Term of Reference

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1. Background

The Islamic Development Bank (IsDB) is working with Indonesia's Ministry of Health (MoH) to improve the country's healthcare system. This collaboration builds on IsDB's support for strengthening national referral hospitals and health system strengthening programs.

Indonesia is currently facing a significant rise in the burden of non-communicable diseases (NCDs). According to data from the Ministry of Health, approximately 2.5 out of every 1,000 Indonesians are at risk of suffering a stroke each year, with a mortality rate of 15%. Additionally, about 1 in 1,000 people are at risk of a heart attack annually, with a mortality rate of 11%. Patients suffering from these conditions often wait long to receive necessary medical treatment. For example, it can take up to 12 months for a patient to undergo heart surgery.

This issue is not limited to adults; around 50,000 children in Indonesia suffer from untreated congenital heart disease. In addition to cardiovascular diseases, cancer also demands urgent attention, as 70% of cancer patients are diagnosed at an advanced stage. In 2019, there was a 70% increase in end-stage kidney disease cases. Collectively, these four conditions, stroke, cardiovascular disease, cancer, and kidney disease, account for around 90% of healthcare service expenditures in Indonesia, totaling approximately IDR 15.5 trillion (about USD 1 billion).

This situation is exacerbated by limited access to referral hospital services, particularly in remote areas. The quality of healthcare remains low, with limited diagnostic capacity and long waiting times for treatment. Three key gaps have been identified: unequal distribution of healthcare facilities across regions, lack of hospital medical equipment, and shortages in qualified human resources.

A strategic approach with sufficient financial backing is required to support national health development goals in line with the 2020–2024 National Medium-Term Development Plan (RPJMN). The project for Strengthening Referral Hospital Networks for Cancer, Heart, Stroke, Uro-nephrology, and Maternal and Child Health Services (KJSU-KIA) has been designed to help achieve these RPJMN targets.

The project aims to reduce disparities in access to KJSU-KIA services across regions, improve the quality and competitiveness of human resources, and strengthen

infrastructure to support economic development and basic services. This initiative also supports six pillars of health system transformation: the transformation of primary care, referral services, health resilience systems, health financing systems, health workforce development, and health technology.

The SIHREN (Strengthening Indonesia's Hospital Referral Network) project is one of three initiatives proposed by the Ministry of Health, alongside SOPHI (Strengthening of Primary Healthcare in Indonesia) and InPULS (Indonesia Public Health Laboratory Strengthening). SIHREN aims to address equipment gaps in referral hospitals across intermediate, primary, and advanced tiers of the KJSU-KIA service network. It also supports providing essential equipment for primary healthcare facilities and public health laboratories throughout Indonesia.

The SIHREN project will focus on three main areas: reducing Non-Communicable Disease (NCD) Burden, such as cancer, heart disease, and chronic kidney problems, by increasing hospital inspections, improving data collection, and providing financial aid for essential medical equipment.

Cancer is one of the leading causes of death both globally and in Indonesia. Addressing the challenges in cancer care has become a national priority under the Ministry of Health's Referral Health Service Transformation agenda. This program aims to strengthen the capacity of referral hospitals, particularly in cancer services, through structured fostering and training activities across the national hospital network.

Based on the Decree of the Minister of Health of the Republic of Indonesia Number HK.01.07/MENKES/1277/2024 concerning the Network of Referral Hospitals for Cancer Services, Dharmais Cancer Hospital has been designated as the national coordinator for the cancer care referral network. Targets and hospital locations have been determined based on the stratification of cancer services. There are a total of 563 hospitals in the Cancer Services Referral Network.

Furthermore, to support the government and the national coordinator in carrying out capacity-building activities to enhance the capabilities of hospitals within the cancer referral network, Decree Number HK.02.02/D/45486/2024 has established the designation of Regional Referral Hospitals for services in Cancer, Cardiovascular, and Stroke, Uro-Nephrology, and Maternal and Child Health.

The government will continue to expand cancer services from the provincial level down to districts and cities by collaborating across sectors to meet the needs for healthcare, human resources, facilities, infrastructure, and medical equipment. Cancer Hospitals and Regional Referral Hospitals are responsible for enhancing the competencies of hospitals through mentoring, starting from the planning stage, implementation (which includes service mentoring, procedural guidance, and training), as well as monitoring and evaluation. These efforts aim to support cancer control and to realize equitable access and quality of cancer services.

The Directorate General of Health Services (DGHS) is implementing the project as the Executing Agency and the Project Management Unit (PMU). In addition, a Central Project Management Unit (CPMU) is established to oversee the IHSS Program's overall implementation. This will ensure smooth and effective coordination and collaboration between project management functions.

In order to support the MoH during the process of procuring the medical equipment, it is necessary for the PMU to have the assistance of an Equipment Consultant (EQC). The EQC selection process will follow the guidelines stated in the "Guidelines for Procurement of Consultant Services under IsDB Project Financing" (revised in February 2023).

2. EQC Assignment and Considerations

Project management will be coordinated and implemented by the Project Management Unit (PMU). However, given the complexity of SIHREN activities and the large number of beneficiary hospitals receiving medical equipment, there is an urgent need for consultancy services from a qualified firm. The consultant is required to provide technical support for the preparation, distribution management, functional testing, licensing, and administration of medical equipment, as well as the development of equipment lists, technical specifications, and cost estimates based on needs and market analysis.

a. Internal Efficiency

The consultant will strengthen the PMU by:

- Streamlining project preparation processes and ensuring all activities are aligned.

- Facilitating communication and bridging gaps between the needs of beneficiary hospitals.
- Supporting consistent project implementation across multiple hospital sites.
- Establishing reliable scheduling and ensuring efficient resource allocation.
- Assisting with timely financial disbursement to maintain project progress.
- Supporting monitoring and evaluation activities and consolidating progress reports.

b. Enhanced External Communication

- Providing data and information required for clear communication between the PMU and IsDB.
- Ensuring financial management adheres to all IsDB funding requirements.
- Streamlining coordination with the steering committee and other external stakeholders.

3. Required Services

The services provided by the EQC consultancy firm are designed to complement and coordinate closely with the individual consultants already embedded within the PMU—namely the Team Leader for Project Management, the Procurement Consultant, and the Monitoring & Evaluation (M&E) Consultant. Rather than overlapping roles, EQC will extend the PMU's operational capacity by providing multi-site technical support, field-level coordination, and specialized expertise required to manage the large volume of beneficiary hospitals under the SIHREN project.

