**CONSULTING SERVICES CS36**

**TERMS OF REFERENCE**

**INTERNATIONAL CONSTRUCTION EQUIPMENT SPECIALIST**

**(DELIVERABLE BASED 1 PERSON-MONTHS, INTERMITTENT, HOME BASED)**

**1. MINIMUM QUALIFICATIONS REQUIREMENTS**

The International Construction Equipment specialist (the Specialist) will have at least post graduate degree in engineering, technology or other disciplines relevant to the building construction industry. The specialist should possess at least 5 years of experience in procuring, installing, operating and maintaining equipment and tools for the construction industry and demonstrated knowledge and/or experience of training and testing equipment and tools for Technical and Vocational Education and Training (TVET). Excellent knowledge of the English language is required, knowledge of English technical terms specific to the industries is required.

**2. EXPECTED COMMENCEMENT AND COMPLETION OF THE SERVICES**

Expected Commencement – 25 January 2018.

**3. OBJECTIVE OF THE ASSIGNMENT**

Ministry of Labor and Social Protection is implementing Skills for Employment Project (SFEP) with financing from Asian Development Bank (Loan no. 3243 MON). SFEP aims to enhance the responsiveness of the TVET system to labor market demand in the Priority Sectors (agriculture, construction, and road and transportation). SFEP supports strengthening of training and testing facilities of up to 12 TVET providers including those which may host functions of assessment and certification center (hereafter collectively the “Beneficiary Institutions”) associated with construction training programs. The objective of the assignment is to prepare technical documents required for the procurement of training and testing equipment and tools, and textbooks and other training and learning material for construction training programs related to 5 occupations (see table attached, hereafter the “Occupations”) in construction industry, in collaboration with the National Construction Equipment Specialist.

**4. TERMS OF REFERENCE**

**Detailed Tasks/Expected Output**

The specialist, reporting to the Procurement Specialist of the Project Implementation Unit of SFEP, will:

1. Prepare draft detailed technical document for each of the Occupations, which includes procurement list of equipment and tools, including hygiene and safety items for each occupation; technical specifications; cost estimate; standards; spare parts and consumables of equipment and tools; licensing and software renewal/update requirements; qualification requirements for prospective equipment suppliers; concept sketch plan which details the layout of equipment with dimension and weight, furniture, exhibits, practice area etc., and building requirements for each of major equipment in terms of space, foundation, electrical, ventilation, water, sewage, internet and other demands etc. **Deliverable 1 – English Language – within 25 calendar days from the date of contract signature.**
2. Reflect comments made by the Client to the technical documents and finalize the list. **Deliverable 2 – English Language – within 6 calendar days from the comment date.**
3. Prepare list of textbooks, teaching and learning materials (published and in electronic form) complete with, but not limited to the author name, book or material name, contact details of the open source or copy right holder for the Occupations that can further be translated into the Mongolian language and used for training in Mongolia by the TVET providers. **Deliverable 3 – English Language – within 6 calendar days from the comment date.**

