



Government of the People's Republic of Bangladesh
Ministry of Education
Selection of Consulting Firm for e-Learning Campaign under Secondary Education
Sector Investment Program (SESIP)

Request for Expression of Interest (REOI)
for
Short listing of National Firms for e-Learning Campaign (SD-11)

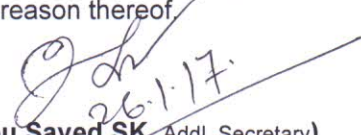
Memo No. DSHE/SESIP/SPSU/2-284/e-Learning Campaign/2016/03

Date: 26.01.2017

1. The Directorate of Secondary and Higher Education (DSHE) has been allocated public funds from the Government of the People's Republic of Bangladesh (GOB) and the Asian Development Bank (ADB) towards the cost of Secondary Education Sector Investment Program (SESIP) and, intends to apply part of the proceeds of these funds under the ADB Loan No.3047-BAN, Tranche-1, to eligible payments to the selected Consulting Firm under the consultancy services for the program for which this REOI is issued.
2. SESIP supports secondary education in Bangladesh over 10 years, using a multi tranche financing facility (2013–2022). SESIP will support the implementation of key reforms envisaged in the National Education Policy (NEP), 2010 in a phased manner. The MOE has approved a 10-year Secondary Education Sector Road Map for implementation of the NEP. SESIP will also adopt a sector-wide approach that supports a government-led common secondary education program framework with enhanced harmonization of ADB and other development partner's assistance. The Ministry of Education (MOE) is the executing agency and the Directorate of Secondary and Higher Education (DSHE) is the implementing agency.
3. "Improved Relevance and Quality of Curriculum", E-learning modules will be developed for six core subjects (Bangla, English, Mathematics, Science, Bangladesh Global Studies and ICT) to support ICT Learning Centers (ILCs) that will be piloted in 640 schools for 6,400 teachers. A total of 6,400 teachers and 1,900 head teachers/madrasah supers will be trained on e-learning, 5,000 of them on the use of ICT for pedagogy. Overseas training for e-learning capacity development will also be provided under SESIP.
4. Other relevant e-learning activities have been completed or are being implemented by SESIP's GD-4 contract (ILC infrastructure), Second Teaching Quality Improvement in Secondary Education (TQI II), Secondary Education Quality and Access Enhancement Project (SEQAEP), British Council, English in Action, Primary Education Development Program (PEDP) II and III, Access to Information (A2I) and BRAC Education Program to mention a few. Consultation with TQI II is especially important as they are planning to develop e-learning materials for Grade 6 on 16 subjects and also for Grades 9 and 10.
5. NCTB is the main co-implementing partner to work closely together with. Also the DSHE Training Wing and local entities like TTCs are important partners when it comes to training and continuous professional development of teacher trainers, teachers and administrators in the field.
6. The purpose of this Service Package SD-11, under Tranche 1 financing, is to initiate a campaign to make the broad public more aware of the latest e-learning plans and developments. The campaign will be referred to as the "e-learning campaign", to be planned, developed, and implemented during 2017-2018.
7. The period of the assignment is (12) months subject to the extension of existing loan closing date (31 December 2017) under Time-based Contract in two phases comprising of 40 person-months

of time-inputs of national expertise as detailed in **TOR**. The location of the assignment will be in Dhaka with occasional field visits. The Ministry of Education (MOE), GOB will be the Executing Agency (EA) and DSHE under MOE, GOB will be the Implementing Agency (IA).

8. DSHE now invites eligible national Consulting Firms to submit EOI for Consultancy Services for SESIP for '**e-Learning Campaign (SD-11)**' under the financing agreement between ADB and the GOB. Eligible national Consulting Firms should submit their EOIs through ADB's consultant management system at <http://cms.adb.org>. The Firms must prepare and submit their EOIs in a standard form, "**Template for Expression of Interest (Consulting Firms)**", which can be obtained by downloading from the ADB website <https://www.adb.org/site/business-opportunities/operational-procurement/consulting/documents#loans>
 9. The scope of work and detailed Terms of Reference (TOR) can also be obtained by contacting the office of the **Joint Program Director, SESIP** during regular office hours or can be downloaded from SESIP's website (<http://www.sesip.gov.bd>).
 10. A group of consulting firms may form an association to express interest together and, have their qualifications and experience considered jointly. Associations may take the form of joint ventures or sub-consultancies.
 11. The short listing will follow the "Guidelines on The Use of Consultants by Asian Development Bank and Its Borrowers, March 2013" including revisions, if any. The Consultant will be selected using Quality and Cost Based Selection (QCBS) Method. The EOI from the consulting firm will be rejected if it or its associated firm has been debarred by the GOB or the ADB.
 12. The eligibility of the firm is described below. The firm/organization should preferably have:
 - I. 5 years-experience on designing (a) digital content, (b) mobile app and web solutions;
 - II. Expertise on digital content development including education sector;
 - III. Expertise to design and implement web/mobile based connectivity solutions for use in the education sector;
 - IV. Experience on designing web based fast-track technical support platform with ticketing system for ensuring quick solutions of technical problems to the computer labs;
 - V. Proven experience on designing and implementing real-time monitoring dashboard for tracking the performance of an initiative;
 - VI. Expertise on mobile app and web solutions development;
 - VII. In-house pedagogy and experience on training on basic ICT literacy and core skills on digital literacy, and;
 - VIII. Experience on designing business models to propose initiative for sustainable solutions.
- In addition to eligibility criteria and others as appropriate, short listing will be carried out by the following major criteria as in the ADB EOI Template for Consulting Firms:
- Technical Competence
 - Geographical Experience
 - Management Competence
13. The EOI must be submitted as stated under **Para 8** above by **11:59 PM (Manila Time) on 02 March 2017**.
 14. The Procuring Entity reserves the right to accept or reject any or all the EOIs without assigning any reason thereof.


