

***Higher Secondary Education Project (HSEP)***

**Request for Applications (RFA) No. *RFA-HSEA-2024-001***

Issuance Date: July 4, 2024

Dear Applicant:

HSEP, implemented by Chemonics International, is accepting concept papers for the implementation of the Development, Implementation and Maintenance of a Comprehensive Learning Management System (CLMS) with User support. The grant will be awarded and implemented in accordance with USAID and US Government regulations grants and HSEP’s internal grant management policies.

Interested applicants should meet the eligibility requirements defined in Section III.

Project and Chemonics employees may not ask for, and applicants are prohibited from offering, any money, fee, commission, credit, gift, gratuity, thing of value, or compensation to obtain or reward improper favorable treatment regarding this solicitation. Any improper request from a project employee should be reported to the chief of party or BusinessConduct@chemonics.com.

Concept papers shall be reviewed on a rolling basis

Annexes included with this Request for Concept Paper:

-**Annex A** – Concept Paper Form

-**Annex B** –Summary Budget (contained in the Concept Paper Form)

-**Annex C** – Implementation Timeline (Refer to CLMS Timeline in Annex A1)

-**Annex D** – Applicant Self-Assessment Form

-**Annex E** – Required Certifications

-**Annex F** – Mandatory and Required As Applicable Standard Provisions Standard Provisions for U.S. and Non-U.S. Nongovernmental organizations receiving a fixed amount award can be accessed through the following URL:

* <https://www.usaid.gov/about-us/agency-policy/series-300/references-chapter/303mat> Standard Provisions for Non-U.S., Nongovernmental recipients receiving all other types of grants can be accessed through the following URL:

<https://www.usaid.gov/about-us/agency-policy/series-300/references-chapter/303mab>

**SECTION I. PROGRAM DESCRIPTION**

**IA. OBJECTIVE**

HSEP is considering awarding a grant to a potential partner which is a non-U.S based, private, for-profit, or non-profit organization. The organization/entity must be a legally recognized organizational entity in Bangladesh.

Objectives:

HSEP intends to engage a software firm for the deployment, development, implementation, maintenance, and user support of the Comprehensive Learning Management System (CLMS). The key objectives of this assignment will be as follows:

1. Rapidly deploy a CLMS for the nationwide implementation of the blended training program, starting with a pilot in 300 colleges and scaling up to 3,000 colleges over four years (2024-2028).
2. Develop, integrate and customize essential modules for blended training package delivery, resource libraries, assessments, collaboration, discussion forums, live sessions, and monitoring and reporting dashboards to meet the specific needs and requirements of HSEP, DSHE and USAID.
3. Develop and modify a scalable and robust architecture that supports the blended training package including online and offline training phases.
4. Design a user-friendly interface to ensure easy navigation and accessibility for teachers, educational leaders, and administrators following the GOB and USAID compliances and GESI guidelines.
5. Ensure seamless integration of the CLMS with existing systems and tools used by HSEP and DSHE for user verification, performance monitoring and data exchange.
6. Provide ongoing technical support to users and administrators in content upload, content management, user management and troubleshooting including establishing a technical support help desk to provide immediate assistance and troubleshooting.
7. Implement robust security measures to protect user data and ensure privacy, including encryption, access controls, and regular security audits and compliance with relevant data protection regulations and best practices.
8. Continuously monitor the performance of the CLMS and collect feedback from the users and stakeholders to ensure optimal user experience while incorporating new features, contents, functionalities, integrations security patches, and performance improvements.
9. Proactively propose and implement innovative features and enhancements to keep the CLMS up to date with the latest educational technologies and pedagogical approaches.

**IB. BACKGROUND**

The Government of Bangladesh (GOB) is working towards achieving Vision 2041: Smart Bangladesh, focusing on quality education and experiential learning. In line with this vision, the Higher Secondary Education Project (HSEP) is collaborating with the Directorate of Secondary and Higher Education (DSHE) to improve the quality of teaching and learning practices in higher secondary education in Bangladesh. HSEP aims to introduce engaged and experiential learning pedagogy by enhancing teachers’ instructional and management skills and strengthening the leadership and supervision capacities of principals, vice-principals, and education officers through a blended and personalized approach to their professional development.

At the core of HSEP’s intervention is the blended training package, specially designed for teachers and educational leaders at the higher secondary level. This package will be disseminated through a comprehensive Learning Management System (LMS) to support nationwide implementation. The LMS’s role in this transformation is critical for enabling teachers to access, engage with, and benefit from both the in-person and online training phases. The 3-5 days of face-to-face (F2F) sessions will be spread over 9-12 online weeks. While the trainer-led F2F sessions can be supplemented with LMS resources, the self-paced online weeks will host instructional content and resources, assessments, collaborative activities, discussion forums, live sessions, and reporting and monitoring tools.

HSEP is looking for an efficient and committed firm for the establishment of the platforms and solutions for delivering the blended training package across Bangladesh. The sub-contractor will be responsible for the rapid deployment of the LMS and for further customization of the platforms according to HSEP and DSHE’s needs. The LMS provider will also be responsible for the development and management of the comprehensive LMS and for providing technical support to its users and administrators. The timeline of this assignment/contract will be phased into quarterly and yearly segments, starting with the piloting phase in 300 colleges and scaling up to 3,000 colleges over four years.

**IC. DETAILED PROGRAM DESCRIPTION**

Please refer to Annex A1 for the full program description

HSEP recognizes that the selected grantee may need technical assistance to more effectively carry out the activity. Consequently, applicants are encouraged to specify their needs for technical assistance and/or training in their application.

**ID. AUTHORITY/GOVERNING REGULATIONS**

HSEP grant awards are made under the authority of the U.S. Foreign Affairs Act and adhere to guidance provided under [ADS Chapter 303](https://www.usaid.gov/ads/policy/300/303), “Grants and Cooperative Agreements to Non-Governmental Organizations” and will be within the terms of the USAID Standard Provisions as linked in the annexes, as well as the HSEP grants procedures.

ADS 303 references additional regulatory documents issued by the U.S. Government’s Office of Management and Budget (OMB) and the U.S. Agency for International Development:

* 2 CFR 200 [Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, Subpart E](http://www.ecfr.gov/cgi-bin/text-idx?SID=2e11c56f4c402a68fd92aee657de8475&mc=true&node=sp2.1.200.e&rgn=div6) (U.S. applicants are subject to 2 CFR 200 in its entirety)

Full text of 2 CFR 200 can be found at <http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title02/2cfr200_main_02.tpl> and 2 CFR 700 at <http://www.ecfr.gov/cgi-bin/text-idx?SID=531ffcc47b660d86ca8bbc5a64eed128&mc=true&node=pt2.1.700&rgn=div5>. HSEPis required to ensure that all organizations receiving USAID grant funds comply with the guidance found in the regulations referenced above, as applicable to the respective terms and conditions of their grant awards.

Under the HSEP grant program, USAID retains the right at all times to terminate, in whole or in part, HSEP’s grant-making authorities.

**SECTION II. AWARD INFORMATION**

II.A ANTICIPATED NUMBER OF SUBAWARDS

The HSEP expects to award one (1) subaward under this RFA but reserves the right to award none or any other number, based on the quality of applications received and the availability of funding.

II.B ANTICIPATED START DATE AND DURATION OF THE SUBAWARD

The anticipated start date for this subaward is **July 2024**. The anticipated period of performance for any individual subaward is a maximum of four years or until **July 2028**.

II.C ESTIMATED AMOUNT OF THE SUBAWARD

The final amount will be dependent upon grant activities and final negotiation*.* All subawards will be negotiated, denominated and funded in Bangladesh Taka (BDT)

II.D TYPES OF SUBAWARD

HSEP anticipates to award a fixed amount award to the selected.

**SECTION III. ELIGIBILITY**

**IIIA. ELIGIBLE RECIPIENTS**

Applicants must be a registered Bangladesh, private, for profit or nonprofit organization normally constituted, recognized by and in good standing with appropriate Bangladesh authorities, and compliant with all applicable civil and fiscal regulations.

* Applicants may only submit one concept paper under this Request for Concept Paper.
* Applicants must be able to demonstrate successful past performance in implementation of integrated development programs related to HSEP*’s* priority areas.
* Applicants must have established outreach capabilities with linkages to the beneficiary group(s) identified in the program description. This should be reflected by the incorporation of the beneficiary perspective in the application.
* Applicants must display sound management in the form of financial, administrative, and technical policies and procedures and present a system of internal controls that safeguard assets; protect against fraud, waste, and abuse; and support the achievement of program goals and objectives. HSEP will assess this capability prior to awarding a grant.
* Applicants must sign certain required certifications prior to receiving a grant. The certifications shall be provided during negotiation of the full proposal.
* For any grant award(s) resulting from this solicitation that is other than in-kind, equivalent to $25,000 USD or more, and has no anticipated subawards, grantees will be required to provide a Unique Entity Identifier (UEI) at the time of award. If the applicant already has a UEI number it should be included in their application. Otherwise, applicants will be expected to get a UEI number before an award is made. HSEP will assist successful applicants with this process. More information on UEIs can be found [here](https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.gsa.gov%2Fabout-us%2Forganization%2Ffederal-acquisition-service%2Foffice-of-systems-management%2Fintegrated-award-environment-iae%2Fiae-information-kit%2Funique-entity-identifier-update&data=04%7C01%7Ccaston%40chemonics.com%7Ce8bbe409a56b460c011208d8962dd492%7C7c1f24a67d39452c82370726e3b19a73%7C0%7C0%7C637424470932841458%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=pj6NzOxt9biVSeFchVzYf%2FnXxphnx31dWYlpnkNPjrA%3D&reserved=0).

The project will work with the successful grantee to draft a marking and branding plan which will be annexed to the grant agreement.

* Faith-based and community groups will receive equal opportunity for funding in accordance with the mandated guidelines laid out in ADS 303.3.28 except for faith-based organizations whose objectives are for discriminatory and religious purposes, and whose main objective of the grant is of a religious nature.

**SECTION IV – APPLICATION AND SUBMISSION INFORMATION**

**IVA. INSTRUCTIONS TO APPLICANTS**

Applicants must propose strategies for the implementation of the program description described above, introducing innovations that are appropriate to their organizational strengths.

**IVA1. PRE-AWARD RISK ASSESSMENT**

All organizations selected for subawards are subject to a pre-award risk assessment conducted by HSEP to ascertain whether the organization has the minimum management capabilities required to handle US government funds. The applicant self-assessment is the first step in the pre-award risk assessment process. The Applicant Self-Assessment Form is contained in Annex D.

**IVA2. GRANT APPLICATION**

This is a two-stage application process. The first stage is for the applicant to submit a concept paper. Concept paper forms (Annex [A]) will be evaluated against the merit review criteria listed in Section V below. If the applicant successfully meets or exceeds the merit review criteria, they will be invited to submit a full application. Only those applicants who meet or exceed the merit review criteria at the concept paper stage will be invited to submit a full grant application.

The template to be utilized when developing the concept paper is provided in Annex A. Applicants shall present their technical application and budget in the formats provided and shall follow the instructions and guidelines listed in these annexes.

All grant activity costs must be within the normal operating practices of the Applicant and in accordance with its written policies and procedures. For applicants without an audited indirect cost rate, the budget may include direct costs that will be incurred by the Applicant to provide identifiable administrative and management costs that can be directly attributable to supporting the grant objective.

The concept paper must be signed by an authorized agent of the Applicant.

