. Include the mechanism by which compliance is assured.

2.C.2 Biosecurity

Create a protocol that establishes who is authorized to access and work with certain dangerous pathogens, including procedures for ensuring adherence to and enforcement of the protocol.

2.C.3 Shipment of Dangerous Goods

Review applicable national and international standards or requirements for the shipment of dangerous goods and compile them in a standard set of practices.

2.D Laboratory Role in Disease Surveillance

2.D.1 Principles of Surveillance

Outline the way in which the laboratory system is engaged in the creation of a reportable disease programme and indicate how effective laboratory-based surveillance is used in the identification and reporting of new cases.

2.D.2 Outbreak Investigation

Identify and outline the requirements for, during and after-action outbreak report.

2.E Managing Emergencies

2.E.1 Emergency Preparedness

Develop a laboratory system resource mobilization plan that can be used to prepare for emergencies.

2.E.2 Emergency Response

Design a communication plan for a laboratory within your sector that could be used in the event of a national health threat.

2.E.3 Emergency Recovery

Develop a plan that can be followed to re-establish normal laboratory operations after an emergency.

3.A General Leadership

3.A.1 General Leadership Skills

Outline the similarities and differences between general management skills and general leadership skills. Provide practical examples of how it is sometimes necessary to use both management skills and leadership skills when overseeing a laboratory.

3.A.2 Laboratory Policy and Strategic Planning

Describe the essential components of a strategic plan as applicable to your organization. What steps are required to ensure that a strategic plan is implemented, monitored and evaluated?

3.A.3 Organizational Leadership

Organograms are a necessary part of any laboratory operation. They can be developed using different approaches. Outline the various approaches that can be taken and describe the potential positive and negative aspects of each approach.

3.A.4 Critical Thinking, Problem-Solving and Decision-Making

Identify potential decision-making traps that may exist within your organization. Outline the steps that decision-making should follow to avoid these traps.

3.A.5 Partnerships and Coalition Building

Develop a plan for how laboratory partnerships can be created across sectors. What is required to ensure that such partnerships work well, and all partners feel empowered and valued?

3.A.6 Ethics in the Laboratory

Establish a draft professional code of conduct that encompasses the ethical requirements within your organization. Demonstrate how such a code of conduct could be adopted and how adherence could be monitored.

3.B Communications

3.B.1 General Communication Skills

Develop a plan to communicate the need for a new laboratory test to the head of your organization. Outline what would be needed for a combined oral and written presentation. Which parts would be most effectively communicated orally, and which would be best communicated in writing?

3.B.2 Proposal Writing

Create a formal proposal that could be presented to a potential laboratory services funder, e.g. an international foundation. Describe how the proposal could be best used to convince the funder to invest in your laboratory.

3.B.3 Messaging and Media Relations

Create a media relations plan for your organization. Who will be assigned the responsibility for media enquiries? Identify potential programmes for media training within your country. How will complex laboratory information be presented in an understandable way?

3.B.4 Risk Communication

Design a risk communication plan that can be used during an emergency. Include the identified risks that may be encountered both for those within the laboratory and for those who interact with the laboratory.

3.B.5 Scientific Communication

Outline how the results of laboratory testing should be shared with other health professionals, policymakers and the general public.

3.C Research

3.C.1 Research and Innovation

Create a report comparing a newly developed procedure and a procedure that has been used as the standard for a long time. What criteria should be used to decide whether to adopt the new procedure?

Appendix B – Project Identification Worksheet

Identify National Health Laboratory System Gaps/Opportunities:

1) During the completion of GLLP module 4.D.2 Laboratory System Essentials, the participants will determine gaps in their national laboratory system for each essential area. For each of the six essential areas, list the gaps identified. The data can be collected on a flip chart or on a table, as shown below.

Laboratory System Essential	Gaps Identified
1. Policy and Legal Framework	1. 2. 3.
2. Infrastructure	1. 2. 3.
3. Workforce	1. 2. 3.
4. Information Systems	1. 2. 3.
5. Quality Management Systems	1. 2. 3.
6. Biosafety and Biosecurity	1. 2. 3.

2) Participants identify 1 to 2 gaps they see as priority gap(s).

3) For priority gap(s) listed, each participant determines 1 – 2 strategies to address the gap(s) identified.