(Md. Abu Sayed SK., Addl. Secretary)

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BANGLADESH: SECONDARY EDUCATION SECTOR INVESTMENT PROGRAM (SESIP)

L3047-BAN

TERMS OF REFERENCE (TOR)

for

e-learning Campaign (SD-11)

A. Program Background

1. The Secondary Education Sector Investment Program (SESIP) was approved by Asian Development Bank's Board on 27 September 2013. Periodic Financing Request 1 (Tranche 1) for \$90 million (2013–2017) was approved by the ADB President on 21 October 2013. The loan became effective on 06 December 2013. The government's Development Program Proposal (DPP) was approved by the Executive Committee of the National Economic Council on 29 October 2013.

2. SESIP supports secondary education in Bangladesh over 10 years, using a multi tranche financing facility (2013–2022). SESIP will support the implementation of key reforms envisaged in the National Education Policy (NEP), 2010 in a phased manner. The MOE has approved a 10-year Secondary Education Sector Road Map for implementation of the NEP. SESIP will also adopt a sector-wide approach that supports a government-led common secondary education program framework with enhanced harmonization of ADB and other development partner's assistance. The Ministry of Education (MOE) is the executing agency and the Directorate of Secondary and Higher Education (DSHE) is the implementing agency.

3. Under Output 1.1. "Improved Relevance and Quality of Curriculum", E-learning modules will be developed for six core subjects (Bangla, English, Mathematics, Science, Bangladesh Global Studies and ICT) to support ICT Learning Centers (ILCs) that will be piloted in 640 schools for 6,400 teachers. A total of 6,400 teachers and 1,900 head teachers/madrasah supers will be trained on e-learning, 5,000 of them on the use of ICT for pedagogy. Overseas training for e-learning capacity development will also be provided under SESIP.

4. Other relevant e-learning activities have been completed or are being implemented by Teaching Quality in Secondary Education (TQI I), Secondary Education Quality and Access Enhancement Project (SEQAEP), British Council, English in Action, Primary Education Development Program (PEDP) II and III, Access to Information (A2I) and BRAC Education Program to mention a few. Consultation with TQI II is especially important as they are planning to develop e-learning materials for Grade 6 on 16 subjects and also for Grades 9 and 10.

5. NCTB is the main co-implementing partner to work closely together with. Also the DSHE Training Wing and local entities like TTCs are important partners when it comes to training and continuous professional development of teacher trainers, teachers and administrators in the field.

B. Purpose and Objective of the Assignment

6. The purpose of this Service Package SD-11, under Tranche 1 financing, is to initiate a campaign to make the broad public more aware of the latest e-learning plans and developments. The campaign will be referred to as the "e-learning campaign", to be planned, developed, and implemented during 2017-2018.

7. The overall objective of the work, under the umbrella of the SESIP overall objective 1: "Improved Quality and Relevance of Curriculum", is to have an e-learning campaign planned and launched and to be accessed from the internet or through other channels like mobile phones or other devices by teachers, students, other potential users of e-learning materials and the broad public. "

8. The expected outcome of the work is that the campaign materials are available and appropriately marketed through the internet and social media, or through printed materials like brochures and fliers to be delivered during workshops, seminars and conferences or other e-learning related events.

C. Implementation Arrangements.

9. A firm/organization will be engaged through National Competitive Bidding (NCB) by Directorate of Secondary and Higher Education (DSHE) on open tender using Quality and Cost-based Selection – Bio data Technical Proposal (QCBS-BTP) to undertake the campaign development. The firm will support SESIP with assistance and coordination from the SESIP Sector Program Support Unit (SPSU) and consultant staff. Main counterparts are NCTB, Team Leader and Deputy Team Leader of SESIP and the International and National e-learning Specialists. Other consultants will support as needed.