## Selected applicants in the first stage of the solicitation shall be requested to submt a full proposal using the following guidelines including the following:

* Examples of similar works in the education and teacher training sector
* Completion certificates working with government and development partners
* Detailed technical proposal phase-wise deliverables
* Description of methodologies and approaches.
* Detailed budget proposal
* Detailed team composition with roles and qualifications of the project team

The selected firm will have to sign a Non-discloser Agreement (NDA) and a Service Level Agreement (SLA) as part of the core agreement.

**IVA3. INELIGIBLE EXPENSES**

HSEP grant funds may not be utilized for the following:

* Construction or infrastructure activities of any kind. Note that Per ADS 303.3.30 and the ADS 303 Mandatory Reference entitled, “USAID Implementation of Construction Activities”, construction is not eligible for reimbursement under grants resulting from this solicitation. Construction also includes improvements, renovation, alteration, and refurbishment. This restriction does not apply to OTI funded task orders that have a waiver allowing construction.
* Ceremonies, parties, celebrations, or “representation” expenses.
* Purchases of restricted goods, such as: restricted agricultural commodities, motor vehicles including motorcycles, pharmaceuticals, medical equipment, contraceptive products, used equipment; without the previous approval of HSEP or prohibited goods, prohibited goods under USAID regulations, including but not limited to the following: abortion equipment and services, luxury goods, etc.
* Covered telecommunication and video surveillance equipment or services – per the standard provision entitled “Prohibition on Certain Telecommunication and Video Surveillance Services or Equipment”, grant funds including direct and indirect costs, cost share and program income may not be used to (1) procure or obtain; (2) extend or renew a contract to procure or obtain; or (3) enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that use covered telecommunications equipment or services (“CTES”) as a substantial or essential component of any system, or as critical technology as part of any system. This prohibition covers certain telecommunications equipment and services, including, but not limited to, phones, internet, video surveillance, and cloud servers, produced or provided by Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities) unless HSEP has determined that there is no available alternate eligible source for the CTES. For fixed amount awards, this restriction is only applicable if any of the milestones are for telecommunication or video surveillance services or equipment.
* Alcoholic beverages.
* Purchases of goods or services restricted or prohibited under the prevailing USAID source/ nationality (Cuba, Iran, North Korea and Syria).
* Any purchase or activity which has already been made.
* Purchases or activities unnecessary to accomplish grant purposes as determined by the HSEP.
* Prior obligations of and/or, debts, fines, and penalties imposed on the Grantee.
* Creation of endowments.

**IVB. APPLICATION AND SUBMISSION INFORMATION**

Concept papers shall be submitted in English and may not be more than 5 pages.

Concept papers(including the budget and supporting documentation) should be submitted in electronic copy to the HSEP address below and should reference RFA No. 2024-001 **Concept papers shall be reviewed on a rolling basis, and HSEP expects to start reviewing concept papers by July 9, 2024*.***

Name of Contact Person: Shaikh Shahinur Islam, Procurement and Logistics Manager

EMAIL: sislam@chemonics.com

The applicant should submit the following documents with their concept papers:

* A copy of the Applicant’s valid legal registration,
* A copy of their latest audited financial statements.

Please submit all questions concerning this solicitation to the attention of Shaikh Shahinur Islam, Procurement and Logistics Manager*,* via email to sislam@chemonics.com. HSEP will assist applicants in understanding the application process and can provide coaching in application development at the request of applicants.

**SECTION V. APPLICATION MERIT REVIEW CRITERIA**

As described above, applications will be evaluated in a two-step evaluation process:

* The first step is for applicants to submit a concept paper.
* If the concept paper is accepted, you will be asked to submit a more detailed application.

All concept papers and applications will be reviewed by an internal review panel comprised of HSEP implementation staff, and recommendations may be vetted by a larger group. Concept papers will be evaluated against the criteria below.

* Does the organization meet the eligibility requirements?
* Does the organization’s concept paper highlight relevant past performance in this area?

Full applications will be evaluated against the merit review criteria below:

* Experience 20%
	+ Demonstrated experience in the development and deployment of large-scale e-learning/LMS platforms with references.
	+ Proven track record in working with government and development partners in the education and training sector in the local context
* Demonstration 20%
	+ Demonstrated examples of existing platforms and solutions
	+ Demonstrated the flexibility for future modification, customization and configuration capabilities for the
* Technical Proposal 20%
	+ Completeness of submission, and feasibility of proposed proposal
	+ Demonstrated capacity to deliver solutions within the timeline.
	+ Demonstrated technical and operational support and management capabilities
* Team Composition 20%
	+ Proposed team and team members’ qualifications/experiences
	+ Capacity to secure resources both in-house and external to ensure timely delivery of completed videos
* Cost 20%
	+ Financial proposal value

Additionally, HSEP will ensure environmental soundness and compliance in design and implementation as required by 22 CFR 216.

**SECTION VI. AWARD AND ADMINISTRATION INFORMATION**

All grants will be negotiated, denominated and funded in Bangladesh Taka.

All costs funded by the grant must be allowable, allocable and reasonable.

Issuance of this Request for Concept Paper and assistance with application development do not constitute an award or commitment on the part of HSEP, nor does it commit HSEP to pay for costs incurred in the preparation and submission of an application. Further, HSEP reserves the right to accept or reject any or all applications received and reserves the right to ask for further clarifications from the offerors. Applicants will be informed in writing of the decision made regarding their application.

**Annex A**

**GRANT CONCEPT PAPER TEMPLATE**

**A.1. Purpose**

The Grant Concept Paper Templateis designed to gather basic information about the Applicant and what it is proposing to do. This format should be presented by the applicants in response to an APS or a RFA, per the instructions in the solicitation

**A.2. Instructions by Section**

Items 1-2: Organization’s name, date organization was founded, and current registration status.

Item 3: Contact Information— Contact name, title, address, telephone, fax, e-mail, etc. The contact person (agent) is responsible for communications between the Higher Secondary Education Project (HSEP) and the Applicant. This applies to all aspects of the grant application, from initial summary through negotiation and award. The agent must have full authority and responsibility to act on behalf of the Applicant. The agent should be someone who will be directly involved with the grant activity and has a proven, established relationship with the Applicant.

Item 4: Briefly describe the organization and its activities—This section should introduce the Applicant and its background: how it was formed, its mission or purpose, major accomplishments in the area of the targeted activity, current activities, past related experience, and clients. This section must not exceed 2 pages in length.

Item 5: References—List three donors, partner organizations, or community leaders that can provide references for your organization’s ability to successfully carry out the financial, administrative, and technical requirements of the grant activity. Briefly describe your relationship to the reference and the nature and duration of your work together. If the reference is a previous donor, list the activity and location of the activity(s) they funded. Be sure to provide complete information, including a point of contact, with telephone and email.

Item 6: Grant activity title— Development, Implementation and Maintenance of a Comprehensive Learning Management System (CLMS) with User support for the Higher Secondary Education Project (HSEP)

Item 7: Background—Identify the problem that the grant’s activities propose to address. This section must not exceed 2 pages in length.

Items 8-9: State the grant objective; describe the activities that are proposed to meet this objective, the expected results to be achieved through the grant activities, and how the activities are linked to the grant objective. The grant objective and activities must be linked to the HSEP objectives as described in the solicitation. This should be the most detailed section but must not exceed 2 pages in length.

Item 10: Identify beneficiaries, disaggregated by gender if possible, estimated number, location, how the grant activities will reach the intended beneficiaries, and how they will benefit from the grant. N/A

Item 11: Anticipated duration should be stated with a degree of accuracy of plus or minus two weeks. Refer to the CLMS activity timeline

Item 12: Main task phases of the activity—Provide details regarding the subtasks of the activity.

Item 13: Approximate cost of this activity (cash, in-kind, and third-party sources)—Applicant must submit a rough estimate of the cost of the proposed activity and sources of funds, specifying how much will come from HSEP. An exact detailed budget is not necessary at this point, only a plausible estimated calculation, which should be realistic and within 15 percent (+/-) of the final approved budget. Note that the budget must be provided in Bangladesh Taka.

**A.3. Grant Concept Paper Form**

**Higher Secondary education project (HSEP)
 Grant Concept paper**

1. Organization name:
2. Date organization was founded and registration status:
3. Contact information:

|  |
| --- |
| Key contact person(s) and title:  |
| Office address:  | Office phone:  |
| Mobile:  |  |
| Email: | Website:  |
|  |  |

1. Briefly describe the organization, its purpose, and past related experience:
2. List contact information for three (3) references from previous donors or organizations (U.S. and other) that your organization has collaborated with in the last two years:

|  |  |  |  |
| --- | --- | --- | --- |
| Donor Agency or Organization | Nature of Relationship orTitle of Project, Location  | Start & End Dates of Collaboration | Contact Person |
|  |  |  | Name & Position: |
|  | Email:  |
|  | Tel:  |
|  |  |  | Name & Position: |
|  | Email:  |
|  | Tel:  |
|  |  |  | Name & Position: |
|  | Email:  |
|  | Tel:  |

1. Have any of the key personnel or leadership of this NGO been terminated or resigned in lieu of termination for any misconduct, including fraud or sexual harassment? If yes, please list the name and title.
2. Title of the proposed grant activity:
3. Background: What is the issue or problem that the activity will address? Why is it critical to address this issue?
4. Objective of the proposed grant activity:
5. Describe the proposed activity and expected results in detail, keeping in mind the merit review criteria contained in the solicitation.
6. Identify beneficiaries, disaggregated by gender, if possible, number, how the grant activities will reach the intended beneficiaries, and how they will benefit from the grant:
7. Anticipated duration of activity from start to finish:

|  |  |
| --- | --- |
| Overall length (total number of months) |  |
| Start and end date (day, month, and year) |  |

1. Implementation Timeline: Please list the main task phases with estimated start and end dates for each task. Please include all events, trainings, publications, etc. Please refer to Annex A1 for details on timelines of this activity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Description of Main Tasks*  | *Responsible Party(s)* | *Grant Resources Required* | *Non-Grant Resources Required* | *Start & End Dates* | *Milestone of Achievement* |
| *Task 1:*  |  |  |  |  |  |
| *Task 2:* |  |  |  |  |  |
| *Task 3:*  |  |  |  |  |  |
| *Task 4:*  |  |  |  |  |  |
| *Task 5, etc: (please add rows as needed)* |  |  |  |  |  |

1. Approximate cost of this activity

|  |  |  |  |
| --- | --- | --- | --- |
| Budget Category  | Applicant Resources(in Bangladesh Taka) | Third Party Resources (identify source)(in Bangladesh Taka) | Total Resources Needed(in Bangladesh Taka) |
| Salaries:  |  |  |  |
| Other Direct Costs: |  |  |  |
| Training:  |  |  |  |
| Travel and Transportation:  |  |  |  |
| Goods and Materials: |  |  |  |
| *[Add more rows as needed.]* |  |  |  |
| Total Estimated Costs (in Bangladesh Taka) |  |  |  |

By affixing my signature below, I certify that to the best of my knowledge, the information provided in this application is accurate and correct:

Submitted by (name and title): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# **ANNEX A1**

# **Terms of References (TOR)**

# Development, Implementation and Maintenance of a Comprehensive Learning Management System (CLMS) with User support for the Higher Secondary Education Project (HSEP)

## **1. Background**

The Government of Bangladesh (GOB) is working towards achieving Vision 2041: Smart Bangladesh, focusing on quality education and experiential learning. In line with this vision, the Higher Secondary Education Project (HSEP) funded by the USAID is collaborating with the Directorate of Secondary and Higher Education (DSHE) to improve the quality of teaching and learning practices in higher secondary education in Bangladesh. HSEP aims to introduce engaged and experiential learning pedagogy by enhancing teachers’ instructional and management skills and strengthening the leadership and supervision capacities of principals, vice-principals, and education officers through a blended and personalized approach to their professional development.

