Project Administration Manual

Project Number: 50395
Loan Number: LXXXX
November 2018

Republic of Indonesia: Advanced Knowledge and Skills for Sustainable Growth Project

ABBREVIATIONS

ADB	–	Asian Development Bank
APBN	–	Anggaran Pendapatan dan Belanja Negara (Annual State Budget)
BAPPENAS	–	Badan Perencanaan Pembangunan Nasional (National Planning Ministry)
BPK	–	Badan Pengawas Keuangan (the Indonesian Supreme Audit Institution [SAI])
DIPA	–	Daftar Isian Pelaksanaan Anggaran (Budget Implementation List)
DGRSTH	–	Directorate General of Resources for Science, Technology and Higher Education
EAS	–	Direktorate Evaluasi, Akuntansi, dan Setelmen (Directorate of Evaluation, Accounting and Settlement)
HEI	–	higher education institution
IQF	–	Indonesian Qualifications Framework
KPPN	–	Treasury Service Office, Indonesia
LFIS	–	Loan Financial Information System of ADB
MOEC	–	Ministry of Education and Culture
MORTHE	–	Ministry of Research, Technology and Higher Education
PAM	–	project administration manual
PIU	–	project implementation unit
PKN	–	Directorate of State Cash Management, Indonesia
PMP	–	Panduan Manajemen Pemeriksaan (audit management guidelines)
PMU	–	project management unit
PNBP	–	Penerimaan Negara Bukan Pajak (Non-Taxes Revenue)
RKA	–	Rencana Kerja dan Anggaran (Workplan and Budget)
RPJMN	–	Rencana Jangka Menengah Nasional (Medium Term Development Plan)
SAI	–	Supreme Audit Institution, Indonesia
SAIBA	–	Accrual Basis Institutional Accounting System, Indonesia
SILABI	–	Institutional Treasury Reporting System, Indonesia
SMK	–	Sekolah Menengah Kejuruan (senior vocational education schools)
SP4-HLN	–	Surat Perintah Pembukuan Penarikan Pinjaman/Hibah Luar Negeri (Loan or grant withdrawal record order)
SPAN	–	Sistem Perbendaharaan dan Anggaran Negara (Financial Management and Information System)
SPM	–	Surat Pemerintah Membayar (payment order)
TA	–	technical assistance
TVET	–	technical and vocational education and training
UNIMAL	–	University of Malikussaleh
UNJA	–	University of Jambi
UNRI	–	University of Riau
UPI	–	Universitas Pendidikan Indonesia

CONTENTS

APPENDIXES

Project Administration Manual Purpose and Process

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with the policies and procedures of the government and Asian Development Bank (ADB). The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The Ministry of Research, Technology and Higher Education (MORTHE) as executing agency; and the University of Malikussaleh (UNIMAL), University of Jambi (UNJA), University of Riau (UNRI), and Universitas Pendidikan Indonesia (UPI) as implementing agencies are wholly responsible for the implementation of ADB-financed project, as agreed jointly between the borrower and ADB, and in accordance with the policies and procedures of the government and ADB. ADB staff is responsible for supporting implementation including compliance by MORTHE, UNIMAL, UNJA, UNRI, and UPI of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At loan negotiations, the borrower and ADB shall agree to the PAM and ensure consistency with the loan agreement. Such agreement shall be reflected in the minutes of the loan negotiations. In the event of any discrepancy or contradiction between the PAM and the loan agreement, the provisions of the loan agreement shall prevail.

After ADB Board approval of the project's report and recommendations of the President, changes in implementation arrangements are subject to agreement and approval pursuant to relevant government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval, they will be subsequently incorporated in the PAM.

I. PROJECT DESCRIPTION

1. The proposed Advanced Knowledge and Skills for Sustainable Growth Project in Indonesia (AKSI) will support advanced skills and knowledge for sustainable economic growth in Indonesia by upgrading three public universities in Sumatra and one public university in Bandung, West Java, as the first phase of higher-education reform. The project will support new facilities and equipment, strengthen staff capacity, support demand-driven quality education and research aligned with local economic priorities, and strengthen vocational teacher education. The project is aligned with Indonesia's Medium-term Development Plan (RPJMN) 2015–2019, and Asian Development Bank (ADB) Country Partnership Strategy for Indonesia, 2016–2019, both of which highlight the critical role of vocational and tertiary education in providing the skilled human capital needed to support Indonesia's economic growth and social development.[1]

2. The project aims to strengthen access, relevance, and quality of the University of Malikussaleh (UNIMAL), the University of Jambi (UNJA), the University of Riau (UNRI), and the Indonesia University for Education (UPI). The scope of work entails three categories of activities: (i) development of teaching and research facilities, supporting infrastructure, and procurement of equipment; (ii) development and improvement of the quality of human resources, including degree and non-degree programs for lecturers and university staff; and (iii) development of academic curriculum and management system to improve teaching and research process, particularly in a specific focus area, with the aim of becoming a center of excellence. Investment in UNIMAL, UNJA, and UNRI is aligned with local economic priorities and will focus their centers of excellence on sustainable natural resources, agriculture, and marine and aquatic science, respectively. UPI will focus its center of excellence on TVET-teacher education to meet national priorities for skilled and highly skilled human resources.

3. **Justification for construction.** For each building to be financed, universities have developed a detailed justification as per an agreed format, indicating usage of each building. The justifications and designs are documented in the Readiness Criteria Document prepared by each university. These detailed descriptions are the basis for the detailed engineering design (DEDs). In addition to ensuring that the buildings comply with existing regulations and standards, the project will use best practices for environmental sustainability, improving climate-change responsiveness (both in terms of adaptation and mitigation), for increasing cost-efficiency including life cycle cost analysis to justify 'green' buildings,[2] and for strengthening the overall academic and physical environment. All new buildings will have engineering designs and checks to ensure inclusion of specifications that minimize risks to buildings and their occupants from earthquakes, flooding, temperature increases, and hazardous air quality due to smoke haze. For overall campus design, the project aims to use best practices to minimize risks to campuses from seasonal, flooding, temperature change, drought, and, for UNRI and UNJA, smoke haze. For compliance with gender regulations and best practices, each building design will include lactation rooms and facilities, separate female and male toilets in line with the anticipated number of users, and doors that ensure privacy and security. Inclusive designs will include accessibility features such as accessible routes, curb ramps, ramp/lifts/stair lifts, dedicated parking and signage. New daycare centers will be built, and existing ones will be expanded to comply with government gender regulations. For buildings operations and maintenance, environmental and health and

[1] ADB. 2016. *Country Partnership Strategy: Indonesia, 2016–2019.* Manila; BAPPENAS. 2015. *National Medium-Term Development Plan (RPJMN 2015–2019).* Jakarta.

[2] Green building design include energy efficient and waste reduction structural features plus equipment and finishing procured that adjust buildings' internal environment to health and safety standards. These include, but are not restricted to, passive cooling features such as, *inter alia,* awnings, roof overhands, wind driven roof vents, cross ventilation designs, clerestory windows or roofs.

safety regulations will be strictly enforced for chemical and biological waste from the teaching laboratories and the medical faculty in UNJA.

4. A framework and lessons learned document for applying these principles at terms of references, DEDs and campus designs will be available from September 2018 onwards.

5. **Project impact, outcome, and outputs.** The project is aligned with the following impact: income and productivity of the working age population increased. The outcome of the project will be access, relevance, and quality of targeted universities strengthened. To achieve the outcome, the project will deliver two outputs: (i) market responsive programs delivered; and (ii) training of technical- and- vocational- education- and- training teachers improved. These project outputs are described below.

A. Output 1: Market responsive programs delivered

6. Output 1 will support increased access, relevance, and quality of UNIMAL, UNJA, and UNRI by: (i) completing construction and equipping 33 new buildings and finishing and equipping 1 unfinished building (with gender responsive, inclusive, and sustainable infrastructure); (ii) training at least 586 additional teaching, management, research and support staff (of which 40% women) to increase their understanding on market responsive programs and research; and (iii) supporting development of centers of excellence in UNIMAL, UNJA, and UNRI in sustainable natural resources, agriculture, marine and aquatic science, respectively in collaboration with industry, community and other stakeholders.The support to development of centers of excellence aims to: (a) upgrade or develop at least 40 curricula; (b) launch at least 21 new research programs connected to the center or excellence; (c) provide at least 65 additional training or service programs; and (d) sign at least 21 additional MoUs with industry and other stakeholders. A proposed separate technical assistance (TA) will support medium-term higher education investment plan development.[3]

a. Construction Design Principles

7. **UNIMAL** aims to construct 14 new buildings and complete 1 unfinished building, with a summary in Table 1.1.

Table 1.1: Buildings Proposed by UNIMAL

Location	Building – UNIMAL	Floors	M^2
Bukit Indah Campus	1) General Lectures Building (C)	3	3,000
	2) Finish and modify the Unfinished Administration Building to become Central Library Building and Student Activity Centrum	3	7,500
	3) Integrated Laboratory of Renewable Energy	2	2,700
	4) School of Engineering Building	2	3,000
	5) School of Economic Building	2	2,800
	6) School of Social Science and Politics Building	2	2,300
	7) School of Law Building	2	2,200
	Supporting Infrastructure: Roads and Parking, Drainage, Culverts, Energy Power Supply, IT connections, Landscaping, Water supply		

[3] A proposed separate technical assistance (TA) proposed to be financed by the Japan Fund for Poverty Reduction will support project implementation. The TA will provide international best practices to help develop centers of excellence and strengthen international networks. The TA will also support development of the medium-term higher education investment plan and the medium-term TVET teacher education strategy, and evaluate pilots in entrepreneurship and technology.

Location	Building – UNIMAL	Floors	M^2
Reuleut Campus	8) General Lectures Building (D)	3	3,000
	9) Integrated Laboratory for Agriculture, Medicine and other general Sciences	2	2,700
	10) Green House	1	800
	11) Administration Office of Reuleut Campus, Integrated with Data center, international office and language Training Center	3	8,000
	12) School of Agriculture Building	3	2,300
	13) School of Teaching and Education	3	2,700
	14) School of Medicine Building	3	2,200
	15) University and Community Education, Exposition and Event Center integrated with University Training Center	*2*	4,800
	Supporting Infrastructures: Roads and Parking, Drainage, Culverts, Energy Power Supply, IT connections, Landscaping, Water supply		
Total	15 buildings, 14 new buildings, 1 unfinished building to be finished.		50,000

IT = Information Technology, M^2 = square meter, UNIMAL = University of Malikusalleh.

8. **Completing unfinished building**. UNIMAL will start bidding for redesign and subsequent completion of the unfinished building after MORTHE, BAPPENAS, and ADB have provided no objection. The no objection will be, based on the audit by BPK, the structural assessment conducted by the engineering firm recruited by ADB from July to September 2018, and the confirmation issued by the local Public Works Office statement that there are no major issues preventing the continuation of the construction to complete the unfinished building. The procurement plan includes separate re-design consulting services (funded by PNBP [Penerimaan Negara Bukan Pajak (non-tax revenue)]) and construction (funded by ADB loan). This is included in the environmental management plan, and will also be reported on through the environmental monitoring plan.

9. The University and Community Education, Exposition and Event Center integrated with University Training Center is expected to generate revenue for the university. To mitigate risks for not generating sufficient revenue, UNIMAL will develop a business plan and include a flexible design in the specifications for the building.

10. **Additional lecture buildings.** UNIMAL is using non-taxes revenue (PNBP) financing, outside the project allocation, to complete construction of the unfinished General Lectures Buildings (A) and (B), to ensure that sufficient facilities are available for students. UNIMAL will make every reasonable effort to complete the construction of lecture building (A) by 2022 and commence completion of lecture building (B) by 2022. UNIMAL will include progress of completion of these buildings as part of project progress reporting. Completion of these buildings is not part of the project scope, however any potential impact will be assessed as part of the environmental management plan and reported on through the environmental monitoring report.

11. UNIMAL will include development of 2-day care centers, one in each campus, as part of this project, and they will be included in the administration buildings. UNIMAL aims to procure equipment for the laboratories and furniture for all relevant buildings.

12. **UNJA** aims to construct 9 new buildings, with a summary in Table1.2.

Table 1.2: Buildings Proposed by UNJA

Location	Building – UNJA	Floors	M^2
Mendalo Campus	1) University and Faculty Administration Center	7	9,361
	2) Integrated Classroom A	5	8,500

Location	Building – UNJA	Floors	M^2
	3) Integrated Classroom B	5	8,250
	4) Integrated Classroom C	3	6,600
	5) Engineering (Science) Laboratory	3	3,600
	6) Integrated Social Science Laboratory	3	3,600
	7) Student Activity Center	4	4,800
	Solar Energy System		
	Water Treatment System		
	Landscaping		
Telanaipura Campus	8) Postgraduate Center	6	8,733
Buluran Campus	9) Faculty of Medical & Health Sciences	6	6,236
Total	9 new buildings		59,680

M^2 = square meter, UNJA = University of Jambi.
Note: Road and parking approximately 4,000 m^2

13. The engineering firm recruited by ADB will conduct a structural assessment of the existing post-graduate and rectorate building. UNJA will use the results of this assessment to inform the redesign of these two buildings. UNJA will timely allocate PNBP budget for redesign and for renovation of the existing post-graduate and rectorate building. UNJA aims to start renovation by 2022 once the new post-graduate building and University and Faculty Administration Center are completed and users have shifted. UNJA will, as part of the progress reporting for AKSI, report on the status of the budget inclusion, redesign and renovation of the two buildings, including through the environmental monitoring.

14. Addition of a day-care center in one of the existing UNJA buildings will be financed by PNBP. UNJA aims to procure equipment and furniture for the buildings.

15. **UNRI** aims to construct 10 new buildings, with a summary in Table 1.3.

Table 1.3: Buildings Proposed by UNRI

Location	Building – UNRI	Floors	M^2
Main Campus	1) Integrated Classrooms	3	8,500
	2) Integrated Laboratories	3	7,500
	3) Information and Technology Centre	3	4,000
	4) Student Center	2	3,500
	5) University Main Library	3	2,000
	6) Boat House and Marine Centre	2	1,500
	7) Health Studies Complex	3	5,500
	8) Postgraduate Centre	6	7,500
	9) University Training Centre	2	4,000
	10) Food Science and Technology Centre	3	3,500
	Supporting Infrastructure: (i) Road and facility 10 km; (ii) Drainage 20 km; (iii) Culvert 10 unit (iv) Energy Power Supply 3 unit		
Total	10 new Buildings		47,500

km = kilometers, M^2 = square meter, UNRI = University of Riau.

16. The University Training Center is expected to generate revenue for the university. To mitigate risks, UNRI will develop a business plan and include a flexible design in the specifications for the building.

17. UNRI will procure advanced equipment for its research laboratories and will procure furniture for all buildings.

b. Capacity Development of Staff in UNIMAL, UNJA, and UNRI

18. Each of the three universities has developed a human resource development program to be financed by the project.

19. **Human Resource Development Program of UNIMAL.** UNIMAL's Human Resource Development (HRD) strategy is comprised of degree and non-degree national and international training programs and is aligned with the university's long-term strategic plan. The university degree and non-degree training programs will train 316 university academic and technical staff. AKSI will send 15 lecturers for overseas PhDs. In addition, the project will offer international and national short course, internships, and collaborative research opportunities for academic, technical and administrative staff. The HRD component will begin in Q1 2019 and end in Q4 2022. The detailed list of capacity development programs for UNIMAL staff is in Appendix 1.

20. **Human Resource Development Program of UNJA.** UNJA's HRD program under AKSI is fully aligned with its vision and integrated into its medium and long-term university development plans. The university's degree and non-degree program will train a total of 47 participants in training programs. Seven faculty members will be sent overseas for PhD programs and 40 academic and technical staff will be sent for non-degree programs at Indonesian universities and institutions. All training will be implemented between 2020 and 2023.

21. PhD topics are all associated with the Center of Excellence for Quality Education in Sustainable Natural Resources Management including science education, natural science and technology, forest management, peat management, green house gas management, water management, hydrology, and agroforestry. PhD candidates will study in programs located in Australia and Germany, although specific arrangements with cooperating universities are still to be determined.

22. Non-degree topics for academic and technical staff are more varied. Three of the 8 programs focus on improving overall university operations: university governance, student affairs, and international collaborative service, while four are focused on building capacity for laboratory technicians. The list of capacity development programs of UNJA is in Appendix 2.

23. **Human Resource Development Program of UNRI.** AKSI is one part of UNRI's overall and long-term human resource development strategy. The degree program is financed through non-AKSI resources, and at present, 117 lecturers are pursing PhDs, most of whom are expected to finish their studies by 2020-2021. AKSI will finance a total of 145 people in 48 non-degree training (including 44 short courses and four benchmarking activities) beginning in Q2 2020 and continuing through Q2 2023. The list of capacity development program of UNRI is in Appendix 3.

c. Program Development: Centers of Excellence

24. The three universities have each developed plans for becoming a center of excellence (COE) in a specific discipline. The COE development can be a combination of infrastructure, program development, organizational development and capacity development, depending on the university's capacity and long-term plan. To ensure gender sensitivity, at least 1 training on gender analysis will be provided for the teams developing new curricula or integrated programs, and the analysis will be used to develop the new program or curricula. Research will also include gender analysis such as labor market barriers to university graduates in targeted sectors.

25. **UNIMAL as Center of Excellence for Sustainable Agriculture**. In UNIMAL, an inclusive process for developing the COE is currently under preparation, and consultations with local stakeholders are being initiated. The COE development will include several elements of the infrastructure component, the human resource development program, and the program development activities. The university training center and some of the research facilities will also be used to support its COE development. The COE aims to combine the expertise and experience of the agricultural engineering and the agriculture programs, and draw upon the business, economics and other relevant faculties. This combined expertise will be used to design programs and innovative technologies that are sustainable and that will benefit local farmers and agribusiness. In Aceh, there is a compelling need to modernize and improve agriculture. The COE aims to develop new seeds and support essential oil development. Since the decline of the oil economy, which peaked in the 1990s, the local economy depends primarily on agriculture. The majority of the people work in agriculture and supporting sustainable agriculture will yield the largest economic benefits. The COE will work with local stakeholders and will develop 10 new or upgraded curricula in the area of agriculture, launch 5 new research programs in agriculture, and complete 20 new training or service programs to support the needs of the local community and industry. MOUs will be signed with the relevant stakeholders to ensure that the COE is demand-driven.

26. **UNJA as Center of Excellence for Sustainable Natural Resources.** In UNJA, the approach towards development of the COE is in the initial stages. The infrastructure program and the human resource development support both overall COE and university upgrading in general. The development of the COE mainly focuses on program development. UNJA aims to strengthen its existing capacity in sustainable natural resources with the assistance of the project. Currently, UNJA is collaborating with the University of Gottingen and other national universities on related work and aims to expand that program in future. The province of Jambi is experiencing many challenges in managing the remaining rainforest in a sustainable manner; local communities, governments and industries are ready to collaborate with UNJA to synergistically strengthen capacity to manage the rainforest in a sustainable way, for example through introduction of agroforestry, thereby ensuring long-term economic growth. The COE will work collaboratively with local stakeholders to develop 12 new or upgraded curricula for relevant topics, launch 8 new research programs in this field, and complete 20 new training or service programs to support the needs of the local community and industry. MOUs will be signed with the relevant stakeholders to ensure that the COE is relevant and demand-led.

27. **UNRI as Center of Excellence for Marine and Aquatic Science.** In UNRI, the approach towards development of the COE is currently being finalized in consultation with local stakeholders. Several parts of the infrastructure investment and the human resource development programs are designed to support the COE development. The COE at UNRI aims to strengthen, enhance, and integrate elements of its already strong marine and aquatic science programs. Its current approach is research-led, and during the project it aims to deepen the applied research approach, increase its services to local stakeholders, and refresh its programs of study. UNRI aims to involve several faculties in this multidisciplinary approach. Riau is one of the most important economic areas outside Java, and it is expected that graduates from the marine and aquatic science programs will find work in the advanced agribusiness companies as well as related service industries. It is also one of the most culturally diverse provinces. The COE will work both with local industry and communities, will have a specific research focus, and in collaboration with industry and communities, will develop 18 new or upgraded curricula in the area of applied marine and aquatic science, launch 8 new research programs, and complete 25 new training or service programs to support the needs of the local community and industry. MOUs will be signed with the relevant stakeholders to ensure that the COE is demand-led.

B. Output 2: Training of technical-and-vocational-education-and-training teachers improved

28. Output 2 will support UPI in improving training of TVET teachers by: (i) upgrading UPI by completing construction and equipping 6 new buildings (including gender responsive, inclusive, and sustainable infrastructure) to become COE in TVET teacher education and training; (ii) training at least 53 teaching, management, research and support staff (of which 40% are women) to increase understanding on designing and delivering accredited TVET teacher education programs; and (iii) supporting UPI as part of its COE development to (a) establish 6 new bachelor (S1) TVET teacher education programs; (b) train at least 240 SMK-teachers (at least 40% women) in-service training programs, in collaboration with MOEC, relevant polytechnics, SMKs and industry (c), certify at least 300 participants (at least 35% women) by the established LSP and PUK, and (d) disseminate at least 2 case studies of UPI model for TVET teacher education and training model. A proposed separate TA will develop a medium-term TVET teacher education strategy for MORTHE and MOEC (footnote 3).

a. Upgrading of UPI

29. UPI aims to construct 6 buildings, with a summary in table 1.4 below.

Table 1.4: Buildings Proposed by UPI

Location	Building – UPI	Floors	M^2
Main Campus in Bandung	1) Postgraduate Integrated Classrooms and Laboratory	6	8,440
	2) Faculty of Economy and Business Education Integrated Classrooms and Laboratories	6	8,800
	3) Faculty of Arts and Design Education Integrated Classrooms, Laboratories, Studios and Performing Arts Laboratories	6	9,810
	4) Faculty of TVET Integrated Classroom, laboratories, workshops and studios	8	9,940
	5) TVET Center of Excellence integrated building - Professional Certification and Competence Test Center - TVET Research and Development - Business Incubator and Partnership Center	8	9,820
	6) Professional Teacher Education and Training Center	7	7,690
Total	6 new buildings		54,500

M^2 = square meter, TVET = technical and vocational education and training, UPI = Universitas Pendidikan Indonesia.