10. The campaign content will be developed from available e-learning related material in DSHE, NCTB or through searching other sources on the internet. Some materials like photos, video clips, animations can be prepared specifically for this purpose or obtained from other public sources in order to enrich the presentations. The campaign approach and content have to be developed as by the firm, in collaboration with NCTB and other specialists, with the participation of stakeholders and the approval of NCTB. The script development and approval process is hereafter referred to as Phase 1. The firm/organization selected will also be responsible for Phase 2, the implementation and roll out of the actual e-learning campaign. In Phase 2, the firm will also work with and keep informed the Director of Secondary, and Director of Training, in the Directorate of Secondary and Higher Education (DSHE). As an indirect outcome the firm will help to build capacity of NCTB and relevant DSHE officials.

11. The duration of the consultancy will be for a total of 12 (Twelve) months, with roughly six months allocation for each phase. The period of the assignment is 12 (Twelve) months subject to extension of existing loan closing date (31 December 2017). The location of the assignment will be Dhaka with occasional field visits. The Consultant firm will provide their own facilities for carrying out the work. Some temporary working space may need to be arranged also for

counterparts from NCTB or SESIP when/if working with the Consultant. Individuals of the firm team members will visit NCTB as needed, and adequate work space will be provided in NCTB, if needed.

12. In terms of scope of work, an education centered development approach need to be considered; where students, parents and the broad community around schools and education will be the subsequent level beneficiaries.

13. The scope of work includes, but is not limited to, the following elements:

E-learning campaign content:

- Develop e-learning campaign modules on various topics;
- Create a web based solution/platform for launching the campaign, and;
- Create web based campaign materials suitable for sharing through various social media.

Integrated solutions design for schools:

- Make a real-time monitoring dashboard, and;
- Arrange ToT for 5 NCTB staff on web based applications for developing and running web/mobile based campaigns.

Sustainability design:

- Design and execute sustainability plan of the initiative since beginning to ensure continuation of such services even after phasing out the project.

D. Scope of the Service

14. The activities to be covered under the scope of the review are:

- a. During Phase 1, the consultant's team members will work with experts appointed by SESIP, comprising e-learning experts, animation specialists etc. This group of experts, mainly from NCTB and Government Teacher Training Colleges (including consultants engaged by SESIP), will determine what is pedagogically sound, and safeguard that the content of the campaign covers examples of the core curriculum areas where e-learning modules are being developed. NCTB will be in charge of coordinating the expert group and see that they are available to work with the firm/organization. NCTB will also be responsible for quality assurance of the content as well as for assisting in identifying target audiences for e-learning understanding and promotion. The consultant's Team Leader will be responsible for coordination with other similar developments like the Science Media Campaign, e-learning material development etc. The SESIP Team Leader and Deputy Team Leader may also introduce the firm to relevant contact persons in other ongoing projects;
- b. The roles and responsibilities of NCTB during implementation of Phase 2, which covers the dissemination of the actual e-learning campaign, will be mainly related to quality assurance and providing monitoring of the campaign implementation;

- c. The contracted firm/organization will develop or acquire all resources such as photographs, diagrams, video, animations/simulations, etc., using their own facilities. They must have the required equipment and laboratory facilities. Issues related to Copyright have to be clarified at all stages of the work;
 - d. All e-learning campaign materials must be relevant to Bangladesh customs and culture and the language must be Bangla, except for excerpts of the content in English language, in written versions, to be presented to the SESIP Team Leader. The materials must be free from gender or ethnic bias. The materials have to be presented for NCTB at regular intervals, and;
 - e. The firm/organization must deliver an editable form of the final version of all materials and related resources to make it possible for DSHE to update and amend them as desired by MOE. The copyright will be with MOE.
15. The sources of information are:
- a. The latest version of the Bangladesh Secondary Education Curriculum, especially the Grade 6-10 core subjects and ICT which will be developed in e-learning format under another service contract;
 - b. Different web based sources of information. Note that these sources should be used with caution to avoid any copyright conflicts or use of material that is not fitting the local context, and;
 - c. Other relevant sources of information available with MoE and DSHE may be used.
16. An Inception Report will be presented by the firm/organization before the end of the first month, comprising any changes proposed to the TOR, a detailed time plan and milestones for deliverables. A mid-term report will be presented latest by the end of the sixth month with presentation of the status and results of the development of the content of the campaign, including discussion about any shortcomings.
17. The following specific activities will be undertaken:
- a. Phase 1, including: collecting and scrutinizing all relevant documentation from SESIP background documents, NCTB e-learning related materials, TQI I and II, SEQAEP, EIA, A2I, PEDP III etc. and other available sources; developing outline for campaign content development, approach and tools (to be approved by SPSU and SESIP Team Leader); development of texts together with relevant teams of experts and specialists; testing the material drafts by presenting the texts in a few classrooms;
 - b. Prepare a brief mid-term report describing the work carried out so far, with findings and recommendations in case of any shortcomings, and with copies of the materials annexed;
 - c. Regularly discuss progress, mostly informally, with NCTB, DSHE, SPSU, and SESIP Team Leader;