Since all procurement processes are conducted centrally by the Ministry of Health's Bureau of Procurement of Goods and Services, EQC's role will focus on delivering technical inputs and implementation support, without assuming procurement execution responsibilities.

a. **Program Management:** EQC will operationalize the PMU's strategic directives by developing detailed implementation arrangements, harmonizing technical requirements across facilities, and ensuring coordinated execution in all beneficiary hospitals.
b. **Technical Support for Procurement Processes:** In coordination with the PMU's Individual Consultants, EQC will prepare and refine equipment lists, technical

specifications, and cost estimates based on needs assessments and market analysis. These inputs will support the central procurement bureau without duplicating oversight or compliance roles.

c. **Supervision and Field Coordination**: EQC will work alongside the PMU to conduct field-level supervision of installation, functional testing, commissioning, and documentation for acceptance certificates. This coordination ensures consistent technical quality across hospitals, while the PMU's Individual Consultants retains responsibility for overall performance monitoring.
d. **Monitoring and Control Support:** EQC will provide site-level data collection, progress verification, and technical analysis to strengthen the PMU's reporting and evaluation processes. This creates a complementary system where field findings feed directly into PMU oversight.
e. **Stakeholder Coordination**: EQC will manage routine communication and coordination with hospitals, vendors, logistics partners, and relevant technical directorates. These efforts will be synchronized with PMU leadership and consultants to maintain unified messaging and implementation coherence.
f. **Reporting**: EQC will prepare operational and technical reports drawn from site activities, consolidating information to support PMU decision-making and complementing formal reporting streams managed by PMU consultants.
g. **Training Facilitation**: EQC will ensure that supplier-led training is well coordinated, aligns with technical requirements, and reaches all intended beneficiaries across facilities. This complements PMU oversight while ensuring consistent competency development nationwide.

4. Objectives of the Assignment

The overall objective of the Equipment Consultant (EQC) is to strengthen the capacity of the Project Management Unit (PMU) in managing the technical, operational, and multi-site implementation of medical equipment distribution under the SIHREN project. Given the large number of beneficiary hospitals and the complexity of activities—from preparation to installation and commissioning—the EQC is expected to provide specialized expertise and coordinated support to ensure that all equipment-related processes are executed efficiently, consistently, and in alignment with PMU directives.

The specific objectives of the assignment are to:

a. Enhance the operational implementation of PMU decisions by translating strategic plans into detailed, coordinated, and technically sound execution arrangements across all beneficiary hospitals.
b. Strengthen technical preparation for centrally managed procurement by developing comprehensive equipment lists, technical specifications, and cost estimates grounded in needs assessments and market analysis, in close coordination with the PMU Procurement Consultant and the Ministry's Procurement Bureau.
c. Ensure high-quality supervision and field coordination during equipment installation, functional testing, commissioning, and acceptance processes, providing hands-on technical oversight that supports consistent implementation standards across all sites.
d. Improve monitoring and control of field activities by collecting site-level data, validating technical progress, and providing accurate, evidence-based inputs to the PMU's Consultants.
e. Facilitate effective communication and coordination among hospitals, suppliers, logistics partners, and relevant technical units within the Ministry of Health to ensure coherent, timely, and problem-free implementation.
f. Support comprehensive and timely reporting by preparing operational and technical reports that consolidate information from multiple sites, enabling informed and responsive decision-making by the PMU.
g. Ensure the effective delivery of supplier-led training by coordinating schedules, verifying training content, and ensuring participation of relevant hospital personnel to build readiness and operational capacity.
h. Assist with technical documentation and regulatory readiness by supporting hospitals and suppliers in preparing requirements for licensing, certification, and compliance with national regulations.

5. Scope of Equipment Consultant Services

The EQC will play a vital role in ensuring the successful planning, procurement, and deployment of advanced medical equipment for the MoH (hospitals). This equipment list, funded by IsDB, but not limited to the following:

1) Mammography
2) CT-Scan
    a) CT-Scan (64 Slice)
    b) CT-Scan (128 slice)
    c) CT-Scan (256 slice)
    d) CT-Scan (512 Slice)
3) CT-Simulator
4) Brachytherapy
5) Linear Accelerator (LINAC)
    a) LINAC Single Energy
    b) LINAC Variable Energy
6) Cyclotron & Mini Cyclotron
7) PET/CT Scanner
8) SPECT/CT Scanner
9) Cytotoxic Drugs Safety Cabinet
10) Immunohistochemistry Set
11) Colonoscopy
12) Flow Cytometer
13) Slide Scanner
14) PET MRI
15) Other equipment as needed by the EA under the SIHREN Project.

The EQC's scope of services includes:

a. Project Management and Administration

    The EQC will work closely with the Project Management Unit (PMU) to strengthen project management, coordination across stakeholders and ensure readiness of hospital staff through training and clear communication. This includes:

- Managing day-to-day coordination with hospitals, suppliers, logistics service providers, in coordination with PMU and Ministry technical units.
- Facilitating technical discussions, clarifications, and problem-solving among stakeholders.
- Coordinating supplier-led training sessions, ensuring participation of relevant hospital staff and alignment with equipment requirements
- Supporting hospitals with technical documentation requirements for licensing, certification, and regulatory compliance
- Preparing concise, structured, and timely technical and operational reports to support PMU decision-making.
- Developing summary briefs, dashboards, and field updates as required by the PMU.
- Ensuring that all reporting, communication, and coordination efforts are harmonized with PMU directions and roles of individual PMU consultants.

b. Design, Technical Specification, and Logistics of the Equipment.

The EQC will provide comprehensive technical expertise in the following areas:

- Preparing detailed equipment lists and technical specifications tailored to the needs of the Ministry of Health (MoH).
- Compiling a comprehensive list of supporting equipment, spare parts, and accessories required for optimal equipment operation.
- Calculating electrical power requirements for all equipment, including UPS needs for specialized devices.
- Evaluating and aligning schematic diagrams for equipment placement on each floor/room
- Ensuring site readiness, safe and compliant installation of medical equipment, including radiation safety aspects.