30. **Clearing of the sites.** To create a space for new construction, UPI plans to demolish three older buildings. UPI has committed that this demolition will not have any negative side effects and all users of the demolished buildings will be provided space in the new buildings or elsewhere on campus. UPI has included sufficient funds in the project proposal for the demolition and land clearing. Compliance with all relevant regulations and safeguards will be included in the environmental magement plan, and reported on through the environmental monitoring report.

31. UPI aims to expand its existing day care center with PNBP financing as well as include a new day care center in one of the new buildings financed by the project. UPI will procure equipment and furniture for the new buildings.

b. Capacity Development of UPI Staff

32. UPI's human resource development component consists of non-degree training for 57 academic and non-academic staff and is focused on university management, improving academic staff skills in specific technical areas and university administration, and the use and maintenance of facilities and technical equipment purchased under AKSI for use in its COE. Training is scheduled to begin in Q3 2020 and complete in Q4 2023, and will include three types of participants: managers (12 persons), instructor/lecturers (24 persons), and technicians/laboratory assistants (21 persons). UPI's capacity development program is summarized in Appendix 4, which lists the types of training to be provided to these participants.

c. UPI as Center of Excellence for TVET Education

33. In UPI, both the infrastructure program as well as the HRD program are geared towards supporting the COE for TVET Education.

34. There is an extreme shortage in the number TVET-teachers in Indonesia, concern over the quality of existing TVET-teaching methods, and concern about the competency of TVET-teachers, particularly at the vocational senior high school (SMK) level. Indonesia has limited capacity to conduct research on TVET-teacher education. UPI, in its COE approach, aims to address some of these problems. The COE proposal is in advanced stage. As discussed with MOEC, the COE will function as a networking organization, bringing important stakeholders inside and outside the university together, and actively aiming to enlarge the network during its implementation. Collaboration with the relevant departments in the university, with the consortium of four universities specialized in TVET-teacher education, namely State University of Padang (UNP), State University of Yogyakarta (UNY), State University of Malang (UM), and UPI, with the Institute for Technology Bandung and the two polytechnics in Bandung, relevant SMKs, local industry, and with MORTHE and MOEC, have been established, and a separate unit to promote cooperation with industry will be part of the COE. The COE will establish six new TVET-teacher bachelor (S1) programs in the following areas of information system and technology; artificial intelligence and robotics; industrial instrumentation engineering; renewable energy engineering; chemical engineering; and automotive engineering. To ensure gender sensitivity, training on gender analysis will be provided for the teams developing new curricula or integrated programs. The COE will coordinate and start research in the area of TVET education. As part of its research activities, UPI will disseminate at least two case studies showcasing best practices in TVET-teacher education, which can be used by other institutions. The COE will develop SMK- teacher in-service training programs in collaboration with MOEC. UPI will establish a Professional Certification Body (LSP) and Competency Testing Unit (TUK) to enable to certify its students in specific skills in line with the Indonesian Qualifications Framework (IQF) standards.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

Table 2.1: Project Readiness Activities

Activities	2018							2019	Responsibility
	June	July	Aug	Sept	Oct	Nov	Dec	Jan	
ADB processing mile-stones (indicative)									
- Fact-finding mission	X								ADB, MORTHE, BAPPENAS, MOF, four Universities
- Loan negotiations					X				ADB, MORTHE, BAPPENAS, MOF, 4 Universities
- ADB Board consideration						X			ADB
- Loan agreement signing							X		ADB, MOF
- Loan effectiveness declaration								X	ADB
Project preparation mile-stones (indicative)									
- Approval of fact-finding mission's MOU		X							ADB, MORTHE, BAPPENAS
- Preparation for Advance Procurement				X					ADB, PMU, 4 Universities
- Selection of Project Management Consultant								X	ADB, PMU, 4 Universities
- Readiness coordination		X							ADB, MORTHE
- Preparation of Daftar Kegiatan			X						BAPPENAS, MOF
- Loan negotiation authorization				X					MOF, BAPPENAS
- Legal opinion								X	The Ministry of Justice and Human Right

ADB = Asian Development Bank, BAPPENAS = Badan Perencanaan Pembangunan Nasional (National Planning Ministry), MOF = Ministry of Finance, MORTHE = Ministry of Research Technology and Higher Education, MOU = Memorandum of Understanding.

B. Overall Project Implementation Plan

35. The project will be implemented within 5 years and 6 months. The loan is expected to be effective in January 2019. All construction and other physical work will be completed by December 2023. The last six months (January-June 2024) can be used to finish possible long-term studies, settle final payment claims and withdrawal applications, conduct a decent evaluation, and have proper financial closing. This timing is based upon experience of earlier projects with comparable construction components.

Table 2.2: Overall Project Implementation Plan

Activity		2019				2020				2021				2022				2023				2024			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1) Physical Upgrading																									
Civil Works development	UNIMAL																								
	UNJA																								
	UNRI																								
	UPI																								
Installation of Equipment and Furniture	UNIMAL																								
	UNJA																								
	UNRI																								
	UPI																								
Installation of IT (Software, License, Service)	UNIMAL																								
	UNJA																								
	UNRI																								
	UPI																								
2) Program Development, including center of excellence																									
Curriculum, research, training, and collaboration	UNIMAL																								
	UNJA																								
	UNRI																								
	UPI																								
3) Staff-development																									
Overseas and domestic education and training	UNIMAL																								
	UNJA																								
	UNRI																								
	UPI																								
4) Project management and consulting																									
Consulting Services*	UNIMAL																								
	UNJA																								
	UNRI																								
	UPI																								
	PMU																								
Operational Costs (project management)	UNIMAL																								
	UNJA																								
	UNRI																								
	UPI																								

*Includes: workshops

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations: Roles and Responsibilities

36. The Ministry of Research Technology and Higher Education (MORTHE) through the Directorate General for Resources for Science, Technology and Higher Education (DGRSTH) will be the executing agency of the project, and the four universities will be the project implementing agencies. The MORTHE will establish a steering committee (SC) to guide and monitor the AKSI's overall implementation and ensure that the project can be completed on time within the available budget. The SC will be chaired by the Secretary General of MORTHE. Members of the SC include the Deputy Minister of Bappenas, Director General DGRSTH, other relevant DGs from MORTHE, Planning Office of MORTHE, and rectors of four universities. ADB can be invited as an observer.

37. The DGRSTH will establish a Project Management Unit (PMU), headed by the Director for Facilities and Infrastructure. A dedicated and experienced Project Manager will be appointed to support the Project Director. He/she will be responsible for managing the overall implementation of project activities. The PMU will be supported by full-time competent staff and supported by a Project Management Consultant (PMC). The PMU, with the support of its consultants, will prepare and consolidate annual work programs, monitor progress in project implementation at four universities, and ensure compliance with ADB's policies, procurement procedures, performance indicators, physical achievements and expenditures and preparation and submittal to the ADB of monthly, quarterly and annual progress reports on overall project implementation. At each university, a project implementation unit (PIU) will be established with a decree from the respective rector. The PIU will be responsible for day-to-day management of project implementation activities, and will be supported by project management and supervision consultants (PMSC).

38. Project stakeholders' roles and responsibilities are presented in Table 3.1 below.

Table 3.1: AKSI Management Roles and Responsibilities

Project implementation organizations	Management Roles and Responsibilities
Project Steering Committee, the Ministry of Research, Technology and Higher Education (MORTHE)	The roles and responsibilities of the Project SC include the following: • Provide overall policy guidance on implementation of the AKSI; • Monitor budget availability, including Loan and APBN, and PNBP funds; • Monitor status of institutional strengthening and capacity building activities; • Ensure timely completion of AKSI project; and • The SC will meet regularly; ad-hoc meetings may take place at request of the chairperson.
Project Management Unit (PMU) at DGRSTH, MORTHE	The roles and responsibilities of the PMU will include the following: • Administer the AKSI as the executing agency of the ADB loan; • Facilitate disbursement and withdrawal applications for the PIUs; • Provide MOF/DG Treasury with data and documents for withdrawal application and replenishment; • Communicate with ADB for any amendments in the reallocation of the loan amount; • Lead communication and reporting on the AKSI between the executing agency and the implementing agencies and ADB;

Project implementation organizations	Management Roles and Responsibilities
	• Establish and maintain a monitoring framework for all AKSI project components in the universities; • Ensure compliance with agreed guidelines and procedures for the procurement of goods and selection of consultants; • Recruit consultants who will support the PMU and manage their contracts; • Manage financial reporting and accountability aspects (withdrawal applications, financial reports, audits, bank account statements, etc.); • Lead financial management per ADB's Loan Disbursement Handbook; and • Be responsible for overall safeguard implementation, monitoring and reporting as delegated by MORTHE, as per the respective safeguard documents
Project Implementation Units (PIUs) at UNIMAL, UNJA, UNRI, and UPI	Each PIU will be headed by a PIU Manager to be appointed by the respective Rector of the Universities and will include necessary staffs to cover procurement, financial management, and technical areas. The management roles and responsibilities of each of the PIUs will include the following: • Prepare annual work plans, budgets, and procurement plans; • Manage implementation of overall work plan and programs of the Project in the university, to include the following: (i) Ensure proper financial management of project for the part managed in the university, including preparing for audit; (ii) Manage timely procurement of goods and works and recruitment of consultant for its university; (iii) Manage contracts of consultants and contractors at the university; (iv) Ensure quality assurance of procured works, and goods; (v) Be responsible for progress reporting (progress and safeguards) and completion report; (vi) Closely monitor status of each contract and ensure timely completion of the works by the contractors; (vii) Verify and approve the completed works to be done by the contractors; (viii) Verify and approve any proposed changes in works, goods, and equipment, and the corresponding contract variations; (ix) Prepare consolidated monthly reports to be submitted to the PMU; (x) Support the consultants, the contractors, and suppliers to obtain necessary permits from the relevant agencies; and (xi) Lead consultant performance evaluation upon completion of contract, including • Be responsible for safeguard implementation, monitoring and reporting in their respective university • Submit monitoring status to PMU; and • Ensure compliance with ADB consultant selection and Procurement guidelines.
Ministry of Finance	• Signing the Loan Agreement; • Monitoring of the project implementation and providing respective coordination and facilitation; • Allocating and releasing counterpart funds;

Project implementation organizations	Management Roles and Responsibilities
	• Manage and maintain the advance account; • Endorsing to ADB the authorized staff with approved signatures for WA processing; and • Processing and submitting to ADB any request, when required, for reallocating the loan proceeds.
Asian Development Bank	• Assist DGRSTH and its PMU in providing timely guidance at each stage of the project for implementation in accordance with the agreed implementation arrangements; • Review all the documents that require ADB approval; • Conduct periodic loan review missions, a mid-term review, a completion mission for the project, and an overall project completion mission; • Monitor and require compliance of all loan covenants • Timely process withdrawal applications and release eligible funds; • Monitor and require the compliance of financial audit recommendations; • Regularly update ADB's project performance review reports with assistance of DGRSTH and its progress reports; and • Regularly post on ADB website the updated project information documents for public disclosure, and also the safeguards documents as per disclosure provision of the ADB safeguards.

39. Work mechanism and business process for (i) planning and budgeting, and (ii) procurement of goods and services are as follows:

(i) Planning and budgeting:

- PIU prepares budget plan based on the projected disbursement plan for the Year-1, and based on actual disbursement for the subsequent years. Budget plan should be ready by January each year.
- PIU proposes the annual budget plan to DGRSTH through Rector (January).
- PMU reviews and consolidates proposals for submission to DGRSTH.
- DGRSTH submits budget proposal to the MORTHE's Secretary General (Sekjen) c.q. Planning Unit for submission to Bappenas.
- Bappenas, MORTHE and MOF conduct trilateral meeting to discuss the proposal and agree on indicative ceiling (Pagu indikatif) (April-May), and through a reiterative process to come to agreement on definitive budget ceiling (Pagu definitive) (October).
- Detail budget plan (RKA-KL) to be included in the Annual Budget (DIPA), approved by MOF in December, and followed by Operational Plan (POK).

(ii) Procurement of works, goods and services:

- Person-in-Charge (PIC) of Civil Work/Infrastructure of PIU manages the preparation of DED (by consultant) and submits the DED to PIC Procurement.
- Procurement PIC in cooperation with the Procurement Unit (ULP) prepares bidding document with assistance from the consultant.
- PM submits the bidding documents to PMU for review and approval.
- PMU reviews and verifies the documents to ensure completeness and accuracy.
- If the documents are deemed adequate, PMU send documents to ADB.

- ADB reviews the documents, and if it deemed adequate, issues no-objection letter (NOL) to proceed with bidding process (or comment in case incomplete).
- PIU and ULP university execute bidding based on ADB Policy and Regulations.
- Bid evaluation committee evaluates the bid proposal.
- PIU and ULP of university submit evaluation results and draft contract to PMU.
- PMU reviews the submitted documents, and if deemed adequate, submit the documents to ADB.
- ADB reviews the Bid Evaluation Report and provide feedback to PMU, copying the PIU: (i) approve the issuing NOL if deemed adequate; (ii) request for improvement if there is shortcoming or unclear contents; or (iii) disapprove the results of selection and suggest for rebid.
- The commitment officer (PPK) finalises and signs contract with contractor/supplier.
- PIU submits copy of signed contracts (along with contract summary) to PMU.
- PMU submits signed contract to ADB.
- ADB issues NOL for contract and PCSS number.

B. Key Persons Involved in Implementation

The Executing Agency **The Directorate General for Resources for Science, Technology and Higher Education (DGRSTH)**	Ali Ghufron Mukti, Director General of Resources for Science, Technology and Higher Education
The Project Management Unit (PMU)	M. Sofwan Effendi, Director for Facilities and Infrastructure Email address: sofwan.effendi@ristekdikti.go.id
Implementing Agencies	**University of Malikussaleh** Apridar Abdurrahman, Rector Julli Mursyida, Vice Rector Email address: jullimursyida@gmail.com **University of Jambi (UNJA)** Johni Najwan, Rector Zulkarnain, PIU Manager Email address: dr.zulkarnain@yahoo.com **University of Riau (UNRI)** Aras Mulyadi, Rector Joko Samiaji, PIU Manager Email address: joko_samiaji@yahoo.com **Universitas Pendidikan Indonesia (UPI)** Asep Kadarohman, Rector Aim Abdul Karim, Vice Rector Email: aimabdulkarim@upi.edu
Asian Development Bank	Ayako Inagaki Director Human and Social Development Division Telephone No.: +63 2 632-6612 Email address: ainagaki@adb.org

Mission Leader	Rudi Louis Hendrikus Van Dael Senior Social Sector Specialist Human and Social Development Division Telephone No. +62 21 2992-7388 Email address: rvandael@adb.org
	Sutarum Wiryono Senior Project Officer (Education) Telephone No. +62 21 2992-7388 Email address: swiryono@adb.org

C. Project Organization Structure

40. Diagrams showing the organizational structure of the project and the relationships among the various agencies are shown in Figures 3.1 and 3.2.

Figure 3.1: Project Management Unit (PMU) Organogram

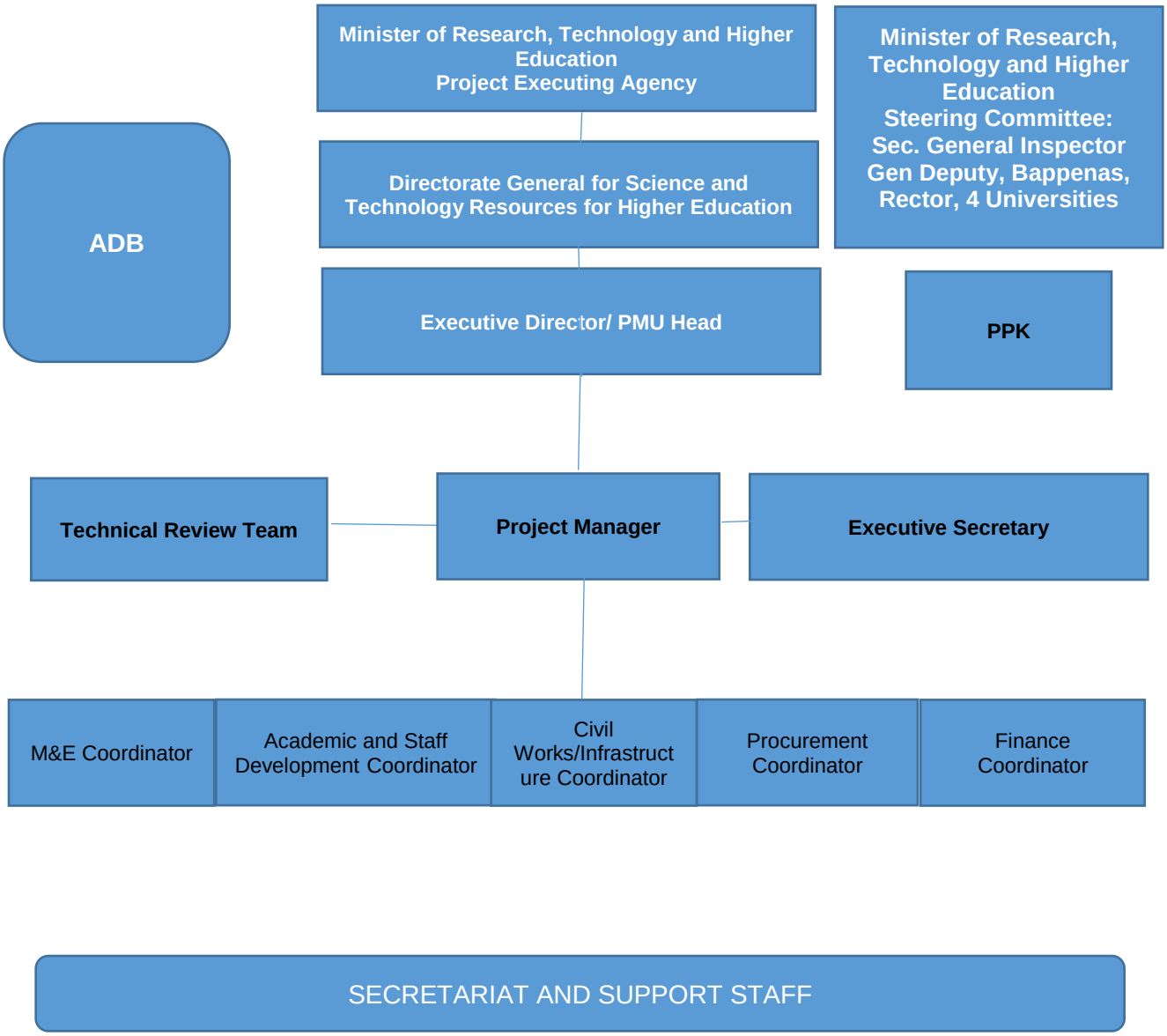
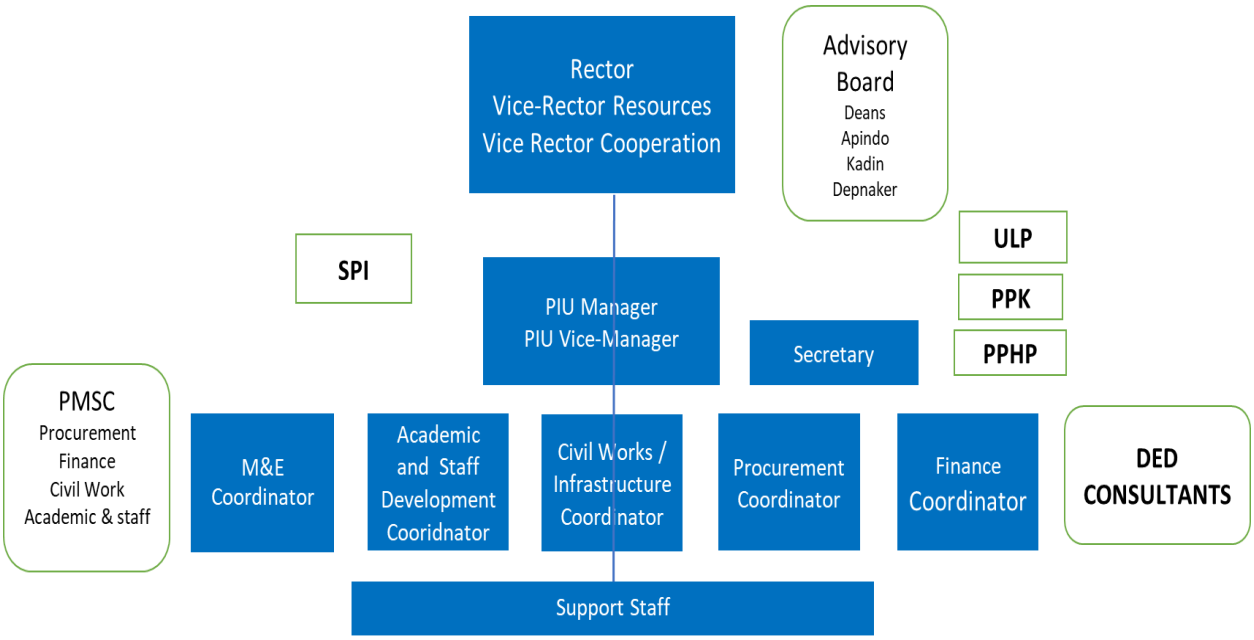


Figure 3.2: Project Implementation Unit (PIU) Organogram



IV. COSTS AND FINANCING

41. The project is estimated to cost $266.52 million. The government has requested a regular loan of $200 million from ADB's ordinary capital resources to help finance the project. The loan will have a 19-year term, including a grace period of 6 years; an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; a commitment charge of 0.15% per year and such other terms and conditions set forth in the draft loan agreement. Based on the straight-line method, the average maturity is 12.75 years, and there is no maturity premium payable to ADB.