At the core of HSEP’s intervention is the blended training package, specially designed for teachers and educational leaders at the higher secondary level. This package will be disseminated through a comprehensive Learning Management System (LMS) to support nationwide implementation. The LMS’s role in this transformation is critical for enabling teachers to access, engage with, and benefit from both the in-person and online training phases. The 3-5 days of face-to-face (F2F) sessions will be spread over 9-12 online weeks. While the trainer-led F2F sessions can be supplemented with LMS resources, the self-paced online weeks will host instructional content and resources, assessments, collaborative activities, discussion forums, live sessions, and reporting and monitoring tools.

HSEP is looking for an efficient and committed firm for the establishment of the platforms and solutions for delivering the blended training package across Bangladesh. The sub-contractor will be responsible for the rapid deployment of the LMS and for further customization of the platforms according to HSEP and DSHE’s needs. The LMS provider will also be responsible for the development and management of the comprehensive LMS and providing technical support to its users and administrators. The timeline of this assignment/contract will be phased into quarterly and yearly segments, starting with the piloting phase in 300 colleges and scaling up to 3,000 colleges over four years.

## **2. Scope of Work**

This section describes the key understanding of the CLMS. The developed system should be able to perform the following requirements:

## **2.1 General Requirements for CLMS:**

The CLMS is the central component, the administrative activity of the overall system will be complied with this component. Starting with login activity, all types of users i.e., trainers, trainees, admin, super admin, and other users will have the provision to login through this user interface.

The dashboard of the CLMS will include user activity tracking/monitoring, location setting (zone), Institute names/locations, trainee selection, trainer selection, master course settings activity, admin creation for different roles as well as batch coordinator selection and monitoring. The targeted users of this principal component are admins and reporting authorities. The user will check the dashboard where the ongoing courses and user activity will be shown on different illustrations in real-time. Users will log into the system with different designated roles. The system will automatically shift the content according to the user level. Figure 1 describes the key features of the HSEP CLMS.

**Figure - 1: Key features of the HSEP CLMS.

## **2.1.1 Learning Management System (LMS)**

LMS offers that users can create, manage, and deliver e-learning courses. As per the scope of the CLMS, the LMS application will be developed for web applications as well as mobile applications. The LMS module will have the following sub-modules:

### **Content Management System:**

The content management system enables HSEP to manage, create and modify digital content for its users. The Content Management team can use these features to create, edit, organize, and publish content under the courses. It acts as a single place to store content and give as per its user needs. Digital content i.e., PDF, docs, PPT, video, audio, images, and other elements will be managed by this feature. The content will be linked to course management as per the course trainers’ requirements.

### **Course management:**

Course management feature serves to conduct the courses among the users with its content. It includes the course conducting time, course material, course history and so on. Course exams, assessment, assignments, and user attendance are also included in this feature. The number of course-conducting personnel who are playing roles as trainers and the overall progress of these functions are also included in this feature. The course content will be conducted from content management where all the digital content will be available to study.

* **Assessment Management**

The assessment management module in the CLMS should include customizable quizzes and exams, automated grading, manual grading and detailed analytics to track learner progress. It should support various question types, including multiple-choice, short answer, and essay formats, uploading written answers as well as provide options for peer and self-assessment.

* **Collaborative Activities:**

There will be collaborative activities in the online phases of the training where participants will be provided with discussion forums, polls, assignments, and peer review functionalities to facilitate interactive and cooperative learning. It should also integrate tools for real-time communication, such as live video conferencing and instant messaging, to enhance engagement and foster a professional learning community among learners. It should be connected to the subject-based PLCs.

### **Progress monitoring:**

The course progress alongside user activities of the relevant courses will be shown in this feature. Different types of illustrations will be in this feature to show the user’s real-time performance. The completion of any courses will be shown in the graph to acknowledge the administrator user, how many courses are going on and how many of them are about to start. This feature will be used for real-time monitoring of activities and performances.

### **Integration with relevant platforms:**

The HSEP CLMS will have integration with relevant GOB/Non-Govt Platforms, LMSs, digital resource libraries and Professional Learning Communities (PLC) . For identity verification - DSHE’s Educational Management Information System (EMIS) platform; for monitoring and report sharing Digital Monitoring System (DMS), for training courses, and for building teachers’ training portfolios – Smart Training Management System (STMS) should be considered under a both-way Application Programming Interface (API) integration plan. To avoid redundancy, other existing platforms' key features should be reviewed while designing the CLMS.

### **Analytics:**

Starts with user performance, user suggestions, and administrative analysis such as how many users completed the courses, how many of them did not finish, on which subject the course conduction rate is high, on which subject the course conduction rate is low this report will be available for administrative study.

### **Certification:**

After completion of any courses, the system will automatically generate a course accomplishments certificate for the user. The user can check their certificate in the system, and how many certificates/he has achieved. In the administering role, the course admin can create different formats of certificates by drag and drop as per their design requirements. Moreover, a few common course completion certificate formats will be built into the system.

## **2.1.2. E-Library**

The e-library is the digital resource library for curating and disseminating all types of digital resources relevant to the blended training package available. The purpose of the e-Library is to provide access to articles, books, handouts, presentations, videos, links etc. to the trainee teachers or users during and after the LMS activities. The resources should have the provisions to be classified and filtered as per their relevance with the course modules and subject. The resources should have the provisions to be managed and monitored regularly by the admin users. The e-library serves the following objectives:

* **Subject-based validated e-contents:**

Subject-based content such as reference materials in the form of pdf, docs, excel, presentations (ppt), video, audio, journals, publications, research papers, weblinks, etc. will be available in the e-library. For Year – I, all the materials will be verified and uploaded by the HSEP development team. Later the scope of teachers to upload relevant resources while ensuring a proper verification process and approval for their uploads by subject matter experts. e-Library will be opened to integrate with different OER (Open Education Resources).

* **Supplementary materials:**

The course coordinators can add subject-related supplementary reading materials, handouts, video, audio, and other digital resources. External website links or learning content can be embedded for the user who has an interest in the advanced learning process.

* **Monitoring system:**

The admin users will be able to check the overall content reading as well as track the use of eLibrary components. The user can participate in and provide feedback according to their understanding. Users can request additional content for better learning and understanding. The number of current users will be shown in real-time in the administrative dashboard in the e-Library.

## **2.1.3 Professional Learning Community (PLC)**

The Professional Learning Community (PLC) will serve as the collaborative learning platform, fostering and knowledge exchange among colleagues within a specific field/subject.

### **Subject-based Groups/Forums**:

The PLC will bring teachers and education leaders together to share knowledge and experience with their subject-based forums/communities. It will be a group of people in which everyone is motivated to learn and where members communicate and share knowledge by posting and commenting on discussion boards, and chat rooms. They can arrange and participate in live discussion sessions using virtual conferencing and collaboration tools.

### **Discussion boards:**

Discussion boards will offer space for trainees to engage with their content/instructions embedded in the course modules. Through discussions the users will have the provisions to shar insights, collaborative problem-solving, access valuable support, guidance, and diverse perspectives from their colleagues, enriching their professional development journey.

### **Creating post and comment to other’s posts:**

The users may start conversations and actively take part in collaborative learning by using the Creating Post and Commenting functionality. By making postings, they may share their knowledge, questions, and experiences with the community, promoting a lively discussion of ideas. Users can additionally promote a collaborative and mutual learning atmosphere by commenting on each other's postings and providing advice, encouragement, and feedback to their peers.

### **Encourage action research/case study:**

Using this PLC, users will be encouraged to undertake action research or case studies, which will empower them to investigate real-world educational challenges. By engaging in these activities, users gain valuable insights into effective teaching practices and student learning outcomes. Through sharing findings and collaborating with peers, users not only contribute to collective knowledge but also inspire continuous improvement and innovation in their teaching approaches.

### **Sharing activities in small groups:**

Users can share activities in small groups to take part in collaborative learning. Together, they may improve their teaching strategies by exchanging concepts, materials, and best practices. In the end, this collaborative method improves teacher capacity by fostering creativity, problem-solving, and peer support.

## **2.1.4 Electronic Teacher’s Guides (eTG)**

* **Subject-Based Digital Instructional Guides**

For teachers (who take part in the course), a set of instructions will be provided from the CLMS. The instructions will be developed by various levels of experts, i.e., subject based expert, researcher, publisher, and pedagogy experts. The instructions will be documented and served per teacher's need from the system. Subject based short video, audio, hand notes and so on will be enables for its users/teachers.

* **Preparation for teachers**

CLMS will include a set of instructions for a teacher regarding what should be done before entering a classroom. This will include – “think of a subject topic as a story, find best practice instead of starting from scratch, while teaching with cases make them its own, create a detailed game plan for students, knowing students name and background and do the reading and problem sets”.

* **Teaching Learning Techniques**

Various levels of teaching and learning techniques will be provided by the system. Offering different pathways for teachers to buy and prove knowledge such as group work, independent projects, or technology-based assignments. Allows teachers to showcase their thoughts in various forms, such as presentations, written reports, or artistic creations.

* **Use of teaching aids**

Through the provision of tactile, visual, or aural stimuli that reinforce educational ideas, teaching aids significantly contribute to the improvement of the learning process. Graphs, charts, and diagrams aid in the representation of abstract ideas and ease of understanding. Songs, podcasts, or audio recordings enable auditory learners to stay engaged and reinforce spoken material. Interactive games, manipulatives, and models offer practical learning opportunities that encourage participation and comprehension.

* **Learning Theories**

Diverse types of learning theory i.e., cognitive, behavioral, motivational, and psychoanalytic will be available in this feature where user teacher can easily learn how to study students correctly to set them on track. These theories of learning will provide clarity and direction by offering a set of principles of guidelines to build a teacher’s teaching approach around.

* **Lesson Plan**

Lesson study is a continuous process of teachers’ professional skill development where teachers work closely with their colleagues to assess the quality of teaching learning activity and for its development. It is expected that this will help to (i) create scope for teacher to think deeply about the purpose of the lesson; (ii) introduce and developing lesson plan in cooperation with colleagues; (iii) improve the knowledge on the method of teaching learning activity; (iv) improve the subject knowledge; (v) create scope for students and other colleagues in evaluating teaching learning activity from their viewpoint.

## **2.2 Specific Functional Requirements:**

## **2.2.1 CLMS (Common Functions)**

1. **User Authentication**:

Using the EMIS login ID and password, the trainee will log into the CLMS. Single Sign On (SSO) functionality will be deployed for this login facility. Trainer and Trainee registration will be offered from this function. Trainer, Admin, and other users will have different login IDs and password for logging into the system. After login, the system will redirect the user to dashboard.

1. **User Management:**

In CLMS the user management function plays a crucial role in enhancing the user experience for the system to control its user activity. CLMS user can perform:

* Setting up user accounts
* Managing identities and application access
* Changing user properties
* Resetting passwords
* Disabling and decommissioning users
* Implementing role wise access control for user
1. **Profile Management:**

Profile management is the process of controlling every user data setting within different formats. It is crucial because it allows for personalization, efficiency, security, improved user experience, and flexibility for the system. Super admin can track the user details i.e., profile picture, email address, mobile number, user designation as well as role details using this function.

