

EXPRESSION OF INTEREST (EOI) FOR CONSULTANCY SERVICES

Environment Protection Department (EPD) intends to hire International consultancy services under the ADP Scheme “**Construction of Model Vertical Shaft Brick Kiln in Collaboration with Punjab Brick Kiln Association (PPP Mode) (PC-II)**” as per Terms of References. The firms will be short listed as per the provisions of the Punjab Procurement Rules 2014, evaluation criteria and other applicable laws. The scopes of work/ TORs/short listing criteria are available in the office of Deputy Director (Imp), EPA Punjab Lahore and also at EPD website **www.epd.punjab.gov.pk**

The EOI must contains the following documents/ information

- i. Valid legal entity of the firm i.e. registration with Securities & Exchange Commission or Registration of Firms, etc.*
- ii. National Tax Number of the firm.*
- iii. Registration of the firm with Pakistan Engineering Council.*
- iv. CVs of key relevant staff permanently and exclusively employed with the firm.*
- v. List of similar projects (along with cost) carried out by the firm during the past 10 years.*
- vi. Audited statement of accounts.*
- vii. Annual turnover (last five years).*
- viii. Undertaking that the firm has not been blacklisted or debarred by any Government/ Semi-Government organization of Pakistan.*

The interested firms are invited to submit their EOI in the office of Deputy Director (Implementation), EPA Punjab with this advertisement but not later than **25.04.2017 till 02:30 PM.**

**DIRECTOR GENERAL
EPA PUNJAB, NATIONAL HOCKEY STADIUM
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TERMS OF REFERENCE

CONSTRUCTION OF MODEL VERTICAL SHAFT BRICK KILN (VSBK) IN COLLABORATION WITH PUNJAB BRICK KILN ASSOCIATION (PPP MODE)

1. Project Objective

The objective of the Project is to construct a Vertical Shaft Brick Kiln (VSBK) in Public-Private Partnership (PPP) by developing all documents needed for construction of a new VSBK by entrepreneurs and those necessary for owners of existing conventional Bull's Trench Brick Kilns to shift to VSBK technology with a full knowledge of the technical and institutional options available and estimation of the costs and benefits (both private and social) of the technology.

2. Scope of Work

The consultant will take a holistic approach for constructing a VSBK by essentially carrying out the following activities:

- 2.1 The consulting firm shall prepare and submit an inception report within 2 weeks of assigning of the agreement which shall delineate, among other things, the methodology, work plan, and time schedule for carrying out the tasks under this consultancy.
- 2.2 Comparison of alternative brick baking technologies with respect to environmental, engineering, economic, and social aspects and advantages and disadvantages, capital investment, and O&M costs.
- 2.3 Background information report including literature review of the research studies on the vertical shaft brick kiln conducted at national and international levels, especially in South Asia.
- 2.4 Development of detailed engineering (civil and mechanical) drawings for construction of VSB Kiln.
- 2.5 Preparation of Bill of Quantities.
- 2.6 Specify standards for all types of material used in the construction of the kiln.
- 2.7 Preparation of documents for public-private partnership comprising financial and economic analyses, bankability of VSBK, determining the level at which the project becomes bankable (if it ever does), social and private cost-benefit analyses.
- 2.8 Construction supervision of the Kiln of appropriate capacity in collaboration with a private partner.
- 2.9 Construction manual for construction of Vertical Shaft Brick Kilns in the Punjab province. The manual, inter alia, shall include construction planning, soil selection criteria, kiln sitting criteria, site selection, detailed design of optimum sized VSBK (if more than one sizes are

optimal, then designs for all sizes), guidelines for site preparation, layout procedure, excavation works, mechanical parts, kiln superstructure, all related fixtures, loading platform, exhaust systems, roof construction, detailed technical specifications for all material and components used.

2.10 Recommendations and development of SOPs for kiln waste management.

2.11 Purchase and installation of emission monitoring equipment and developing SOPs for monitoring and reporting.

2.12 Development of documents for information dissemination and conducting of workshops and seminars with stakeholders.

3. Tasks

The key tasks which need to be undertaken by the Consultancy Firm to achieve the aforementioned scope of work include:

3.1 Collect all key data / documents relating to the assignment to provide a strong evidence base;

3.2 Assessment of current capacity and practices of the brick manufacturing sector with a view to finding an optimal path for production of green bricks, i.e., bricks with lower carbon footprint;

3.3 Desk review of relevant data on different brick making technologies and interventions and principles of best practices from international experience;

3.4 Extensive consultation with all major stakeholder groups throughout the process;

3.5 Preparation of background information report comprising literature review of the research studies on the vertical shaft brick kilns conducted at national and international levels, especially in South Asia.