42. The summary financing plan is in Table 4.1. ADB will finance the expenditures in relation to works, goods (equipment and furniture), information technology, short-term and long-term training of academic and non-academic staff, consulting services, and operational cost for project management. The government's contributions will cover works, goods (equipment and furniture), information technology, short-term and long-term training of academic and non-academic staff, consulting services, studies operational cost for project management, and taxes and duties for project financed items.

Table 4.1: Project Financing Plan

Source	**Amount** ($ million)	**Share of Total** (%)
Asian Development Bank		
Ordinary capital resources (regular loan)	200.00	75
Government	66.52	25
Total	**266.52**	**100**

Source: Asian Development Bank Estimates.

Table 4.2: Project Investment Plan
($ million)

Item			Amount[a]
A.	**Base Cost**[b]		
	1.	Market-responsive program delivered	163.85
	2.	Training of TVET teachers improved	54.88
		Subtotal (A)	**218.73**
B.	**Contingencies**[c]		**22.19**
C.	**Financial Charges During Implementation**[d]		**25.60**
		Total (A+B+C)	**266.52**

[a] The government will finance taxes and duties of $18.20 million through exemption. Such amount does not represent an excessive share of project cost.
[b] In mid-2018 prices as of 3 July 2018.
[c] Physical contingencies computed at 7% for civil works; and 7% for field research and development, training, surveys, and studies. Price contingencies computed at average of 1.5% on foreign exchange costs and 4% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.
[d] Includes interest and commitment charges. Interest during construction for the ordinary capital resources loan has been computed at the 5-year US dollar fixed swap rate plus an effective contractual spread of 0.5%. Commitment charges for the ordinary capital resources loan are 0.15% per year to be charged on the undisbursed loan amount.
Source: Asian Development Bank.

43. Climate mitigation is estimated to cost $2.3 million for solar panels in UNJA and climate adaptation is estimated to cost $2.26 million. ADB and ADB-administered fund will finance 100% of mitigation costs and 94% of adaptation costs (see climate change risks assessment, linked documents for background of the financial details).

A. Cost Estimates Preparation and Revisions

44. **Preparation.** The project team prepared the cost estimates based on unit cost information obtained from the local and international markets, MORTHE, UNIMAL, UNJA, UNRI, UPI, and other development partners.

45. **Revisions.** The cost estimates will be reviewed and if necessary, updated by ADB and the PMU during review missions based on unit cost information obtained in the local and international markets, and approved by the project steering committee.

B. Key Assumptions

46. The following key assumptions underpin the cost estimates and financing plan:

(i) Exchange rate: Rp14,342 = $1.00 as of 3 July 2018
(ii) Price contingencies based on expected cumulative inflation over the implementation period are as follows:

	2019	2020	2021	2022	2023	2024	Average
Foreign rate of price inflation	1.5%	3.0%	4.6%	6.3%	8.0%	9.7%	5.5%
Domestic rate of price inflation	3.9%	7.8%	11.6%	15.5%	19.5%	23.7%	13.7%

Source: Asian Development Bank estimates.

C. Detailed Cost Estimates by Expenditure Category

Table 4.3: Detailed Cost Estimates by Expenditure Category

	Item	Amount ($ million)	% of Total Base Cost
A.	**Investment Costs**		
1	**Civil Works**		
1.1	Earth Work	0.13	0.1%
1.2	Infrastructure Development	10.98	4.1%
1.3	Building and Civil Works	119.94	45.0%
1.4	Landscape	0.84	0.3%
	Subtotal-1	**131.90**	**49.5%**
2	**Equipment & Furniture**		
2.1	Equipment	30.67	11.5%
2.2	Furniture	7.97	3.0%
	Subtotal-2	**38.63**	**14.5%**
3	**ICT (Software, Licenses, Services)**	4.78	**1.8%**
4	**Training, International Seminar and Publication**		
4.1	Degree and Non-Degree	5.61	2.1%
4.2	Seminar, Converence and Publication	0.58	0.2%
	Subtotal-4	**6.19**	**2.3%**
5	**Consulting Services**	12.04	**4.5%**
6	**Study & Workshops**		
6.1	Study	1.30	0.5%
6.2	Workshop	1.10	0.4%
	Subtotal-6	**2.40**	**0.9%**
	Subtotal (A)	**195.95**	**73.5%**
B.	**Recurrent Costs**		
7	Operational cost (counterpart staff, administration, staff travel, etc.)	6.40	2.4%
C.	**Tax & Duties**	**16.39**	**6.2%**
	Total Base Cost (A+B+C)	**218.74**	**82.1%**
D.	**Contingency**	22.19	
E.	**Interest and Commitment Charge**	**25.60**	**9.6%**
	Total Project Cost (A+B+C+D)	**266.52**	**100.0%**

Source: Asian Development Bank

D. Allocation and Withdrawal of Loan Proceeds

Table 4.4 Allocation and Withdrawal of Loan Proceeds

CATEGORY			**ADB FINANCING**
Number	**Item**	**Total Amount Allocated for ADB Financing ($)**	**Basis for Withdrawal from the Loan Account**
		Category	
1	Works and Goods	180,864,104	100% of total expenditure claimed*
2	Project Administration, Services, Training, ICT[a]	19,135,896	100% of total expenditure claimed*
	Total	**200,000,000**	

[a]ICT = information and communication technology.
*Exclusive of taxes and duties imposed within the territory of the Borrower.

E. Detailed Cost Estimates by Financier

Table 4.5: Detailed Cost Estimates by Financier
($ million)

	Item	ADB		Government		Total
		Amount	Percent of Cost Category	Amount	Percent of Cost Category	
A.	**Investment Costs**					
1	**Civil Works**					
1.1	Earth Work	0.13	100.0	-	-	0.13
1.2	Infrastructure Development	7.97	72.6	3.01	27.4	10.98
1.3	Building and Civil Works	119.94	100.0	-	-	119.94
1.4	Landscape	0.62	73.3	0.23	26.7	0.84
	Subtotal-1	**128.67**	**97.5**	**3.24**	**2.5**	**131.90**
2	**Equipment & Furniture**					
2.1	Equipment	30.03	97.9	0.63	2.1	30.67
2.2	Furniture	5.80	72.8	2.17	27.2	7.97
	Subtotal-2	**35.83**	**92.7**	**2.80**	**7.3**	**38.63**
3	**ICT (Software, Licenses, Services)**	**3.86**	**80.8**	**0.92**	**19.2**	**4.78**
4	**Training, International Seminar and Publication**					
4.1	Degree and Non-Degree	2.81	50.1	2.80	49.9	5.61
4.2	Seminar, Conference and Publication	0.18	31.0	0.40	69.0	0.58
	Subtotal-4	**2.99**	**48.4**	**3.20**	**51.6**	**6.19**
5	**Consulting Services**	**9.72**	**80.7**	**2.32**	**19.3**	**12.04**
6	**Study & Workshops**					
6.1	Study	-	-	1.30	100.0	1.30
6.2	Workshop	-	-	1.10	100.0	1.10
	Subtotal-6	**-**	**-**	**2.40**	**100.0**	**2.40**
	Subtotal (A)	**181.08**	**92.4**	**14.87**	**7.6**	**195.95**
B.	**Recurrent Costs**					
7	**Operational cost** (counterpart staff, administration, staff travel, etc.)	0.79	12.4	5.60	87.6	6.40
	Subtotal (B)	**0.79**	**12.4**	**5.60**	**87.6**	**6.40**
C.	**Tax & Duties**	**-**	-	**16.39**	100.0	**16.39**
	Subtotal (C)	**-**	**-**	**16.39**	**100.0**	**16.39**
	Total Base Cost (A+B+C)	**181.87**	**83.1**	**36.87**	**16.9**	**218.74**
D.	**Contingency**	**18.13**	**81.7**	**4.06**	**18.3**	**22.19**
E.	**Financial Charge During Implementation**	-	-	25.60	100.0	25.60
	Total Project Cost (A+B+C+D+E)	**200.00**	**75.0**	**66.52**	**25.0**	**266.52**
	% Project Cost	75%		25%		100%

Notes: (i) Numbers may not sum precisely because of rounding. (ii) ADB and Government will finance separate contracts with 100% financing percentage. (iii) Contingencies have been allocated over the main items to achieve the total project costing. Contingencies for ADB financing per cost item ($ million): Civil works 13.17; Equipment and Furniture 3.19; ICT: 0.33; Training 0.28; Consulting services 1.07; Operational Cost 0.09; Total 18.13. Contingencies for Government financing per cost item ($ million): Civil Works 0.36; Equipment and Furniture 0.31; ICT 0.10; Training 0.35; Consulting Services 0.26; Study & Workshops 0.26; Operational cost 0.62; Total without taxes: 2.25; Taxes 1.80, Total with taxes: 4.06. This leads to the following total for ADB financing per item ($ million): Civil works 141.84; Equipment and furniture 39.02; ICT 4.19; Training 3.28; Consulting services 10.79; Operational cost 0.88; Total 200.00. The total for government financing per item ($ million): Civil works 3.59; Equipment and furniture 3.11; ICT 1.02; Training 3.55; Study and workshop 2.58; consulting services 2.66; operational cost 6.22; Total without taxes 22.73; Taxes 18.20; Total with taxes 40.92. (iv) The loan proceeds are allocated in two cost categories in Table 4.4 which include contingencies: Category 1 'Works and Goods' which covers items (A1) Civil works and (A2) Equipment and furniture, and Category 2 'Project Administration, Services, Training, ICT' which covers items (A3) ICT, (A4) Training, International Seminar and Publication, (A5) Consulting Services, (A6) Study and Workshops and (B7) Operational cost. (v) 50% of the contingency was allocated into each package of the procurement plan.
Source: Asian Development Bank.

F. Detailed Cost Estimates by Outputs

Table 4.6: Detailed Cost Estimates by Outputs
($ million)

	Item	Total Cost	Output 1		Output 2	
			Amount	Percent of Cost Category	Amount	Percent of Cost Category
A.	**Investment Costs**					
1	Civil Works	131.90	97.69	67.2	34.21	23.5
2	Equipment & Furniture	38.63	27.70	65.8	10.93	25.9
3	ICT (Software, Licenses, Services)	4.78	2.92	56.0	1.86	35.8
4	Training, International Seminar and Publication	6.19	5.48	80.3	0.71	10.4
5	Consulting Services	12.04	9.99	74.7	2.06	15.4
6	Study & Workshops	2.40	1.87	70.2	0.53	19.9
	Subtotal (A)	**195.95**	**145.65**	**67.5**	**50.30**	**23.3**
B.	**Recurrent Costs**					
7	Operational cost (counterpart staff, administration, staff travel, etc.)	6.40	5.97	84.1	0.43	6.0
8	Tax & Duties	16.39	12.24	67.3	4.15	22.8
	Subtotal (B)	**22.79**	**18.21**	**72.0**	**4.58**	**18.1**
	Total Base Cost (A+B)	**218.74**	**163.85**	**68.0**	**54.88**	**22.8**
C.	**Contingency**	**22.19**	16.66	0	5.53	**-**
D.	**Financial Charge During Implementation**					
1	Interest during construction	24.84	18.63	75.0	6.21	25.0
2	Commitment charges	0.76	0.57	75.0	0.19	25.0
	Subtotal (D)	**25.60**	**19.20**	**75.0**	**6.40**	**25.0**
	Total Project Cost (A+B+C+D)	**266.52**	**199.71**	**74.9**	**66.81**	**25.1**

Source: Asian Development Bank

G. Detailed Cost Estimates by Year

Table 4.7: Detailed Cost Estimates by Year

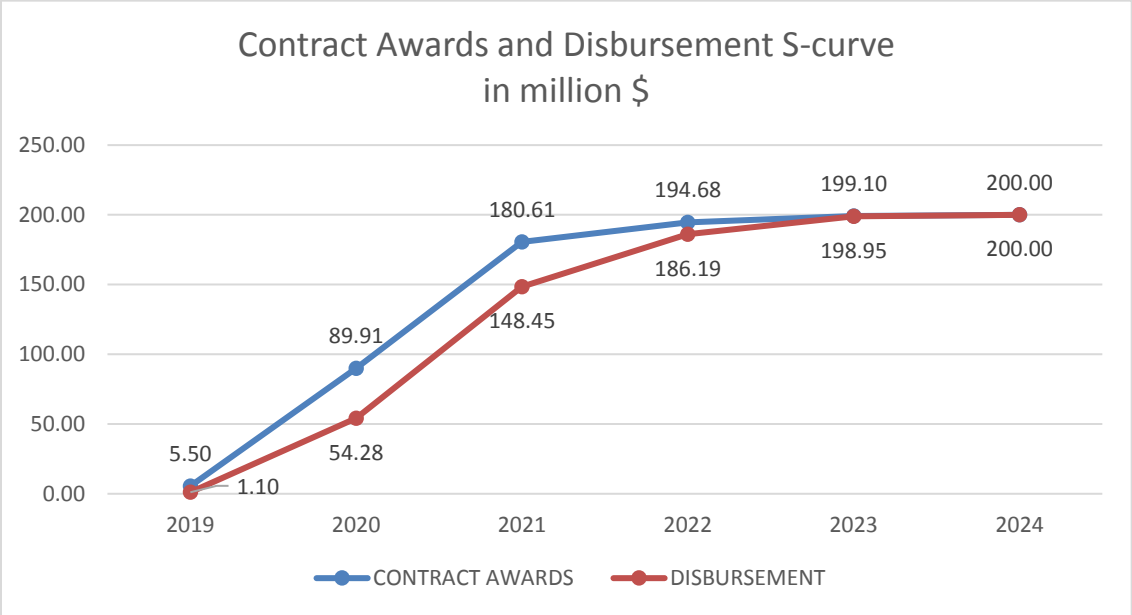
($ million)

Item	TOTAL COST		2019		2020		2021		2022		2023		2024	
	ADB	GOI	ADB	GOI	ADB	GOI	ADB	GOI	ADB	GOI	ADB	GOI	ADB	GOI
A. Investment Costs														
1 Civil Works														
1.1 Earth Work	0.13	-	0.01	-	0.05	-	0.07	-	0.00	-	-	-	-	-
1.2 Infrastructure Development	7.97	3.01	0.12	-	3.15	-	2.05	-	1.51	2.19	1.14	0.82	-	-
1.3 Building And Civil Works	119.94	-	3.14	-	35.41	-	62.39	-	15.51	-	3.50	-	-	-
1.4 Landscape	0.62	0.23	0.03	-	0.25	-	0.32	-	0.01	0.23	-	-	-	-
Subtotal-1	**128.67**	**3.24**	**3.30**	**-**	**38.86**	**-**	**64.83**	**-**	**17.04**	**2.41**	**4.64**	**0.82**	**-**	**-**
2 Equipment & Furniture														
2.1 Equipment	30.03	0.63	-	-	1.71	-	16.13	0.25	8.98	0.38	3.22	-	-	-
2.2 Furniture	5.80	2.17	-	-	-	0.48	1.11	1.08	2.66	0.61	2.03	-	-	-
Subtotal-2	**35.83**	**2.80**	**-**	**-**	**1.71**	**0.48**	**17.23**	**1.33**	**11.63**	**0.99**	**5.25**	**-**	**-**	**-**
3 ICT (Software, Licenses, Services)	3.86	0.92	-	-	-	-	0.60	-	3.06	0.58	0.20	0.34	-	-
4 Training, International Seminar and Publication														
4.1 Degree And Non-Degree	2.81	2.80	0.24	-	0.66	0.45	0.75	0.89	0.75	0.91	0.42	0.55	-	-
4.2 Seminar, Converence and Publication	0.18	0.40	0.02	0.03	0.04	0.09	0.05	0.10	0.04	0.10	0.04	0.09	-	-
Subtotal-4	**2.99**	**3.20**	**0.26**	**0.03**	**0.70**	**0.54**	**0.79**	**0.99**	**0.79**	**1.00**	**0.45**	**0.64**	**-**	**-**
5 Consulting Services	9.72	2.32	1.55	0.88	2.57	1.34	2.08	0.09	1.73	0.01	0.93	-	0.85	-
6 Study & Workshops			-	-	-	-	-	-	-	-	-	-	-	-
6.1 Study	-	1.30	-	0.06	-	0.31	-	0.31	-	0.31	-	0.30	-	0.02
6.2 Workshop	-	1.10	-	0.10	-	0.26	-	0.36	-	0.18	-	0.13	-	0.07
Subtotal-6	**-**	**2.40**	**-**	**0.15**	**-**	**0.57**	**-**	**0.67**	**-**	**0.49**	**-**	**0.43**	**-**	**0.09**
7 Operational cost (counterpart staff, administration, staff travel, etc.)	0.79	5.60	**0.14**	**1.02**	**0.14**	**0.96**	**0.14**	**0.96**	**0.14**	**0.95**	**0.14**	**0.96**	**0.09**	**0.75**
Tax and Dties	-	16.39	-	0.48	-	3.97	-	7.71	-	3.09	-	1.05	-	0.09
Total Base Cost	**181.87**	**36.87**	**5.25**	**2.56**	**43.99**	**7.87**	**85.67**	**11.75**	**34.40**	**9.54**	**11.61**	**4.23**	**0.95**	**0.92**
B. Contingency	18.13	4.06	0.55	0.28	4.49	0.87	8.50	1.29	3.34	1.05	1.15	0.47	0.10	0.10
C. Financial Charge During Implementa	-	25.60	-	0.41	-	1.33	-	3.77	-	6.04	-	6.91	-	7.14
Total Project Cost (A+B+C)	**200.00**	**66.52**	**5.80**	**3.25**	**48.48**	**10.06**	**94.17**	**16.81**	**37.74**	**16.63**	**12.76**	**11.61**	**1.05**	**8.16**

Source: Asian Development Bank

H. Contract and Disbursement S-Curve

Figure 4.1 Contract Awards and Disbursement S-Curve



Contract Awards ($ million)				
	Q1	**Q2**	**Q3**	**Q4**
2019	0.00	2.16	0.70	2.64
2020	52.96	11.51	18.90	1.04
2021	32.12	50.55	1.43	6.60
2022	5.76	2.91	2.50	2.90
2023	0.44	0.44	0.89	2.65
2024	0.45	0.45	0.00	0.00

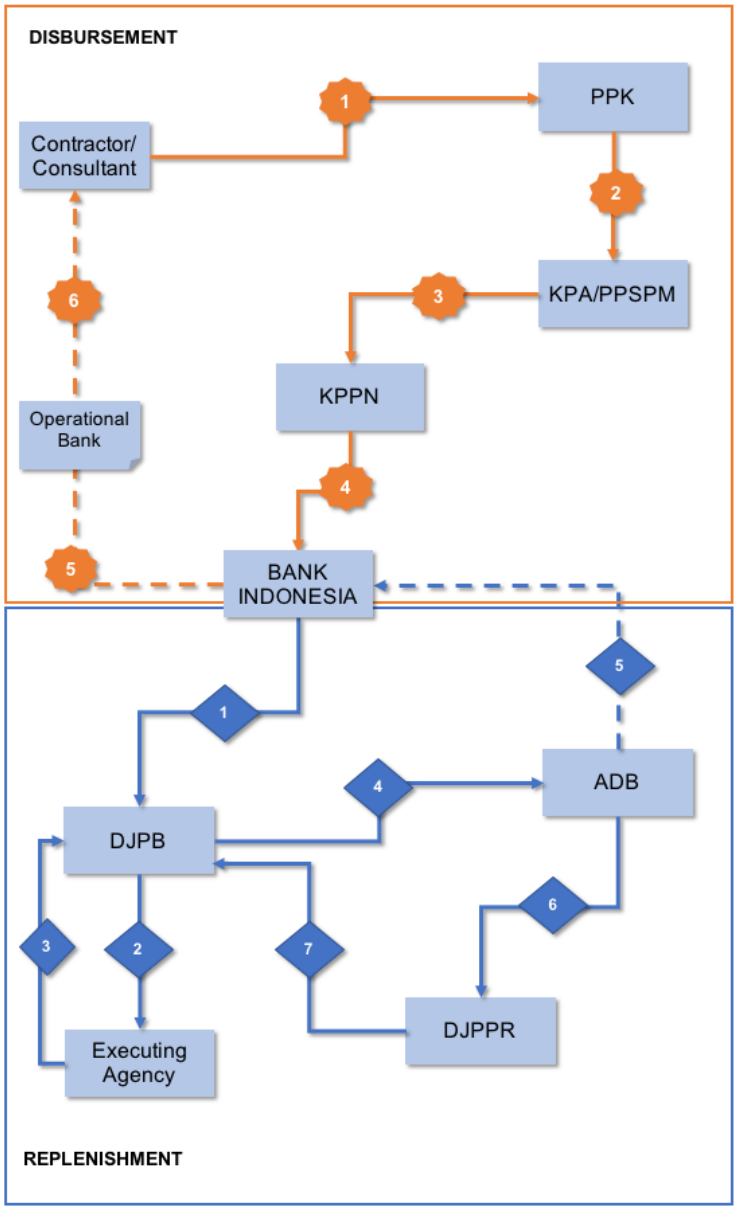
Disbursement ($ million)				
	Q1	**Q2**	**Q3**	**Q4**
2019	0.00	0.432	0.140	0.528
2020	5.550	9.272	14.544	23.816
2021	9.417	14.126	28.251	42.377
2022	3.774	5.661	11.321	16.982
2023	1.276	1.914	3.829	5.743
2024	0.105	0.157	0.315	0.472

I. Fund Flow Diagram

47. The project will have five budget users, namely DGRSTH and the rectors of the 4 universities. Each budget user appoints a commitment officer (PPK)[4] and a Budget User Authorizer (KPA)[5]. UNIMAL, UNJA and UNRI given their legal status[6] will have the PPK and KPA in their universities, while UPI, due to its status as PTN-BH[7], will have its KPA located in MORTHE and its PPK in UPI itself. The PPK is responsible for monitoring procurement and managing the payments for procured goods, works, or services. The project will have an advance account established at Bank Indonesia under the DG of Treasury, Ministry of Finance. The DG of Treasury c.q. Directorate of Cash Management will be responsible for managing the advance account. The executing agency will be responsible for providing documents for disbursement and replenishment.