1. **Trainee Management:**

 In CLMS the trainee management function will maintain

* Trainee details
* Course wise Trainee list
* Batch wise Trainee list
* Individual Trainee performance
* Institute or Location wise Trainee list
1. **Integration:**

The CLMS will have the scope of integration with EMIS, Smart Training Management System (STMS), Digital Monitoring System (DMS), and any other relevant GoB educational platforms to leverage user authentication process, lifelong learning, professional learning communities and so on.

1. **Reporting**

The reporting feature will be used for real time tracking. The overall activity monitoring with the birds’ eye view from the whole system. The reporting feature includes:

* User progress report batch wise
* Upcoming courses, ongoing courses and completed courses
* User progress course wise
* Trainer and trainee attendance counting.

## **2.2.2 LMS (Learning Management System)**

1. **Training Management**

The LMS Platform should be able to manage both online and Face-to-face (F2F) training phases including key training management features i.e., trainee enrollment, batch management, attendance, course management, materials management, assessments, remuneration distribution, etc. (Figure – 2)

Figure - 1: LMS Training Management

1. **Assessment and Evaluation**

Starting with assessment creation, conduction and evaluation will be served for its target user as per business rules. The evaluation process will be automated, and the result will be published immediately after the assessment is conducted. Serving with different levels of questions including:

* MCQ
* Fill in the gaps
* True/False
* Matching (Drag and drop, tick and cross)
* One-word answer
* Answering questions
1. **Course Management:**

Course materials/guidelines will be provided by HSEP. Trainers can create course materials based on their requirements by following the guidelines provided.

1. **Batch Management:**

User management outlines the specific functionalities and capabilities related to use, administering, and controlling user accounts within the LMS platform. In our case, there is an authorization service that will manage users, specifically the trainee’s authentication and authorization and access to LMS via EMIS. DSHE will play the super admin role and manage only non-teacher access control of this LMS.

1. **Security:**

The LMS will protect user data, maintain privacy, and prevent unauthorized access. Our privacy policy will be implemented in such a way that it would satisfy the user regarding their data.

1. **Scalability**:

The LMS will be able to scale to meet the needs of a growing user base and interoperability with other systems within Govt or any other platform selected by DSHE.

## **2.2.3. e-Library**

1. **e-Library Materials Management:**

Materials will be collected, converted, and uploaded. Materials list will be searched by category, by author, by genre or by name. All materials should contain these attributes.

1. **Category Management:**

All types of material categories will be managed here. Each category name should be unique.

1. **e-Library Resource Request:**

Learners can make requests for new materials. Admin will notify and comment on the request of the user.

1. **Report Management:**

The report admin will access and maintain the report management tool.

1. **Read Resource:**

The system should allow users to read resources from the library.

1. **Bookmark and Save:**

The system enables users to bookmark and save their progress in a book, with the option to mark specific pages. Users shall be able to save a book to their profile page for further reading.

1. **Take Note:**

Users can take notes while reading books.

1. **Download Restriction:**

The system is mandated to impose restrictions on users, preventing the unauthorized download of books lacking an open license. Users can download books only if they have an open license.

## **2.2.4 Professional Learning Community (PLC)**

1. **Group Management:**

Super admin can create and manage groups and assign group moderators based on user designation or subject. Users will be added by super admin or via the invite link. Super admin can manage threads, open discussion boards, send notifications to all or groups of users and manage posts in the group.

1. **Sub-Group Management:**

Moderator admin can create and manage sub-groups. The moderator admin can invite, remove, and change the sub-group moderator admin. Moderator admin can also share, approve, and deny sub-group posts. There will be a notification system inside the sub-group.

1. **Global Content Management:**

Only the super admin can create, change, and remove the global content. This content can be dashboard content, page information, etc.

1. **Notification Management:**

All super admins, moderator admins, and sub-group moderator admins can notify users based on their accessibility to the group or sub-group.

1. **Post Management:**

All users can post on a group or sub-group if they are member of the group. Super admin, moderator admin, sub-group moderator admin, or users can manage posts based on the accessibility of the group or sub-group.

1. **Thread Management**

Super Admin, Moderator Admin and Sub-Group Moderator Admin should be able to create new threads. Super Admin, Moderator Admin can manage threads, and Sub-Group Moderator Admin can only manage threads under his subgroups.

1. **Discussion Board:**

The Super Admin, Moderator Admin and Sub-Group Moderator Admin can open discussion rooms integrated with Zoom or a similar platform for specific users from group or sub-group users. Users can Join the Group discussion room.

1. **Messaging:**

This is a scenario where PLC members can communicate between themselves in groups and in P2P mode. There will be a safeguard of reporting abusive actions in the chatting system.

1. **Share:**

Super admins and moderator admins can share posts with other groups. The moderator admin of the receiving group can then approve or deny the share.

1. **Comment:**

Users should be able to leave comments on threads and group posts. Users should be able to reply to comments and receive notifications of new replies. Users can end a discussion on their post/thread by submitting a self-reflection. The self-reflection should provide a summary of the entire debate.

1. **Voting:**

Users should be able to vote on threads and posts. Users should be able to see the vote count.

1. **Feedbacking:**

PLC users should be able to provide feedback on others’ community colleagues’ work for further improvement.

## **2.2.5 e-teacher's Guide (eTG)**

1. **Category Management:**

Admin can create and manage categories. Category should be unique.

1. **Class Management:**

Admin can create and manage classes. Class name should be unique.

1. **Subject Management:**

Admin can create and manage subjects.

1. **Chapter/Topic Management:**

The system should have some categories, classes, and subjects to create a chapter. The chapter should contain all these attributes. Admin will create and manage chapters.

1. **Content Management:**

Admin will create content under a topic. Content could be video or PDF. Video will be interactive where user can answer a question within the video. Also, users may take note, set bookmark in the contents. There might be an option to download the content too.

1. **Discussion:**

Users can open a discussion board on any topic which they do not understand from the content and can discuss this topic. Relevant users and admins can join this discussion. Admin can close the discussion board.

## **2.3 Non-functional Requirements**

## **2.3.1 Flexibility to configuration and customization:**

In the CLMS platform, the HSEP development team will follow industry standard change management strategy to incorporate any changes. The HSEP development team will be flexible to receive any changes from DSHE during the development phase and the final implementation phase of the project.

The change management strategy will be followed by a few steps:

* Receive the changes
* Feasibility study and documentation
* Plan for development
* Development
* Test and Review
* Final implementation

## **2.3.2 Automation of Financial Management:**

* Track attendance based on trainees' activity footprints, progress, and daily logins.
* Automatically calculate trainees' overall remuneration from the attendance data.
* Approval process will be implemented for the transactions.
* Receive remuneration through integration with Mobile Financial Services (MFS), BEFTN, IBAS etc. .

## **2.3.3 Live Streaming:**

The CLMS platform will be capable of live streaming of video content. LMS, PLC and I-GT will have the functionality to serve its users with video streaming features as per the users' internet bandwidth quality.

## **2.3.4 Technology and Tools**

The firm should share their proposal of the technology platforms and tools that will be used considering the requirements of the project considering the following priorities:

* Aligned with the project requirements.
* Open source
* Scalability
* Availability of Resource
* Security
* Latest versions of software and tools available.

The following list is for reference purpose but firm can propose any alternative if that is justified)

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Suggested Technology/ Tools | Proposed Technology/tools | Justification  |
| Application Type | Web & Mobile App |  |  |
| Project Management Methodology | Agile Methodology |  |  |
| Project Management Tools | JIRA/ Trello |  |  |
| Support issue tracker | Slack |  |  |
| Framework | Laravel/Dotnet/Django, Next.js/React/Angular, Fast API  |  |  |
| Web Server | Apache/Nginx |  |  |
| Cache Server | REDIS  |  |  |
| Version Control | Git  |  |  |
| Architectural Framework & System Design | Microsoft Visio, draw.io, Figma, Adobe XD |  |  |
| Development Frontend | React.JS  |  |  |
| Development Backend | PHP, Laravel, Adonis, Nest.js, Python  |  |  |
| Style Sheet | CSS5  |  |  |
| Database | MySQL, PostgreSQL, NoSQL  |  |  |
| API Methodology | REST, Json-RPC, FastAPI |  |  |
| Project Reporting Tools | Trello |  |  |
| Mobile Apps | Flutter (Android, iOS) |  |  |
| System Testing | Selenium/PHPUnit |  |  |
| Load Testing | Apache JMeter |  |  |
| Server Monitoring | Nagios XI/Zabbix |  |  |
| API Monitoring | Postman |  |  |
| Service Scheduler | Custom |  |  |
| Service Queueing | Custom |  |  |
| SSO | Yes  |  |  |

## **2.3.5 Hosting Requirement**

The developed application will be hosted in Bangladesh Data Center Company Limited (BDCCL). Therefore, at this stage, Firm is requested to submit a “Hosting Specification & Requirements” in their technical proposal for this Software application. Firm will have to install the developed system in the production environment and ensure that necessary steps are taken to run the system smoothly and to keep the system and data secured.

## **2.3.6 Web Application:**

* The web-based solution will be hosted on a centralized Web Server hosted in the BDCCL.
* The Service Oriented Architecture (SOA) will be implemented in the application's development. SOA is more adaptive to technological developments as a result we can upgrade our apps efficiently and cost-effectively.
* Cross-browser platforms (well-known web browsers like Mozilla Firefox, Opera, Chrome, Internet Explorer, Safari, etc.) will be supported by the web application.
* To assure peak performance and a responsive user experience, the application will prioritize using effective client-side scripting with frameworks such as React and implementing optimization techniques like non-essential assets compression and lazily loading the components.
* All web interfaces will ensure complete responsiveness on different devices, including desktops, tablets, and mobiles. This will be accomplished by implementing responsive design frameworks, allowing the layout, images, and other content to seamlessly adjust to various screen sizes.
* To ensure a seamless user experience, the application will analyze and track the user journey, by studying user behavior, preferences, with usability testing and user interaction.

## **2.3.7 Mobile Application:**

* The mobile application will be developed on Android & iOS. Each platform will follow its own design guidelines.
* The application will have the capability of displaying system notifications. The application can generate notifications such as alerts, messages, recent updates etc. These notifications will be displayed on the user’s device. Users will be able to interact with these notifications by tapping or swapping on them.
* The application will have the ability to connect, interact and exchange data with external services/3rd party services. This will help the application to ensure secure communication, real-time or batch processing and error handling for a seamless user experience.
* The application will present a concise and streamlined display of available services within the app. Which will in term ensure ease of navigation and accessibility for users seeking specific functionalities. Users will be able to find and access their desired features swiftly.
* It will have the option to auto-synchronize data based on the availability of internet connectivity.

## **2.3.8 Interoperability:**

Our comprehensive Learning Management System (CLMS) will extend its functionality to accommodate external government services like Muktopaath, EMIS, DMS etc., as and when needed and instructed by DSHE. We will implement a streamlined process for external systems to request access via a dedicated form. These requests will undergo rigorous validation by our system administrators. Upon approval, administrators will generate unique API keys for the external services, enabling them to interact with our system through secure RESTful APIs. It is important to note that these APIs will be configured as read-only to safeguard the integrity of our data.