- d. Phase 2, including: developing the actual e-learning campaign materials and testing their functionality through various modes of delivery; present the materials for NCTB and selected representatives from other relevant entities and collect feedback; present/pilot the materials in minimum 10 classrooms in at least one rural and one urban school selected from among the 640 ILC pilot schools; discuss with students, teachers, Head Teacher and other relevant staff and School Committee members, parents, PTA etc in order to collect relevant feedback;
- e. The e-learning materials will also be presented in a session for DSHE and NCTB experts for their comments. Representatives from TQI II, EiA, PEDP III and other relevant projects should also be invited;
- f. Phase 2 will also include desk work: analysis of collected feedback and comments; incorporation of comments into final materials; present the materials for NCTB for final comments and approval;
- g. Provide e-learning campaign dissemination and orientation through a proposed modality that includes scope of approach, assessment, and other related uses;
- h. Preparation of Draft Final Report with findings, recommendations and justifications for any proposed changes. All materials should be annexed, where possible on DVDs and/or with links to web pages, and;
- i. Presentation of the Final Report, incorporating any comments on the draft report.

E. Consultant Requirements:

Positions (all national)	Estimated Person-Months
Team Leader/Project Manager	12
Media/campaign Specialist	10
e-learning Specialist	6
Web design/ICT specialist	6
Mobile App Developer	6
Total	40 months

18. The eligibility of the firm is described below. The firm/organization must have:

- (i) 5 years-experience on designing a) digital content, b) mobile app and web solutions;

- (ii) A track record and in-house expertise on digital content development including education sector;
- (iii) In-house expertise to design and implement web/mobile based connectivity solutions for use in the education sector;
- (iv) Experience on designing web based fast-track technical support platform with ticketing system for ensuring quick solutions of technical problems to the computer labs;
- (v) Proven experience on designing and implementing real-time monitoring dashboard for tracking the performance of an initiative;
- (vi) In-house expertise on mobile app and web solutions development;
- (vii) In-house pedagogy and experience on training on basic ICT literacy and core skills on digital literacy, and;
- (viii) The selected firm must have experience on designing business models to propose initiative for sustainable solutions.

19. Qualifications and Experience of the individual experts and related tasks are as follows:

i. Team Leader/Project Manager: national: Twelve (12) months

Qualification and Experience:

Minimum Master's Degree, preferably in Education, from a recognized University, having 10 years of experience in Project Management with emphasis on the Education Sector, of which five years in development partner funded projects/programs.

Tasks:

The main task of the consultancy assignment is to provide high quality and relevant e-learning campaign materials. Therefore the TL will lead, guide and support the team with necessary oversight for all related activities including undertaking exchange of views and sharing information with other experts of the program and representatives of the Client. The tasks, among others, will include effective planning, management, coordination and reporting of all work.

The detailed tasks shall be:

- (i) establish the team, coordinate, and monitor communication with specialists and counterparts from DSHE and NCTB as well as other players for accessing and collecting all the relevant background data;
- (ii) prepare plan and timetable for the work related to Phase 1;
- (iii) guide, monitor and supervise the team in the development of the materials;
- (iv) under Phase 2, guide the team and contribute to the launch and running of the campaign;
- (v) ensure quality of all outputs;

- (vi) provide oversight and monitor the progress of all material development;
- (vii) participate in meetings, and;
- (viii) prepare inception, mid-term and final reports.

ii. Media Campaign Specialist; national, Ten (10) months

Qualification and Experience:

Minimum undergraduate degree in any related field or equivalent in visual design experience required; graduate degree preferred. At least five (5) years management experience working with large-scale web sites, e-marketing, advertising etc. Must possess a thorough understanding of interactive communications and delivery systems, processes and user interface design as well as best practices within the media industry.