[4] PPK=pejabat pembuat komitmen = commitment officer
[5] KPA= Kuasa Pengguna Anggaran= authorized budget user
[6] Legal status of UNIMAL= Satker=work unit within MORTHE; UNRI and UNJA=BLU=public service agency.
[7] UPI = PTN-BH=Perguruan Tinggi Negeri Badan Hukum=autonomous public legal body

Figure 4.2 Funds Flow through Advance Account Procedure



PPK = Commitment Officer
KPA = Authorized Budget User
PPSPM = Authorized Budget Officer
KPPN = Regional Treasury Office
DJPB = Directorate General of Treasury
DJPPR = Directorate General of Budget, Risk and Financing
CPD = Client Portal Disbursement
SPP = Payment Request
SPM = Payment Order
SP2D = Payment Voucher
----- = Document Flow
- - - = Fund flow

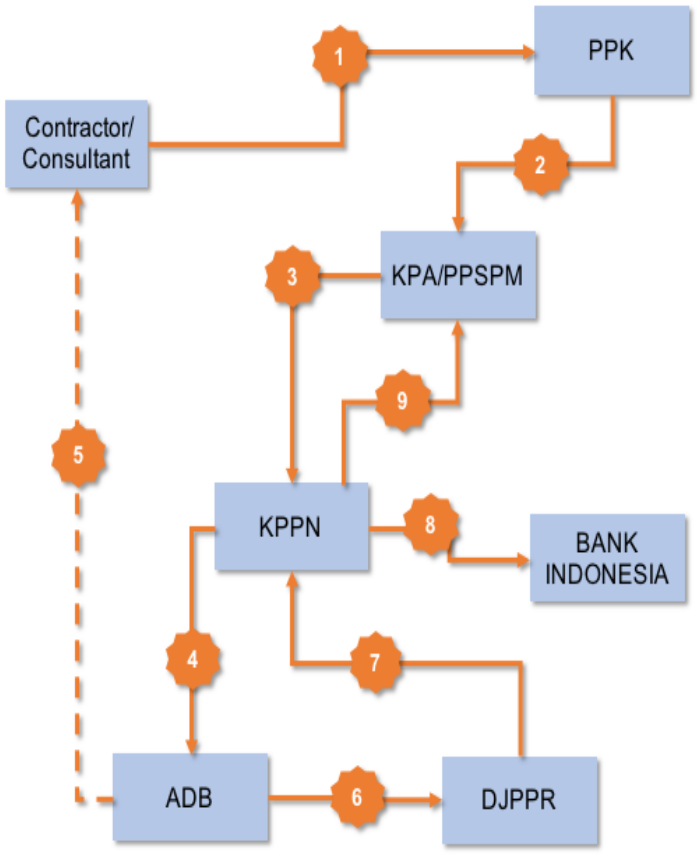
Disbursement Process:

1. The Contractor submit invoices to the Commitment Officer (PPK).
2. Upon review, if it is deemed complete and satisfactory, the PPK issues a Payment Order (SPM) and signed by the Authorized Budget Officer (PPSPM).
3. Authorized Budget Officer (KPA/PPSPM) issues a Payment Order and submits to the State Treasury Service Office (KPPN) by enclosing the required documents. He/she endorses the payment.
4. KPPN conducts a verification on SPM-Reksus submitted by PPSPM. If it is deemed correct and complete he/she issues a Disbursement Order Letter (SP2D-Reksus/ remittance order). He/she approves payment.
5. With SP2D-Reksus the KPPN transfer the funds from Advance Account to the of Contractor's Account through an operational bank.

Replenishment and Liquidation Process:

1. Bank Indonesia sends a bank statement to the Directorate General of Treasury (DJPB) c. q. Directorate of Cash Management.
2. Directorate General of Treasury c. q. the Directorate of Cash Management sends the bank statement to the EA as the basis for preparing a Withdrawal Application (WA) of the advance account.
3. EA submits WA documents to the Directorate General of Treasury c. q. Directorate of Cash Management. EA inputs WA into ADB's Client Portal Disbursement (CPD) if applicable.
4. Directorate General of Treasury c.q. The Directorate of Cash Management endorses WA replenishment request through CPD if applicable or submits the hard copy to ADB IRM.
5. The ADB CTLA (with the IRM Disbursement Unit (DU)) verifies the withdrawal application and supporting documents and authorizes the WA to replenish the advance account. After receiving the CTLA's authorization, the ADB Treasury Department remits funds to the advance account
6. A notification of transfer is available through the CPD and LFIS website.

Figure 4.3 Funds Flow for Direct Payment Procedure



1. The Contractor submits invoices to the Commitment Officer (PPK)
2. Upon review, if it is deemed complete and satisfactory, the PPK issues a Payment Order (SPP) and signed by the Authorized Budget Officer (PPSPM). PPK inputs the contractor's invoice through the ADB's Client Portal Disbursement (CPD) if applicable.
3. The Authorized Budget User (KPA) / PPSPM submits the Withdrawal Application Letter of Direct Payment to Special State Treasury Office for Loans and Grants (KPPN KPH). He/she endorses the payment through CPD if applicable.
4. Based on WA of Direct Payment, KPPN KPH endorses Direct Payment order and sends it to ADB IRM or through CPD if applicable.
5. The ADB CTLA (with the IRM Disbursement Unit (DU)) verifies the withdrawal application and supporting and documents and authorizes the WA. After receiving the CTLA's authorization, the ADB Treasury Department remits funds to the advance account
6. Notice of Disbursement (NOD) of loan funds to the 3rd party is accessible in the CPD and LFIS website
7. Directorate General of Financing and Risk Management c.q. Directorate of Evaluation, Accounting, and Settlement issues Letter of Order of Withdrawal to KPPN KPH.
8. The KPPN KPH issues SP3 and sends a copy of the SP3 to Budget User (KPA) for bookkeeping purposes.
9. The KPPN KPH sends a note of disbursement to the Authorized Budget Officer.

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

48. The Financial Management Assessment (FMA) has been prepared in accordance with ADB's Guidelines for the Financial Management and Analysis of Projects (the Guidelines) and the Financial Due Diligence: A Methodology Note. This FMA incorporates the Financial Management Internal Control and Risk Management Assessment required by the Guidelines. The FMA includes the consolidated results of the completed FMA questionnaires from the executing- and implementing agencies. The FMA was conducted by reviewing documents, interviewing the staff of the government agencies, consultants, targeted project beneficiaries and other stakeholders. Mitigating actions were identified together with the stakeholders.

49. The purpose of the assessment is to determine the robustness of the accounting, financial controls and internal audit arrangements, and the capability of the executing and implementing agencies to meet all the fiduciary requirements which are set out in the loan agreement, and other project documents. The FMA contains the results of the assessment of the executing and implementing agencies' including agreed project financial arrangements entities and perceived financial risks and risk management. The risks are analyzed through a Financial Management and Internal Control Risk Assessment (FMICRA) which indicates that the project financial management risk is **moderate,** as the inherent risk and the control risk are moderate. FIMCRA is included in the annex. The key risks, activities to mitigate risks, responsibilities to address these risks and a timeline are summarized in Table 5.1.

Table 5.1 Financial Management Risks and Mitigations

Key Risks	Mitigation Activities	Timeline	Responsibility
Insufficient financing available to complete all planned activities during a year of high expenditures for the project. MORTHE's annual maximum budget allocation for loan-financed activities cannot accommodate requirements from all financiers.	(i) MORTHE coordinates annual expenditure plans for all loan-financed projects; (ii) PMU maintains close coordination with planning and budgeting unit in MORTHE (iii) PIUs manage project planning and implementation to fully expend annual appropriations (iv) In annual budget revision, additional allocation to be included, if available	During annual budget planning and during budget revision process	PIUs and PMU, MORTHE planning and budgeting units
Budget included in the DIPA, and the amount required during the actual procurement process is different because of currency fluctuations, especially for international procurement.	(i) Possible exchange rate fluctuations will be taken into account in budget for international procurement (two packages); (ii) International procurement is planned in Q1 of the budget year to minimize time lag between issuing the budget and actual procurement; in case of major	During project preparation when preparing procurement plan is prepared. During annual workplan and budget preparation, the year prior to the planned procurement. During project implementation.	PMU, PIU and MORTHE planning division

Key Risks	Mitigation Activities	Timeline	Responsibility
	fluctuations, remaining equipment can be procured during the following year; and (iii) budget revision will be pursued if possible, so procurement can be completed within each budget year.		
The four universities require different financial procedures because of their different legal status; delays could occur if procedures not properly followed.	(i) A financial management specialist will be included in the project management consultancy support to the PIUs and PMU. (ii) The financial management specialists with support from ADB, will conduct training in project financial management at the project start-up, and during the implementation.	Training to be conducted at start-up and during implementation based on requirement. Consultants to be recruited at the start of the project. Monitoring by PMU and ADB on a regular basis.	ADB, PMU, PIUs and the consultants.
Inexperience with ADB-financed projects, on processing withdrawal applications, fund flow and other financial management issues causing delays in timely providing of financial reports, processing of claims, and incomplete bookkeeping.	(i) Provide sufficient training on ADB financial management requirements and on ADB Disbursement Procedure. (ii) Share the ADB Loan Disbursement Handbook to each university to ensure compliance. (iii) A full-time financial management specialist consultant who is familiar with ADB funded projects will be assigned in the PIUs and PMU. MORTHE has experience with ADB, World Bank, JICA, and IsDB projects.	The training will be provided as early as possible, once the loan is declared effective. The PMSC and the PMC will be recruited using advance contracting, so fielding can start as early as possible.	ADB, PMU, PIUs and the consultants.
Counterpart funds are divided between centrally allocated budget (APBN) and nontax revenue at university level (PNBP) complicating funds flow and disbursement	The design procurement packages or other activities at the university level are funded either by centrally allocated budget (APBN) or by nontax revenue (PNBP)	Annually during budgeting and preparation of financial reports	PIUs and PMU
As three internal auditors will be involved in auditing the	Clear procedure and tasks for preparing the financial reports should be established	Start of the project	PIUs and PMU

Key Risks	Mitigation Activities	Timeline	Responsibility
project expenditures annually (internal audit from the universities, inspectorate general, from MORTHE and internal auditor from the government (BPKP), the auditing procedures of each auditor may confuse project staff in preparing reports and follow-up, and may lead to misunderstandings and delays			
Counterpart funding provided out of government fiscal revenue or out of universities' nontax revenue delayed	(i) The government will ensure timely release of counterpart funds, as per the loan covenants; (ii) Individual packages have no cost-sharing, either 100% financed by ADB or 100% financed by the government; and (iii) ADB will monitor and evaluate project implementation progress through biannual supervision missions and MORTHE's quarterly progress reports.		ADB, MOF, MORTHE, and PMU

ADB = Asian Development Bank; APBN = Anggaran Pendapatan dan Belanja Negara (Annual State Revenue and Expenditure Plan); BPK = Badan Pemeriksa Keuangan (Supreme Auditor); DIPA = Daftar Isian Pelaksanaan Anggaran (Budget Implementation List); JICA = Japan International Coopreation Agency, MOF = Ministry of Finance, MORTHE = Ministry of Research, Technology, and Higher Education; PIU = Project Implementation Unit; PMU = Project Management Unit; PMSC = Project Management and Supervision Consultants; PNBP = Penerimaan Negara Bukan Pajak (Non-tax Revenue).

B. Disbursement

50. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time)[8], and detailed arrangements agreed upon between the government and ADB. Online training for project staff on disbursement policies and procedures is available.[9] Project staff are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control.

51. **Advance Account Procedure.** After ADB loan effectiveness, an advance account shall be established at Bank of Indonesia. The currency of the advance account(s) is the US dollar. The advance account will be managed by the Ministry of Finance (MOF). The MOF that

[8] The handbook is available electronically from the ADB website (http://www.adb.org/documents/ loan-disbursement-handbook

[9] Disbursement eLearning. http://wpqr4.adb.org/disbursement_elearning

established the advance account in its name is accountable and responsible for proper use of advances to the advance account. The advance account is to be used exclusively for ADB's share of expenditures.

52. The total outstanding advance to the advance account should not exceed the estimate of ADB's share of expenditures for the forthcoming 6 months. MORTHE may request for initial and additional advances to the advance account based on an Estimate of Expenditure Sheet[10] setting out the estimated expenditures to be financed through the account for the forthcoming 6 months. Supporting documents should be submitted to ADB or retained by the borrower, MORTHE, UNIMAL, UNJA, UNRI or UPI, as appropriate in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time) when liquidating or replenishing the advance account.

53. **Statement of Expenditures (SOE).** The SOE procedure may be used for reimbursement of eligible expenditures or liquidation and replenishment of advances to the advance account. Supporting documents and records for the expenditures claimed under the SOE should be maintained and made readily available for review by ADB's disbursement and review missions, upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit. PMU will be responsible for ensuring that SOEs are operated in accordance with ADB's requirements. There will be no SOE ceiling for the project as the PMU and PIUs are deemed to have adequate capacity based on the FMA. However, should there be concerns on administering the SOE procedure during project implementation, the project will consider establishing a ceiling for the SOE, following ADB's *Loan Disbursement Handbook* (2017, as amended from time to time).

54. Before the submission of the first withdrawal application, the borrower should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the borrower, together with the authenticated specimen signatures of each authorized person. The minimum value per WA is stipulated in the *Loan Disbursement Handbook* (2017, as amended from time to time). Individual payments below such amount should be paid (i) by the executing agency and implementing agency and subsequently claimed to ADB through reimbursement, or (ii) through the advance fund procedure, unless otherwise accepted by ADB. The borrower should ensure sufficient category and contract balances before requesting disbursements. Use of ADB's Client Portal for Disbursements (CPD)[11] system is encouraged for submission of withdrawal applications to ADB.

C. Accounting

55. The PMU and PIUs will each maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project. The PMU and PIUs will individually prepare project financial statements relating to the portion of the project it is implementing in accordance with the government's accounting laws and regulations that are consistent with international accounting principles and practices.

56. All financial reports are prepared in accordance with the Public Sector Financial Management Law. The Integrated Chart of Accounts is consistent with International Accounting

[10] Estimate of Expenditure sheet is available in Appendix 8A of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time),

[11] The CPD facilitates online submission of WA to ADB, resulting in faster disbursement. The forms to be completed by the Borrower are available online at https://www.adb.org/documents/client-portal-disbursements-guide.

Standards.

57. Government financial reports and accounting systems are prepared according to policies set forth by the Ministry of Finance, namely the Accrual Basis Institutional Accounting System (SAIBA). SAIBA produces financial reports comprising: Budget Realization Report, Balance Sheet report, Records of Financial Reports, and a Synchronization Report with the State Treasure Office (KPPN).

58. By government policy, all expenses and revenues are booked using the Institutional Treasury Reporting System (SILABI) pursuant to the Regulation of Minister of Finance No. 162/PMK.05/2013 on Position and Responsibility of Treasurer at APBN Management Working Unit and Regulation of Directorate of Treasury No. 3/PB/2014. Cost allocation from various financing sources are recorded using account codes based on Decree of Directorate General of Treasury No. 187/PB/2017.

59. Each university has a Financial Information System (*Sistem Informasi Manajemen Keuangan* - SIMKEU) system based on government-wide application for standard operating procedures covering DIPA[12], RKA[13], RKA realization. The main outputs of SIMKEU are disbursement and controlling reports.

60. Books are reconciled every month for the State Budget (APBN) bookkeeping and every 3 months for the universities' non-tax revenue (PNBP) bookkeeping. Both revenue and expenditure accounts carried out by different officers are archived. Accounting documents and supporting documents are always kept in archiving system which can be easily accessed by relevant parties.

D. Auditing and Public Disclosure

61. **Independent Auditing Requirements.** The PMU and PIUs will cause its respective detailed project financial statements to be audited in accordance with International Standards on Auditing and with the government's audit regulations, by an independent auditor acceptable to ADB. The audited project financial statements (APFS) shall be in English language. The PMU will gather and compile all five APFS and submit to ADB within six months from the end of the fiscal year. The Audited Project Financial Statements should be submitted from loan effectiveness until loan closing date.

62. DGRSTH will engage the Badan Pengawas Keuangan (BPK), the Indonesian Supreme Audit Institution (SAI), to audit the compiled project financial statements prepared by the PMU and PIUs annually. BPK will allocate adequate budget to properly audit the project. The draft terms of reference (TOR) of BPK was discussed between ADB and BPK, and has been approved by BPK, MOF, and ADB dated 18 July 2014. The project will follow the approved TOR of BPK, as shown in Appendix 8.

63. As per the TOR, BPK will prepare the annual audit report for the project accounts, which will include an audit management letter and audit opinions which cover (i) whether the project financial statements present a true and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting framework; (ii) whether loan and grant proceeds were used only for the purposes of the project or not; (iii) the level of compliance for each financial covenant contained in the legal agreements for the project; and (iv) use of the

[12] DIPA= *Daftar Isian Pelaksanaan Anggaran*=Budget Implementation List
[13] RKA= *Rencana Kerja dan Anggaran*=Workplan and Budget

advance fund procedure.

64. UPI, as a legal entity, is subject to external audit as per Indonesian law. UPI will submit its audited entity financial statements to ADB annually for each reporting period (fiscal year) from the date of loan effectiveness until the loan closing date. These financial statements will be submitted in the English language within 1 month of their approval by the relevant authority.

65. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor. The government, MORTHE and implementing agencies have been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.[14] ADB reserves the right to require a change in the auditor (in a manner consistent with the constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

66. Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011).[35] After review, ADB will disclose the audited project financial statements for the project and the opinion of the auditors on the financial statements no later than 14 days of ADB's confirmation of their acceptability by posting them on ADB's website. The management letter, additional auditor's opinions, and the audited entity financial statements will not be disclosed.

67. **Internal Audits.** Each university has an Internal Supervision Unit (SPI) that is responsible for conducting internal audits of non-academic programs and activities. Auditors with up-to-date audit credentials and certification from the BPKP conduct the audits using guidelines issued by MORTHE's Inspectorate General. Internal audits are confined to supervision and direction on implementation, review of quarterly and annual reports, and results are reported to the Rector as KPA and findings followed up by work units under the Sub-Division for Monitoring Legal and Administrative Affairs. The Inspectorate-general from MORTHE functions as the internal auditor from the ministry and conducts audits at institution level. BPKP also has the mandate to conduct internal audits. Coordination among the three is agreed.

[14] ADB Policy on delayed submission of audited project financial statements:

- When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (i) the audit documents are overdue; and (ii) if they are not received within the next six months, requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.
- When audited project financial statements have not been received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will (i) inform the executing agency of ADB's actions; and (ii) advise that the loan may be suspended if the audit documents are not received within the next six months.
- When audited project financial statements have not been received within 12 months after the due date, ADB may suspend the loan.

VI. PROCUREMENT AND CONSULTING SERVICES

68. All procurement of goods and works and all recruitment of consulting services will be undertaken in accordance with ADB's Procurement Policy (2017) and Procurement Regulations for ADB Borrowers (2017), as amended from time to time.

A. Advance Contracting

69. All advance contracting will be undertaken in conformity with ADB's Procurement Policy (2017) and Procurement Regulations for ADB Borrowers (2017). The issuance of invitations to bid under advance contracting will be subject to ADB prior approval. The borrower, DGRSTH, UNIMAL, UNJA, UNRI and UPI have been advised that approval of advance contracting does not commit ADB to finance the project. ADB financing is subject to the government's compliance of the relevant provisions of the loan agreement and ADB Procurement Policy and Regulations. ADB is available to support the universities in learning and building capacity on ADB's procurement system.

70. **Advance contracting.** The following steps for the recruitment of consultants can be concluded in advance, with ADB's prior review: (i) submission to ADB of the terms of reference, cost estimates and shortlisting evaluation criteria, (ii) advertisement, (iii) shortlisting of consultants, (iv) issuance of the request for proposals, (v) evaluation of technical proposals, and (vi) evaluation of financial proposals and final ranking. DGRSTH, UNIMAL, UNJA, UNRI will advertise all consulting opportunities in Consulting Services Recruitment Notice (CSRN) at www.adb.org. The following steps for the procurement of civil works can be concluded in advance, with ADB's prior review: (i) issuance of the invitation for bid and bidding document, (ii) bid opening, and (iii) bid evaluation.

71. To facilitate rapid start-up, the government and ADB agreed that advance action would be undertaken if possible, after signing of the MOU for the fact-finding by DGRSTH and getting ADB Management approval for the (i) engagement of project management and construction supervision consultants under PMU, UNIMAL, UNJA, UNRI and UPI, (ii) engagement of two individual consultants (Procurement Specialist and Civil Engineer) under PMU; and (iii) construction of three buildings (CWP-01) under UPI.[15] This is necessary to ensure (i) consultants are available to support the early stages of project implementation, and (ii) civil works can start at early stage of the project.

B. Procurement of Goods, Works, and Consulting Services

72. There will be in total 37 packages of civil works and good/equipment/furniture, and 13 packages of consultants to be financed by the loan and by the government of Indonesia. An 18-month procurement plan indicating the review procedures, goods, works, and consulting service contract packages is in Section C. The procurement plan does not include Open Competitive Bidding (OCB)-internationally advertised packages for civil works. The government was informed that the procurement plan will be made public, as well as annual updates from the procurement plan. All procurement of goods, works, and all recruitments of consulting services will be

[15] Construction of seven buildings (CWM-01) under UNIMAL and construction of three buildings under UNJA was originally earmarked for advance procurement. However, the independent review of the draft Detailed Engineering Designs for these buildings, funded by the Project Readiness Fund, indicated that the designs needed to be improved before tendering could start. Completion of the redesing is expected first quarter of 2019, and the procurement plan has been adjusted accordingly.

undertaken in accordance with ADB's Procurement Policy (2017) and Procurement Regulations for ADB Borrowers (2017), as amended from time to time.

73. Open Competitive Bidding (OCB) is the default method of procurement of goods, works and services under the Procurement Regulations for ADB Borrowers (2017). National advertisement may be appropriate when by their nature or scope procurements is unlikely to attract foreign competition. The procurement plan further details applicability of the international and national advertisement. For OCB international, bidding and other relevant documents, including advertisement, are to be prepared in English. If bilingual document is necessary, document in English prevails unless otherwise stipulated in the bidding document.