Laboratory System Essential	Gaps Identified	Strategies for Improvement
Laboratory System Essential Addressed	*Prioritize top two gaps identified by Laboratory System Essential*	*List Improvements identified for gaps*
1. Policy and Legal Framework	1. 2.	1. 2.
2. Infrastructure	1. 2.	1. 2.
3. Workforce	1. 2.	1. 2.
4. Information Systems	1. 2.	1. 2.
5. Quality Management Systems	1. 2.	1. 2.
6. Biosafety and Biosecurity	1. 2.	1. 2.

4) Combine data from all participants and group all the priority gaps identified by similarity. Typically, a

few participants have identified similar priority gaps, along with a few outliers. Doing this for each laboratory system is essential. Once this has been done, complete a final summary as in the template table below.

FINAL SUMMARY		
Laboratory System Essential	**Priority Gaps**	**Strategy for Improvement**
Laboratory System Essential Addressed	*Priority gaps by importance*	*List Improvements identified for the priority gaps*
1. Policy and Legal Framework	1. 2. 3.	1. 2.
2. Infrastructure	1. 2. 3.	1. 2.
3. Workforce	1. 2. 3.	1. 2.
4. Information Systems	1. 2. 3.	1. 2.
5. Quality Management Systems	1. 2. 3.	1. 2.
6. Biosafety and Biosecurity	1. 2. 3.	1. 2.

Appendix C – GLLP Capstone Project Template

GLLP Capstone Project Template[1] can be used to build, propose, indicate progress and finalize a project. Additionally, participants and mentors can utilize the template to define and report small on-the-job projects, becoming familiar with and practicing the use of the tool before the GLLP Capstone Project.

PROJECT TITLE (one sentence)	**PROJECT RESPONSIBLE[2]**

PROJECT SUMMARY	(Brief summary of the suggested project.)
GENERAL OBJECTIVE	(Define the scope of the project – what it will and will not include.) •
SPECIFIC OBJECTIVES	(One line per specific objective.) • • •
COMPETENCIES, GLLP MODULES, AND/ OR ESSENTIAL ELEMENTS OF A LABORATORY SYSTEM	(One line identification of competency domain, GLLP module and/ or essential element of a laboratory system being addressed in the project. **Be as specific as possible.** Adjust the number of lines as needed.) • • • *Note: The essential elements of a laboratory system were addressed during the delivery of the module: "1.A.2 Introduction to Laboratory Systems". These are: Policy and legal framework, Infrastructure, Workforce, Laboratory Information Management Systems, Quality Management System, Biosafety, and Biosecurity.*
MATERIALS AND METHODS	(Brief description of the materials/tools and methods needed to implement the project.)
APPROVAL	Mentor Name: _____ Signature: _____ GLLP Programme Approver Name: _____ Signature: _____ *Note: Update "GLLP Programme Approver" to the title of the person/group that will give final approval for the participant's project. This will be determined by the GLLP Working Group or Implementer. Add approvers as necessary.*

<table>
<tr><td></td><td colspan="3"></td></tr>
<tr><td>RESOURCES REQUIRED
(if applicable)</td><td colspan="3">(Indicate a basic budget with estimated costs for the materials/tools, equipment, and/or labor required.)

Note to instructors: this section can be adapted by instructors depending on the project's modalities. If a project allowance is planned, its amount can be indicated here. If not, defining a basic budget is a useful exercise for advocacy and fundraising for this project or another.</td></tr>
<tr><td>KEY DELIVERABLES</td><td colspan="3">(One line identification of the key deliverables of the project. Adjust the number of lines as needed.)
•
•
•</td></tr>
<tr><td>KEY PERFORMANCE INDICATORS</td><td colspan="3">(One line identification of suggested metrics for measuring the success of the project. Adjust the number of lines as needed.)
•
•
•</td></tr>
<tr><td rowspan="4">TIMELINE</td><td>ESTIMATED DURATION (overall):</td><td colspan="2">Note to instructors: this section can be pre-filled by instructors.</td></tr>
<tr><td colspan="2">PROJECT PHASES (List the different phases of the project and estimate their duration. Adjust the number of lines as needed.)</td><td>KEY MILESTONES (List anticipated milestones by project phase.)</td></tr>
<tr><td colspan="2">1.
2.
3.</td><td>1.
2.
3.</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td rowspan="4">PROJECT TEAM
(if applicable)</td><td colspan="2">NAME (List individual names or organization/institution that will assist in the project implementation.)</td><td>ROLES AND RESPONSABILITIES (List specific roles and responsibilities of the project team members.)</td></tr>
<tr><td colspan="2"></td><td></td></tr>
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</table>

1. This outline can be completed several times with the guidance of mentors. It will be reviewed and refined when the project phase is launched.
2 The project can be performed by a single person or by a group of people. In any case, please define the main person responsible at the top of this document. In the "project team" section, the remaining group members must be listed.