Knowledge of layouts, graphic design fundamentals, typography and limitations of the web; must understand Flash and have the ability to storyboard or translate ideas to designers and develop innovative motion graphics solutions. Print and web design capabilities: must know how to work in both media for integrated campaigns. Experience with software such as Photoshop, Illustrator, In Design & Flash. Experience with Adobe After Effects & video editing (a plus) needed for this position

Tasks:

Develop and manage web site and social media campaigns and day-to-day activities including;

- (a) Curate relevant content to reach the campaign audience;
- (b) Work closely together with the Team Leader and other members on all aspects of the task;
- (c) Create, curate, and manage all published content (images, video and written);
- (d) Monitor, listen and respond to users in a "Social" way while cultivating leads and sales;
- (e) Conduct online advocacy and open stream;
- (f) Develop and expand community and/or blogger outreach efforts;
- (g) Oversee design (i.e.: Facebook Timeline cover, profile pic, thumbnails, ads, landing pages, Twitter profile, and blog);
- (h) Design, create and manage promotions and social ad campaigns, and;
- (i) Assist Team Leader in compiling mid-term and final reports.

iii. e-learning Specialist, national, Six (6) months

Qualification and Experience:

Minimum Master's Degree in Education from a recognized University. Minimum 10 years of experience in teaching/learning material development in the Education Sector; of which

five years in relation to interactive e-learning materials. Three years of experience in Development Partner funded projects/programs. Experience from carrying out minimum one assignment in developing e-learning interactive materials for the Secondary Education level would be an asset.

Tasks:

The e-learning Specialist will assist the Team Leader in leading the team throughout the development of the scripts and the e-learning campaign materials with specific expertise in e-learning, including undertaking exchange of views and sharing information with other experts, organizations and representatives of the Client. The tasks include overall responsibility for the pedagogical aspects of the materials and approaches and quality assurance of the roll out during Phase 2.

The detailed tasks shall be;

- (i) Assist in establishing the team, communicate with other specialists and counterparts from DSHE and NCTB especially on e-learning concepts and issues for smooth implementation of the development work;
- (ii) Prepare, together with TL, the team, discuss the concrete outlines, templates and pedagogical approach for the materials;
- (iii) Secure compatibility with the e-learning approaches and suggest common approaches and templates;
- (iv) Guide the team, especially in understanding specific e-learning modalities to keep in mind;
- (v) Take responsibility of selected content development as one of the team members;
- (vi) Ensure pedagogical quality of the outputs;
- (vii) Participate in the piloting of the modules in a selected number of schools;
- (viii) Participate in meetings and assist TL in preparation of reports, and
- (ix) Carry out any other duty as required by the Team Leader.

iv. Web Design/ICT Specialist, national, Six (6) months

Qualification and Experience:

Minimum Bachelor's Degree in Computer Sciences or related field, having at least 5 years' working experience in developing web sites in relation to the education sector in Bangladesh. Experience from working with development projects or programs would be an asset. Experience in system architecture design for education sector desirable.

Tasks:

The Specialist will be in charge of guaranteeing that the requirements for development and presentation of the e-learning campaign through various electronic media channels, mainly on a web page, are understood and considered by the team. The specialist will review available system architecture and discuss the work with the e-learning and Curriculum Specialists and the Team Leader and relevant NCTB and SESIP consultants.

Specific tasks are:

- (i) Contribute to the development of the approach and templates for the e-learning modules;

- (ii) Develop the web site for presentation of the e-learning modules;
- (iii) Develop approaches for other modes of delivery, like tablets, mobile phones etc. together with the Mobile App Developer and supervise the expert if needed;
- (iv) Participate in any training of NCTB staff for updating the web site;
- (v) Participate in the piloting in a few schools to get immediate feedback on possible technical glitches;
- (vi) Participate in the analyzing the results from the field phase;
- (vii) Assist the Team Leader in preparing the reports, especially with regards to technical content regarding the web site, and;
- (viii) Carry out any other duties given by the Team Leader.

v. Mobile App Developer, national, Six (6) months

Qualification and Experience:

BSc in Computer Science and Engineering/relevant subject from any reputed university or vendor certification in relevant subject. Professional training on android development is preferable. Demonstrating strong OO design and programming skills in Java (J2EE/J2ME), logical thinking and creative problem-solving ability. Demonstrating familiarity with the Android SDK, Android Studio and Eclipse.

Preferred 2-3 years of professional experience in data-driven mobile application development.

Tasks:

The Specialist will be responsible for the development and maintenance of applications aimed at a vast number of diverse Android, IOS and Windows devices. Primary focus of this position will be the development of Android, IOS and Windows applications and their integration with back-end services. The expert will be discussing with other developers working on related mini-projects like the e-learning modules and science campaign. Tasks include:

- (i) Design and build advanced applications for the platforms;
- (ii) Collaboration with cross-functional teams to define, design, and shape new features;
- (iii) Gather requirements around functionality and translate those requirements into elegant functional solutions;
- (iv) Build prototypes at tech scoping stage of projects;
- (v) Working along with the web developer(s) to create and maintain a robust framework to support the apps;
- (vi) Work with outside data sources and API's;
- (vii) Unit-test code for robustness, including edge cases, usability, and general reliability;
- (viii) Work on bug fixing and improving application performance;
- (ix) Continuously discover, evaluate, and implement new technologies to maximize development efficiency, and;
- (x) Carry out any other tasks assigned by the Team Leader or Supervisor.