74. All goods and works will be contracted by the four PIUs. The PMU will provide oversight and quality assurance with the help from Procurement Specialist hired by the PMU. Consultants supporting the PIUs and PMU will be recruited by the respective PIUs and PMU. At university level, PIU will assign a person in charge for all procurement.

75. ADB prior review will be applied for the first 18 months of each PIU's project implementation. Beyond that period, ADB and DGRSTH will agree on the review approach, upon an updated procurement capacity assessment by the ADB. The following procurement packages are tentatively considered to continue prior review approach: (i) goods requiring new or high technology, (ii) OCB international, (iii) relatively high value contracts which has significant impact on the achievement of project's goal. For the remaining packages a post review (sampling) can be considered.

76. ADB Standard Bidding Documents will be used for procurement of the first packages planned for 2018 and the first two quarters of 2019 and OCB International advertisement. For OCB national advertisement packages which are planned from the third quarter of 2019 onwards, the harmonized bidding documents, if available can be used.

77. For procurement of civil works, the application of post qualification single stage two envelope procedure is agreed. This has been reflected in the project procurement plan.

78. For OCB national advertisement using the e-procurement system, SPSE version 3.6 is agreed. In addition to posting advertisement in the SPSE, for contracts estimated more than $10 million, the Invitation for Bid (IFB) will be posted in the ADB website. The time allowed for the preparation and submission of bids for large and/or complex contracts shall not be less than twenty-eight (28) days from the date of the last day of publication of the invitation to bid or the last day of availability of the bidding documents, whichever is later.

79. For OCB international and recruitment of consultant, e-procurement is not yet possible when using ADB loans. Request for Expression of Interest (EOIs) for selection of consultants will be posted on ADB's Consulting Services Recruitment Notice (CSRN) of ADB Consultant Management System (CMS). All EOIs will be received at ADB's CMS platform. PMU and each participating university will obtain authorized access to ADB's CMS. The remaining steps will be carried out offline. The ADB's Request for Proposal will be used.

80. The PMU and universities will ensure that the SPSE and the provisions in the request for EOIs, RFPs and bidding documents will have no restrictions on registration and submission of bids, EOIs and proposals by the prospective bidders. This is necessary to promote open competition and discrimination. The restrictions for foreign firms pertain, but are not limited to, to the need to (i) form mandatory joint venture or other forms of mandatory partnership between

firms, (ii) have a representative office in Indonesia, and (iii) be physically present at the government agency to obtain the relevant identification and registration numbers necessary in order to participate in the bidding. For procurement of goods, references to brand names/catalog numbers are not permitted. If necessary, the words “or equivalent” need to be added after such reference.

81. Any procedure under which bids above or below a predetermined assessment of bid values are automatically disqualified is not acceptable. Rejection of all bids is justified when bid prices are substantially higher than the existing budget. Where all bid prices substantially exceed the cost estimates, the borrower may after reviewing the sufficiency of the budget, instead of calling new bids and after consultation with ADB, in case of procurement of works/good, negotiate with the lowest evaluated bidder for a reduction of the bid price.

82. An estimated total of 1,676 person-months of national consulting services will be financed by the loan. DGRSTH consultants, comprising 216 person-months of national consultants will provide support to project management at PMU level. The following number of consultant input is estimated to facilitate project management and supervision consultant at university level, i.e: 336 person-months national under UNIMAL, 324 person-months national under UNJA, 324 person-months national under UNRI, and 282 person-months national under UPI. An estimated 194 person-months national consultant input will support preparation of the Detailed Engineering Design (DED). For recruitment of consulting firms, QCBS 80:20 will be used, while individual consultants will be recruited using individual consultant selection. The terms of reference for selection of project management and construction supervision team and for the DED consultants are in Appendices 9 through 16.

83. The indicative list of packages section of procurement plan includes procurement of an unfinished building in UNIMAL. Construction of this unfinished building is contingent upon approval by MORTHE, BAPPENAS and ADB. This approval will be informed by an audit and a structural assessment of the building in 2018 conducted by an engineering firm recruited by ADB, and the confirmation to be issued by the local public works department. UNIMAL will recommend to the local public works department to use the results of both the structural assessment and the audit for issuance of a certificate. In the procurement plan, separate re-design consulting services will be included.

84. A Project Procurement Risk Assessment was prepared in accordance with ADB’s “Guide on Assessing Procurement Risks and Determining Project Procurement Classification.”[16] The assessment also reviews sector (higher education) procurement system, as well as review the latest government procurement regulation to identify the gap with ADB’s Procurement Policy and ADB Procurement Regulation for Borrower (2017). The assessment suggested that the overall risks associated with the procurement capacity are manageable, with most risk criteria rated as “low” or “moderate”.

85. The project’s overall procurement classification is assessed as *medium risk*. The project’s integrated benefits and impacts are expected to outweigh its costs. Major risks and mitigating or monitoring measures agreed to ensure good quality and timeliness of procurement under the project are presented in Table 6.1:

Table 6.1: Procurement Risk Assessment and Management Plan (P-RAMP)

[16] ADB. 2014. *Guide on Assessing Procurement Risks and Determining Project Procurement Classification*. Manila

Risk Description	Risk Assessment	Mitigation/Monitoring/Documentation Measures	Responsibility
Delayed procurement due to (i) insufficient number of qualified procurement committee; (ii) ad hoc type and multiple assignment of procurement committee (as lecturer and procurement committee); (iii) the addition of AKSI to the DGRSTH and universities workload will stretch the existing resources.	Moderate	a. Provide assistance through project management consultant that will be engaged to support universities and PMU. b. Proactive and close monitoring of procurement schedule and follow-up actions.	PMSC team engaged by each university and PMC team hired by PMU. PMU and ADB.
Limited ability to handle procurement using ADB system. Two universities have reasonable procurement capacity, including experience with foreign-aided projects, but theylack experience with ADB guidelines	Moderate	Implementing agencies will obtain sufficient training in ADB procurement management requirements starting 6 months before project effectiveness. An experienced procurement specialist will be recruited for the PMU to train and advise the PIUs.	ADB, PMU, and PIU PMSC team engaged by each university and PMC team hired by PMU.
Lack of interest from national consulting market to work on education sector which may result in engagement of less qualified project management and construction supervision and DED consultants.	Moderate	Optimization of the package to attract attention from larger consulting firm. The selection of PMSC and DEDC will fully follow ADB Procurement Regulation through Quality and Cost Based Selection (QCBS), with prior approval from ADB. The QCBS will adopt Quality: Cost ratio of 80:20. Only consultants who have passed the minimum technical evaluation criteria will be further evaluated. For DEDC financed by non ADB financing, the Government agreed to adopt ADB Procurement Regulation in selecting the consultants. The PMC will assist the PIU in reviewing and monitoring the DED consultant output.	PIU, PMU, ADB
Procurement committees, PIUs, and the PMU have limited experience and	Moderate	The selection of contractors will fully follow the provisions in bidding documents. Green-building principles will be incorporated into the	ADB, MORTHE, PMU, PIU, PMSC

Risk Description	Risk Assessment	Mitigation/Monitoring/Documentation Measures	Responsibility
capacity for procuring "green" constructions. Therefore, they might find it difficult to divert from standard practice to go for the lowest bid, leading to selection of contractors that are not sufficiently "green".		engineering design, and will be part of the requirements in construction contract documents. Contractors' methods of work and environmental management plans shall be part of the technical evaluation criteria in the contractor selection process. In Q4 2018, a document outlining lessons learned will be available to guide universities in contracting 'green' buildings.	
Lack of reference/ information of the equipment to be procured (particularly those with new or high technology) may limit the ability of procurement committee to prepare neutral specification and causing restrictive technical specification.	Moderate	Advisory assistance from experienced Equipment Design Consultant. Procurement quality assurance from PMU.	Equipment Design Consultant engaged by PIU PMC team hired by PMU
Budget included in the DIPA (annual budget allocation), and the amount required during the actual procurement process is different due to currency fluctuation, especially for international procurement. Depreciation of IDR may cause insufficient owner estimate, causing unattractive cost and failure of the bidding.	Moderate	Budgeting for international procurement (2 packages) will take into account possible exchange rate fluctuation. International procurement is planned in Q1 of the budget year to minimize time lapse between issuing the budget and the actual procurement, and, in case of major fluctuations, the remaining equipment can be procured in the next year. Budget revision will be pursued if possible, so procurement can be completed within each budget year. Reduction of the scope or quantity of the equipment to be procured as last resort, provided it does not affect the project target significantly.	PIU UPI PMU MORTHE planning division
Lack of interest of international firms due to unattractive procurement package (small value of equipment contracts which are not available in domestic market).	Moderate	Monitoring the risk through data available in the Bid Evaluation Report and formulate a new procurement strategy to address it (e.g change the procurement method if the number of high tech suppliers are limited or only sole supplier available)	PIU, PMU, ADB

C. Procurement Plan

Basic Data		
Project Name: **Advanced Knowledge and Skills for Sustainable Growth in Indonesia (AKSI) Project**		
Project Number: 50935	Approval Number:	
Country: **Indonesia**	Executing Agency: **Ministry of Research, Technology and Higher Education (MORTHE)**	
Project Procurement Classification: **A**	Implementing Agency:	
Procurement Risk: **Moderate**	**1. University of Malikussaleh** **2. University of Jambi** 3. **University of Riau** **4. Universitas Pendidikan Indonesia (UPI)**	
Project Financing Amount: ADB Financing: **US$ 200,000,000** Co-financing: **US$ 0** Non-ADB Financing: **US$ 66,520,000**	Project Closing Date: **30/6/2024**	
Date of First Procurement Plan: {loan/grant approval date}:	Date of this Procurement Plan: **16/10/2018**	
Procurement Plan Duration: **18 months**	Advance contracting: Yes	Electronic Government Procurement: Yes

Methods, Review and Procurement Plan

Except as the Asian Development Bank (ADB) may otherwise agree, the following methods shall apply to procurement of goods, works, non-consulting services, and consulting services.

Procurement of Goods, Works, and Non-consulting Services		
Method	**Applicability**	**Comments**
OCB (Open Competitive Bidding) for Works	Default method	Prior review will be applied for the first 18 months of project implementation. Beyond that period, ADB and DGRSTH will agree on the review approach, upon an updated procurement capacity assessment by the ADB
OCB (Open Competitive Bidding) for Goods	Default method	Prior review will be applied for the first 18 months of project implementation. Beyond that period, ADB and DGRSTH will agree on the review approach, upon an updated procurement capacity assessment by the ADB.

Consulting Services	
Method	**Comments**
Quality and Cost Based Selection (QCBS)	Default method, for consulting team contracts that do not meet the criteria of other selection methods.
Individual Consultant Selection (ICS)	For individual consultant contract.

List of Active Procurement Packages (Contracts)

The following table lists goods, works, non-consulting services, and consulting services contracts for which the procurement activity is either ongoing or expected to commence within the procurement plan duration.

Goods, Works, and Non-consulting services							
Package Number	**General Description**	**Estimated Value (USD)**	**Proc't Method**	**Review**	**Bidding Procedure**	**Advertise-ment Date[4]**	**Comments[5]**
CWM-01	Construction of 7 (seven) School Buildings consist of: 4 School Buildings at Bukit Indah Kampus (Engineering, Social Science and Politics, Law, Economics) and 3 School Buildings at Reuleut Campus (Agriculture, Teaching Education, Medicine)	10,058,945	OCB	Prior	1S2E (Single Stage Two Envelope)	Q3,2019	To be procured by University of Malikussaleh Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Small Works Advance Procurement: No eGP: Yes through SPSE version 3.6
CWJ-01	Construction of 3 (three) Buildings consist of: University and Faculty Administration Centre, Post Graduate Centre and Faculty of Medical and Health Sciences	14,500,215	OCB	Prior	1S2E	Q2, 2019	To be procured by University of Jambi Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Large Works Advance Procurement: No eGP: Yes through SPSE version 3.6
CWJ-05	Solar Energy System at Mendalo	2,471,727	OCB	Prior	1S2E	Q2, 2019	To be procured by University of Jambi Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Small Works Advance Procurement: No eGP: Yes through SPSE version 3.6

Package Number	General Description	Estimated Value (USD)	Proc't Method	Review	Bidding Procedure	Advertise-ment Date[4]	Comments[5]
CWR-01	Construction of Integrated Classroom, Integrated Laboratories, Health Studies Complex	15,068,675	OCB	Prior	1S2E	Q1, 2020	To be procured by University of Riau Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Large Work Advance Procurement: No eGP: Yes through SPSE version 3.6
CWP-01	Construction of Buildings for PPG, FPTK, and COE Vocational	18,288,148	OCB	Prior	1S2E	Q1,2019	To be procured by UPI Advertisement: National Pre-qualification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Large Works Advance Procurement: No eGP: Yes through SPSE version 3.6
EQP-01	Laboratory Equipment 1 for: FPTK, COE, PPG, School of Post Graduate, FPEB & FPSD	9,042,142	OCB	Prior	1S1E	Q1,2020	To be procured by UPI Advertisement: International Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: No
ITP-01	IT Equipment for All buildings	2,028,051	OCB	Prior	1S1E	Q1,2020	To be procured by UPI Advertisement: National Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6

Consulting Services

Package No.[1]	General Description	Estimated Value (USD)	Recruit ment Method	Review[2]	Type of Proposal	Advertise-ment Date[4]	Comments[5]
CS PMU-01	PMC (Project Management Consultant)	1,221,820	QCBS	Prior	FTP	Q4, 2018	To be procured by PMU Assignment/Advertisement: National Advance Procurement: Yes eGP: No

Package No.[1]	General Description	Estimated Value (USD)	Recruitment Method	Review[2]	Type of Proposal	Advertisement Date[4]	Comments[5]
CS PMU-02	Individual Consultant-Procurement Specialist	30,000	ICS	Prior	NA	Q4, 2018	To be procured by PMU Assignment/Advertisement: National Advance Procurement: Yes eGP: No
CS PMU-03	Individual Consultant-Civil Engineer	30,000	ICS	Prior	NA	Q4, 2018	To be procured by PMU Assignment/Advertisement: National Advance Procurement: Yes eGP: No
CSM-01	PMSC (Project Management and Construction Supervision Consultant)	2,200,000	QCBS	Prior	FTP	Q4, 2018	To be procured by University of Malikusssaleh Assignment/Advertisement: National Quality-Cost Ratio: 80:20 Advance Procurement: Yes eGP: No
CSJ-01	PMSC (Project Management and Construction Supervision Consultant)	2,200,000	QCBS	Prior	FTP	Q4, 2018	To be procured by University of Jambi Assignment/Advertisement: National Quality-Cost Ratio: 80:20 Advance Procurement: Yes eGP: No
CSJ-02	Detailed Engineering Design for 6 buildings	1,200,000	QCBS	Prior	FTP	Q1, 2019	To be procured by University of Jambi Assignment/Advertisement: National Quality-Cost Ratio: 80:20 Advance Procurement: No eGP: No
CSR-01	PMSC (Project Management and Construction Supervision Consultant)	2,200,000	QCBS	Prior	FTP	Q4, 2018	Comments: To be procured by University of Riau Assignment/Advertisement: National Quality-Cost Ratio: 80:20 Advance Procurement: Yes eGP: No
CSP-01	PMSC Project Management and Supervision Consultant)	1,600,000	QCBS	Prior	FTP	Q4, 2018	Assignment/Advertisement: National Quality-Cost Ratio: 80:20 Comments: To be procured by UPI Advance Procurement: Yes eGP: No

List of Indicative Packages (Contracts) Required under the Project

The following table lists goods, works, non-consulting services, and consulting services contracts for which the procurement activity is expected to commence beyond the procurement plan duration and over the life of the project (i.e. those expected beyond the current procurement plan duration).

Goods, Works, and Non-consulting services						
Package Number	**General Description**	**Estimated Value (USD)**	**Proc't Method**	**Review**	**Bidding Procedure**	**Comments[5]**
CWM-2	Completing unfinished building and changing Admin Building to Central Library and Student Activity Centrum	2,590,909	OCB	Prior	1S2E	To be procured by University of Malikussaleh Advertisement: National, Plan Q1 2020, upon clearance from DGRSTH, BAPPENAS and ADB. Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Small Works Advance Procurement: No eGP: Yes through SPSE version 3.6
CWM-03	Construction of Lecture Building and Laboratory at Bukit Indah and Reuleut Campus, Administration Office, and General Building	14,820,000	OCB	Prior	1S2E	To be procured by University of Malikussaleh Advertisement: National, Plan Q3 2020 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Large Works Advance Procurement: No eGP: Yes through SPSE version 3.6
CWM-04	Supporting Infrastructure and Facilities in Bukit Indah Campus and Reuleut Campus	2,252,536	OCB	Post (sampling)	1S2E	To be procured by University of Malikussaleh Advertisement: National, Plan Q3, 2021 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Small Works Advance Procurement: No eGP: Yes through SPSE version 3.6 Scope of work: Roads and Parking, Drainage, Culverts, Energy Power Supply, IT connections, Landscaping, Water supply
EQM-01	Laboratory Equipment for Agriculture and Medical	2,181,818	OCB	Prior	1S1E	To be procured by University of Malikussaleh Advertisement:, National, Plan Q3,2021 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: No
EQM-02	Laboratory Equipment for Engineering	3,390,170	OCB	Prior	1S1E	To be procured by University of Malikussaleh Advertisement: International, Plan Q3,2021 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: No
FM-01	Furniture Batch 1	600,000	OCB	Post (sampling)	1S1E	To be procured by University of Malikussaleh Advertisement: National, Plan Q3,2020

Package Number	General Description	Estimated Value (USD)	Proc't Method	Review	Bidding Procedure	Comments[5]
						Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
FM-02	Furniture Batch 2	197,434	OCB	Post (sampling)	1S1E	To be procured by University of Malikussaleh Advertisement: National, Plan Q2,2021 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
FM-03	Furniture Batch 3	900,000	OCB	Post (sampling)	1S1E	Comment: To be procured by University of Malikussaleh Advertisement: National, Plan Q4,2021 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
ITM-01	Office Equipment, Computers, Software and related services	2,160,073	OCB	Prior	1S1E	Comment: To be procured by University of Malikussaleh Advertisement: National, plan Q4,2021 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
CWJ-02	Construction of 6 (six) Buildings consist of: Integrated classroom A Mendalo, Integrated classroom B Mendalo, Integrated Classroom C Mendalo, Engineering Science Laboratory, Integrated Social Science Laboratory, Student Activity Centre	19,765,455	OCB	Prior	1S2E	To be procured by University of Jambi Advertisement: National, Plan Q4 2020 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Large Works Advance Procurement: No eGP: Yes through SPSE version 3.6
CWJ-04	Water Treatment System at Mendalo	1,264,434	OCB	Post (sampling)	1S2E	To be procured by University of Jambi Advertisement: National, plan Q1,2022

Package Number	General Description	Estimated Value (USD)	Proc't Method	Review	Bidding Procedure	Comments[5]
						Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Small Works Advance Procurement: No eGP: Yes through SPSE version 3.6
EQJ-01	Engineering Laboratory & Social Science	3,304,456	OCB	Prior	1S2E	To be procured by University of Jambi Advertisement: National, plan Q1,2021 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
EQJ-02	Student sport centre	361,206	OCB	Post (sampling)	1S1E	To be procured by University of Jambi Advertisement: National, Plan Q3,2022 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
EQJ-03	Office Equipment 1 (Medical & health, graduate office)	507,062	OCB	Post (sampling)	1S1E	To be procured by University of Jambi Advertisement: National, Plan Q3 2022 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
EQJ-04	Office Equipment 2 (Integrated class room A,B, C and student activity centre)	1,584,824	OCB	Prior	1S1E	To be procured by University of Jambi Advertisement: National, Plan Q3 2022 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
FJ-01	Office Furniture for Building 1 (University and Faculty Admin Center, Post Graduate Center, and Faculty of Medical and Health Sciences)	539,085	OCB	Post (sampling)	1S1E	To be procured by University of Jambi Advertisement: National, Plan Q3 2021 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6

Package Number	General Description	Estimated Value (USD)	Proc't Method	Review	Bidding Procedure	Comments[5]
FJ-02	Office Furniture for Building 2 (Integrated Classroom A , B and C in Mendalao, Science (Engineering) Laboratory, Integrity Social Science Laboratory, Student Activity Center),	2,206,722	OCB	Prior	1S1E	To be procured by University of Jambi Advertisement: National, Plan Q3 2023 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
CWR-02	Construction of Boat House and Marine Center, Postgraduate Center, IT Center, University Main Library	9,507,289	OCB	Prior	1S2E	To be procured by University of Riau Advertisement: National, Plan Q4 2020 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Large Work Advance Procurement: No eGP: Yes through SPSE version 3.6
CWR-03	Construction of Student Center, University Training Center, Food Science Center	7,296,259	OCB	Prior	1S2E	To be procured by University of Riau Advertisement: National, Plan Q4 2020 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Small Work Advance Procurement: No eGP: Yes through SPSE version 3.6
EQR-01	Equipment for Research and teaching lab, microteaching laboratories.	9,293,502	OCB	Prior	1S1E	To be procured by University of Riau Advertisement: National, plan Q1,2021 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
EQR-02	Equipment for Research boat, truck and boat house	344,214	OCB	Post (sampling)	1S1E	To be procured by University of Riau Advertisement: National, plan Q1,2022 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
EQR-03	Equipment for laboratories (food science)	516,319	OCB	Post (sampling)	1S1E	To be procured by University of Riau Advertisement: National, plan Q1,2022 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
EQR-04	Equipment for multimedia & extension and improvement of	755,056	OCB	Prior	1S1E	To be procured by University of Riau Advertisement: National, plan Q1,2022

Package Number	General Description	Estimated Value (USD)	Proc't Method	Review	Bidding Procedure	Comments[5]
	ICT Infrastructure					Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
FR-01	Office Furniture 1 (integrated class room, integrated laboratories, health study complex)	937,117	OCB	Prior	1S1E	To be procured by University of Riau Advertisement: National, plan Q1,2021 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
FR-02	Office Furniture 2 (Boat house & marine centre, post graduate centre, IT Centre, University main library) student centre, university training centre, food science centre)	850,965	OCB	Post (sampling)	1S1E	To be procured by University of Riau Advertisement: National, plan Q1,2022 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Goods Advance Procurement: No eGP: Yes through SPSE version 3.6
CWP-02	Construction of School Buildings for FPEB, FPSD, dan Post Graduate	16,859,864	OCB	Prior	1S2E	To be procured by UPI Advertisement: National, Plan Q3 2020 Prequalification of Bidders: No Domestic Preference Applicable: No Type of bidding document: ADB's SBD Large Work Advance Procurement: No eGP: Yes through SPSE version 3.6

Consulting Services						
Package No.[1]	**General Description**	**Estimated Value (USD)**	**Selec-tion Method**	**Review[2]**	**Type of Proposal**	**Comments[5]**
CSM-02	Equipment Design Consultant	40,909	ICS	Prior	Not applicable	To be procured by University of Malikusssaleh Assignment/Advertisement: National, Plan Q1 2021 Advance Procurement: No eGP: No
CSM-03	Academic & Training Program Consultant	68,182	ICS	Prior	Not applicable	To be procured by University of Malikusssaleh Assignment/Advertisement: National, Plan Q4 2019 Advance Procurement: No eGP: No

List of Awarded and Completed Contracts

The following table lists the awarded contracts and completed contracts for goods, works, non-consulting services, and consulting services.