All equipment lists and technical specifications will be reviewed and approved by the PMU before implementation.

c. Procurement Support

The EQC will strengthen technical preparation and planning to ensure procurement—managed centrally by the Ministry's Bureau of Procurement of Goods and Services. Services include:

- Conducting needs assessments and consolidating equipment requirements from all beneficiary hospitals, in coordination with PMU and MoH technical units.
- Preparing and refining detailed equipment lists, technical specifications, and cost estimates, in coordination with PMU and MOH's Procurement Bureau.
- Conducting market analysis to ensure specifications reflect current technology, pricing, and availability.
- Providing technical inputs and clarifications required during the procurement process, in accordance with Guidelines for Procurement of Goods, Works and Related Services under IsDB Project Financing (rev Februari 2023), in coordination with the PMU's Individual Consultant.
- Ensuring all technical documents submitted to the procurement bureau are complete, accurate, and aligned with regulatory requirements.
- Supporting the PMU in reviewing technical proposals and supplier documentation.
- Provide technical support to the PMU in contract management, including review and consolidation of technical contract documents, maintaining contract-related technical records, and assisting with the preparation of technical inputs for contract reporting to the IsDB, while ensuring all formal contract management responsibilities remain with the PMU.

d. Supervision, Quality Assurance and Compliance Control

The EQC will oversee equipment delivery, installation, testing & commissioning, and user training to ensure consistent implementation standards across all hospitals. Services include:

- Managing day-to-day coordination among hospitals, vendors, logistics providers, and relevant Ministry technical units.
- Supervising equipment delivery by suppliers and coordinating with relevant parties for unloading and placement.

- Monitoring equipment installation conducted by suppliers, ensuring adherence to contract terms and technical specifications.
- Overseeing trial runs and functional tests (commissioning) of equipment until its handover to hospitals. Following commissioning, the EQC is expected to provide a short follow-up review within 3 months to confirm continued equipment functionality and user readiness.
- Preparing documentation and reports to provide accurate and timely information on supplier contract execution, from preparation to final acceptance.
- Verifying equipment usability and functionality, ensuring valid warranties, and local availability of branch offices and workshops for maintenance and spare parts.
- Confirm that training programs for operators and technicians are conducted by the suppliers as stipulated in the contract.
- Ensuring all supplied equipment is new and original from the manufacturer, with warranties provided.
- The EQC will also conduct pre-inspections (if applicable) at supplier warehouses to ensure equipment conforms to specifications and is in good condition before delivery.
- Throughout the process, the EQC will maintain clear communication with hospitals. Any discrepancies with equipment specifications will be promptly reported, and solutions will be discussed collaboratively.
- The EQC will conduct comprehensive inspections encompassing packaging, specifications, installation, testing and commissioning, and the final installed equipment (including availability of supporting equipment, spare parts, and accessories) at each hospital.
- Ensure training programs are conducted by the supplier for the operators, medical staff, and biomedical equipment technicians. The EQC shall oversee supplier-led training and confirm its adequacy, ensuring that operators, medical physicists, and technicians are competent in safe use and maintenance.
- The EQC shall assign experts to provide on-site supervision during critical stages (delivery, installation, commissioning, and training). The level of presence may be adapted by region and schedule, but must be sufficient to ensure quality, compliance, and timely acceptance.

6. Project Locations for Medical Equipment Deployment

The Equipment Consultant (EQC) team is required to supervise the installation of medical devices across all designated locations, comprising **563 hospitals** across Indonesia (see attached list) and additional units that will be decided by the EA under the SIHREN Project. This oversight will be carried out through a regionally coordinated approach, divided into **three geographic zones**: the **Western**, **Central**, and **Eastern Regions**.

Table 1. Detailed Geographic Zones

No	Geographic Zones	Region
1	Western	Aceh, North Sumatera, West Sumatera, Riau, Jambi, South Sumatera, Bengkulu, Lampung, Bangka Belitung Island, Riau Island, Banten, DKI Jakarta, West Java, Central Java, Yogyakarta
2	Central	Bali, East Java, West Nusa Tenggara, East Nusa Tenggara, West Kalimantan, Central Kalimantan, South Kalimantan, East Kalimantan and North Kalimantan
3	Eastern	South Sulawesi, North Sulawesi, Central Sulawesi, West Sulawesi, Southeast Sulawesi, Gorontalo, Maluku, North Maluku, Papua, West Papua, Southwest Papua, Highland Papua, South Papua and Central Papua.

To ensure effective implementation, EQC team members (including co-leaders, experts, and supporting staff) will be assigned according to these regional divisions. The consultant team is required to travel to recipient hospitals as necessary to provide technical input, management support, and field verification throughout the distribution process.

The Consultant is also required to establish strategically located offices in Jakarta (Western Region), Bali (Central Region), and Makassar (Eastern Region) with associated rental costs included in the proposal. Additionally, vehicle rental (including fuel, driver, maintenance, and servicing) must be planned and budgeted accordingly. A detailed work plan and travel plan must be submitted to the Project Management Unit (PMU) for approval prior to the commencement of any field activity. All travel costs and reimbursement mechanisms shall comply with government regulations and Input Cost Standards (SBM) issued by the Ministry of Finance. The Consultant is responsible for preparing and verifying all official travel documentation based on the approved plans.

This structure ensures efficient resource deployment, targeted expertise across regions, and continuous operational support throughout the 45-month assignment period, with varying levels of engagement reflecting the implementation phases from planning and active fieldwork to project closeout and evaluation.

7. Team Composition & Qualification

7.1. Selection Criteria

The consultant will be selected through a Quality and Cost-Based Selection (QCBS) process from an international shortlist. Selection will prioritize firms with proven experience in equipment consulting services and a team demonstrating the qualifications outlined below:

a. **Registration and Experience:** Be a registered consultancy company with expertise in equipment consulting and/or procurement.

b. **Foreign Funding Expertise:** Possess familiarity with procedures, arrangements, and requirements specific, preferable to foreign funding project implementation.

c. **Government Agency Collaboration:** Demonstrating experience working effectively with government agencies involved in loan/grant financing mechanisms is preferable.

d. **Comprehensive Team Staffing:** Be able to provide a team with the necessary expertise to fulfill all consultancy services outlined in the Terms of Reference (TOR).

e. **Proven Track Record:** Have documented experience (at least 10 years) delivering equipment consulting services, including:

- Designing equipment lists and technical specifications.
- Supervising equipment installation, testing, and commissioning.
- Prior experience with multi-lateral funded projects is highly desirable.

f. **Relevant Skills and Experience:** Possess the necessary skills and experience for successful healthcare project completion.

7.2. Team Composition

To effectively deliver the services, the selected consulting firm must propose a team with qualifications and composition that align with the project's scope of services,

tasks, and complexity. The specific team composition requirements for these equipment consulting services will be detailed below:

A1. Key Experts

1. Team Leader (1 personnel, 45 person-months)

The essential qualifications and experience for the Candidate are:

a) Master's degree or equivalent in Biomedical Engineering, Medical/Health Science, Hospital Management, Basic Science, or Engineering.
b) Minimum 10 years of experience in medical equipment planning, procurement, installation, commissioning, and training.
c) Proven experience as a project manager in healthcare or similar projects.
d) Fluent in English, both oral and written.