F. Deliverables.

19. The Consultant Firm/Organization shall deliver the following reports:
- (i) Inception report with updated work plan and detailed script development plan and specifications of all software and hardware platforms to be used: In the 4th week of the assignment;
 - (ii) Mid-term report covering Phase 1, including the design of the campaign with all related materials: In the 6th month of the assignment;
 - (i) Draft Final Report: In the 11th month of the assignment, including the e-learning campaign materials, and;
 - (ii) Final Report: In the last week of the 12th month of the assignment, including all materials, scripts in editable form, and the Dashboard (described in Annex 1).
20. Examples of the types of e-learning materials to be considered are presented in Annex 1.
21. The draft e-learning policy is presented in Annex 2

G. Client's Inputs

- a. The Client, through NCTB, will provide overall coordination of the team of experts that will work with the firm/organization, especially during Phase 1;
- b. The Client, with NCTB will make available counterpart personnel as described in Para 9;
- c. Access will be provided to all relevant information available with SESIP, DSHE and NCTB for the work

ANNEX 1, Types of e-learning materials to be considered for use in e-learning modules

The materials will be based on the curriculum and text books, therefore each module will follow the textbook in terms of sync with the curriculum. However, it is intended that the interactive versions will feature a variety of styles of *multimedia*, in particular the types described below. Therefore, as stated earlier, scripts specifying multimedia items and their location in the subject material will be developed in close cooperation with NCTB during the first phase of the assignment. The actual modules will be developed, mainly by the firm's experts, during the second phase of the assignment, in cooperation with Training, Secondary and M&E Wings.

The modules will be used on computers (Table top PCs, laptops, tablets) and on mobile phone devices. They should be developed in a form that can also be downloaded on a server to be used in cases when/if internet is not available.

The firm/organization is encouraged to suggest the inclusion of the types of materials below, as long as these are agreed with the expert group.

Interactive simulations / animations

Simulations are an active representation of some system, process or phenomenon. For example, a simulation might model a beam of light entering a prism and being divided into the colors of the spectrum. The term *interactive* is used to indicate that the teacher or student can adjust certain elements of the simulation to change certain aspects of the of the simulated system. For example, a simulation of an electric circuit may enable the user to adjust the resistance of components in the circuit, add a switch or bulb, and so on. In such cases the behavior of the simulation must model the details of the system being studied. Simulations are most useful when accompanied by some simple interactive tests that students must answer to demonstrate that they have grasped the target knowledge and/or skills embodied in the simulation.

Animations are to graphics as videos are to photographs, and can show a dynamic representation in the way a photographic image or video cannot. For example, a diagrammatic animated cross section of a combustion engine can show the operation of the 4-stroke cycle. This is not possible to achieve through a video of a real engine. Animations must be used only when necessary to illustrate aspects of the topic. Animations for decorative purposes will not necessary support the understanding of the topic in question. Animations should normally be embedded in other objects, such as a presentation, and must be in a standard format, such as GIF and Flash.

Audio

Audio is particularly useful for subjects in which the spoken word has a significant role. Audio is a requirement mainly for the English subject. The TQI-II project uses audio materials developed by English in Action (EiA). EiA has free audio resources for many topics available for use. However, detailed study of the curriculum may reveal topics in other subjects for which audio has a useful role to play. In such cases it should be considered to use audio as one of the resources. Audio format should preferably be MP3 and must be playable in windows, Mac and Android systems.

Videos

Video should be used only when it is the best way to show something, usually a real world situation which cannot be represented in sufficient detail by a more abstract and cost-effective representation. The ability to pause and rewind can also very useful to teachers and learners. Video sequences should be no longer than is required to present the salient details of the topic. Video should be compressed as much as possible with sufficient quality being maintained and should be in a format which can also be viewed on mobile devices, such as MPEG 4.

Still images (photographic)

Like video, photographs will usually depict real life things and must be used only when necessary to the topic. Photographs used for decorative purposes will not have any added value in the materials. Photographs should be compressed as much as possible without sacrificing necessary image quality. They should be in a standard format, preferably JPEG.

Diagrams / graphs

Graphics are effective as illustrative tools for offering alternative representations of complex phenomena. A graphical image can show an abstraction presenting the details in an uncomplicated way. Diagrams and graphs should normally be embedded in other objects, such as a presentations. No specific additional software for viewing diagrams should be required.