## **2.3.9 Use of Advance Technology**

Integrated with cutting edge technology of AI-powered solution to experience the next level of user experience in CLMS. The following system will be integrated to improve visibility, interactive gamification, and communication.

* Chatbot
* Auto emailer
* Firebase
* Mobile Financial Service
* Video Conferencing &
* Info Notification
* Text to audio –read aloud PDF files etc.

## **2.3.10 3rd party integration**

## The CLMS may need to interact with the existing Government and Non-Government Platforms, Education Management Information Systems (EMIS), Digital Monitoring Systems (DMS), and Smart Training Management Systems (STMS). Compatibility with these systems' APIs and data formats must be considered during design.

## **2.3.11 System Architecture Overview**

The Learning Management System consists of several components, including the API, frontend, backend, and database. These components work together to facilitate the management and delivery of online courses, learning materials, knowledge products and educational contents. Here is a description of each component and how they are integrated:

* **User Interface Layer:**
	+ The front end is the user interface of the LMS, accessible to both Administrators, Trainer, and Trainee.
	+ It includes the web pages and interactive elements that users interact with to access courses, view content, participate in discussions, and track their progress.
	+ Key front-end features may include user dashboards, course outline, content viewers, discussion forums, and assessment tools.
	+ The front end is responsible for rendering content from the database, sending user interactions to the API, and presenting data to users in a user-friendly manner.
* **Operation Layer:**
	+ The LMS API serves as the bridge between the frontend and the database, allowing for communication and data exchange.
	+ It provides a set of endpoints and functions that developers can use to interact with the LMS system programmatically.
	+ Features of the LMS API may include user authentication, content access, quiz submissions, and user progress tracking.
	+ Integration with external systems, such as Single Sign-On (SSO) providers or third-party content libraries, is often achieved through the API.
* **Data Layer:**
	+ The database is where all the data required by the LMS is stored. This includes information about users, courses, content, assessments, progress, and more.
	+ Database integration involves creating and maintaining the database schema, managing data storage and retrieval, and ensuring data consistency.
	+ The LMS database stores user profiles, course content, assessment results, and other metadata related to the learning process.

Integration between these components follows a pattern where the front end makes API calls to request and submit data to the database.

The system will be well designed, and coding will be optimized enough as the solution will use or perform low bandwidth.

Here is how the components will interact:

* User interactions on the front end trigger API requests to access or modify data.
* The API processes these requests, often involving authentication and authorization checks, and communicates with the database as needed.
* The database stores, retrieves, and updates the data, ensuring data integrity.
* The API sends responses back to the front end, which can display the requested information to users.
* The front end also updates in real-time based on the user's interactions, providing an interactive and responsive user experience.

## **2.4. Non-functional Requirements**

## **2.4.1 User Sizing:**

* The system will have the capacity to manage online functions for a database with at least 2,00,000 (roughly) trainees, 25,000 (approximately) trainers, and 2,000 (approximately) admin users.
* The system will have scalable processing capabilities, allowing it to easily manage and support a substantial amount of data while ensuring better performance even when user activity increases.
* In the pilot implementation phase, the system will be able to manage 15,000 (scalable) simultaneous connections (online users)
* When fully implemented, the system will be able to manage 50,000 simultaneous connections (online users)

**2.4.2 Performance and Scalability:**

## The system design will ensure there is no unapproved disruption and that users can access the system around the clock, 365 days a year. This systematic approach to system design assures a stable and dependable platform and helps to improve the user experience.

## When accessible through the internet, the page load time, login response time, and on-click load time for the application will be lower than 5 seconds.

## If the system is accessed via the intranet, the average transaction response time, the on-submit response time, or any other database access/search time would be less than 10 seconds.

## For the services mentioned in the functional requirements, the application will support low bandwidth conditions for both Web and Mobile platforms.

## The mobile apps will perform completely with the minimum software requirements to operate the system having the lowest version of iOS 12.0 and android 5.0.

## **2.4.3 Security:**

* **Web Application Security:** The HSEP development team will follow OWASP – CLASP open-source security framework. The OWASP CLASP (Comprehensive, Lightweight Application Security Process) is a framework developed by the Open Web Application Security Project (OWASP) that provides a comprehensive approach to incorporating security practices into the software development lifecycle.
* **Data Protection Policy:** All Personal Data, PII, SCI or Subscriber Data must be encrypted to ensure data confidentiality in the event of accidental or malicious data loss. To ensure the data security, System related all Personal Data, PII, SCI or Subscriber Data will not be stored in any other equipment that is not owned by the Bangladesh government.
* **Communication and Data Transmission:** The system will ensure that communication between clients and servers is encrypted to protect sensitive data. The rest of the detailed discussions are in the Security requirements section.
* **Authentication and Authorization:** Secured user authentication and authorization mechanisms will be implemented. To validate the admin user's identity, user authentication will be integrated in this application. To maintain proper control access, the application will implement the authorization technique to maintain the roles and access permissions.
* **Password Policy and Token-Based Authentication:** To protect the system from data leakage, secure password policy measurement will be in consideration. To secure the information, multi-factor authentication, strong password measurement scale will be used. Token-based authorization will be integrated to ensure stateless communication, data integrity, prevent manipulation, token loss or theft and will increase the UX by reducing re-authentication.
* **Cookies and Session Management:** To prevent unauthorized access in the system, the application will ensure the secured cookies and session management which includes session timeouts, secure session identifiers, and session expiration handling to protect the user’s data from various attacks such as cross-site scripting attacks.

## **2.4.4 Usability:**

* The application will ensure that people with disabilities can use it. For instance, the application will have customizable visual settings and monochromatic color for color blind users.

## **2.4.5 Maintainability, Logging and Monitoring:**

* **User Management and Monitoring:** To protect the system, user activities monitoring is vital which includes tracking of user behavior and supervising the authorization and authentication.
* **Logging and Monitoring User Activities:** Logging is important for any system to improve user experience and troubleshooting. To record relevant errors, events, and performance indicators logging techniques will be used. The system will continuously monitor the server for real-time data processing to get total host-wise CPU usage, total process time, Up/Down report, and total traffic hit. This way, the system can generate push notifications to the admin for suspicious user activities. The rest of the detailed discussions are in the Security requirements section.

## **2.4.6 Caching:**

* Web applications will have caching mechanisms enabled. The caching mechanism will use React Query and React Redux for managing cache which in term will enhance the user experience.
* Caching mechanisms will be integrated in the mobile application for optimizing and enhancing the user experience. Two types of caching mechanisms will be enabled in the application, In memory cache and Persistent cache. The first one will store data when the app is running. Once the app is closed, the cache will be cleared. The second one will be persistent. The cache will be intact even if we close the app or there is no internet.
* The cache server will be used to store data temporarily in the server to reduce the number of page hits which will improve the overall performance of the application.

## **2.4.7 System Reliability**

System availability is a performance metric that helps the HSEP development team to determine the likelihood of the CLMS system is available at a specific time instance. The system will be available 24/7 as per user needs. During the maintenance period the HSEP development team will let the authority know the system cut of time to deploy the new updates.

There are several classifications of availability which include:

* Instantaneous availability: This availability measures the probability a system or piece of equipment is ready for operation at a specific point in time.
* Average uptime availability: This metric represents the time a system is available for use over a specific period.
* Steady-state availability: Often referred to as long-term availability, this represents the availability of CLMS for HSEP development team to analyze an infinite amount of operating time.
* Achieved availability: This metric accounts for corrective and preventative maintenance when calculating system availability.
* Operational availability: This represents the proportion of time CLMS is operating or capable of operating.

## **2.4.8 Design and Implementation Constraints**

This section explains the constraints that could impact the design and implementation of the Comprehensive Learning Management System (CLMS). These constraints will be evaluated throughout the development process to guarantee that the implementation is efficient and successful.

**Regulatory Requirements**

* + **Data Privacy Rules:** The CLMS must adhere to all applicable data privacy rules, including GDPR (General Data Protection Regulation) and FERPA. This could impact data storage, control of access, and user consent processes.
	+ **Accessibility Standards:** To guarantee accessibility for disabled users, the CLMS should follow accessibility standards such as WCAG (Web Content Accessibility Guidelines).

**Hardware Limitations**

* **Target Devices:** The CLMS should be designed to work effectively on various devices with different processing power and screen sizes (desktops, laptops, tablets, mobile phones). This might imply responsive design and optimization for various screen resolutions.
* **System Performance:** The CLMS should run smoothly on the target hardware infrastructure, considering aspects such as user load, data volume, and content complexity. This may include resource optimization strategies and performance testing.

## **2.4.9 Data processing in CLMS**

### **Data Collection:**

The CLMS system will collect its data from:

* Course enrollment.
* Users’ interactions in browsing
* Users' devices, such as their IP address and browser type.
* Third-party sources, such as Analytical tools.

### **Data Storage:**

The CLMS will store its data with:

* Secure servers.
* encrypt data at rest.
* industry-standard security protocols to protect data in transit.
* Retain data for as long as necessary to provide the services.

### **Data Access:**

CLMS will access data from:

* Only to provide the services.
* share data with third parties only if necessary to provide the services depending on business rules.

### **Data Security:**

The data security level of CLMS will maintain the industry standard practices to steps to protect data from unauthorized access, use, disclosure, alteration, or destruction.

* Regularly review and update its security measures.
* Notify users of any data breaches that occur.

### **Complaints:**

* Users can complain about the CLMS's data practices by contacting the CLMS support team.
* The support team will investigate all complaints and respond to users within a reasonable timeframe.

**3.** **Development Approach & Deliverables**

The interested firm needs to submit their CLMS development methodology and approaches considering the following phases and deliverables:

#### **Phase 1: Rapid Deployment of CLMS**

* **Onboarding off-the-shelf LMS**
* Engage with HSEP, DSHE, and other stakeholders to gather requirements
* Demonstrate the available solutions and share the analysis report
* Submit the work plan for phase 1 and get approval from the stakeholders
* Set up the CLMS domain, registration, security certifications
* Configure databases and servers and Integration with EMIS/databases.
* **Content Upload and Course Configuration**
* Set up course structures, set up batches
* Upload instructional content and ensure all modules are configured for initial use.
* Demonstration and Testing with end-users and oganizing UAT with the first version
* **Technical and Operational Support for 1st Cohort**
* Provide continuous technical support to users and administrators,
* ensuring smooth operation and addressing any issues promptly.

#### **Phase 2: Enhancement, Modification, Development Management and User Support**

* Analyzing the full requirements for the CLMS and Submitting the Software Requirement Analysis (SRS)
* Continue with further modifications, customizations, and enhancements to the CLMS.
* Further Develop/upgrade essential components PLC, e-library and eTG
* Develop and deploy mobile applications for Android and iOS platforms.
* **Course management support including** batch management
* Upload instructional content and ensure all modules are configured for initial use.
* Demonstration and Testing with end-users,
* Provide continuous technical support to users and administrators, ensuring smooth operation and addressing any issues promptly.
* Submit progress report and plan for the next phase

#### **Phase 3: Further Enhancement, Modification, Development Management and User Support**

* Continue with further modifications, customizations, and enhancements to the CLMS.
* Further Develop/upgrade essential components PLC, e-library and eTG
* **Course management support including** batch management
* Upload instructional content and ensure all modules are configured for initial use.
* Demonstration and Testing with end-users,
* Provide continuous technical support to users and administrators, ensuring smooth operation and addressing any issues promptly.
* Submit progress report and plan for the next phase

#### **Phase 4: Maintenance and Technical Support**

* Provide routine maintenance and address any troubleshooting needs.
* Ensure continued technical and operational support for all users and administrators.
* Submit progress report and plan for the next phase

#### **Phase 5: Continued Maintenance and Technical Support**

* Implement any additional modifications and enhancements as required.
* Ongoing maintenance and troubleshooting support.
* Provide continuous technical and operational support.
* Submit progress report and plan for the next phase

#### **Phase 6: Final Maintenance, Technical Support, and Handover**

* Final phase of maintenance and troubleshooting support.
* Continue providing support for the duration of this phase.