Responsibilities:

a) Overall responsibility for all medical equipment planning, procurement, installation, testing, commissioning, and acceptance processes activities, both technical and administrative.
b) Coordinate development and submission of regular administrative and technical reports to the Project Management Unit (PMU).
c) Develop and maintain a master schedule for equipment procurement across all packages.
d) Prepare and update work programs (technical and administrative) and implementation schedules for equipment procurement and related activities.
e) Develop bidding documents for equipment procurement in compliance with regulations, standards, and procedures.
f) Lead the team in implementing equipment procurement according to relevant regulations, standards, and procedures, including IsDB financing guidelines.
g) Oversee equipment, furniture, and fixture delivery to ensure compliance with technical specifications outlined in the contract documents.
h) Ensure the usability and functionality of all equipment (medical and non-medical), warranty validity, and local availability of supplier branch offices and workshops for maintenance and spare parts.
i) Verify that the equipment is 100% new and originally manufactured, with warranties provided.

j) Conduct (or arrange for) pre-inspection of specific equipment at the supplier's warehouse to confirm adherence to contract specifications and good condition.

k) Oversee equipment inspections at the site, including:
   - Packaging inspection
   - Technical specification inspection
   - Installation, testing, and commissioning inspection
   - Verification of all installed equipment, supported equipment, spare parts, and accessories

l) Immediately report any non-conforming equipment to the PMU and collaborate on solutions (acceptance or rejection).

m) Facilitate training programs conducted by the supplier for various user groups (e.g. Operators, Oncologists, Medical Physicists, Biomedical Engineers, etc.).

n) Ensure proper issuance of equipment acceptance certificates.

2. Co-Team Leader: (3 personnel, 45 Person-Months)

The essential qualifications and experience for the Candidate are:

a) Master's degree or equivalent in Biomedical Engineering, Medical/Health Science, Hospital Management, Basic Science, or Engineering.

b) Minimum 7 (seven) years of experience in medical equipment procurement.

c) Experience as a project manager or co-project manager in the healthcare or related field.

d) Fluent in written and spoken English.

Responsibilities:

a) Support the Project Manager in service execution and day-to-day activities at assigned hospitals.

b) Assist the Project Manager in report preparation.

c) Contribute to developing and updating work programs and implementation schedules for equipment procurement activities.

d) Assist in developing bidding documents for equipment procurement, adhering to relevant regulations and procedures.

e) Ensure the usability and functionality of medical equipment, warranty validity, and local availability of supplier support for maintenance and spare parts.

f) Facilitate equipment training programs for various user groups (e.g. Operators, Oncologists, Medical Physicists, Biomedical Engineers, etc.) provided by the suppliers.
g) Verify that equipment is 100% new and originally manufactured, with warranties provided.
h) Assist with pre-inspection of specific equipment at the supplier's warehouse (if needed).
i) Conduct equipment inspections at the site, including:
   - Packaging inspection
   - Technical specification inspection
   - Installation, testing, and commissioning inspection
   - Verification of all installed equipment, supported equipment, spare parts, and accessories
j) Write the equipment inspection minutes.
k) Report equipment non-conformances to assigned hospitals and work with them on solutions.
l) Assist with preparing equipment acceptance certificates.

3. Radiotherapy Oncology Equipment Specialist (<u>Indicative:</u> 3 Personnel, 45 Persons-Months)

The essential qualifications and experience of the Candidate are:

a) Master's degree (or equivalent) in Biomedical Engineering, Radiotherapy, Electromedical Engineering, or Medical Physics.
b) Minimum 5 years of experience in radiotherapy oncology equipment.
c) Experience in preparing technical specifications and equipment lists for radiotherapy oncology equipment, including spare parts and accessories.
d) Fluency in written and spoken English.

Responsibilities:

The following tasks need to be accomplished:

a) Prepare technical specifications for radiotherapy oncology equipment, including a detailed and practical list of all necessary supporting equipment, spare parts, and accessories needed to operate the radiotherapy equipment.

b) Calculate the estimated cost for procuring the radiotherapy oncology equipment.
c) Review and discuss the equipment layout created by DEDC in terms of space, room availability, electrical power outlet, foundation, and other pre-installation requirements for radiotherapy oncology equipment.
d) Create a placement layout for the radiotherapy equipment.
e) Offer advice on preparing the bidding document related to the procurement of radiotherapy oncology equipment.
f) Provide technical assistance and advice related to the tender process of radiotherapy oncology equipment.
g) Ensure the supplier's contract implementation for radiotherapy oncology equipment and verify that the delivered equipment complies with the specifications as stated in the supplier's contract.
h) Ensure that the suppliers install radiotherapy oncology equipment and comply with the contract.
i) Ensure the process of trial and function test (testing and commissioning) of radiotherapy oncology equipment.
j) Ensure the process of certification of specific high radiation medical equipment by the government regulatory agency is well implemented.
k) Ensure that the suppliers conduct the necessary training for various user groups (e.g. Operators, Oncologists, Medical Physicists, Biomedical Engineers, etc.).

4. Radiology Diagnostic Equipment Expert (<u>Indicative:</u> 3 Personnel, 45 Persons-Months)

The essential qualifications and experience of the Candidate are:

a) Master's degree (or equivalent) in Biomedical Engineering, Electromedical Engineering, Radio Diagnostic, or Medical Physics.
b) At least 7 years of experience in the field of radiology diagnostic equipment,
c) Having experience in preparing lists and technical specifications for radiology diagnostic equipment,
d) Fluent in English, both oral and written.

Responsibilities:

The following tasks need to be accomplished to procure radiology diagnostic equipment:

a) Produce a detailed technical specification for the radiology diagnostic equipment, including a list of all necessary supporting equipment, spare parts, and accessories.
b) Calculate the cost estimate for the procurement of the radiology diagnostic equipment.
c) Review and discuss the equipment layout produced by DEDC, in terms of space availability, electrical power outlet, foundation, and other pre-installation requirements for the radiology diagnostic equipment.
d) Produce a placement layout for the radiology diagnostic equipment.
e) Provide advice on preparing bidding documents related to the procurement of radiology diagnostic equipment.
f) Ensure the supplier's contract implementation for the radiology diagnostic equipment, and guarantee compliance of the delivered equipment with the specifications stated in the contract.
g) Ensure that the suppliers conduct the installation of the radiology diagnostic equipment and comply with the contract.
h) Ensure the testing and commissioning process (trial and function test) of the radiology diagnostic equipment.
i) Ensure that the suppliers have conducted the required training for various user groups (e.g. Operators, Oncologists, Medical Physicists, Biomedical Engineers, etc.).