Goods, Works, and Non-consulting services					
Package Number	General Description	Contract Value[9]	Date of ADB Approval of Contract Award[10]	Date of Completion[11]	Comments[12]

Consulting Services					
Package Number	General Description	Contract Value[9]	Date of ADB Approval of Contract Award[10]	Date of Completion[11]	Comments[12]

Non-ADB Financing

The following table lists goods, works, and consulting services contracts over the life of the project, financed by Non-ADB sources.

Goods, Works, and Non-consulting services				
General Description	**Estimated Value (cumulative)**	**Estimated Number of Contracts**	**Procurement Method**	**Comments**
CWJ-03 Supporting Infrastructure/Facilities at Mendalo	2,173,637	1	Tender	To be procured by University of Jambi Advertisement: National, plan Q2,2022 Scope of Work: Earth works, New road & parking, solar energy system, electrical works, landscaping, water treatment plant.
CWR-04 Construction of Supporting Infrastructure Facilities	1,090,909	1	Tender	To be procured by University of Riau Advertisement: National, plan Q1, 2022 Scope of work: (i) Road and facility; (ii) Drainage; (iii) Culvert; (iv) Energy Power Supply
FR-04 Office Furniture 4 (Post Graduate centre 2)	173,778	1	Tender	To be procured by University of Riau Advertisement: National, plan Q1, 2023
ITR-01 ICT (software, license, service, hardware and equipment related	584,188	1	Tender	To be procured by University of Riau Advertisement: National, plan Q1 2022
ITR-02 ICT (software, license, service, hardware and equipment related	340,425	1	Tender	To be procured by University of Riau Advertisement: National, plan Q1 2022

Goods, Works, and Non-consulting services				
General Description	**Estimated Value (cumulative)**	**Estimated Number of Contracts**	**Procurement Method**	**Comments**
EQP-02 Laboratory Equipment 2 for Post Graduate, FPEB, FPSD	638,044	1	Tender	To be procured by Universitas Pendidikan Indonesia Advertisement: National, Plan Q1, 2020
FP-01 For: COE, FPTK, PPG	716,949	1	Tender	To be procured by Universitas Pendidikan Indonesia Advertisement: National, Plan Q2, 2020
FP-02 Office Furniture 2 for FPEB and Post Graduate	1,050,783	1	Tender	Comment: To be procured by Universitas Pendidikan Indonesia Advertisement: National, Plan Q2, 2020
CSM-04 DED Consultant	727,869	1	Selection	To be procured by University of Malikusssaleh Assignment/Advertisement: National, Plan Q3 2019
CSR-02 DED Integrated Classrooms, DED Integrated Laboratories, DED Health Studies Complex	469,978	1	Selection	To be procured by University of Riau Assignment/Advertisement: National, Plan Q1 2019
CSR-03 DED Boat House and Marine Center, DED Post Graduate Center, DED Information and Technology Center, DED University Main Library, DED Student Center, DED University Training Center, DED Food Science Center	524,087	1	Selection	To be procured by University of Riau Assignment/Advertisement: National, Plan Q1 2020

86. For loan financed packages, the estimated value in the above procurement plan is net of Value Added Tax (VAT).

D. Consultant's Terms of Reference

1. Project Management Consultant to support PMU

87. The purpose of the Project Management Consultant (PMC) assignment is to ensure sound project implementation, monitoring, and reporting by providing management support to the PMU in preparation, monitoring, evaluation, control and documentation of the implementation of AKSI project at the four universities. The AKSI project will recruit a national consulting firm comprising of national experts who have intensive experiences in project management of “green” building constructions, infrastructure facilities, with associated IT, equipment, and furniture. The firm will also provide a gender specialist and an environmental specialist. The terms of reference (TOR) containing the scope of services, list of required key and non-key experts, detailed tasks, and other requirements are provided in Appendix 9.

2. Project Management and Supervision Consultants to support PIUs

88. The AKSI project will require a Project Management and Supervision Consultant (PMSC), national consulting firm, for each PIU of UNIMAL, UNJA, UNRI, and UPI to support sound project planning and implementation, specifically assisting on day-to-day project management, construction supervision, monitoring, evaluation, quality control and documentation of the AKSI project. The tasks will include but are not be limited to closely monitoring the plan, schedule, procurement, costing and quality of the project implementation. The TORs containing the scope of services, list of required key and non-key experts, detailed tasks, and other requirements are provided in Appendixes 10 through 13.

3. Detailed Engineering Design Consultants (DEDC) to support UNIMAL, UNJA, and UNRI

89. The AKSI project will require a Detailed Engineering Design Consultant (DEDC) for each university (except UPI – which has prepared DEDs using internal sources) to support the development of buildings and infrastructure. The DEDC will be a national consulting firm specializing in designing campus facilities. The DEDC will develop DED for the construction of new buildings and evaluate quality and appropriateness of the existing DED documents, ensuring that overall quality (i) meets the legal requirements and criteria pertinent to the construction of buildings, (ii) would best fit with campus environment, and (iii) fully supports the overall function of the buildings in an academic environment. The detailed TORs are provided in Appendixes 14-16.

4. Individual Consultants

90. Provision has been made in the procurement plan to recruit individual consultants. A procurement and civil engineering are proposed for the PMU in case recruitment of the PMC firm is delayed. These are to support the PMU for 6 months each. In addition, UNIMAL is proposing to recruit Equipment Design Consultant to support procurement of the equipment and an Academic & Training Program Consultant to manage the training program.

VII. SAFEGUARDS

91. **Environment (category B).** The project will develop lecture rooms, teaching laboratories, and other academic facilities across seven different locations in four universities. An initial environmental examination (IEE) was prepared for each university, in accordance with ADB's Safeguard Policy Statement and the applicable environment requirements of the government. [17] The environmental impact will be location specific, time-bound predominantly during the construction period. The IEE has identified environmental impact and mitigation measures during development and operational phases, with regard to (i) solid waste management; (ii) air quality, and (iii) occupational health and safety issues. The project is classified as environmental category B environmental impacts are location-specific, can be readily mitigated, and the locations are not ecologically sensitive or high risk with respect to community health and safety. The PMU and PIUs will undertake environmental management and monitoring during implementation. The IEE proposes (i) capacity building for PMU and PIUs, including consultant support, (ii) inclusion of environmental management plan (EMP) in bidding documents, and (iii) inspection and supervision during construction. MORTHE has delegated its overall responsibility for safeguards implementation to the PMU and to the PIUs. At the detailed engineering design stage, PMU will

[17] Initial Environmental Examination (accessible from the list of linked documents in Appendix 2).

update and finalize the IEE and EMP, which will be subject to approvals, in accordance with ADB's Safeguard Policy Statement and the applicable environment requirements of the government. This updated IEE and EMP will be developed a university level, so each university will have a separate IEE. PMU will ensure effective environmental monitoring at all stages of project implementation. University management, supported by PIUs, will be responsible for any grievances following the existing practices for university related matters. Specific implementation arrangements are prescribed in the EMP.

92. **Involuntary Resettlement (category C).** All universities will use land within their campus premises. Involuntary resettlement as per ADB's Safeguard Policy Statement is not triggered.

93. **Indigenous People (Category C).** There are no indigenous people within the project area as per ADB's Safeguard Policy Statement.

94. **Prohibited investment activities.** Pursuant to ADB's Safeguard Policy Statement (2009), ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009).

95. **Climate change risk.** As per the ADB rating system the project is at medium risk; this rating means that project outputs and outcomes could possibly be at risk as a result of climate change. The following risk mitigating actions are included in the project. These are partly financed by the preparatory Technical Assistance, an additional grant from the project readiness fund, from the loan, and by the universities. Where appropriate these actions are included in the EMP and are subject to environmental monitoring.

Risks	**Mitigations**			
	UPI	**UNRI**	**UNJA**	**UNIMAL**
Temperature increases	Risk: Medium- High	Risk: Medium- low	Risk: Medium- Low	Risk: Medium- high
	Building designs to accommodate predicted rises in daytime maximum temperature	Building designs to accommodate predicted rises in average temperature	Building designs to accommodate predicted rises in average temperature	Building designs to accommodate predicted rises in daytime maximum temperature
	Campus development plan shall incorporate green areas	Campus development plan shall incorporate university forest as micro climate Control	Campus development plan shall incorporate university forest as micro climate control	Campus development plan shall incorporate university forest as micro climate control
Earthquakes	Risk: Medium- High Building codes for earthquakes	Risk: Low-Medium Building codes for earthquakes	Risk: Low-Medium Building codes for earthquakes	Risk: Low- medium Building codes for earthquakes

Risks	Mitigations			
	UPI	**UNRI**	**UNJA**	**UNIMAL**
Flooding	Low	Low	Low-Medium Buluran campus Medical School design shall consider the existence of natural pond as retention to accommodate flood potential.	Low
Landslides	Medium Building design shall incorporate the effect of run-off of rain fall	Low	Low	Low
Wildfires	Low	Low-Medium Fire safety and warnings when AQI over 300	Low-Medium Fire safety and warning when AQI over 300	Low-Medium Consider mitigations for AQI over 300
Tsunami and tidal surges	Low	Low	Low	Low-medium Lhokseumawe City has already taken precautions again tidal surges. The university campuses are located at an elevation of 19 and 21 meters
Drought	Medium-low Review campus water supply for decreased rainfall scenario	Low	Low	Low

VIII. GENDER AND SOCIAL DIMENSIONS

96. The Summary Poverty Reduction and Social Strategy provides key gender issues relevant to the project and identifies the Gender Action Plan as a measure to promote gender equality.

97. The project's gender classification is "Gender Equity Theme" (GEN) which means that the project outcome directly addresses gender equality and/or women's empowerment by narrowing gender disparities, and the outcome performance indicators include gender indicators. A key focus of the Gender Action Plan would be to support women's active participation, access to project information and benefits through various skills development activities.

98. The PMU will be responsible for ensuring the implementation of GAP. A National Gender Specialist will be recruited by PMU to assist in the planning, budgeting, implementation, monitoring and reporting. Special attention will be paid to the collection of sex-disaggregated data. Regular monitoring of gender action plan will be done and it will be updated, which will be included in quarterly progress reports sent to the ADB.

99. The GAP will be implemented by PIU with assistance of consultant teams and Gender Study Centers from the participating HEIs. Gender focal points will be assigned in each

participating HEIs to ensure gender coordination and linkage across the various activities and to coordinate the introduction, planning, budgeting, implementation, monitoring and reporting of the GAP. An international gender specialist will be recruited by a proposed separate TA to support studies to identify barriers form men and women from universities to labor market in specified disciplines (footnote 3).

GENDER ACTION PLAN

	Gender activities/actions		Performance indicators/targets	Responsible Agencies	Budget
Output 1: Market responsive programs delivered					
1.1.	Ensure construction of new buildings integrate gender responsive physical design features.[18] (By Q4, 2023)	1.1.1.	2 new day care centers built in UNIMAL (Bukit Indah Campus, and Reuleut Campus), 1 new day care center built in UNJA.	1. PIU (lead) 2. ULP Procurement 3. GFP/Gender Study Center 4. Engineering Firms	• UNIMAL: included in PIU project costs; UNJA: PNBP financing • National gender consultant in PMU costs.
		1.1.2.	Lactation rooms and facilities provided in each university.		
		1.1.3.	Buildings have separate female and male toilets (number and ratio taking into account expected number of users), with doors and features that ensure privacy and security.		
1.2.	Ensure construction of new buildings include appropriate measures to provide PWD access to the physical environment. [19] (By Q4, 2023)	1.2.1.	New buildings are accessible for all, with accessible routes, curb ramp, ramp/lift/stair lift, accessible toilets, dedicated parking, and signage.[20]		
1.3.	Ensure a clear maintenance plan is developed for upgraded and newly constructed facilities, and adequate budget is earmarked for maintenance, including for sanitation facilities. (By Q4, 2023)	1.3.1.	Budget earmarked for maintenance of constructed facilities, including for sanitation facilities.	1. PIU 2. University Management	Each university
1.4.	Ensure fair participation of women in trainings on market-responsive programs and research for teaching, management, research and support staff.	1.4.1.	By 2023, number and proportion of female teaching, management, research and support staff trained to increase understanding on market-responsive programs and research. Target: At least 234 in total (overall 40% of 586).[21]	1. PIU (lead) 2. GFP 3. SPI 4. LPPMP / LP3M (UNJA) 5. Academic Bureau	• Included in PIU project costs. • National gender consultant in PMU costs.

[18] Refer to Regulation of Minister of Public Works and Housing No. 45/2007 on State Buildings, and Regulation of Minister of Public Works and Housing No. 14/2017 on Ease-of-Access Requirements to Building.
[19] Refer to Regulation of Minister of Public Works and Housing No. 14/2017 on Ease-of-Access Requirements to Building, and Law No. 8/2016 on Persons with Disabilities
[20] For buildings with less than 5 floors which are not obligated to provide lifts, classes which have PWD will be held at ground floor.
[21] Reference point, 2017: Teaching staff at UNIMAL: male 322 (60%) female 215 (40%); UNJA: male 511 (54%) female 437 (46%); UNRI: male 687 (57%) female 508 (43%); total 3 Universities: male 1,520 (57%) female 1,160 (43%). No sex-disaggregated data available for management, research and support staff.

	Gender activities/actions		Performance indicators/targets	Responsible Agencies	Budget
1.5.	Ensure training on gender analysis and mainstreaming for new curriculum development team.[22] (By Q4, 2021)	1.5.1.	At least 1 training on gender analysis and mainstreaming provided for curriculum development team.	1. PIU (lead) 2. Vice Rector Academic Affairs 3. LPPMP / LP3M (UNJA) 4. Study Program 5. Gender Study Center	• UNIMAL & UNRI: included in PIU project costs; UNJA: PNBP financing. • National gender consultant: included in PMU costs.
1.6.	Ensure the upgraded or new curricula as part of UNJA, UNIMAL and UNRI COE include gender analysis. (By Q4, 2023)	1.6.1.	The upgraded or new curricula integrate gender analysis.		
1.7.	Ensure gender analysis is integrated in new research programs to support UNJA, UNIMAL and UNRI COE development in Sustainable Natural Resources, Agriculture and Aquatic and Marine Science. (By Q4, 2023)	1.7.1.	Gender analysis integrated in new research programs to support COE. ▪ UNIMAL: Empowerment of women in Agriculture Sector ▪ UNJA: Stakeholders analysis (industry, government, community) in Sustainable Natural Resources Sector ▪ UNRI: Quota established for research applications that integrate gender analysis and/or focus on a gender specific theme.	1. PIU (lead) 2. SPI 3. Academic Bureau 4. LPPMP 5. LP2M, LPEM (UNJA) 6. Gender Study Center	• UNIMAL & UNRI: included in PIU project costs; UNJA: PNBP financing, • Int'l gender consultant: included in a proposed separate TA.
1.8.	Ensure gender perspective is integrated when conducting research on university-to-work transition and labor market barriers (By Q4, 2022)	1.8.1.	Research provides gender analysis of university-to-work transition and labor market barriers in targeted sectors: ▪ UNIMAL: Agriculture ▪ UNJA: Sustainable Natural Resources ▪ UNRI: Aquatic and Marine Sector	1. PIU (lead) 2. SPI 3. Academic Bureau 4. LPPMP / LP3M (UNJA) 5. Gender Study Center	• Included in a proposed separate TA (incl. Int'l gender consultant)
Output 2: Training of TVET teachers improved					
2.1.	Ensure construction of new buildings integrate gender responsive physical design features (By Q4, 2021)	2.1.1. 2.1.2. 2.1.3	Existing day care center FPTK will be expanded. New day care center will be built in FIP. Lactation rooms and facilities provided in UPI. Buildings have separate female and male toilets (number and ratio taking into account expected number of users), with doors and features that ensure privacy and security	1. PIU (lead) 2. ULP Procurement 3. GFP 4. Postgraduate Special Education Department 5. Engineering Firms	• Included in PIU project costs • Nat'l gender consultant in PMU costs.
2.2.	Ensure construction of new buildings include appropriate measures to provide PWD access to the physical environment. (By Q4, 2021)	2.2.1.	New buildings are accessible for all, with accessible routes, curb ramp, ramp/lift/stair lift, accessible toilets, dedicated parking, and signage.		

[22] The term 'gender analysis' refers to among others: analysis of the different patterns of participation, involvement, behavior and activities of women and men in economic, social and cultural settings. The gender analysis should not only describe the current state of the gender situation, but should also explore the causes and effects of gender disparities in the targeted sectors, and identify measures to eliminating such inequalities.

	Gender activities/actions		Performance indicators/targets	Responsible Agencies	Budget
2.3.	Ensure a clear maintenance plan is developed for upgraded and newly constructed facilities, and adequate budget is earmarked for maintenance, including for sanitation facilities.	2.3.1.	Budget earmarked for maintenance of constructed facilities, including for sanitation facilities.	1. PIU 2. University Management	UPI
2.4.	Ensure fair participation of women in training programs on designing and delivering accredited vocational teacher education for teaching, management, research and support staff.	2.4.1.	By 2023, number and proportion of female teaching, management, research and support staff trained to increase understanding on designing and delivering accredited TVET teacher education programs. Target: At least 16 in total (overall 40% of 53)[23].	1. PIU (lead) 2. GFP 3. SAI 4. SPM 5. Academic Directorate	• Included in PIU project costs • National gender consultant in PMU costs.
2.5.	Gender needs assessment to support new curricula. (By Q4, 2022)	2.5.1.	Gender needs identified, including materials, objectives, methods, and evaluation.	1. PMU (lead) 2. PIU 3. SAI 4. SPM 5. Women and Population Study Center 6. Postgraduate Special Education Department 7. Academic Directorate	• GOI Financing • Nat'l gender consultant in PMU costs. • International consultant in a proposed separate TA will advise as appropriate.
2.6.	Develop a module on gender responsive and inclusive teaching, learning, and evaluation methods for inclusion in TVET teacher education programs[24] (By Q4, 2021)	2.6.1.	Module on gender responsive and inclusive teaching, learning and evaluation methods developed and integrated in instructors training package.		
2.7.	Ensure instructors of TVET teacher education programs are trained on gender responsive and inclusive teaching, learning and evaluation methods. (By Q4, 2021)	2.7.1.	Training for instructors conducted and module on gender responsive and inclusive teaching, learning and evaluation methods applied. Specify number of instructors trained (disaggregated by sex).		
2.8.	Orientation/Matriculation to new students (By Q4, 2022)	2.8.1.	Gender responsive and inclusive teaching, learning and evaluation methods introduced to new students		

[23] Reference point: Teaching staff at UPI male 809 (62%) female 490 (38%). Sex-disaggregated data for management, research and support staff is not available. Overall the proportion of male staff in the target group for these trainings (which will include technical and mechanical engineering) is expected to be higher than 60%. Hence gender target set is overall at least 30% female among those staff participating in these trainings.

[24] The term 'gender responsive or sensitive' refers to among others: responding to the different needs of women and men in education and employment settings, ensuring women and men have equal opportunities e.g. to respond in question and answer sessions or to present in front of the class; content and images of teaching and learning materials or resources promote gender equality and are free of gender bias and stereotypes; career counseling that encourages female and male students to study and work in non-traditional areas/occupations.

	Gender activities/actions		Performance indicators/targets	Responsible Agencies	Budget
2.9.	Ensure new curricula of TVET teacher education programs is gender sensitive and inclusive. (By Q4, 2022)	2.9.1.	The new curricula has integrated gender responsive and inclusive teaching, learning and evaluation methods.		
2.10.	Ensure fair participation of female SMK teachers in in-service training programs.	2.10.1	By 2023, number of female SMK teachers trained in in-service training programs: at least 96 (40% of 240)[25].	1. PIU (lead) 2. GFP 3. SAI 4. SPM 5. Academic Directorate	Included in PIU project costs. National gender consultant in PMU costs.
2.11.	Ensure fair access for female teachers for certification by the established LSP and PUKs in collaboration with polytechnics, SMK, and industry	2.11.1.	By 2023, number of female teachers certified: at least 105 (35% of 300).	1. PMU (lead) 2. PIU 3. GFP 4. SAI 5. SPM 6. Academic Directorate	Included in PIU project costs. National gender consultant in PMU costs.
Project management gender related activities					
• Appoint a gender focal in each participating HEI who will closely liaise with the PIU/PMU to ensure GAP implementation, monitoring and reporting. • Project annual operation plans include activities and adequate budget allocation for GAP implementation. • PMU to translate the GAP into local language and to distribute it to all participating HEIs during the first semester after project effectiveness. • PMU to ensure the Gender Study Centers in the respective universities are actively involved in the implementation of relevant GAP activities. • PMU to recruit national gender consultant to build capacity of PMU/PIU and key stakeholders in gender analysis and mainstreaming and gender requirements for the project, and to support GAP implementation, monitoring and reporting. • ADB to recruit international gender specialist to support studies. • Collect and analyse data disaggregated by sex where relevant and integrate gender sensitive indicators (from DMF and GAP) in the PPMS. • Ensure that university information systems regularly collect, analyse and report sex disaggregated data on (i) enrolment of students; (ii) average study duration for S1 students; (iii) time to first paid employment for S1 students. (Start by Q1, 2019) • Ensure regular monitoring and reporting (at least semi-annually to ADB) on the progress of GAP implementation.					