 **Handover and Knowledge Transfer:** Conduct comprehensive handover activities, including knowledge transfer sessions to ensure that HSEP and DSHE can independently manage the CLMS moving forward.

**4. Project Management**

## **4.1 Implementation Plan and Timelines**

The nominated firm will submit a details implementation plan based on the following time frame:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Phases | Area of Work / Major Activity | Activities | Time Frame | Stakeholders |
| Phase-1 | Rapid Deployment of the of CLMS | - Initiation of firm- System on board   | By 14 August 2024 | 300 Colleges |
| - Content Upload and Course Management  | By 22 August 2024 |
| - Technical and operational support | September- December 2024  |
| Phase-2 | Enhancement, Modification and Development of CLMS  | - Modification, Customization, Upgradation & Maintenance - Technical and operational support - Deliver Mobile Application (Android and iOS)  | 6 Months (October 2024- March 2025)  | 600 Colleges |
| Phase-3 | Enhancement, Modification and Development of CLMS  | - Modification, Customization, Upgradation & Maintenance - Technical and operational support  | 9 Months (April 2025- December 2025)  | 600 Colleges |
| Phase-4 | Maintenance and Technical Support  | - Maintenance and Troubleshooting - Technical and operational support  | 12 Months | 600 Colleges |
| Phase-5 | Maintenance and Technical Support | - Modification and Enhancement - Maintenance and Troubleshooting - Technical and operational support | 12 Months | 600 Colleges |
| Phase-6 | Maintenance and Technical Support  | - Maintenance and Troubleshooting - Technical and operational support- Handover and Knowledge Transfer  | 12 Months | 300 Colleges |

**4.2 Team Composition**

The interested applicant (Firm) should provide a “Work Distribution & Team Composition Plan” in their technical proposal describing the different teams with required HR positions that will be allocated at various phases or steps of proposed project implementation. In the team allocation plan, each HR position should also be described with their roles, amount of involvement (man-day/man-month), expected deliverables and required skill and expertise. The following positions will be considered **minimum project team requirements:**

|  |  |  |
| --- | --- | --- |
| **Sl** | **Position** | **Minimum Required No. of Persons** |
| 1 | Team Leader /Project Manager | 1 |
| 2 | Education Technology Expert | 1 |
| 3 | Solution Architect  | 1 |
| 4 | System/Business Analyst | 1 |
| 5 | Database Administrator /Expert | 1 |
| 6 | Sr. Software Engineer/ Sr. Programmer | 2 |
| 7 | Artificial Intelligence Expert  | 1 |
| 8 | Data science/ Data visualization expert | 1 |
| 9 | Software Engineer /Programmer | 6 |
| 10 | Mobile Apps Developer | 3 |
| 11 | QA Expert (Test Engineer) | 2 |
| 12 | UI/UX Designer | 2 |
| 13 | Technical Documentation Expert | 1 |
| 14 | Support Engineer | 2 |
| 15 | Technical Support Help Desk  | 10 |
|  | **Total** | **35** |

Note: To meet all the requirements and agreed timeline the firm will have to plan for team composition accordingly (not limited to the above-mentioned table). They are required to deploy these human resources internally and if required they can deploy external resources on per man days basis.

**4.3 Qualification and Responsibilities of the team members:**

The minimum required qualification and experience of key technical staff are as follows:

| **SL#** | **Position**  | **Qualification, Experience & Job Description** |
| --- | --- | --- |
| 1 | Team Lead/Project Manager | Qualifications:* Minimum Graduation in Computer Science, Engineering, ICT, or Business Studies; master's preferred.
* 10+ years of experience in managing large-scale IT projects.
* Managed 5 IT/ICT software projects, including 1 e-Governance project for the public sector.

Responsibilities:* Oversee day-to-day project operations, ensuring project goals are met.
* Develop and manage work plans and progress reports.
* Regularly report to the client and stakeholders.
* Supervise technical aspects of project implementation, ensuring sustainability and efficiency.
 |
| 2 | Education Technology Expert  | Qualifications:* Minimum master’s in Education, Education Technology, ICT in Education, or a related field.
* 5+ years of experience in designing and implementing education platforms or LMS, preferably in teachers’ capacity development.

Responsibilities:* Develop and implement instructional strategies in the CLMS design to enhance learning outcomes.
* Integrate tools and resources aligning with the curriculum into the CLMS.
* Conduct training sessions on the use of CLMS.
* Collaborate with stakeholders to identify and address pedagogical needs in the CLMS.
* Review the content
 |
| 3  | Solution Architect | Qualifications:* Minimum graduate in Computer Science, Engineering, ICT, or related field.
* 7+ years of experience in designing and implementing IT solutions.

Responsibilities:* Design and oversee the implementation of CLMS and relevant solutions.
* Develop architectural blueprints and technical documentation for the project.
* Ensure that the technical solutions align with business objectives and requirements.
* Provide technical leadership and guidance throughout the project lifecycle.
 |
| 4 | System Analyst / Business Analyst | Qualifications:* Minimum graduate in Computer Science or related field.
* 5+ years of experience in software development.

Responsibilities:* Analyze user requirements through meetings and discussions with stakeholders.
* Prepare and finalize the Software Requirement Specification (SRS), monitoring and progress reports
* Design system architecture for integration and data management.
* Collaborate with project managers and QA specialists to ensure alignment.
 |
| 5 | Database Administrator /Database Expert | Qualifications:* Minimum graduate in Computer Science or ICT.
* 5+ years of experience in database management.

Responsibilities:* Design, document, and maintain the database architecture.
* Update and test databases to ensure optimal performance.
* Monitor database efficiency and security.
* Assist software engineers with database-related issues.
 |
| 6 | Senior Software Engineer / Programmer | Qualifications:* Minimum graduate in Computer Science, Engineering, ICT, or relevant field.
* 5+ years of experience in web-based software development.
* Experience with e-Governance applications preferred.

Responsibilities:* Lead software design and development efforts.
* Modify and optimize software modules as needed.
* Troubleshoot complex software issues and provide long-term solutions.
* Mentor junior developers and promote best practices.
 |
| 7 | Artificial Intelligence/ Machine Learning Expert  | Qualification:* Minimum graduate in Computer Science, ICT, or relevant field.
* 3+ years of experience in AI/ML development

Responsibilities:* Develop and implement AI strategies and solutions.
* Supervise AI/ML research and development processes.
* Design and apply ML algorithms to analyze data and make predictions.
* Enhance user experience through AI technologies.
 |
| 8 | Data science/ Data visualization expert | Qualification:* Minimum graduate in Computer Science, Statistics, Mathematics, or related field.
* 3+ years of experience in data science and visualization.

Responsibilities:* Develop data visualization strategies and prototypes.
* Implement data visualization solutions to enhance user experience.
* Collaborate with AI/ML experts to integrate data insights.
 |
| 9 | Software Engineer/ Programmer/ Front-end and Back-end Developers  | Qualification: * Minimum graduate in Computer Science, Engineering, ICT, or a relevant field.
* 3+ years of experience in web-based software development.
* Experience with e-learning platforms/LMS will be preferred.

Responsibilities:* Manage the software development lifecycle.
* Develop and modify software modules.
* Execute project plans and ensure timely delivery.
 |
| 10 | Mobile Application Developer (Android and IOS) | Qualification: * Minimum graduate in Computer Science, Engineering, ICT, or relevant field.
* 5+ years of experience in mobile app development.

Responsibilities:* Develop and maintain mobile applications for Android and iOS platforms.
* Stay updated with the latest mobile technologies and trends.
* Collaborate with software engineers to brainstorm and implement new features.
* Create UI tests to analyze app performance and user experience.
 |
| 11 | QA Expert | Qualification:* Minimum graduate in Computer Science, Engineering, ICT, or relevant field; additional degree/diploma in QA preferred.
* 5+ years of experience in software QA.

Responsibilities:* Lead the QA team to ensure software meets quality standards.
* Develop and approve test plans and test cases.
* Verify and validate software functionality and performance.
* Act as release manager, overseeing final product delivery to the client.
 |
| 12 | UI/UX Designer | Qualification, Experience:* Minimum graduate in Computer Science, Engineering, ICT, or relevant field.
* 5+ years of experience in user experience design. Experience in e-learning platform or LMS platforms

Responsibilities:* Design intuitive and user-friendly UI components.
* Create mock screens and prototypes for approval.
* Provide developers with necessary design elements and guidelines.
* Prepare help files and documentation to ensure accessibility.
 |
| 13 | Technical Document Expert | Qualification:* Minimum graduate in English, Computer Science, Business Administration, or related discipline.
* 3+ years of experience in technical documentation.

Responsibilities:* Prepare comprehensive project documentation and training materials.
* Ensure technical specifications are clear and accurate.
* Collaborate with project team to gather and organize information.
 |
| 14 | Support Engineer | Qualification:* Minimum graduate in any discipline.
* 3+ years of experience in IT, with knowledge of web-based applications.

Responsibilities:* Identify and resolve software-related issues.
* Provide technical support to clients and end-users.
* Act as a liaison between software engineers and clients.
 |
| 15 | Helpdesk Support Executive | Qualifications:* Minimum graduate in any discipline.
* 2+ years of experience in helpdesk or call center.

Responsibilities:* Assist end-users with technical troubleshooting and support.
* Serve as the primary point of contact for user issues.
* Communicate user feedback to the development team for improvements.
 |

 **Note:**

1. Please consider the above-mentioned project team composition (under section 5.3) has been proposed here as the minimum size of the team with required positions for evaluation only. The Firm may propose any additional HR positions as per their SDLC methodology and work plan in the technical proposal as their plan.
2. Implementation Schedule under Section 5.1 is timebound, but the HR positions mentioned in Section 5.2, may engaged in the projects for an intermittent period.

## **5. Knowledge Transfer**

Within the software development Terms of Reference (ToR) a Knowledge Transfer Plan describes the organized procedure via which vital information, expertise, and skills are methodically shared from the development team to the client's team or other pertinent stakeholders. This plan will maje sure that after the software is deployed, the client may efficiently update, maintain, and use it. Comprehensive documentation, instruction, and practical workshops covering system design, codebase, operational procedures, troubleshooting, and best practices are important elements of the approach. A timetable for frequent checkpoints and meetings should also be included by the nominated firm in their plan to handle any questions or concerns that may come up throughout the transition phase. The project intends to ensure long-term project success and sustainability by putting in place a strong Knowledge Transfer Plan that will limit reliance on the development team, allow smooth handover, and equip the client's team with the skills needed to maintain the program independently.