5. Nuclear Medicine Equipment Specialist (<u>Indicative:</u> 3 Personnel, 45 Persons-Months)

The essential qualifications and experience of the Candidate are:

a) Master's degree (or equivalent) in Biomedical Engineering, Nuclear Medicine, Radiotherapy, Electromedical Engineering, or Medical Physics.
b) Minimum 5 years of experience in nuclear medicine equipment.
c) Experience in preparing technical specifications and equipment lists for radiotherapy oncology equipment, including spare parts and accessories.
d) Fluency in written and spoken English.

Responsibilities:

The following tasks need to be accomplished:

a) Prepare technical specifications for nuclear medicine equipment, including a detailed and practical list of all necessary supporting equipment, spare parts, and accessories needed to operate the radiotherapy equipment.
b) Calculate the estimated cost of procuring the nuclear medicine equipment.
c) Review and discuss the equipment layout created by DEDC in terms of space, room availability, electrical power outlet, foundation, and other pre-installation requirements for nuclear medicine equipment.
d) Create a placement layout for the radiotherapy equipment.
e) Offer advice on preparing the bidding document related to the procurement of nuclear medicine equipment.
f) Provide technical assistance and advice related to the tender process of nuclear medicine equipment.
g) Ensure the supplier's contract implementation for nuclear medicine equipment and verify that the delivered equipment complies with the specifications as stated in the supplier's contract.
h) Ensure that the suppliers install nuclear medicine equipment and comply with the contract.
i) Ensure the process of trial and function test (testing and commissioning) of nuclear medicine equipment.
j) Ensure the process of certification of specific nuclear medicine equipment by the government regulatory agency is well implemented.
k) Ensure that the suppliers conduct the necessary training for various user groups (e.g. Operators, Oncologists, Medical Physicists, Biomedical Engineers, etc.).

6. Electromedical/Laboratory Equipment Expert (<u>Indicative:</u> 3 Personnel, 45 Persons-Months)

The essential qualifications and experience of the Candidate are:

a) At least a bachelor’s degree or equivalent in Biomedical Engineering, Electromedical Engineering, Electrical Engineering, Medical Chemistry, or Biochemistry.

b) At least 7 years of experience in the field of electromedical and laboratory equipment,
c) Having experience in preparing lists and technical specifications for electromedical and laboratory equipment,
d) Fluent in English, both oral and written.

Responsibilities:

The following are the tasks to be accomplished for the production of technical specifications for electromedical and laboratory equipment:

a) Prepare detailed and realistic lists of all supporting equipment, spare parts, and accessories required to operate the electromedical and laboratory equipment.
b) Calculate the cost estimate for the procurement of electromedical and laboratory equipment.
c) Review and discuss the equipment layout produced by DEDC in terms of space/room availability, electrical power outlet, foundation, and other pre-installation requirements for electromedical and laboratory equipment.
d) Produce placement layout of electromedical and laboratory equipment.
e) Provide advice in preparing bidding documents related to the procurement of electromedical and laboratory equipment.
f) Ensure the supplier's contract implementation for electromedical and laboratory equipment and compliance of the delivered equipment with the specifications as stated in the supplier's contract.
g) Ensure the installation of electromedical equipment is conducted by suppliers and comply with the contract.
h) Ensure the process of trial and function test (testing and commissioning) of electromedical and laboratory equipment.
i) Ensure that the required training for operators and technicians has been conducted by the suppliers.

7. Contract Management Expert (<u>Indicative:</u> 1 Personnel, 45 Persons-Months)

The essential qualifications and experience of the Candidate are:

a) Applicants must possess a Master's degree (or Equivalent) in Business Administration, Law, Management, or a relevant major.
b) Possession of a professional certification in procurement is preferred.

c) A minimum of 5 (five) years of experience in contract management, preferably within the healthcare sector or in large-scale development projects.
d) A Proven track record in managing large-scale procurement processes and contracts.
e) Experience in foreign loan projects, and possess knowledge and working experience with LKPP.
f) Fluency in written and spoken English.

Responsibilities:

a) To assist PMU in preparing and drafting contracts and agreements that align with project requirements and legal standards.
b) Lead and facilitate contract negotiations with vendors, contractors, and other stakeholders to ensure favorable terms and conditions.
c) Oversee the administration of contracts to ensure compliance with terms and conditions.
d) Maintain accurate and up-to-date records of all contractual documents and correspondence.
e) Identify potential risks related to contract performance and propose mitigation strategies.
f) Monitor and manage risks throughout the contract lifecycle to minimize negative impacts on the project.
g) Develop and implement a system for monitoring contractor performance against agreed terms, milestones, and deliverables.
h) Conduct regular reviews and assessments to ensure contractors meet their obligations and project standards.
i) Collaborate with health facilities' ASPAK team to monitor downtime of health equipment and ensure timely unplanned maintenance based on the contract.
j) Address and resolve any contractual disputes or issues that arise promptly and effectively.
k) Liaise with legal advisors as needed to manage and resolve complex contract disputes.
l) Provide training and support to project staff on contract management best practices.

m) Develop and disseminate guidelines and tools to enhance contract management capabilities within the project team.

A2. Supporting Staff

1. Assistant Expert (<u>Indicative:</u> 12 Personnel, 45 persons-months)

The essential qualifications and experience of the candidate are:

a) At least a bachelor's degree or equivalent in Electrical Engineering / Civil Engineering / Mechanical Engineering / Industrial Engineering / Basic Science / Applied Science,
b) At least 3 years of experience as an equipment consultant,
c) Having experience as an equipment expert assistant or as a supervisor for equipment acceptance and inspection on the project site,
d) Fluent in English, both oral and written.