3.6 Preparation of detailed design and engineering drawings for construction of VSB Kiln.

3.7 Preparation of (Spreadsheet based) Bill of Quantities for construction of VSBK.

3.8 Preparation of documents for a bankable VSBK construction project for public-private partnership comprising financial and economic analyses, determining the level at which the project becomes bankable (if at ever becomes), social and private cost-benefit analyses, etc.

3.9 Construction supervision of VSBK of appropriate capacity in collaboration with a private partner.

3.10 Recommendations and development of SOPs for kiln waste management.

3.11 Purchase and installation of emission monitoring equipment and developing SOPs for

monitoring and reporting.

3.12 Development of documents of information dissemination and conducting of workshops and seminars with stakeholders.

4. Deliverables & Specific Outputs

The Consultancy Firm will deliver the following outputs:

4.1 Inception report;

4.2 Contract document for construction of VSBK in PPP mode;

4.3 Manual for construction of Vertical Shaft Brick Kilns in the Punjab province. The manual, *inter alia*, shall include construction planning, soil selection criteria, brick kiln siting criteria, site selection, detailed design of optimum sized VSBK (if more than one sizes are optimal, then designs for all sizes), guidelines for site preparation, layout procedure, excavation works, mechanical parts, kiln superstructure, all related fixtures, loading platform, exhaust systems, roof construction, detailed technical specifications for all material and components used;

4.4 Construction supervision of of VSBK in PPP mode.

5. Conduct of the Consultancy

The Consultant will be engaged by EPA on behalf of Environment Protection Department, Government of the Punjab. The Consultant will report to the Director(ML&I), Environmental Protection Agency, Government of the Punjab. The Consultant will work closely with the team constituted by EPD, Government of the Punjab. EPA will ensure that the Consultant has all necessary information, contacts and meetings needed to perform the assignment.

6. Requisite Qualification and Experience of the Consultant

Project team shall comprise the personnel as prequalified in the EOI submitted by the Bidders and the said team shall only be changed subject to the condition that their qualification/experience of the replacement would not be less than the requirement specified in the agreement and that prior written approval of the Client has been obtained. Without prejudice to the generality of the foregoing, the Team Leader proposed by the Firms/Consortia in the EOI shall not be replaced except with another individual having similar experience and belonging to the same Firm.

In case, during the execution of the Project, it is revealed to the Client that the Project Team or any member thereof deputed by Consultant does not have the skill set required for the effective rendering of services under the Agreement for Consultancy Services, Consultant shall forthwith replace such member of the Project Team with a member possessing the required skill set.

7. Deliverables of the Project and Associated Payments

Consultant will be required, besides submitting periodic reports and other documents as set forth in this RFP and Draft Agreement for Consultancy Services of the Project, to submit the following Deliverables of the Project. The payments will be made by the Client accordingly as per the below table against submission of Deliverables in accordance with the terms set forth in the Draft Agreement for Consultancy of the Project. However, each such payment shall be subject to retention amount equal to five percent of the relevant payment, which shall be released in accordance with the terms of the Draft Agreement for Consultancy of the Project.

No.	Deliverables	Timeline for submission from date of signing of Agreement	Payment (%)
1	Inception Report	4 weeks	10%
2	Report by combustion engineer comprising all the details delineated in his/her job description	8 weeks	10%
3	Economic and financial feasibility of the project, business plan, and a comprehensive proposal for a bankable project.	12 weeks	10%
4	Socio-economic impact report	12 weeks	10%
5	Documents for claiming carbon credits	12 weeks	10%
6	Construction manual comprising engineering design and drawings, BOQs, etc.	16 weeks	10%
7	Contract document for construction of VSBK in PPP mode	20 weeks	10%
8	Construction of VSBK in PPP mode	48 weeks	30%

The Client shall pay the Consultant a mobilization advance in the amount of 5% of the Agreement Price against an advance bank payment guarantee in accordance with the provisions of Draft Agreement for Consultancy.

The advance payments will be set off by the Client in equal portions against the lump-sum installments specified in the Special Conditions of Agreement contained in the Draft Agreement of Consultancy until said advance payments have been fully set off.