## **6. Quality Attributes and Assurance**

The Quality attributes and Assurance plan will describe the standards, processes and procedures in this system development life cycle which will be used to support the consistent delivery of high-quality, professional standard systems and services provided in the support of an automated environment. The quality assurance process will be concerned with establishing the authority of the QA function, quality assurance standards, procedures, policies, and monitoring, and evaluation processes to determine the quality about established standards. Quality assurance activities will concentrate on the prevention of problems through the continuous improvement of processes.

To provide high-quality products and services, each support team will adhere to processes, procedures and standards. Quality Assurance (QA) is a process used to monitor and evaluate the adherence to processes, procedures, and standards to determine potential product and service quality. It will involve reviewing and auditing the products and activities to verify that they comply with the applicable procedures and standards and will ensure the appropriate visibility for the results of the reviews and audits.

The Firm is requested to provide an extensive “Quality Assurance Plan” with measurable attributes for each phase of this System development life cycle in their technical proposal.

**7. Maintenance and Support Service**

The selected Firm will be required to provide maintenance and support services for this developed and deployed system. The firm will be required to provide a maintenance and support services plan from the delivery of CLMS to the end of the project.

Here it is expected that the Firm must provide a detailed “Maintenance and Support Service Plan” including the proposed SLA in the technical proposal. The proposed SLA should include time-bound service delivery layers, modality & compensation plan, which may also include the following:

* A Proposed SLA plans
* Support service types and modes of services
* Help desk functionalities & facilities and capacity
* Configuration management and Change management
* Service layers for different types of support
* Tools & technologies will be used for Support service management
* Communication & report management
* Incident & Problem management
* Support Service Log Management
* Support feedback & service evaluation methodology

The support & maintenance plan should be comprehensive and well-elaborated to ensure proper support to the end users. Apart from the above-mentioned issues, if the company thinks any other issue/method should be included in their plan that assures proper standard support & maintenance of this digital system/application which is suitable for implementing organization, it would be considered as added value addition.

## **8. Intellectual Property Right**

The copyright of the delivered Software/apps and stored content will be owned by HSEP. The Firm must provide all source code with relevant documentation. The Firm should properly document all such codes and deliver them to HSEP and cannot claim any royalty or authority of any sort in case of replicating the source code/database or any other deliverables under this ToR for any future use that HSEP may see fit. Furthermore, the Firm shall not use any library or code that has any other copyright claim associated with it, which will prevent or restrict the smooth transfer of ownership in any way.

**9. Deliverables and Payment Schedule**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Phases** | **Area of Work / Major Activity** | **Activities** | **Time Frame** | **% of payments**  |
| Phase-1 | Rapid Deployment of the of CLMS | - Inception Report - System on board - Server and Domain Set up  | By 14 August 2024 |  |
| - Course Creation - Content Upload - Course Management  | By 22 September 2024 |
| - Technical and operational support- Help Desk  | September- December 2024 |  |
| Phase-2 | Enhancement, Modification and Development of CLMS  | - Deliver Modified, Customized, Upgraded System - Deliver Mobile Application (Android and iOS) - Maintenance, Technical and operational support - Deliver Mobile Application (Android and iOS)  | 6 Months (October 2024- March 2025)  |  |
| Phase-3 | Enhancement, Modification and Development of CLMS  | - Deliver Modified, Customized, Upgraded System - Maintenance Technical and operational support  | 9 Months (April 2025- December 2025)  |  |
| Phase-4 | Maintenance and Technical Support  | - Maintenance and Troubleshooting - Technical and operational support  | 12 Months |  |
| Phase-5 | Maintenance and Technical Support | - Modification and Enhancement - Maintenance and Troubleshooting - Technical and operational support | 12 Months |  |
| Phase-6 | Maintenance and Technical Support  | - Maintenance and Troubleshooting - Technical and operational support- Handover and Knowledge Transfer  | 12 Months |  |

**Annex D**

**Higher Secondary Education Project (HSEP)**

**Subaward Applicant Self-Assessment Form**

Prior to awarding a subaward, Chemonics and USAID HSEP must assess the adequacy of the financial and accounting systems of a prospective sub-recipient to ensure accountability and to evaluate the risks posed by the potential sub-recipient.

In filling out the questionnaire, each question should be answered as completely as possible, using extra pages if necessary. Please return your completed questionnaire to Chemonics/HSEP.

APPLICANT INFORMATION

Name of Organization

Activity Title:

Name, Title, Contact Information of Individual Completing Questionnaire:

SECTION A: INTERNAL CONTROLS

Internal controls are procedures that ensure:

1. financial transactions are approved by an authorized individual and follow laws, regulations and the organization's policies,
2. assets are kept safely,
3. accounting records are complete, accurate and kept on a regular basis.

Please complete the following questions concerning your organization's internal controls:

1. List the name, position/title, and telephone number for the individuals responsible for checking expenditures to make sure they are allowable:

2. Who is responsible for maintaining accounting records:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Who is responsible for preparing financial reports:

4. Who is responsible for preparing narrative reports:

5. Are timesheets kept for each paid employee? Yes: \_\_ No: \_\_

6. Is your organization familiar with U.S. government regulations concerning costs which can be charged to U.S. subawards (2 CFR 200 Subpart E)?

Yes: \_\_ No: \_\_

SECTION B: ACCOUNTING SYSTEM

The purpose of an accounting system is to 1) accurately record all financial transactions, and 2) ensure that all financial transactions are supported by invoices, timesheets and other documentation. The type of accounting system often depends on the size of the organization. Some organizations may have computerized accounting systems, while others use a manual system to record each transaction in a ledger. In either case, Chemonics VnAAPP’ subaward funds must be properly authorized, used for the intended purpose and recorded in an organized and regular manner.

1. Briefly describe your organization's accounting system including: a) any manual ledgers used to record transactions (general ledger, cash disbursements ledger, suppliers ledger etc.); b) any computerized accounting system used (please indicate the name); and c) how transactions are summarized in financial reports, (by the period, project, cost categories)?

2. Does your organization have written accounting policies and procedures?

Yes: \_\_ No: \_\_

3. Are your financial reports prepared on a:

Cash basis: \_\_ Accrual basis: \_\_ (*Accrual - bill for costs before they are incurred*)

4. Can your accounting records separate the receipts and payments of the Chemonics subaward from the receipts and payments of your organization's other activities?

Yes: \_\_ No: \_\_

5. Can your accounting records summarize expenditures from the Chemonics subaward according to different budget categories such as salaries, rent, supplies and equipment?

Yes: \_\_ No: \_\_

6. How do you allocate costs that are “shared” by different funding sources, such as rent, utilities, etc.?

7. How often are financial reports prepared?

Monthly: \_\_ Quarterly: \_\_ Annually: \_\_ Not Prepared: \_\_ (*explain*)

8. How often do you input entries into the financial system?

 Daily: \_\_ Weekly: \_\_ Monthly: \_\_ Ad hoc/as needed: \_\_

9. How often do you do a cash reconciliation?

Daily: \_\_ Weekly: \_\_ Monthly: \_\_ By Accountant’s Decision: \_\_

10. Do you keep invoices, vouchers and timesheets for all payments made from subaward funds?

Yes: \_\_ No: \_\_

SECTION C: FUNDS CONTROL

Access to the bank account must be limited to authorized individuals. Bank balances should be compared each month with your accounting records. The bank account must be in Vietnamese Dong (VND). For petty cash, it is very important to keep the cash in a strong safe and have strict controls over cash maintenance and disbursement.

1. Do you have a bank account registered in the name of your organization?

Yes: \_\_ No: \_\_

2. Will the bank account draw interest?

Yes: \_\_ No: \_\_

3. Are all bank accounts and check signers authorized by the organization's Board of Directors or Trustees or other authorized persons?

Yes: \_\_ No: \_\_

4. Will any cash from Chemonics/VnAAPP subaward funds be kept outside the bank account (in petty cash funds, etc.)?

Yes: \_\_ No: \_\_

4.a. If yes, please explain the amount of funds to be kept and the name and position/title of the person responsible for safeguarding cash.

SECTION D: AUDIT

Chemonics/hsepP may require an audit of your organization's accounting records. An audit is a review of your accounting records by an independent accountant who works for an accounting firm. An audit report contains your financial statements as well as an opinion by the accountant that your financial statements are correct. Please provide the following information on prior audits of your organization.

1. Does your organization have regular independent audits that you contract and pay for?

Yes: \_\_ (*please provide the most recent copy*) No audits performed: \_\_

2. If yes, who performs the audit?

3. How often are audits performed?

Quarterly: \_\_ Yearly: \_\_ Every 2 years: \_\_ Other: \_\_ (*explain*)

4. If your organization does not have a current audit of its financial statements, please provide a copy of the following financial information, if available:

 a. A "Balance Sheet" for your prior fiscal or calendar year; and

 b. A "Revenue and Expense Statement" for your prior fiscal or calendar year.

5. Are there any reasons (local conditions, laws, or institutional circumstances) that would prevent an independent accountant from performing an audit of your organization?

Yes: \_\_ No: \_\_

If yes, please explain:

**Annex E – Required Certifications**

Purpose: ADS 303.3.8 mandates certain certifications that the grantee (U.S. and non-U.S.) must sign prior to subaward. All applicable certifications, assurances, representations, and other statements must be signed and received by Chemonics before any money can be disbursed or reimbursed under a subaward.

List of certifications and assurances to be submitted by selected applicant as part of the subaward application:

* + Certification of “Representation by Organization Regarding a Delinquent Tax Liability or a Felony Criminal Conviction (AAPD 14-03, August 2014)”
	+ Certification Regarding Terrorist Financing
	+ Certification of Recipient

List of certifications and assurances to be submitted by selected applicant prior to signing the subaward:

* + Certification Regarding Lobbying (Required for all subawards over $100,000).
	+ Certification Regarding Trafficking in Persons (Required for subawards over $500,000 and must be re-submitted annually).

**REPRESENTATION BY ORGANIZATION REGARDING A DELINQUENT TAX LIABILITY OR A FELONY CRIMINAL CONVICTION**

(a) As required by sections 744 and 745 of Division E of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235), and similar provisions, if contained in subsequent appropriations acts, none of the funds made available by that Act may be used to enter into an assistance

award with any organization that –

(1) “Was convicted of a felony criminal violation under any Federal law within the preceding 24 months, where the awarding agency has direct knowledge of the conviction, unless the agency has considered, in accordance with its procedures, that this further action is not necessary to protect the interests of the Government”; or

(2) “Has any unpaid Federal tax liability that has been assessed for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability,

where the awarding agency has direct knowledge of the unpaid tax liability, unless the Federal agency has considered, in accordance with its procedures, that this further action is not necessary to protect the interests of the Government”.

It is USAID’s policy that no award may be made to any organization covered by (1) or (2) above, unless the M/MPBP Compliance Division has made a determination that suspension or debarment is not necessary to protect the interests of the Government.

**(b) Applicant Representation**:

(1)The Applicant represents that it is [ ] is not [ ] an organization that was convicted of a felony criminal violation under a Federal law within the preceding 24 months.

(2)The Applicant represents that it is [ ] is not [ ] an organization that has any unpaid Federal tax liability that has been assessed for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Signature

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Type or Print Name

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Position Title

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Date of Execution

**Certification Regarding Terrorist Financing**

**Certification Regarding Terrorist Financing, Implementing Executive Order 13224**

The undersigned represents, to the best of its knowledge, that:

1. Except as otherwise disclosed in writing and included with this application, the Recipient did not, within the previous three years, knowingly engage in transactions with, or provide material support or resources to, any individual or entity who was, at the time, subject to sanctions administered by the Office of Foreign Assets Control (OFAC) within the U.S. Department of Treasury pursuant to the Global Terrorism Sanctions Regulations (31 CFR Part 594), and the Foreign Terrorist Organizations Sanctions Regulations (31 CFR Part 597), or sanctions established by the United Nations Security Council, collectively, “U.S. or U.N. sanctions.” Note: Chemonics intends to retain the information disclosed to the Agreement Officer pursuant to this paragraph in any award file and use it in determining whether to provide the applicant with an assistance award. Chemonics will not make such information available publicly unless required by law.