Interactive tests for students

Interactive tests are such that the student takes the test on the computer or mobile device. Examples of test types that can be effectively represented interactively on a computer are:

- Fill in the blank
- Multiple choice click on answer (one correct answer or several graded answers)
- Multiple choice drag and drop answer
- Association of categories (objects are shown and the user must indicate in which one of several categories the object belongs)

Some properties that can be applied to all test types are:

- Timed version of test
- Repeated attempts allowed (perhaps up to a predetermined number of attempts)
- Scored / non scored
- Answer provided in case of unsuccessful attempt(s)

Tests can of course make use of multimedia, with any type of resource being used as questions and / or answers.

Combined resources ("Multimedia")

It is desirable that a given resource should feature a coordinated and interactive combination of several of the above types of resource.

Instructions for using a resource (when necessary)

Instructions specific to using a combined resource may be included in the resource itself. For example, a simulation may feature a button that the user clicks to access instructions on using the simulation. Any instructions necessary for using a particular resource must be available online and located so they can easily be accessed while using the resource itself.

Text

Text will usually be part of another resource (a simulation, for example, may feature text, while a diagram may have text labels and notes). Since text is fundamental to many resources its design for usability must be considered when creating e-learning resources. The following guidelines apply to the design of text:

- maintain a high color contrast between text and background
- keep text as brief as possible, using bullet point format when applicable
- use consistent and neat bulleting and indentation styles

- use fonts that are readable when presented on a screen if the text is to be used in a presentation and ensure that it can be seen from all parts of a typical sized classroom
- avoid overuse of multiple fonts and styles

Teaching / Learning Considerations

All material should be *interactive, when appropriate*, and primarily for students to use, in self-paced exploratory learning. Teachers, will of course have access to the resources but it is not the aim here to promote the use of the resources as an aid to classroom teaching. The modules are primarily meant to *replace* other teaching / learning modalities for certain selected parts of the curricula. .

Dashboard

An on screen “dashboard” should be included from where all the resources can be accessed. The materials for all subjects should be accessible from the dashboard. It should have a catalogue of what e-resources are available, preferably arranged by subject, grade and units within the subject and lesson; i.e. one for each textbook of which parts have been presented as an interactive module. The ability of a user to search the resources and topics by keywords is essential. Each e-material should also have a record of attributes that will allow for more specific search.

Hardware and Software Platform

Though the system is web-based, it must also be such that it can be installed on a local server (or an external drive) if the school has one but does not have access to the internet. The system should run on Window 7 or later windows desktop OS for single user environment. Tablet PCs running windows or android or Mac (iPad) should be able to access the server material over Wi-Fi. Smartphones should be able to access over Wi-Fi.

Note that the firm/organization is not required to supply any equipment. The above configuration is available in the target schools and thus needs to be considered when developing the resources.

Annex 2 Use of ICT in Pedagogy – Policy Synopsis (Draft1)

The purpose of this document is to present in a short format the specific policy aspects that directly influence the main approaches to achieving the objectives of the “1.4. Enhanced use of ICT for Pedagogy” program (ICT4P). A combination of complex technical issues and human factors requires a systemic, holistic and participatory approach at all steps of conceptualizing, planning, designing, developing, and deploying of ICT system for pedagogy. The development of policy document encompasses consultation with all stakeholders - teachers, government officials-DSHE, NCTB, BEDU, TTCs, NAEM, representatives of parents, students, independent advisors, private enterprises and development organizations involved in education, and ICT specialists.