8. Professional Liability of Consultant

Professional liability as stated in the prevalent conduct and practice of consulting engineers prescribed by PEC and as given under rule 54 of Punjab Procurement Rules, 2014 shall be applicable to the consultant.

9. Payment

All payments made to the consulting firm are subject to sales tax and income tax deductible as per prevalent rules.

10. Role of the Client

No lodging, boarding, office accommodation, and logistics will be provided by the client to consulting firm. The client shall only assist the consultant, where possible, in obtaining information/data from other departments/ organizations.

11. Project Duration

The consulting firm will be required to complete the whole activity/ assignment and furnish the final documents/ reports within a period of 18 months from the award of contract.

12. Proposal Evaluation

Quality and Cost Based Selection Criteria will be used.

COST ESTIMATES FOR PROJECT POSTS

No.	Position	Qualification & Minimum Experience	Job Description	Person Months
1	Team Leader	<p>PhD/MSc, (Env/Civil) Engineering from an HEC recognized University.</p> <p>10 years for PhD and 15 years for MSc with experience in Environmentally Cleaner Production Solution</p>	<p>Team leader is expected to be overall incharge for the project with the following duties:</p> <ul style="list-style-type: none"> • Responsible for successful completion of all components of the project within time schedule and approved budget. • Provide technical advice to the team members in various aspects of the project including. • Assess potential risks of the project, as well as undertake risk management in specialist role. • Ensure control and maintain overall financial discipline in the disbursements and reimbursement of funds for the project. • Ensure compliance and implementation of all relevant rules and regulations. • Monitor and report progress required and keep the project executing agency fully informed of critical and sensitive areas requiring immediate attention and assistance. • Think both creatively and logically to resolve design and development problems. • manage change, as the client may change their mind about the design, and ensure relevant parties are notified of changes in the project. • attend public meetings to discuss projects, especially in a senior role. • adopt all relevant requirements around issues such as building permits, environmental regulations, sanitary design, good manufacturing practices and safety on all the work 	6

No.	Position	Qualification & Minimum Experience	Job Description	Person Months
			<p>assignments.</p> <ul style="list-style-type: none"> • Supervise preparation of detailed design drawings, Bill of Quantities, PPP contract documents as per the P&D Department Guidelines, construction management, construction supervision, and ensure quality and standards of construction, and detailed construction design and manual. 	
2	Technology Transfer Expert	At least graduate with 16-years of education and practical hands-on experience in designing and construction of VSBK with proven success.	Technology transfer expert shall essentially be an international expert and will assist Team Leader in all technical aspects comprising, <i>inter alia</i> , designing, construction, and operation & maintenance of VSBK.	45 Days @ 500 US\$/day
3	Civil Engineer	Masters in Civil Engineering from an HEC recognized University. 10 year experience in construction management and supervision.	<p>Civil engineer, will need to:</p> <ul style="list-style-type: none"> • undertake technical and feasibility studies and site investigations. • develop detailed designs. • supervise tendering procedures and put together proposals. • manage, supervise and visit contractors on site and advise on civil engineering issues. • oversee the work of junior staff. • communicate and liaise effectively with colleagues, subcontractors, contracting civil engineers, consultants, co-workers and the executing agency. • compile, check and approve reports. • review and approve project drawings. • use computer-aided design (CAD) packages for designing projects, where necessary. • undertake complex and repetitive calculations. • schedule material and equipment purchases and delivery. 	6

No.	Position	Qualification & Minimum Experience	Job Description	Person Months
			<ul style="list-style-type: none"> • attend public meetings to discuss projects, especially in a senior role. • ensure that a project runs smoothly and that the structure is completed on time and within budget. • perform risk, value management and cost control; • advise on a procurement strategy; • identify, analyze and develop responses to commercial risks; • assist in establishing the executing agency requirements and undertake feasibility studies; • correct any project deficiencies that affect production, quality and safety requirements before final evaluation and project reviews. 	
4	Combustion Engineer/ Fuel Specialist	<p>MSc in Chemical/ Metallurgical or related engineering from an HEC recognized university.</p> <p>5 year experience in managing combustion/ fuel processes and their modelling.</p>	<p>Combustion engineer is expected to give the following input:</p> <ul style="list-style-type: none"> • Determination of specific energy consumption (SEC) in MJ/kg of fired bricks • Understanding temperature profile of the kiln (temperature plotted along the length of the kiln) and temperature distribution in the firing zone • Determination of excess air, flue gas loss and understanding combustion • Heat loss in fired bricks • Radiation and Convection heat loss from kiln structure • Heat used for drying of bricks • Heat required for completing irreversible chemical reactions during firing of bricks • Comparison of the aforementioned parameters with conventional Bull Trench Brick Kilns. • The input of the combustion engineer shall be intermittent 	1