2. The representation in paragraph (1) does not apply to:

(a) Transactions entered into or material support and resources provided pursuant to an OFAC license;

(b) The furnishing of USAID funds, or USAID-financed commodities or other assistance, to the ultimate beneficiaries of USAID-funded humanitarian or development assistance, such as the recipients of food, non-food items, medical care, micro-enterprise loans or shelter, unless the applicant knew or had reason to believe that one or more of these beneficiaries was subject to U.S. or U.N. terrorism-related sanctions; or

(c) The procurement of goods and/or services by the Recipient acquired in the ordinary course of business through contract or purchase, such as utilities, rents, office supplies, or gasoline, unless the applicant knew, or had reason to believe, that a vendor or supplier of such goods and services was subject to U.S. or U.N. sanctions.

This certification includes express terms and conditions of the award, and any violation of it will be grounds for unilateral termination of the agreement by USAID. This certification does not preclude any other remedy available to USAID.

3. For purposes of this Certification-

a. “Material support and resources” means currency or monetary instruments or financial securities, financial services, lodging, training, expert advice or assistance, safehouses, false documentation or identification, communications equipment, facilities, weapons, lethal substances, explosives, personnel, transportation, and other physical assets, except medicine or religious materials.”

(i) “Training" means instruction or teaching designed to impart a specific skill, as opposed to general knowledge.

(ii) “Expert advice or assistance" means advice or assistance derived from scientific, technical, or other specialized knowledge.

b. “Entity” means a partnership, association, corporation, or other organization, group or subgroup.

Subrecipient Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subrecipient’s Authorized Representative Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subrecipient’s Authorized Representative Title\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subrecipient Authorized Representative Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Certification of Recipient**

To: Chemonics International

I, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, as a legally authorized

 Name (Printed or Typed) Title

representative of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Organization Name

provide certification and assurance for the following:

1. The Certification Regarding Lobbying
2. The Certification Regarding Terrorist Financing
3. The Certification Regarding Trafficking in Persons
4. FFATA Subaward Reporting Questionnaire and Certification
5. Representation by Organization Regarding A Delinquent Tax Liability or a Felony Criminal Conviction

These certifications and assurances are given in consideration of and for the purpose of obtaining any and all U.S. Federal grants, loans, contracts, property, discounts, or other U.S. Federal financial assistance extended after the date hereof to the recipient by Chemonics, including installment payments after such date on account of applications for U.S. Federal financial assistance which was approved before such date. The recipient recognizes and agrees that such U.S. Federal financial assistance will be extended in reliance on the representations and agreements made in these assurances, and that the United States will have the right to seek judicial enforcement of these assurances. These assurances are binding on the recipient, its successors, transferees, and assignees, and the person or persons whose signatures appear below are authorized to sign these assurances on behalf of the recipient.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature Position Title

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Type or Print Name Date of Execution

**Certification Regarding Lobbying**

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal Cooperative Agreement, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subawards, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, United States Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

**Statement for Loan Guarantees and Loan Insurance**

The undersigned states, to the best of his or her knowledge and belief, that: If any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions. Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Subrecipient Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subrecipient’s Authorized Representative Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subrecipient’s Authorized Representative Title\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subrecipient Authorized Representative Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Certification Regarding Trafficking in Persons, Implementing Title XVII of the National Defense Authorization Act for Fiscal Year 2013**

Note: This certification must be completed by the grantee or sub-recipient prior to receiving an award with an estimated value that exceeds $500,000 and must be submitted to Chemonics annually during the term of the award.

By signing below, the applicant or recipient, as applicable, through its duly designated representative, after having conducted due diligence, hereby certifies that:

1. The applicant/recipient has implemented a compliance plan to prevent the prohibited activities identified in section (a) of the Mandatory Provision “Trafficking in Persons” and is in compliance with that plan;
2. The application/recipient has implemented procedures to prevent any activities described in section (a) of the Mandatory Provision “Trafficking in Persons” and to monitor, detect, and terminate any contractor, subrecipient, employee, or other agent of the applicant/recipient engaging in any activities described in such section; and
3. To the best of the representative’s knowledge, neither the applicant/recipient, nor any employee, contractor, or subrecipient of the applicant/recipient, nor any agent of the applicant/recipient or of such a contractor or subrecipient, is engaged in any of the activities described in section (a) the Mandatory Provision “Trafficking in Persons.”

Subrecipient Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subrecipient’s Authorized Representative Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subrecipient’s Authorized Representative Title\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subrecipient Authorized Representative Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Trafficking in Persons Compliance Plan Template**

**(Required if subaward is over $500,000)**

I. Background

This certification requires that we implement this compliance plan to prevent the prohibited activities identified in section (a) of the Mandatory Standard Provision entitled “Trafficking in Persons.”

[Name of Subrecipient] understands that in the event of a violation of section (a) of the Trafficking in Persons provision, Chemonics and USAID are authorized to terminate the subaward, without penalty, and is also authorized to pursue any other remedial actions authorized as stated in section 1704(c) of the National Defense Authorization Act for Fiscal Year 2013 (Pub. L. 112-239, enacted January 2, 2013).

II. Compliance Plan

A. Awareness of the Program – [Name of Subrecipient] employees, our contractors and subcontractors at any tier and their employees, labor recruiters, brokers or other agents are aware of the trafficking related prohibitions included in the Trafficking in Persons Mandatory Standard Provision. [Name of Subrecipient] will distribute the attached Trafficking in Persons Information and Policy through one or more of the following means, as appropriate: Display in prominent space in the office(s), post on our website, distribute via e-mail, distribute via social media, attach to employment agreements, provide copies at office meetings and trainings, other means as appropriate.

B. Policy Violation - Any violation of this policy could result in disciplinary action up to and including termination. This includes procedures in place to monitor, detect, and terminate any employees that have engaged in such activities.

C. Reporting Process – All employees may report, without fear of retaliation, activity inconsistent with the policy prohibiting trafficking to the Global Human Trafficking Hotline at USA – 1-844-888-FREE and help@befree.org.

D. Recruitment and Wage Plan – *Use either the first or second sentence depending upon if your organization uses a recruitment company.* ***Option A***[Name of Subrecipient] only permits the use of recruitment companies with trained employees, prohibits charging of recruitment fees to the employee, and ensures that wages meet applicable Vietnamese legal requirements or explains any variance. ***Option B*** [Name of Subrecipient] does not use a recruitment company, prohibits charging of recruitment fees to the employee, and ensures that wages meet applicable Vietnamese legal requirements or explains any variance.

E. Housing Plan - [Name of Subrecipient] *does or does not* provide or arrange for employee housing. *If your organization includes a housing plan, include this sentence.* The housing plan meets all Vietnamese applicable housing and safety standards.

F. Prevention Procedures - [Name of Subrecipient] will maintain awareness of the Trafficking in Persons Compliance Plan as described above and will reiterate the consequences of violation of any parts of the plan. Furthermore, [Name of Subrecipient] will reiterate the importance of adherence to the Trafficking in Persons Compliance Plan as part of our monitoring and detection efforts.

G. Trafficking Violations – [Name of Subrecipient] understands that if we receive any credible information from any source that alleges that our staff, employees, contractor, subcontractor, subrecipient, agent, or any of their employees have engaged in any prohibited activities, we will immediately notify Chemonics’ agent and must fully cooperate with the USAID Office of Inspector General and U.S. Federal agencies responsible for audits, investigations, or corrective actions related to trafficking in persons.

H. Disclosure and Cooperation - Chemonics or USAID may request a copy of this compliance plan at any time during subaward implementation.

**Trafficking in Persons Information and Policy**

**What is Trafficking?**

Per the Protocol to Prevent, Suppress, and Punish Trafficking in Persons, especially Women and Children, "Trafficking in persons" shall mean the recruitment, transportation, transfer, harboring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation. Exploitation shall include, at a minimum, the exploitation of the prostitution of others or other forms of sexual exploitation, forced labor or services, slavery or practices similar to slavery, servitude or the removal of organs... The consent of a victim of trafficking in persons to the intended exploitation set forth [above] shall be irrelevant where any of the means set forth [above] have been used.”

Trafficking includes the:

(1) Procurement of a commercial sex act;

(2) Use of forced labor,

(3) Acts that directly support or advance trafficking in persons, including the following acts:

i. Destroying, concealing, confiscating, or otherwise denying an employee access to that employee's identity or immigration documents;

ii. Failing to provide return transportation or pay for return transportation costs to an employee from a country outside of the country from which the employee was recruited upon the end of employment if requested by the employee, unless exempted from the requirement to provide or pay for such return transportation by Chemonics or USAID; or if the employee is a victim of human trafficking seeking victim services or legal redress in the country of employment or a witness in a human trafficking enforcement action;

iii. Soliciting a person for the purpose of employment, or offering employment, by means of materially false or fraudulent pretenses, representations, or promises regarding that employment;

iv. Charging employees recruitment fees; or

v. Providing or arranging housing that fails to meet the country of performance housing and safety standards.

**Trafficking in Persons Policy**

No person employed by this organization shall engage in any form of trafficking in persons as defined above, procure commercial sex acts, destroy, conceal, confiscate, or otherwise deny an individual access to their identify or immigration documents, use misleading or fraudulent practices during the recruitment of employees, including charging recruitment fees.

**How to Report Potential Trafficking Violations**

Trafficking victims or witnesses can contact the Global Human Trafficking Hotline 24 hours a day at:

* Phone: 1.844.888.FREE
* E-mail: help@befree.org

CHECKLIST AND SIGNATURE PAGE

Chemonics/HSEP requests that your organization submit a number of documents along with this completed questionnaire. Complete this page to ensure that all requested information has been included.

Please complete the checklist below, then sign and return the questionnaire and any other requested documents to Chemonics.

1. Complete the checklist:

\_\_\_\_Incorporation Papers or Certificate of Registration and Statute have been provided to Chemonics/HSEP

\_\_\_\_Organizational chart, if available, has been provided to Chemonics/HSEP (if applicable).

\_\_\_\_Copy of your organization's most recent audit has been provided to Chemonics/HSEP (If no recent audit, a "Balance Sheet" and "Revenue and Expense Statement" for the prior fiscal year).

\_\_\_\_All questions have been fully answered.

\_\_\_\_An authorized individual has signed and dated this page.

The Accounting Questionnaire must be signed and dated by an authorized person who has either completed or reviewed the form.

Approved by:

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Print Name Signature

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Title Date

**Annex F** – Mandatory and Required As Applicable Standard Provisions

Standard Provisions for Non-U.S., Nongovernmental recipients receiving all other types of subawards can be accessed through the following URL:

<https://www.usaid.gov/about-us/agency-policy/series-300/references-chapter/303mab>

* Standard Provisions for U.S. and Non-U.S. Nongovernmental organizations receiving a fixed amount award can be accessed through the following URL:

<https://www.usaid.gov/about-us/agency-policy/series-300/references-chapter/303mat>