Appendix D – Example Model outline of project report

The GLLP project report is recommended to include the following sections, but the final selection of components required in the project reports will be determined by the individual GLLP Programme.

1. Abstract
2. Introduction and general information
3. Problem identification
4. Consequences of the problem identified and potential long-term implications
5. Causes of the problem identified
6. Improvement of the proposed solution, including strategies and methods
7. Expected results before implementation
8. Results of project implementation
9. Discussion of challenges and lessons learned from project implementation
10. Perspectives, conclusions and follow up actions/steps

Appendix E –GLLP Project Scoring Rubric

The sample scoring rubrics below can be adapted for use in scoring and grading a participant's small on-the-job project and a GLLP Capstone Project. The small on-the-job projects are designed to reinforce the concepts learned in the didactic sessions and provide participants with practice in building toward their GLLP capstone projects. The scoring for the small on-the-job and the GLLP capstone projects is slightly different based on the level of effort and the expected outcomes of these projects.

Overall written and oral score (according to the scale below): _____/150

Project Written Report:

Small on the Job Project Written Report			
Statement		***Score***	***Please explain score, and provide remarks for improvement:***
A1	Clearly stated background and problem/thesis	/15	
A2	Clear Aim and Objectives	/15	
A3	Material and methods appropriate for the subject	/15	
A4	Project results are clearly stated and appropriate	/15	
A5	Conclusion clearly stated, supported and logical	/15	
A6	Aligned with the respective competency and existing needs	/15	
A7	Structure and Quality of Writing	/10	
	Subtotal	**/100**	

GLLP Capstone Project Written Report			
Statement		***Score***	***Please explain the score, and provide remarks for improvement:***
A1	Clearly stated background and problem/thesis	/15	
A2	Clear Aim and Objectives	/15	
A3	Material and methods appropriate for the subject	/5	
A5	Clearly constructed abstract	/10	
A6	Material and methods appropriate for the subject	/5	
A7	Conclusion clearly stated, supported and logical	/10	
A7	Clearly stated recommendations	/10	
A8	Adequate bibliography/referencing	/5	
A9	Structure and Quality of Writing	/5	
	Subtotal	**/100**	

Marking Criteria for Written Report

Through the written report, participants are expected to demonstrate:

- Clear Problem Statement and objectives that the project will address
- Clear background to justify the need to implement the project
- Appropriate methods to address the problem
- Results that align with project objectives
- Ability to communicate clearly in writing logical conclusions from the project results
- Logical and meaningful recommendations and next steps
- Appropriate use of references
- Good proof-reading and correction of spelling and grammatical errors
- Well-structured abstract providing a synopsis of project contents

Score	Grading	Indicative Qualities
90-100	Outstanding/ Exceptional	*An exceptional and outstanding piece of work, showing advanced understanding of the respective competence. Exceptional use of appropriate texts, research and other learning materials, well beyond the taught content, displaying new insights; mastery of clarity in communication.*
80-89	Excellent	*An excellent piece of work demonstrating originality and advanced scholarship. Excellent analysis in most areas; the use of new sources and approaches is evident; the analysis and argument are balanced. Clarity of argument and comprehensive knowledge.*
70-79	Very good	*A very good and competent piece of work, demonstrating a comprehensive understanding of knowledge and prompt application. Evidence of originality; negligible errors or omissions. Notably good presentation/communication of ideas and comprehension.*
60-69	Good	*A good piece of academic work demonstrates a moderate degree of understanding of the respective competency. Some evidence of originality, good understanding of main concepts, although containing some minor errors. Reasonable presentation /communication.*
50-59	Pass	*Meets the relevant learning outcomes. An adequate piece of work, demonstrating an acceptable level of understanding. Generally sound but lacking in originality. Some evidence of reading and critical thought beyond the taught material. Some errors and omissions, lacking in overall presentation.*
< 50	Fail	*A piece of work not meeting the minimum requirements/standards expected for the assessment; limited understanding exhibited, major weaknesses evident in interpretation and understanding containing an unacceptable level of error and/or omission or lacking in overall presentation.*