Responsibilities:

a) Assist the equipment expert in preparing technical specifications of equipment, including detailed and realistic lists of all supporting equipment, spare parts, and accessories needed to operate the equipment.
b) Assist equipment experts in calculating cost estimates for the procurement of equipment,
c) Supervise the delivery of equipment by suppliers and coordinate all relevant parties to the unloading process and placement of goods.
d) Supervise the installation of equipment conducted by suppliers and ensure compliance with the contract in terms of technical specification and design.
e) Supervise the process of trial and function test (testing and commissioning) of equipment, until the handover of the equipment from suppliers to PIUs.
f) Prepare documentation and report for providing information rapidly and accurately in the implementation of the supplier's contract from preparation to final acceptance certificate.
g) Ensure the usability and functionality of all equipment, ensuring the validity of the warranty and availability of the branch office and workshop of the supplier in Indonesia for further maintenance (including the availability of spare parts in the Indonesia branch office).

h) Ensure that the training programs needed by the operators and technicians are held by the suppliers.
i) Ensure that the equipment provided by the supplier is originally produced by the original manufacturer (100% new) and that the warranty is provided.
j) List the specific equipment with the PIUs for pre-inspection, if any.
k) Inspect with the PIUs for listed specific equipment (if any) at the supplier warehouse (pre-inspection), before it takes delivery, thereof to ensure their conformity to the specification set out in the contract and ascertain that the equipment is in good condition and free from such defects.
l) Communicate and report immediately to the PIUs in the case that the equipment does not conform to the specification in the Supplier's Contract, and consult on whether to reject or accept the equipment for further solution.
m) Conduct equipment inspection on the packaging, inspection on specification, inspection on installation, test, and commissioning, and inspection of all the installed equipment, including the availability of all supported equipment, spare parts, and accessories at the site with the PIUs.
n) Make a final list of installed equipment for each building/ room/floor,
o) Ensure that the specification, usability functionality, and placement of the equipment comply with the function of the room/floor.

2. Bilingual Secretary (Indicative: 3 Personnel, 45 persons-months)

The Consultants may include a bilingual secretary as needed to complete their work and responsibilities. They are responsible for supporting and assisting the Team Leader in producing bidding documents, regular reports, and other related secretarial services.

3. Administration Staff (Indicative: 9 Personnel, 45 persons-months)

The consultants may include administration staff who are necessary for the completion of their services and responsibilities. Overall responsible for supporting and assisting the Team Leader and key experts in administering, documenting, and reporting the consultant activities and other related administrative tasks.

7.3. Staffing and Schedule

a. The Equipment Consultant will engage the minimum staff as detailed in **Table 1** below,
b. The same professional key experts and supporting staff provided in the technical proposal will have to be employed for the consulting services.
c. The contract period for equipment consultant services shall be 48 months. The composition and duration of the assignment for the Equipment Consultant Teams will be summarized in **Table 1**.

To carry out this mandate, the Consultant shall deploy a multidisciplinary team consisting of Key Experts and Supporting Staff, based on a structured and phased plan. The team composition is designed to align with the technical scope, geographical coverage, and implementation timeline of the oversight activities. The breakdown is as follows:

- **Key Experts:** consisting of seven categories of specialists who provide technical and managerial support throughout the project period. Each expert is assigned to one or more locations (Jakarta, Makassar, and Bali) with varying durations of engagement. The Team Leader is assigned for forty-five months in Jakarta and for thirty-six months in both Makassar and Bali. The Co-Team Leader, Oncology Expert, Radiodiagnostic Expert, Nuclear Medicine Equipment Expert, and Electromedical/Laboratory Equipment Expert similarly have assignments distributed across multiple locations, generally with a longer duration in Jakarta and shorter periods in Makassar and Bali. The Contract Management Expert is assigned exclusively to Jakarta for a period of forty-five months.
- **Supporting Staff**: The Supporting Staff are assigned to assist the Key Experts across the three regional locations. This group includes Assistant Experts, Bilingual Secretaries, Administrative Staff, Office Boys, Drivers, and Security Guards, each allocated according to operational needs. Assistant Experts are positioned in Jakarta, Makassar, and Bali, with four personnel in each location assigned for thirty-six months. Bilingual Secretaries are also stationed in all three locations, with one person in each place for the same duration. Administrative Staff are distributed across Jakarta, Makassar, and Bali. Jakarta assigns three personnel for forty-five months, while Makassar and Bali each assign three personnel for thirty-six months. Office Boys are assigned to all three locations, with one person in each, following the same duration as the Administrative Staff.

Drivers are similarly assigned, with one person in each location for the same duration as the Administrative Staff. Security Guards are deployed in all three locations as well, with two personnel in each, also following the same duration as the Administrative Staff. This combination of expert and support personnel reflects a well-structured human-resource plan designed to ensure effective coordination, technical assistance, and administrative continuity across all project areas.

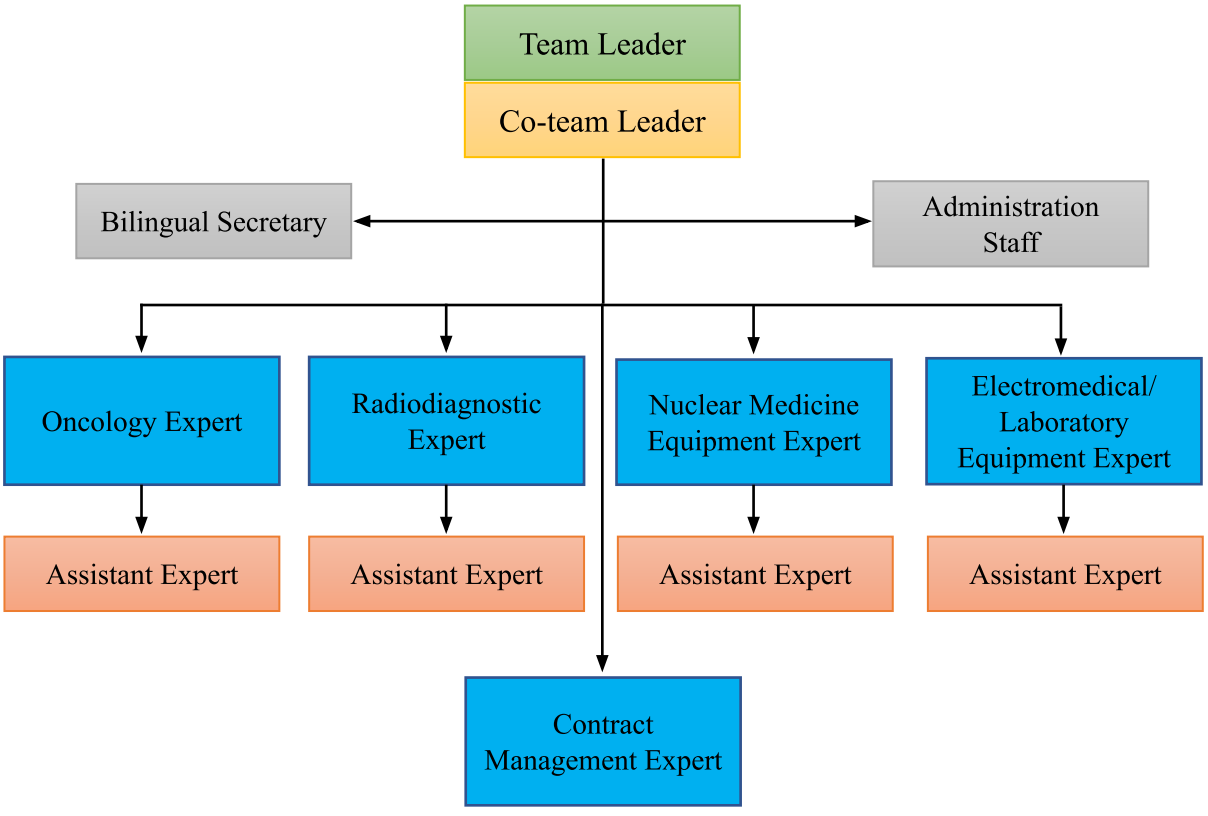
Table 2. EQC *Team Composition and Duration of Assignment (Estimation)*