**5. CLIENT’S INPUT AND COUNTERPART PERSONNEL**

1. Services, facilities and property to be made available to the Consultant by the Client: None.

2. Professional and support counterpart personnel to be assigned by the Client to the Consultant: Not applicable.

**15 МЭРГЭЖЛИЙН ЖАГСААЛТ, САЛБАРААР / LIST OF 15 OCCUPATIONS BY SECTORS**

| **Салбар/ Sector**  | **№** | **Мэргэжил / Occupation** | **Тайлбар / Remark** |
| --- | --- | --- | --- |
| Зам тээвэрRoad and Transportation | 1 | Автозам, гүүр барилгын ажилтан /замчин/Road and bridge construction worker | Гүүр, хонгил, гарц, төмөр замын гарам, үерийн ус зайлуулах хоолой зэргийг оруулахIncludes but not limited to construction of bridges, tunnels, gates/exits, railway crossings, culverts  |
| 2 | Зам, барилгын машин механизмын операторRoad, construction machinery operator | Булдозэр, экскаватор, ачигч, самосвал, грэйдэр, асфальт дэвчсэгч, индүү /тандем, макадам, дугуйт, чичиргээт/, цохилтот компактор, бетон зуурагч машин, хуучин хучилт бутлагч, зүсэгч, хүйтнээр дахин боловсруулагчIncludes but not limited to Bull Dozer, excavator, loader, dump truck, grader, asphalt paver/finisher, roller (tandem, macadam, tire, vibrating), percussion compactor, concrete mixer truck, old pave crusher and cutter, concrete recycling cold pavement |
| 3 | Автомашины засварчин Autocar repairman | Агрегат, эд ангийн засвар, тохиргоо, зүгшрүүлэлт, мөн кузов засварIncludes unit, parts and assembly repair, adjustment, tuning; and car body repair |
| 4 | Зам, барилгын материал болон барилгын ажлын лаборант Laboratory technician road and construction material and construction works |  |
| Хөдөө аж ахуйAgriculture  | 1 | Farmer, greenhouseХүлэмжийн аж ахуйн фермер  | Зуны болон өвлийн хүлэмж /4 улирал/Includes summer and winter greenhouse (4 season) |
| 2 | Хүнсний ногооны фермерFarmer, vegetable | Хүнсний ногооны төрөл, хүний бие эрүүл мэндэд шаардлагатай эрдэс бодисын агууламж судлал, байгалийн бүс бүслүүр бүрээр хөрс судлал, үр үрсэлгээний тохирцын агуулга агуулгыг бүрэн тусгах, усжуулах системTypes of vegetables, examination of mineral substances necessary for human body and health, soil investigation by various natural zones, seed study, irrigation etc. |
| 3 | Малын бага эмчVeterinary technician | Малын бага эмч бэлтгэхэд шаардагдах агуулгыг цогцоор нь тусгах. Байгалийн бүс бүслүүрээр элбэг тохиолдох мал, амьтны гаралтай өвчин, эмгэг, сүүлийн үеийн угаалга, тарилга, тулга, эм, вакцинийг судлах агуулгыг тусгахTraining veterinary technician with the full content, study of livestock and animal diseases, disorders by natural zones and areas, washing, injections, vaccines, treatment and prevention from diseases etc. |
| 4 | Эрчимжсэн амьтны аж ахуйн фермер /гахай/Farmer, intensified animal farming (pig farm) | Гахайны аж ахуй эрхлэхэд шаардлагатай бүхий л агуулгыг бүрэн тусгах, гахай, шувуу /ханиад/-аас гаралтай халдварт өвчин судлалInclude all content for training of farmers of pig farming, Study and treatment of pig/bird (for example bird flu) borne diseases, for example. |
| 5 | Ойжуулалтын техникч / Ойн арчилгаа, ашиглалтын ажилтан Forestation technician / Maintenance and Conservation worker | Байгалийн бүс, бүслүүрийн хувьд говь, хээр, ойт хээрийн бүсийн хөрс, ус, чийг, цаг уурын орчныг судалсны үндсэн дээр тохирох модлог ургамлын үр, үрсэлгээг хийх арга технологиIncludes also forestation technologies and methods by natural zones such as gobi, steppe, forest-steppe, survey of precipitation, soil, and climatic conditions. |
| 6 | Ноос, ноолуурын боловсруулалтын технологийн ажилтан Wool, cashmere processing technology worker | Самнах, хяргахаас эцсийн бүтээгдэхүүн – иж бүрэн процессFrom combing and shearing to the final product – full process |
| БарилгаConstruction  | 1 | Барилгын засал-чимэглэлчинInterior, exterior – finisher | Барилгын бүх төрлийн засал чимэглэл, гипсэн тааз, чигжээс, тосон будаг, эмульс, обой наах, өнгөлгөө хийх,, замаск татах, будах, плита наахInclude all types of decoration and finishing works, suspension ceiling, plastering, wallpaper, paintings, tiles |
| 2 | Эрчим хүчний хэмнэлттэй барилгын бүтээц угсрагч Energy-efficient building structure (blocks) assembler | Бүх төрлийн материалаар барилгын өнгөлгөө, дулаалга хийх, түүний дотор шат, вандан угсрагчийн чадамжийг оруулах, ухаалаг байшингийн удирдлагын тогтолцоог оролцууланIncludes assembling of all types of insulation, and finishing, and scaffolding, including management system for smart house |
| 3 | Барилгын цахилгаанчинConstruction electrician/technician | Холбоо дохиоллын элементийг оролцуулан, энгийн PLC, контроллерийн хамтIncluding elements of signal and communication, with simple PLC and controllers  |
| 4 | Хуурай хийц угсрагчDry construction installer/assembler | Барилгын угсралт болон хуучин барилгын өргөтгөл, шинэчлэлийн засварын явцад гүйцэтгэх ажлын даалгавар, техникийн зураг төслийн дагуу ажлын гадаргуу болон үндсэн хийц эдлэл, эмжээр, хүрээг бэлтгэх, дулаан, чийг, дууны тусгаарлалт хийх, зүсэх бэхлэх явцFor new building, extension and renovation works, including main structure, trims, frames, insulation, moist and noise protection according to drawings |
| 5 | Барилгын машин механизмын операторчConstruction machinery and plant operator  | - суурин болон дугуйт бетон зуурмаг зуурагч /mixer/- суурин болон дугуйт зуурмаг шахагч /pump/- автомат болон хагас автомат компрессор- барилгын талбай дээр ашиглах бетон зүсэгч, бетон зуурагч, бетон өнгөлөгч, бетон тэгшлэгч, хавтгай нягтруулагч, цохилтот нягтруулагч гэх мэт- stationery and wheeled concrete mixer- stationery and wheeled concrete pump- automatic and semi-automatic compressor- tools and equipment such as but not limited to concrete cutter, concrete mixer, concrete finisher, concrete leveler, flat compactor, percussion compactor etc. |