No.	Position	Qualification & Minimum Experience	Job Description	Person Months
			on need bases.	
5	Financial / Economic Expert	<p>Post-graduation in economics or related field from an HEC recognized University.</p> <p>5 years experience in financial and economic analyses</p>	<p>Financial / Economic expert is expected to:</p> <ul style="list-style-type: none"> • Carry out economic and financial feasibility of different sizes/capacities of VSBKs to arrive at a feasible size/capacity for constructions. • Prepare documents for a bankable project for construction of new VSBK and conversion of traditional brick kilns to VSKB, including, <i>inter alia</i>, suggesting appropriate collateral for availing loans, measures for tax compliance through development of forms for balance sheets of brick enterprises for establishing credit worthiness. • Prepare financial knowledge and business plans for brick-kiln entrepreneurs and documentation needed to apply for a loan. • Prepare guide for commercial banks for lending to the brick sector to encourage them to offer financial instruments tailored to this sector. 	1
6	Socio-Economic Expert	<p>Post-graduation in economics from an HEC recognized University.</p> <p>5 years experience in consulting in any sector of environmental protection working on socio-economic analyses and behavioral change management.</p>	<p>Socio-economic expert is expected to:</p> <ul style="list-style-type: none"> • work with project teams to design and implement quantitative and qualitative social science research to support achievement of project goals, evaluate interventions, and understand and assess outcomes. • communicate research results through high quality written outputs and presentations documenting and analyzing achievements and lessons learned, targeting national, regional and international audiences. • contribute to business development by providing input to social science sections of project proposals. • Provide support for the integration of socio-economic 	1

No.	Position	Qualification & Minimum Experience	Job Description	Person Months
			<p>analyses into the policies for dissemination of information and adoption of VSBK technology.</p> <ul style="list-style-type: none"> The input of the socio-economic expert shall be intermittent on need bases. 	
7	Quantity Surveyor	<p>Diploma in Civil Technology from a Government recognized institution or an equivalent diploma.</p> <p>10 year experience in preparation of Bill of Quantities.</p>	<p>Quantity Surveyor shall:</p> <ul style="list-style-type: none"> prepare tender and contract documents, including bills of quantities with the Civil Engineer and/or the executing agency. prepare and analyze costings for tenders. supervise work allocated to subcontractors. provide advice on contractual claims. analyze outcomes and write detailed progress reports. value completed work and arrange payments. maintain awareness of the different contracts in current use. understand the implications of health and safety regulations. The input of the quantity surveyor shall be intermittent on need bases. 	1
8	AutoCad Operator	<p>Post Metric one-year certificate/diploma in AutoCAD applications from a reputed institution.</p> <p>5 years experience and proficiency in advanced in AutoCAD, Microsoft Office, Windows and Microstation application.</p> <p>Have the capability to decipher construction plans.</p>	<p>The main duties of AutoCad Operator are done on the computer and some of them are:</p> <ul style="list-style-type: none"> Production of specifications and drawings that have to be centered on written instructions, calculations and equations provided by engineers and designers. Should use manual drafting expertise in drawing plans, which cannot be generated through the computer. Has to fine tune and modify plans to suit the needs of designer and Civil Engineer. The mechanical drafter shall create guidebooks as well as manuals for machineries/pulleys/jacks used in the project by 	1

No.	Position	Qualification & Minimum Experience	Job Description	Person Months
		<p>Basic knowledge of algebra as well as geometry to calculate amounts and figures</p> <p>Have the ability to visualize finished products as well as projects.</p> <p>Have manual drawing skills along with computer drawing.</p> <p>Should be familiar with Autodesk AutoCAD, PTC Pro-engineer, or PTC intra-link.</p> <p>Good knowledge of civil/ mechanical/ architectural terms.</p>	<p>illustrating the mechanical systems.</p> <ul style="list-style-type: none"> • draw diagrams and maps for the project and structure in construction. • create plans for foundations of structures along with layout of all components of VSBKs. • The input of the AutoCAD expert shall be intermittent on need bases. 	