	Statement	Reason	Strategy
1.0	“To extend the use of information and communication technology (ICT) instrumental in educational process at every level (The National Education Policy 2010; Page 9)”	ICT support causes more effective learning hence alleviation of poverty through better education	Develop proper robust technical infrastructure and expertise/training in the area of ICT for Pedagogy at all levels of secondary education.
1.1	The ICT4P program will develop its policy in accordance with ideas and goals stated in Government’s documents and expectations of civil society of Bangladesh. Access to education and modern tools and methods of teaching and learning for all children and young people are the principles of these policy considerations.	The program must be positioned within broader initiatives aiming at creation of knowledge society and alleviation of poverty. Education for all is a decisive factor providing the opportunity for a better job.	Enlighten the program stakeholders about the objectives of Government’s policies and projects. Take into consideration the overall Government objectives in planning and implementing the ICT4P program.
2.0	Strict regulations and their enforcement are needed to protect students from undesirable content of websites that are not pertinent to education and exploration of useful global knowledge. Authorized User Policy should be signed by the Head Teacher, Teachers and Education Officers for using the Internet.	Some Internet websites provide materials not appropriate for young people and use in education . Concrete people and organizational structures should be responsible for enforcement of Internet usage regulations.	Identify websites that are appropriate for pedagogical process in Bangladeshi Schools and set up on ILC servers and laptops effective filters. Participatory approach and consultations with specialists in developing the user policy and regulations; consensus Building.
3.0	Partnership building - The program needs fostering of collaboration of a wide range of government agencies and NGOs, research authorities, private enterprises, and representatives of schools and communities/parents.	The complexity of problems and scale of program activities requires mobilization of all resources and avoiding duplication of work.	Identify potential partners and likely benefits of collaboration for all concerned. Elaborate simple and clear rules of partnership.
4.0	The introduction of ICT requires diverse knowledge and identification of best practices in using the e-learning materials in Bangladesh and abroad. The program should establish facilities that will allow for easy and effective access to sources of information pertinent to the operations of ILCs.	Development and effective operations of ILCs requires continuous learning and exchange of information among all stakeholders.	In addition to formal training courses and workshops the program will create in the online distance learning websites and repositories of materials relevant to ICT use in pedagogy .
5.0	ICT4P’s role in SESIP is to integrate all efforts in applying ICT for the benefit of each program (component) of SESIP. A common standardized hardware and application software platform should help in such areas as curriculum development	Use of computers is becoming a tool and method of working in many areas of education delivery, administration, and performance improvement.	Identify real benefits and cost of using computers in educational system. Elaborate a short-term and long-term of building an integrated computer system

	and implementation, personal capacity development, examination, stipend program, etc.		for education delivery and administration. Identify and implement linkages/interfaces with EMIS.
6.0	To ensure the sustainability of ILC operations and reliable connectivity , the program must develop necessary conditions for schools “taking ownership” of their ILCs, and elaborate the regulations and operational instructions for usage of ILCs, and cooperation in the entire network. Measures should be taken to ensure “material security” (prevention of theft or damage) of equipment. Special attention must be given to security of the server software (antivirus, login procedures, use of email and other server-based applications).	Once the use of ICT in pedagogy (e-learning) is introduced as an integral part of teaching and learning it must not be stopped or interrupted . The reliability of the system is a key factor in accepting the ILC by students and teachers.	Analyze technical and human factors pertinent to design and deployment of reliable, sustainable hardware and software infrastructure, and secure operational environment . The concept of ILC can be fostered by providing a copy of e-learning materials repository to schools which have laptops for individual usage by students and teachers.
7.0	The infrastructure of ILC network must be standardized and govern as an integrated system in which users are provided with exactly the same working and rules of operations. The repository of e-learning materials could be distributed free of charge to students and teachers (individual laptops). The repository will also be made available on a dedicated website.	Maintenance, further development and sustainability of the network of ILCs requires proven solutions that are applied consistently across the entire network and can be amended only by authorized people.	Analyze the operations of existing “computer classrooms” and application of e-learning methods in selected schools of Bangladesh and abroad. In a participatory mode (inclusion of all stakeholders) elaborate operational instructions and Authorized User Policy .
8.0	Production of training materials and delivery of training courses will be in accordance with established procedures. The logistics and procurement of services needed in preparation of training materials and delivery will be coordinated with DSHE departments responsible for this area of work – SPSU, TTC, NCTB, BISE, ICT Project of DSHE, TQI, and Planning Wing.	The content and logistics for training tens of thousands of teachers and post-training activities require resources that can be only provided by a consortium of experienced and resourceful departments .	The role of ICT4P program will be to ensure relevance of training courses for achieving the goal of enhanced use of ICT in pedagogy and production of manuals and operating guides appropriate for the new technology introduced at ILC.
9.0	The manuals and operating guides should be consistent with the new hardware and software environment - Windows 10, standard collection of application software for each laptop and server-based applications. Reach consensus on the language version of Windows 10 (Bengali or English) and the application software interface language.	Uniformity of training materials and operational environment of ILC network must be instituted in order to effectively managed installed software and provide useful technical assistance.	Discuss with Microsoft the support for ILC infrastructure (operating system: server and laptops). In collaboration with stakeholders decide which applications should be included in the common software (multimedia processing, web authoring, office applications, tools, etc.)
10.0	Lesson scheduling and preparation of e-learning materials must be done in such a way that all students will have an opportunity to familiarize with this new learning environment. Teachers should have an opportunity to discuss the scheduling and designing (lesson plans) of classes at training courses and on Teacher’s Forum (website).	Sharing of knowledge about e-learning/teaching is a critical factor for establishing sustainable high quality environment for ICT in pedagogy .	The ICT4P program will assembly a repository of as many e-learning materials as possible by procurement and development in cooperation with partners. We recommend establishment of a committee overseeing the production of e-learning materials in Bangladesh .