ADB: Asian Development Bank, **COE:** Center of Excellence, **GFP:** Gender Focal Point; **MORTHE:** Ministry of Research, Technology and Higher Education, **PIU:** Project Implementation Unit, **PMU:** Project Management Unit, **PWD:** Persons with Disabilities, **TA:** Technical Assistance, **TVET:** Technical and Vocational Education and Training; **UNIMAL:** Malikussaleh University, **UNJA:** University of Jambi, **UNRI:** University of Riau, **UPI:** Indonesia University of Education.

[25] Reference point: (2016-2017 Ministry of Education and Culture) SMK teachers male 49.64% and female 50.36%. However, the proportion of female teachers in the target group for the in-service training programs under this output (mainly teachers in engineering field) is expected to be lower. Hence the gender target of at least 40% female among those attending the in-service training programs for SMK teachers is the target UPI agreed to commit to.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION

100. The PMU will be responsible for the smooth management and coordination of project activities. It will be established, and all staff identified, prior to loan effectiveness. The PMU will be supported by four consultants with the following expertise: procurement, engineering/civil work, financial management/auditing, and gender. The PMU will be headed by a Project Director, and managed by a project manager, supported by an Executive Secretary, and five coordinators (monitoring and evaluation, academic and staff development coordinator, civil works/infrastructure coordinator, procurement coordinator, and finance coordinator). The Project Director will be responsible for the overall project implementation, including planning, budgeting, procurement, monitoring, safeguards, coordination, maintaining all project documents, maintaining the advance account, submitting required progress reports, annual audit reports, and financial statements as per agreed frequency and in proper format.

101. ADB will be responsible for overall guidance to the PMU on technical, management, and implementation aspects. ADB will oversee project implementation, ensure compliance with the loan agreement and the Project Administration Manual, compliance with the SPS and the EMP for the project, observance of policies for anticorruption and fraud prevention, and the timely approval of procurement activities and withdrawal applications. ADB will conduct an inception mission and undertake regular reviews, including safeguards review missions at the universities and a review of the project at midterm for a thorough assessment to see that all activities are on track and make adjustments as may be required.

A. Project Design and Monitoring Framework

102. Based on the project design adopted for AKSI and its proposed outputs, outcomes, and impact, the following design and monitoring framework (DMF) has been developed to enable meaningful measurement and monitoring of the project's performance.

DESIGN AND MONITORING FRAMEWORK

Impact the Project is Aligned with Income and productivity of the working age population increased (RPJMN, 2015–2019)[a]			
Results Chain	**Performance Indicators with Targets and Baselines**	**Data Sources and Reporting Mechanisms**	**Risks**
Outcome Access, relevance, and quality of targeted universities strengthened	By 2025: a. Cumulative enrollment increase of 20,000 (at least 50% female) students from targeted universities (2018 baseline: Male: 45,900; female: 67,760) b. Average study duration for bachelor (S1) students from targeted universities decreased to 55 months for male and 52 months for female (2017 baseline: 60 months for male, 56 months for female) c. Average share of graduates of targeted universities finding paid employment within 6 months of graduation increased to 37.1% for	a.–c. MORTHE database, universities' annual reports, and tracer studies	Policy changes influence the government's commitment to higher and vocational education. Changes in the economy require different skills that are not included in the programs.

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
	male and 34.4% for female (2018 baseline: 32.1% for male and 29.4% for female)[b] d. Cumulative university accreditation score of the targeted universities increases to 1,442 (2018 baseline: 1,305)[c] e. Cumulative program accreditation score of the targeted universities increases to 141 programs rated A (2018 baseline: 93 rated A) representing 38% of all programs rated as A (2018 baseline: 27% rated A).	d.–e. National Accreditation Board for Higher Education accreditation summaries	
Outputs 1. Market-responsive programs delivered	1a. UNIMAL, UNJA, and UNRI upgraded through constructing and equipping 33 new buildings, and finishing and equipping one unfinished building (including gender-responsive,[d] inclusive, and sustainable infrastructure) by 2023 (2018 baseline: 0) 1b. At least 586 additional teaching, management, research, and support staff (of which at least 40% women) of UNIMAL, UNJA, and UNRI trained, resulting in increased understanding of market-responsive programs and research by 2023 (2018 baseline: 0). 1c. At least 40 upgraded or new curricula delivered by UNIMAL, UNJA, and UNRI COEs by 2024 (2018 baseline: 0) 1d. At least 21 new research programs connected to the COE launched by UNIMAL, UNJA, and UNRI by 2024 (2018 baseline: 0) 1e. At least 65 additional training or service programs connected to the COE conducted by UNIMAL, UNJA, and UNRI by 2024 (2018 baseline: 0) 1f. At least 21 additional memorandums of understanding with industry and other stakeholders signed by UNIMAL, UNJA, and UNRI, by 2023 (2018 baseline: 0)	1a.–f. Progress reports and routine monitoring by UNJA, UNIMAL, UNRI, and MORTHE	Planned activities may not complete on time due to delayed allocation Supported universities and MORTHE are not able to retain qualified staff for project implementation. Coordination is insufficient between MOEC and MORTHE on implementing new models for providing pre-service and in-service SMK teacher education.
2. Training of TVET teachers improved	2a. UPI upgraded by completing construction and equipping six new buildings (including gender-responsive,[d] inclusive, and sustainable infrastructure) to become COE in TVET-teacher education by 2023 (2018 baseline: 0) 2b. At least 53 teaching, management, research, and support staff (of which at least 40% women),	2a.–f. Progress reports and routine monitoring by UPI and MORTHE	

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
	trained, resulting in increased understanding of designing and delivering accredited TVET-teacher-education programs by 2023 (2018 baseline: 0) 2c. Six new bachelor TVET-teacher-education programs established by UPI by 2023. (2018 baseline: 0) 2d. At least 240 SMK teachers (of which at least 40% women) at UPI trained in-service training programs, in collaboration with MOEC, polytechnics, SMKs, and industry by 2023. (2018 baseline: 0) 2e. At least 300 teachers and other participants (of which at least 35% women) certified by the Professional Certification Body and the Center of Competency Testing established in UPI by 2023. (2018 baseline: 0) 2f. At least two case studies on models to improve TVET-teacher education disseminated by UPI by 2023 (2018 baseline: 0)		

Key Activities with Milestones

1. Market-responsive programs delivered

1.1 Complete detailed engineering design for selected civil works (gender-responsive, inclusive, and sustainable infrastructure) for UNIMAL and UNJA (Q1 2019).
1.2 Start procurement for first civil works for UNIMAL and UNJA (Q2 2019).
1.3 Start implementation of capacity development program for UNIMAL, UNJA, and UNRI (Q2 2019).
1.4 Start development of revised curricula and research proposals in sustainable agriculture, sustainable natural resources management, and marine and aquatic science based on labor market needs (Q2 2019).
1.5 Start to arrange industry contacts in Sumatra (Q2 2019).
1.6 Start civil works (Q3 2019)
1.7 Start implementation of new education and research programs (Q3 2019).
1.8 Complete review of models used for COEs supported in UNIMAL, UNJA, and UNRI (Q4 2021).

2. Training of TVET teachers improved

2.1 Complete detailed engineering design for construction (gender-responsive, inclusive, and sustainable infrastructure) for UPI (Q4 2018).
2.2 Complete draft version of COE plan for TVET-teacher education (Q4 2018).
2.3 Complete first set of in- and pre-service vocational teacher and instructor qualifications and curricula (including module on gender-responsive and gender-inclusive teaching, learning, and evaluation methods) (Q4 2020).
2.4 Start implementation of capacity development plan for UPI (Q1 2020).
2.5 Start civil works (Q3 2019).
2.6 Assess models used to improve TVET-teacher education and identify which one can be put in practice (Q4 2019–Q42020).

Project Management Activities

Establish project management units and project implementation units (Q3 2018).
Start recruitment of project management unit consultants (Q4 2018).

Introduce new tracer study methodology and accreditation methodology to establish baseline and targets, and set monitoring and evaluation schedule; all data sex disaggregated (Q1–Q2 2019) Conduct midterm review (Q1 2021).
Inputs Asian Development Bank: $200 million (regular ordinary capital resources) Government of Indonesia: $66.52 million
Assumptions for Partner Financing: Not applicable

COE = center of excellence, MOEC = Ministry of Education and Culture, MORTHE = Ministry of Research, Technology and Higher Education, Q = quarter, RPJMN = National Medium-Term Development Plan, SMK = senior vocational secondary school, TVET = technical and vocational education and training, UNIMAL = University of Malikussaleh, UNJA = University of Jambi, UNRI = University of Riau, UPI = Indonesia University of Education.

[a] Government of Indonesia, National Development Planning Agency (BAPPENAS). 2015. *National Medium-Term Development Plan (RPJMN), 2015–2019*. Jakarta.

[b] Baseline and target to be reconfirmed when the new tracer study tool is implemented in early 2019.

[c] Baseline and target to be reconfirmed after introduction of new accreditation tool at institution level in early 2019.

[d] Specific examples of gender-responsive physical design features are mentioned in the main text (para. 16). For more details, refer to the Gender Action Plan (accessible from the list of linked documents in Appendix 2), which specifies the features that will be integrated.

Source: Asian Development Bank.

B. Monitoring

103. The AKSI monitoring and evaluation reporting framework has seven components. These are (i) DMF - key performance indicators at outcome and output levels, (ii) GAP – inputs and outputs, (iii) environment safeguards supervision and monitoring as per the EMP, (iv) Financial Monitoring – progress against the financial monitoring plan; (v) Procurement Monitoring – progress against procurement plans; (vi) Physical Progress Monitoring – progress against construction and human resource development plans, and; (vii) Compliance monitoring – compliance with loan covenants.

104. MORTHE, with the support of the universities, will be responsible for monitoring the implementation and performance of the AKSI project, and for reporting and documenting the results achieved at various stages of the project. MORTHE will also be responsible for disseminating the findings to stakeholders.

105. MORTHE will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, and (d) updated implementation plan for the next 12 months; and (iii) a project completion report within 6 months of physical completion. To ensure that the project will continue to be both viable and sustainable, project accounts and the universities' annual financial report together with an independent auditor's report, should be adequately reviewed.

106. **Project performance monitoring.** A list of verifiable project performance indicators will be prepared by the PMU in accordance with ADB's project performance monitoring system (PPMS) by Q3 2019. The PPMS will be compatible with the executing agency monitoring system and will include spatial visualization interface (GIS based). The system will establish a cause-and-effect relationship between the Project and its outcome/outputs. The DMF has five indicators at the outcome level addressing access (increase in enrollment), relevance (time to first employment), efficiency (time to graduation) and two for quality (accreditation scores at the university and at program levels). At the output level, the DMF has 2 major outputs. Output 1 refers to market responsive programs delivered at UNRI, UNJA and UNIMAL. Six main indicators

monitor performance in (i) construction, (ii) staff development, (iii) new and upgraded curricula for the COE, (iv) research projects for the COE, (v) services provided by the COE at each university, and (vi) MOU's signed with external parties. Output 2 refers to improved training of TVET teachers at UPI. Six main indicators monitor performance in (i) construction, (ii) staff development, (iii) COE development in terms of new bachelor TVET teacher education programs, (iv) new in-service teacher training programs for SMK teachers, (v) participants being successfully certified as per the IQF requirements, and (vi) research and dissemination of case studies on innovations in TVET teacher preparation.

107. At the outcome level the administrative data from the universities will be used to report on enrolment increase and on time to graduation.

108. For measuring quality, the accreditation scores issued by BAN PT at two levels: (a) higher education institution, and (b) study program, are used. In 2018 BAN-PT completed a new set of accreditation instruments which focus more at performance rather than compliance with administrative requirements for higher education institutions. BAN PT will use the new instrument for university accreditation from 2018 forward. For AKSI, BAN-PT will assess the four universities using the new instrument at the beginning of implementation, early in 2019. The result would serve as the baseline against which achievements garnered in the following years will be measured. This baseline-setting assessment will be undertaken in addition to the regular 5-year accreditation cycle from BAN PT, hence the universities' official accreditation status will not change. The baseline score will be used exclusively within the project. A separateTA will be available to support introducing of this instrument for the four universities (footnote 3). At the end of the project, the universities will be assessed again, to measure achievement. In between, as per the BAN PT schedule the official accreditation will be conducted. At the study program accreditation level, AKSI will use the existing instruments.

109. The indicator for measuring relevance will be the share of students who are employed within 6 months of graduation. MORTHE has developed a standard Online Tracer Study method and instrument for reporting on time to employment. The guidelines allow universities to add additional items to the reporting instrument. AKSI universities will use a variation of the standard tracer study developed by prominent Indonesian universities that have demonstrated high success and that can provide information specific for the project. The first round of Tracer Study implementation in the four universities would be early in 2019 to set a better baseline. Subsequently, each university will conduct the annual tracer study targeting that year's batch of graduates. The proportion of graduates with paid employment 6 months after graduation will be reported using AKSI's monitoring and evaluation reporting formats.

110. **Compliance monitoring.** Loan covenants—policy, financial, economic, environmental safeguards, and others—will be monitored through the quarterly progress reports and ADB review missions.

111. **Safeguards monitoring.** The PMU, with consultant support, will monitor EMP implementation as specified in the EMP, by the universities, and the PIUs, with consultant support, will monitor implementation by the contractors. The PIUs will provide the PMU with quarterly updates on the status of EMP compliance, and the PMU will submit biannual safeguard monitoring reports to ADB for public disclosure. The PIUs will also disclose the safeguard monitoring reports locally.

112. **Gender and social dimensions monitoring.** The progress in GAP implementation will be included in the PIU and PMU quarterly and annual progress reports. The national gender consultant to be recruited by the PMU will support the gender focal points in the PIUs in reporting.

113. **Financial Monitoring.** As part of project financial monitoring, each university (i) will prepare quarterly contract awards and disbursement (CAD) projections based on the sample quarterly projections provided in Appendixes 6 and 7, and (ii) report these projections to the PMU. The PMU will collate these CAD projections and produce a consolidated CAD projections report for the project.

C. Evaluation

114. **Inception mission.** ADB will conduct an inception mission within two months after the project effectiveness. The main purposes of the inception mission are to (i) reconfirm the working relationships between ADB, MORTHE, and the universities; (ii) review the project implementation schedule as well as the contract awards and disbursement projections, (iii) finalize the detailed disbursement arrangements, and (iv) provide any additional training as required.

115. **Review missions** will be conducted every six months thereafter. The review mission will check overall project implementation, including the progress against the DMF outcome and output indicators, covenant compliance, safeguards, gender and 'green' dimensions, and utilization of both ADB and counterpart funds. The project implementation schedule will also be updated as necessary.

116. **A joint midterm review (MTR**) will be undertaken early in year 3 of implementation. Primarily, the MTR will consider whether the projects outcomes are likely to be achieved. The focus will be on overall project strategy and achievements which may require adjustments of targets and processes and reallocation of resources.

117. **Project completion review mission.** ADB, with the borrower and MORTHE, will field a project completion review mission to evaluate whether the project outcome was achieved, and to assess the performance of ADB, MORTHE and the universities. MORTHE will submit its project completion report to ADB within six months of project completion. ADB will also prepare and disclose its own project completion report.

D. Reporting

118. The PIUs will submit to the PMU periodic monitoring reports (monthly, quarterly, and annual) as required, which will include progress in performance of each university against the project outcome and output indicators in the DMF as well as physical, financial, and procurement progress. Based on these reports, the PMU will prepare quarterly reports on overall project progress as well as each university's performance. The quarterly progress report will be submitted to ADB by 20 April, 20 July, 20 October, and 20 January, every year during the project implementation.

119. The PIUs as well as the PMU will use the reporting format developed for the project. Quarterly progress reports and a more comprehensive annual report are expected. The reports will inform the ADB review missions, which will conduct twice per year. The PMU is expected to finalize a project completion report.

120. The following is a summary of the reporting requirements:

(i) **KPIs and outputs** (ADB DMF) (4 times per year: progress report. Annually: annual report)
(ii) **Gender Action Plan** reporting (4 times per year: progress report. Annually: annual report)
(iii) **IEE and environmental safeguard monitoring reports** reporting (2 times per year to be made public)
(iv) **Legal/Covenants** (4 times per year: progress report. Annually: annual report)
(v) **Financial, including Audit**. (4 times per year as per BAPPENAS Format, including contract awards and disbursement progress, budget utilization. Annually: budget, annual report, and audited financial statement to be publicly disclosed
(vi) **Procurement** (4 times per year as per BAPPENAS Format – status of contracts; Procurement plan to be updated annually and made publicly available. Annually: annual report)
(vii) **Physical** (4 times per year as per BAPPENAS Format. Annually: annual report)

E. Stakeholder Communication Strategy

121. Following ADB's Public Communications Policy (2011), ADB will disclose on its website the IEE and environmental safeguard monitoring reports, procurement information (e.g. invitations for bids, contract awards, and procurement plan updates), and the APFS. Immediately after they are made available, MORTHE will also disclose the same reports. In addition, A proposed separate TA will support developing a communications strategy for the project (footnote 3). The strategy will include a project website, outreach activities, publications, engagement with local community, and a specific communication strategy for the centers of excellence.

X. ANTICORRUPTION POLICY

122. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.[26] All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants, and other service providers. Individuals and/or entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.[27]

123. To support these efforts, relevant provisions are included in the loan agreements/regulations and the bidding documents for the project

XI. ACCOUNTABILITY MECHANISM

124. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's

[26] Anticorruption Policy: http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf
[27] ADB's Integrity Office web site: http://www.adb.org/integrity/unit.asp

operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make an effort in good faith to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.[28]

XII. RECORD OF CHANGES TO THE PROJECT ADMINISTRATION MANUAL

125. All revisions and/or updates during the course of implementation should be retained in this section to provide a chronological history of changes to implemented arrangements recorded in the PAM, including revision to contract awards and disbursement s-curves.

[28] Accountability Mechanism. http://www.adb.org/Accountability-Mechanism/default.asp.

Appendix 1: Capacity Development Program of the University of Malikussaleh

Table 1: UNIMAL Degree, Non-degree, Internship and Collaborative Research Component

No	Name	Country	University	Research of Interest
Table 5.1: Overseas Doctoral Degree Training for instructors/lecturers				
1	Muhammad Yusuf N.	Germany	University of Gottingen	Agronomy
2	Riri Ezraneti	Germany	University of Bremen	Microplastic pollution
3	Nurasih Shamadiyah	Germany	University of Gottingen	Agriculture innovation
4	Al Chaidar	Germany	University of Maarburg	Ideology of terrorism
5	Nanda Amalia	Germany	University of Maarburg	Development of the family law
6	Fury Maulina	Germany	University of Mannheim	Public Health/Social Determinants of Health
7	Nursan Junita	Germany	University of Mannheim	Neuropsychology
8	Reza Putra	Germany	University of Kiel	Corrosion and surface engineering
9	Laila M Rasyid	Germany	University of Gottingen	Community empowerment
10	Sri Mulyati	Germany	University of Maarburg	Public sector accounting
11	Munawar Khalil	Germany	University of Bremen	Climate change
12	Khaidir	Germany	University of Gottingen	Agriculture engineering
13	Andik Bintoro	Germany	University of Kiel	Renewable energy
14	Saifullah	Germany	University of Maarburg	Language
15	Elvira Sari Dewi	Germany	University of Gottingen	Plant Breeding

Table 2: Overseas Internships for instructors/lecturers

No.	Topic of Internship	Collaborated University, Country	No. of candidates	Target
1	Tropical soil structure	Gottingen University, Germany	2	Lecturer
2	Plant biotechnology	Gottingen University, Germany	2	Lecturer
4	Genetics of tropical endemic biodiversity	Queensland University, Australia	2	Lecturer
7	Digital economic and business	Auckland University, New Zealand	2	Lecturer
8	Law enforcement for environmental protection	University of Leiden, Netherland	2	Lecturer
9	Community empowerment	Queensland University, Australia	2	Lecturer
10	Public policy	Queensland University, Australia	2	Lecturer
11	Renewable energy	Delft University, Netherland	2	Lecturer
12	Water research management	Delft University, Netherland	2	Lecturer
13	Education development	Seoul University, South Korea	2	Lecturer
Total candidates			**20**	

Table 3: Overseas Short Course Training

No.	Topic of Training	Collaborated University, Country	Number of Candidates	Target
1	DNA barcoding	Tokyo University, Japan	3	Lecturer
2	Plant biotechnology	Tokyo University, Japan	3	Lecturer
3	Agricultural economic analysis	Seoul University, South Korea	3	Lecturer
4	Seed technology	Prince Songkla University, Thailand	3	Lecturer
5	Fish culture technology	Tokyo University, Japan	3	Lecturer
6	Marine data collection methodology	Tokyo University, Japan	2	Lecturer
7	Research methodology in business	Auckland University, New Zealand	4	Lecturer
8	Computational fluid dynamic in engineering	Delft University, Netherland	4	Lecturer
9	Building structure analysis	Delft University, Netherland	4	Lecturer
10	Policy making	Auckland University, New Zealand	2	Lecturer
11	Shore protection	Hamburg University, Germany	2	Lecturer
12	Teaching methodology	Queensland University, Australia	4	Lecturer
13	Renewable energy management	Queensland University, Australia	3	Lecturer
14	Community empowerment methodology	Gottingen University, Netherland	2	Lecturer
15	Environmental technology, protection and management	Oslo University, Sweden	3	Lecturer
16	Public Health methodology	Auckland University, New Zealand	3	Lecturer
17	Natural history museum curator and management	University of Leiden, Netherland	2	Lecturer
18	Statistical software technology	Gottingen University, Germany	3	Lecturer
19	Geographic Information System	University of Toronto, Canada	3	Lecturer
20	Phytopharmacology	University of Beijing, China	2	Lecturer
21	E-commerce	University of Beijing, China	2	Lecturer
Total candidates			**60**	