No.	Team Composition		Number of Persons	Duration of Assignment (months)	Total Month Person
A1. Key Experts					
1	Team Leader	Jakarta	1	45	45
2	Co Team Leader (engineer/expert)	Makasar	1	36	36
		Bali	1	36	36
		Jakarta	1	45	45
3	Oncology Expert	Makasar	1	36	36
		Bali	1	36	36
		Jakarta	1	45	45
4	Radiodiagnostic Expert	Makasar	1	36	36
		Bali	1	36	36
		Jakarta	1	45	45
5	Nuclear Medicine Equipment Expert	Makasar	1	36	36
		Bali	1	36	36
		Jakarta	1	45	45
6	Electromedical/Laboratory Equipment Expert	Makasar	1	36	36
		Bali	1	36	36
		Jakarta	1	45	45
7	Contract Management Expert	Jakarta	1	45	45
				Total	675
A2. Supporting Staff					
1	Assistant Expert	Makasar	4	36	144
		Bali	4	36	144
		Jakarta	4	45	180
2	Bilingual Secretary	Makasar	1	36	36
		Bali	1	36	36

No.	Team Composition		Number of Persons	Duration of Assignment (months)	Total Month Person
		Jakarta	1	45	45
3	Administration Staff	Makasar	3	36	108
		Bali	3	36	108
		Jakarta	3	45	135
4	Office boy	Makasar	1	36	36
		Bali	1	36	36
		Jakarta	1	45	45
5	Driver	Makasar	1	36	36
		Bali	1	36	36
		Jakarta	1	45	45
6	Security Guard	Makasar	2	36	72
		Bali	2	36	72
		Jakarta	2	45	80
				Total	1394

*The bidder may propose differently, but should at least fulfill the estimated above composition and duration of the assignment.

7.4. Organizational Structure Chart



8. Reporting Requirements and Deliverables

8.1. Report

The report generated by the consultant of the activity is a clear and consistent product that is presented in a systematic and good format. The submitted report form must at least include the following.

8.2. Inception Report

An inception report, along with an equipment consultancy activities plan in 5 copies, shall be submitted by the EQC within 30 days after the commencement of services. The inception report shall contain:

a. The detailed activity program and resource mobilization plan for the project related to Equipment Consultancy Services,
b. The equipment procurement procedures and manual as the guidelines for administration, supervision, and management of the project. Such a manual is not intended to be a contractual document, nor is it to take precedence over the specifications. The manual will merely act as a guide and reference to the various staff of the EQC in discharging their duties smoothly and systematically.

8.2.1. Monthly Progress Reports

The progress reports submitted by EQC should indicate the EQC's performance, quality of work, delays, deficiencies, constraints, and the project's financial status, forecasts, and give recommendations for further action. The monthly progress report shall be submitted to the PMU Manager, and it shall be brief and concise, providing means of closely monitoring project progress, and shall cover the following:

a. Main activities undertaken and events for the period under review, and progress.
b. Report on the activities of the consultant staff.
c. Monitoring and evaluation of the equipment procurement progress.
d. Photographs showing the activities.
e. Recommendations for project implementation stages.
f. Other issues may necessitate providing additional information to be provided to the PMU Manager.

The monthly progress report will be prepared at the end of each calendar month and delivered before the 10th day of the following month in 5 copies.

8.2.2. Quarterly Progress Report

A detailed quarterly report in 5 copies shall be submitted within 10 days after the end of each quarter. Quarterly progress reports should represent the accumulated progress within the last three months, including analysis and recommendations for further action(s). This report should also highlight the important issue(s) that need to be addressed by PMU and the action plan for the next period. Provide detailed supporting evidence/document and/or deliverables, if any.

8.2.3. Final report

A detailed Contract Completion/Final Report should be submitted to the PMU Manager in 5 copies within 1 month of completion of the service. The final report should represent the final accumulated activities and accomplishments until the end of the assignment. Provide detailed supporting evidence/document and/or deliverables.

8.2.4. Deliverables

The following documents are mandatory as the deliverables of EQC Services:

(a) Master schedule of equipment procurement,

(b) Bidding document for procurement of medical equipment and non-medical equipment for respective packages, including:
   i. List of Goods and Delivery Schedule
   ii. List of Related Services and Completion Schedule
   iii. List of supporting equipment, spare parts, and accessories
   iv. Technical Specification
   v. Detailed technical aspects for installation.
   vi. Draft Contract

(c) Cost Estimate/Engineering Estimated (EE) for procurement of medical equipment for respective packages,

(d) Review results on the layout of equipment placement,

(e) Draft Specific Procurement Notice (SPN),

(f) Assessment criteria and forms for evaluation,
(g) Report on completeness and conformity of delivered equipment,
(h) Report on testing commissioning,
(i) Report on training for equipment operator/user,
(j) List of installed equipment/furniture for each building/floor/room.