Oral Presentation Scoring Example:

Oral presentation			
B1	The presentation is clear and well organized (Introduction, body, conclusion)	/10	
B2	Clear delivery and audience engagement	/10	
B3	Respects the time limit	/5	
B4	Content is coherent, logical and contains the main elements of the project	/10	
B5	Ability to handle questions and provide clear responses	/10	
B6	Visual appearance of presentation (spell checked, slides formatted, etc.)	/5	
	Subtotal	**/50**	

Marking Criteria for Oral Presentation

Score	Grading	Indicative Qualities
41-50	Outstanding/ Exceptional	*An exceptional and outstanding presentation with clear organization and delivery, showing an advanced understanding of the respective competence. A well-organized conclusion effectively wraps up the topic. The slides support the presentation and are easy to read and understand, with no spelling or grammatical errors. Thoughtful responses to questions, drawing on knowledge beyond the presentation, with recommendations and solutions to raised questions.*
31-40	Very good	*Clear organization and delivery, with a smooth transitional flow from the body of the presentation into the summary. A well-organized conclusion effectively wraps up the topic. The slides support the presentation and are easy to read and understand, with no spelling or grammatical errors. Thoughtful responses to questions drawing on knowledge beyond the presentation.*
20-30	Pass	*Reasonable presentation, mostly organized, exhibiting a transition from the body of the presentation into the conclusion. Slides are readable with some typographical or grammatical errors. Satisfactory responses to questions demonstrate an acceptable level of knowledge and understanding of the topic.*
<20	Does not meet expectations	*No clear organization; disconcerting flow from the body of the presentation into the conclusion. The slides are difficult to read and contain an unacceptable level of grammatical and typographical errors. The handling of questions exhibits a limited understanding of the topic.*

Appendix F – GLLP Capstone Project Examples from GLLP Implementations:

GLLP Capstone Projects Titles and Short Summaries:

1. *Manual for Assessing the Competence of Laboratory Professionals in Country X:*
   The development of a skills assessment guide for laboratory professionals in Country X.

2. *Creation of an integrated tool for monitoring and reporting laboratory consumption data):*
   The accelerated incorporation of new technologies in filling out and reporting reagent and consumable data in the laboratory in order to improve logistical performance or consumption indicators to ensure effectiveness and efficiency in monitoring laboratory supply plans as well as minimizing the risk of financial waste.

3. *Implementation strategy of a Web Tool for management and monitoring of laboratory logistics data:*
   Laboratory Information System requires improvement in the design of a policy or guiding standard for managing information generated in clinical laboratories, particularly in standardization, data security, data sharing, and interoperability with other Ministry of Health systems. The GLLP Capstone Project developed national guidance on the management of laboratory information for clinical analysis.

4. *Development of Minimum Standards for Quality Testing at Each Laboratory Tier in Country X:*
   To develop minimum quality standard guidelines for quality testing at each laboratory tier in Country X to promote reproducible, reliable, accurate and timely test results for patient/client management.

5. *Development of guidelines for proficiency testing (PT) preparation, prepare and execute a pilot panel and make recommendations to the National Laboratory:*
   This Capstone Project developed guidelines for the preparation and administration of a PT panel and conduct a pilot round to identify challenges and needs of a PT programme.

6. *Pilot a method to use macro-organisms for determining pollution of water courses.*
   This GLLP Capstone Project aimed to pilot an alternative analytical method that can easily track the impacts of human activities and pollution on freshwater quality through Macroinvertebrate Kick sampling.

7. *Strengthening the consistency of internal quality control performance in 25 district laboratories:*
   Improve the quality of test results in stool, urine, and MRDT in 25 district laboratories through the performance of Internal Quality Control.

8. *Development of a functional technical advisory committee and an annual health laboratory costed operational plan:*
   Establish a functional National Health Laboratory Technical Advisory Committee and an Approved Annual costed Operational Plan.

9. *Improvement of the communication and visibility of the Central Veterinary Laboratory in Country X.*
   Establish and implement a communication plan to advocate for the role of the veterinary laboratory in rabies control, targeting the ministerial level and the general public.

10. *Establishment of a National Network of Reference Laboratories in Country X.*
    Propose terms of reference for a national network of laboratories.

11. *Review and Adaptation of the Sample Collection and Transportation System in Country X.*
    Define standard operating procedures and agreements for specimen collection and transportation from the peripheral level to the central level and train laboratory technicians accordingly at all levels.