9. Client's Input and Counterpart Personnel

9.1. Facilities to be Provided by the Consultant

a. The EQC shall be required to maintain a site office for the Co-Team Leader and staff in three locations. This office should be easily accessible to the EQC Team. All required furniture, hardware, software, internet/phone connections, office stationery etc. shall be provided by the EQC in this office. The EQC should bear these costs in mind while preparing its financial proposal.
b. In addition, the EQC shall make its arrangements for transport (vehicle) at the work project location. The EQC shall compulsorily provide a transport facility to team members.
c. The EQC shall give details in the Technical Proposal and its costs shall be included in the Financial Proposal, including all facilities, equipment (engineering and office), transport, computer hardware and peripherals, computer software, communication system (telephone, fax, e-mail/ internet), and supporting staff who they consider carrying out the services;

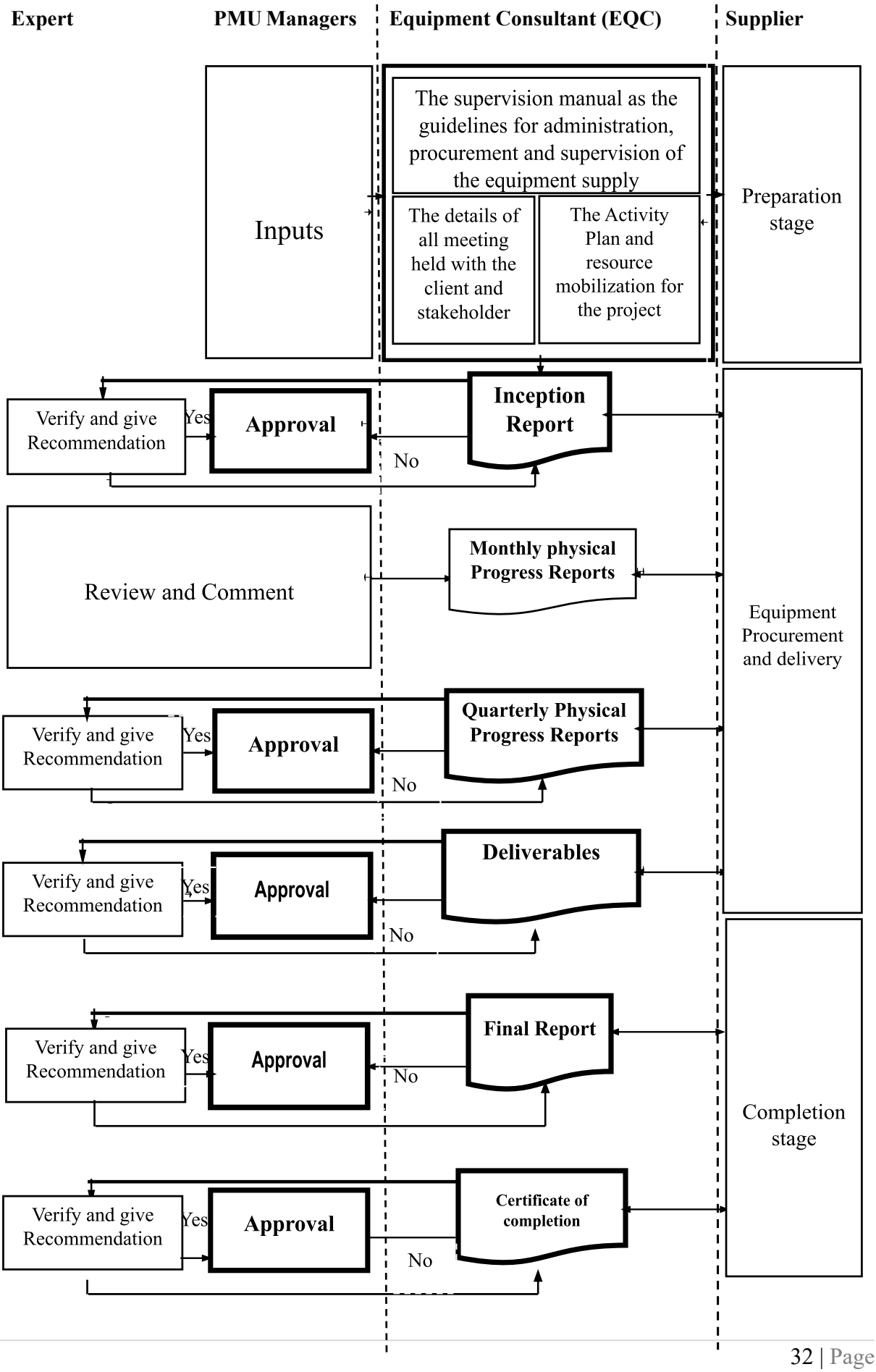
9.2. Relationship between consultant's frameworks

In conducting the assigned work, there are several parties involved as described in Figure 1. It is used as a guideline for the cooperative work between PMU, PMU Experts, and Suppliers.

A relationship between the consultant's framework will govern the execution of works. The main features of the relationship between the consultant's framework formulated for the execution of the proposed are:

a. PMU or its representative may inspect and review the progress of works and may issue appropriate directions to the EQC for taking necessary action.

b. PMU has the authority to give directions to the EQC in all routine matters related to the contract management/administration. Such matter shall include, but not be limited to, the following:
    1) to take corrective action for any slow progress and inadequate quality,
    2) to examine the cases of variation orders, including variations in quantities and additional work items recommended by EQC,
c. Team Leader and Co-Team Leader of EQC shall have a team of experienced technicians and supporting staff for the execution of the Consultancy Service under the Contract.
d. EQC will be a part of the relationship between the consultant's framework and will assist the PMU in all matters pertaining to contract suppliers, as required.
e. EQC shall establish and maintain a synergistic relationship with PMU Experts and Suppliers to assure the success of the implementation of procurement.


Expert
PMU Managers
Equipment Consultant (EQC)
Supplier
Inputs
The supervision manual as the guidelines for administration, procurement and supervision of the equipment supply
The details of all meeting held with the client and stakeholder
The Activity Plan and resource mobilization for the project
Preparation stage
Verify and give Recommendation
Yes
Approval
No
Inception Report
Review and Comment
Monthly physical Progress Reports
Equipment Procurement and delivery
Verify and give Recommendation
Yes
Approval
No
Quarterly Physical Progress Reports
Verify and give Recommendation
Yes
Approval
No
Deliverables
Verify and give Recommendation
Yes
Approval
No
Final Report
Completion stage
Verify and give Recommendation
Yes
Approval
No
Certificate of completion

10. Budget Components

The proposed budget/cost is divided into cost components as follows:

1. Remuneration cost, which consists of:
   a. Professional staff,
   b. Supporting staff.
2. Reimbursable and Miscellaneous costs, which consist of:
   a. Domestic flights,
   b. Miscellaneous travel expenses,
   c. Subsistence allowance,
   d. Local transportation cost,
   e. Accommodation,
   f. Office rent and operation,
   g. Equipment maintenance/ rent,
   h. Vehicle rent,
   i. Reporting.

The estimated budget for the EQC is funded through Foreign Loan (IsDB) under the Directorate General of Advanced Health Services (*Direktorat Jenderal Kesehatan Lanjutan*) for the year 2026-2029.