Table 4: Domestic Internship for Lecturers

No.	Topic of domestic internship	Collaborated University	Number of Candidates	Target
1	Tropical soil structure	Institute Pertanian Bogor	2	Lecturer
2	Plant biotechnology	Universitas Gajah Mada	3	Lecturer
3	Seed technology Production	Institute Pertanian Bogor	3	Lecturer
4	Genetics and biodiversity	Universitas Gajah Mada	3	Lecturer
5	Agriculture economic analysis	Universitas Gajah Mada	3	Lecturer
6	Digital economic and business	Universitas Brawijaya	3	Lecturer
7	Economic and business	Universitas Gajah Mada	3	Lecturer
8	Plant protection management	Universitas Gajah Mada	3	Lecturer
8	Tax Policy	Universitas Indonesia	3	Lecturer
9	Farmer empowerment	Institute Pertanian Bogor	3	Lecturer
10	Small scale agriculture policy	Universitas Brawijaya	3	Lecturer
11	Renewable energy	Instititute Teknologi Bandung	4	Lecturer
12	Entrepreneurship	Institut Pertanian Bogor	3	Lecturer
13	Environmental protection methodology	Institut Teknologi Bandung	3	Lecturer
14	Building technology	Institut Teknologi Bandung	5	Lecturer
15	Law drafting methodology	Universitas Indonesia	3	Lecturer
16	Public health management	Universitas Indonesia	2	Lecturer
17	Geographic information system	Badan Informasi geospasial	3	Lecturer
18	Education development	Universitas Pendidikan Indonesia	5	Lecturer
Total candidates			**60**	

Table 5: Research Overseas Midterm Research Training and Collaboration

No.	Topic of Research Overseas Midterm Research Training and Collaboration	Collaborated University, Country	Number of Candidates	Target
1	Soil structure and river stream	Gottingen University, Germany	1	Lecturer
2	Agriculture Industrial engineering	Gottingen University, Germany	2	Lecturer
3	New methods in seed technology	Prince Songkla University, Thailand	2	Lecturer
4	Tropical endemic biodiversity	Queensland University, Australia	2	Lecturer
5	Biotechnology in agriculture	Gottingen University, Germany	2	Lecturer
6	Marketing strategy for small medium enterprise	Queensland University, Australia	3	Lecturer
8	Entrepreneurship	Auckland University, New Zealand	2	Lecturer
9	Community empowerment and policy	Queensland University, Australia	2	Lecturer
10	Gender policy	Queensland University, Australia	1	Lecturer
11	Renewable energy	Delft University, Netherland	3	Lecturer
12	Public Health policy and management	Auckland University, New Zealand	3	Lecturer
13	Computer security	Delft University, Netherland	2	Lecturer
Total candidates			**25**	

Table 6: Training to Improve University Management: Overseas Internships

No.	Topic of Internship	Collaborated University, Country	Number of Candidates	Target
1	Financial auditing methodology	National University of Singapore, Singapore	5	Administration Officer
2	Building equipment, maintenance and management	University of Strasbourg, France	5	Administration Officer
3	University strategy and planning	National University of Singapore, Singapore	5	Administration Officer
4	University internal auditor	Copenhagen University, Denmark	3	Administration Officer
5	International networking	University of Bremen, Germany	2	Administration Officer
6	Library management	University of Leiden, Netherland	3	Administration Officer
7	Community development and responsibility	Copenhagen University, Denmark	3	Administration Officer
Total candidates			**25**	

Table 7 Training to Improve University Management: Overseas Short Course

No	Topic of Short Training	Collaborated University, Country	Number of Candidates	Target
1	Financial planning	University of Bordeaux, France	5	Administration Officer
2	Building allocation and management	University of Tokyo, Japan	3	Administration Officer
3	University strategic planning	National University of Singapore, Singapore	4	Administration Officer
4	University internal audit	University of Toronto, Canada	4	Administration Officer
5	Project management	Oslo University, Sweden	4	Administration Officer
6	Academic information technology	National University of Singapore, Singapore	4	Administration Officer
7	e-Library	University of Toronto, Canada	3	Administration Officer
8	Environmental protection and management	Oslo University, Sweden	2	Administration Officer
9	E-learning	Oslo University, Sweden	2	Administration Officer
10	Internet security technology	Delft University, Netherland	2	Administration Officer
11	Robotic technology	University of Tokyo, Japan	3	
Total candidates			**36**	

Table 8: Training to Improve University Management: Domestic Training

No.	Topic of Short Training	Collaborated University	Number of Candidates	Target
1	Financial planning	Universitas Indonesia	5	Administration Officer
2	Financial planning	Institut Teknologi Bandung	4	Administration Officer
3	Building allocation and management	Institut Teknologi Bandung	3	Administration Officer
4	Building allocation and management	Universitas Gajah Mada	3	Administration Officer
5	University Planning	Universitas Indonesia	4	Administration Officer
6	University Planning	Universitas Gajah Mada	3	Administration Officer
7	University Internal Audit	Universitas Indonesia	4	Administration Officer
8	University internal auditor	Institut Teknologi Bandung	3	Administration Officer
9	e-Library	Institut Teknologi Bandung	3	Librarian
10	International networking	Universitas Gajah Mada	3	Administration Officer

No.	Topic of Short Training	Collaborated University	Number of Candidates	Target
11	Academic information technology	Institut Teknologi Bandung	5	Administration Officer
12	Academic information technology	Universitas Indonesia	4	Administration Officer
13	Environmental protection and management	Universitas Gajah Mada	3	Administration Officer
14	E-Learning	Institut Teknologi Bandung	3	Administration Officer
Total candidates			**50**	

Table 9: Training for Laboratory Assistants: Domestic Short Course Training

No.	Topic of Short Course	Collaborated University	Number of Candidates	Target
1	Histological procedure	Universitas Gajah Mada	2	Laboratory Assistant
2	Genetics equipment procedure	Universitas Gajah Mada	3	Laboratory Assistant
3	Spectrophotometry procedure	Institut Pertanian Bogor	2	Laboratory Assistant
4	Soil structure equipment procedures	Universitas Gajah Mada	2	Laboratory Assistant
5	Imaging technology and procedure (electron microscope)	Institut Teknologi Bandung	3	Laboratory Assistant
6	Stock exchange	Universitas Indonesia	3	Laboratory Assistant
7	Building structure computational technology	Institut Teknologi Bandung	3	Laboratory Assistant
8	Renewable energy equipment procedure	Institut Teknologi Bandung	4	Laboratory Assistant
9	Data center maintenance	Institut Teknologi Bandung	3	Data center technician
10	E-Learning	Institut Teknologi Bandung	2	Laboratory Assistant
11	Robotic technology	Institut Teknologi Bandung	3	Laboratory Assistant
Total candidates			**30**	

Table 10: Training for Laboratory Assistants: Domestic Internships

No.	Topic of Interenship	Collaborated University	Number of Candidates	Target
1	Agriculture laboratory management	Universitas Gajah Mada	2	Laboratory Assistant
2	Social science laboratory management	Universitas Indonesia	6	Laboratory Assistant
3	Engineering laboratory management	Institut Teknologi Bandung	7	Laboratory Assistant
5	Green house managing	Institut Pertanian Bogor	2	Laboratory Assistant
6	Plant experimental station management	Universitas Gajah Mada	2	Laboratory Assistant
8	e-library management	Institut Teknologi Bandung	3	Librarian
9	Data center management	Institut Teknologi Bandung	3	Data center technician
Total candidates			**25**	

Appendix 2: Capacity Development Program of the University of Jambi

List of Degree and Non-degree Programs

No.	Degree Programs	No. of Participants	Location
1	Science Education	1	Australia
2	Natural Science and Technology	1	Germany
3	Forest Management	1	Germany
4	Peat Management	1	Germany
5	Green House Gas Management	1	Germany
6	Water Management and Hydrology	1	Germany
7	Agroforestry	1	Germany
Non-Degree Programs			
1	Science Laboratory Technician	6	IPB
2	Engineering Laboratory Technicians	14	ITB and UPI
3.	Herbarium Curator	1	LIPI
4.	Paleontology Laboratory Technician	1	LIPI
5.	Archeology Laboratory Technician	1	UI
6	University Governance:	12	UNDIP
7	Student Affairs	3	UGM
8.	International Collaborative Service	2	UI/ITB

Appendix 3: Capacity Development Program of the University of Riau

Topics for UNRI Non-Degree Training

No	Topic	Participants	Location
1	Academic and language proficiency improvement for overseas PhD preparation	30	Education University of the Phillipipines
2	Fish specimen preservation	2	Leiden Natural History, Holland
3	Aquatic non-fish specimen preservation	2	Leiden Natural History, Holland
4	Aquatic plant preservation	2	British Naturan History Museum, UK
5	Aquatic biotechnology management	2	Melbourne Univ., Australia
6	Aquatic engineering laboratory management	2	PARI Tokyo, Japan
7	Marine eco-tourism management	2	Gottingen Univ., Germany
8	Marine biology research laboratory management	2	Bremen Univ., Germany
9	Marine physics research laboratory management	2	Rostock Univ., Germany
10	Marine chemistry research laboratory management	2	Hamburg Univ., Germany
11	Marine microbiology laboratory management	2	Univ. of Helsinki, Finland
12	Disaster management and resielence	3	Univ. of Helsinki, Finland
13	Processing in food industry	3	UTM Johor Bahru, Malaysia
14	Marketing and development in food industry	3	Queensland Univ., Australia
15	Nursing laboratory research management	2	Wollongong Univ,. Australia
16	Teaching hospital management	2	Wollongong Univ,. Australia
17	Aquatic and Marine Environment Conservation Management	3	James Cook Univ., Australia
18	Student Centre Management	3	Flinders Univ., Australia
19	Hospitality Management	2	Bournemouth University, UK
20	University training centre management	2	University of Kassel, Germany
21	Coral reef monitoring and management	2	James Cook University, Australia
22	Geographical Information System	3	Rakuno Univ., Japan
23	Endemic Fauna Species	2	National Science Museum, Thailand
24	Endemic Flora Species	2	Botanical Garden, Singapore
25	Benchmarking in maintaining extention program	4	UTM, Malaysia
26	Benchmarking in maintaining extention program	3	Murdoch Univ., Australia
27	Benchmarking in gaining international accreditation	4	Chulalongkorn Univ., Thailand
28	Benchmarking in maintaining integrated laboratory	2	Univ. of Bremen and Hamburg, Germany
29	Structural engineering of maritime construction	2	UNSW, Australia
30	Geothechnique of maritime construction and management	2	Univ. of Southampton
29	Benchmarking in managing student centre	2	Univ. of Southampton
30	Benchmarking in conducting postgraduate programs in International Level	3	Univ. of Hamburg

Appendix 4: Capacity Development Program of UPI

Topics for UPI Non-Degree Training

No	Activity	Time Length	Location	Participants
	Training for Managers			
1	Leadership, Strategic Planning and Implementation	1 month	LN (Australia)	6
2	Laboratory Management	1 month	LN (Japan)	6
	Training for Instructor/Lecturer			
1	Learning Management System by Computer	1 month	LN (Australia)	2
2	Technical and Competence of Virtual Intellegent and Robotics Lab.	1 month	LN (Korea)	2
3	Technical and Competence of Industrial Instrumentation.	1 month	LN (Germany)	2
4	Technical and Competence of Automotive Lab.	1 month	LN (Japan)	2
5	Technical and Competence of Food Technology Lab.	1 month	LN (Korea)	2
6	Technical and Competence of Renewable Energy Lab.	1 month	LN (Japan)	2
7	Technical and Competence of System and Information Technology Lab.	1 month	LN (Japan)	2
8	Technical and Competence of Nano Technology Lab.	1 month	LN (Japan)	2
9	Technical and Competence of Agricultural Engineering Lab.	1 month	LN (Australia)	2
10	Laboratory Learning Model	1 month	LN (Germany)	6
C	**Training for Operational Level (Technician/Operator)**			
1	Educational Management Of Facilities	1 month	DN	2
2	Laboratory Procedure Operational Standard	1 month	DN	3
3	Technical and Competence of Virtual Intelligent and Robotics Lab.	1 month	LN (Korea)	2
4	Technical and Competence of Industrial Instrumentation.	1 month	LN (Germany)	2
5	Technical and Competence of Automotive Lab.	1 month	LN (Japan)	2
6	Technical and Competence of Food Technology Lab.	1 month	LN (Korea)	2
7	Technical and Competence of Agricultural Engineering Lab.	1 month	LN (Australia)	2
8	Technical and Competence of Renewable Energy Lab.	1 month	LN (Japan)	2
9	Technical and Competence of System and Information Technology Lab.	1 month	LN (Japan)	2
10	Technical and Competence of Nano-Technology Lab.	1 month	LN (Japan)	2

Appendix 5: Summary of Annual Project Cost by Category and by University, including Project Management Unit

UNIVERSITAS MALIKUSSALEH

No	Cost Category	2019			2020			2021			2022			2023			2024		
		ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP
1	Civil Works	193,869.0	-	-	5,015,838.2	-	-	10,050,517.9	-	-	9,402,394.8	-	-	4,041,897.7	-	-	-	-	-
1.1	Building Construction	193,869.0	-	-	5,015,838.2	-	-	9,289,129.3	-	-	8,532,236.4	-	-	3,498,048.7	-	-	-	-	-
1.2	Supporting Infrastructure Construction	-	-	-	-	-	-	761,388.6	-	-	870,158.4	-	-	543,849.0	-	-	-	-	-
2	Equipment & Furniture	-	-	-	-	-	-	1,682,855.6	123,428.0	-	3,305,872.9	123,428.0	-	2,291,168.9	-	-	-	-	-
2.1	Equipment	-	-	-	-	-	-	1,682,855.6	-	-	2,804,759.3	-	-	1,121,903.7	-	-	-	-	-
2.2	Furniture	-	-	-	-	-	-	-	123,428.0	-	501,113.6	123,428.0	-	1,169,265.2	-	-	-	-	-
3	ICT (Software, Licenses, Services)	-	-	-	-	-	-	597,255.1	-	-	1,194,510.3	-	-	199,085.0	-	-	-	-	-
4	Publication	257,197.3	12,385.7	13,840.5	701,762.3	131,111.1	24,207.5	792,442.2	187,887.9	26,946.9	789,438.3	187,887.9	26,946.9	453,576.8	131,111.1	22,739.4	-	-	-
4.1	Degree And Non-Degree	242,177.7	-	-	659,707.3	111,484.8	-	747,383.3	167,227.2	-	747,383.3	167,227.2	-	417,529.7	111,484.8	-	-	-	-
4.2	Seminar, Converence and Publication	15,019.6	12,385.7	13,840.5	42,055.0	19,626.3	24,207.5	45,058.9	20,660.7	26,946.9	42,055.0	20,660.7	26,946.9	36,047.1	19,626.3	22,739.4	-	-	-
5	Consulting Services	306,511.1	-	-	408,681.4	721,311.7	-	510,851.8	-	-	427,108.9	-	-	222,768.2	-	-	204,340.7	-	-
6	Study & Workshops	-	5,005.0	30,441.2	-	150,784.1	63,218.0	-	154,087.4	78,438.6	-	154,087.4	78,438.6	-	154,087.4	63,218.0	-	-	-
6.1	Study	-	-	30,441.2	-	135,802.5	60,882.3	-	135,802.5	76,102.9	-	135,802.5	76,102.9	-	135,802.5	60,882.3	-	-	-
6.2	Workshop	-	5,005.0	-	-	14,981.6	2,335.7	-	18,285.0	2,335.7	-	18,285.0	2,335.7	-	18,285.0	2,335.7	-	-	-
7	administration, staff travel, etc.)	37,128.0	136,762.4	-	37,128.0	139,690.3	-	37,128.0	139,690.3	-	37,128.0	139,690.3	-	37,128.0	139,690.3	-	18,564.0	66,917.2	-
8	VAT	-	71,794.0	-	-	556,275.7	-	-	1,230,863.1	-	-	1,362,790.3	-	-	652,874.5	-	-	20,264.1	-
	Base Cost	794,705.4	225,947.1	44,281.7	6,163,410.0	1,699,173.0	87,425.6	13,671,050.6	1,835,956.7	105,385.6	15,156,453.3	1,967,884.0	105,385.6	7,245,624.7	1,077,763.3	85,957.4	222,904.7	87,181.3	-
	Contingencys	81,899.1	24,854.2	4,871.0	628,716.8	186,909.0	9,616.8	1,357,787.3	201,955.2	11,592.4	1,483,216.5	216,467.2	11,592.4	725,973.1	118,554.0	9,455.3	24,519.5	9,589.9	-
	TOTAL	876,604.5	250,801.2	49,152.7	6,792,126.8	1,886,082.0	97,042.4	15,028,838.0	2,037,911.9	116,978.0	16,639,669.8	2,184,351.2	116,978.0	7,971,597.8	1,196,317.3	95,412.7	247,424.2	96,771.2	-

Jambi University

No	Cost Category	2019			2020			2021			2022			2023			2024		
		ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP
1	**Civil Works**	**1,364,868.2**	**-**	**-**	**7,669,717.8**	**-**	**-**	**19,345,346.2**	**-**	**-**	**6,797,427.8**	**638,213.4**	**694,689.6**	**595,089.5**	**797,766.8**	**23,767.4**	**-**	**-**	**-**
1.1	Earth Work	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2	Infrastructure Development	-	-	-	2,210,245.1	-	-	116,328.7	-	-	595,089.5	638,213.4	469,464.4	595,089.5	797,766.8	23,767.4	-	-	-
1.3	Building And Civil Works	1,364,868.2	-	-	5,459,472.7	-	-	19,229,017.5	-	-	6,202,338.3	-	-	-	-	-	-	-	-
1.4	Landscape	-	-	-	-	-	-	-	-	-	-	-	225,225.2	-	-	-	-	-	-
2	**Equipment & Furniture**	**-**	**-**	**-**	**-**	**-**	**-**	**413,514.8**	**-**	**-**	**4,219,867.5**	**-**	**-**	**2,962,379.2**	**-**	**-**	**-**	**-**	**-**
2.1	Equipment	-	-	-	-	-	-	202,782.0	-	-	2,878,167.9	-	-	2,099,752.3	-	-	-	-	-
2.2	Furniture	-	-	-	-	-	-	210,732.9	-	-	1,341,699.7	-	-	862,626.9	-	-	-	-	-
3	**ICT (Software, Licenses, Services)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
4	**Training, International Seminar and Pub**	**-**	**-**	**-**	**-**	**181,756.8**	**-**	**-**	**363,513.5**	**-**	**-**	**363,513.5**	**-**	**-**	**302,927.9**	**-**	**-**	**-**	**-**
4.1	Degree And Non-Degree	-	-	-	-	181,756.8	-	-	363,513.5	-	-	363,513.5	-	-	302,927.9	-	-	-	-
4.2	Seminar, Converence and Publication	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	**Consulting Services**	**513,513.5**	**-**	**-**	**1,261,261.3**	**-**	**-**	**495,495.5**	**-**	**-**	**396,396.4**	**-**	**-**	**198,198.2**	**-**	**-**	**198,198.2**	**-**	**-**
6	**Study & Workshops**	**-**	**-**	**-**	**-**	**-**	**16,683.4**	**-**	**-**	**26,693.4**	**-**	**-**	**54,721.4**	**-**	**-**	**10,010.0**	**-**	**-**	**-**
6.1	Study	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.2	Workshop	-	-	-	-	-	16,683.4	-	-	26,693.4	-	-	54,721.4	-	-	10,010.0	-	-	-
7	**Operational cost (counterpart staff, adm**	**18,928.0**	**-**	**18,929.4**	**18,928.0**	**51,373.9**	**25,320.3**	**18,928.0**	**44,972.9**	**25,320.3**	**18,928.0**	**44,498.7**	**23,459.5**	**18,928.0**	**47,480.6**	**23,459.5**	**9,464.0**	**17,169.5**	**8,008.0**
	VAT	**-**	**171,630.9**	**-**	**-**	**808,841.3**	**-**	**-**	**1,830,537.4**	**-**	**-**	**1,029,193.8**	**-**	**-**	**338,474.4**	**-**	**-**	**18,878.4**	**-**
	Base Cost	**1,897,309.7**	**171,630.9**	**18,929.4**	**8,949,907.1**	**1,041,972.0**	**42,003.7**	**20,273,284.6**	**2,239,023.8**	**52,013.7**	**11,432,619.8**	**2,075,419.4**	**772,870.5**	**3,774,594.9**	**1,486,649.6**	**57,236.9**	**207,662.2**	**36,047.9**	**8,008.0**
	Contingencys	**198,303.6**	**18,879.4**	**2,082.2**	**926,045.5**	**114,616.9**	**4,620.4**	**2,077,577.6**	**246,292.6**	**5,721.5**	**1,133,836.6**	**228,296.1**	**85,015.8**	**358,177.0**	**163,531.5**	**6,296.1**	**22,842.8**	**3,965.3**	**880.9**
	TOTAL	**2,095,613.3**	**190,510.3**	**21,011.7**	**9,875,952.5**	**1,156,588.9**	**46,624.1**	**22,350,862.1**	**2,485,316.4**	**57,735.2**	**12,566,456.4**	**2,303,715.5**	**857,886.2**	**4,132,771.9**	**1,650,181.1**	**63,533.0**	**230,505.1**	**40,013.2**	**8,888.9**

UNIVERSITAS RIAU

No	Cost Category	2019			2020			2021			2022			2023			2024		
		ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP
1	**Civil Works**	**-**	**-**	**-**	**14,170,693.6**	**-**	**-**	**15,802,180.8**	**-**	**-**	**-**	**1,081,081.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1.1	Earth Work	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2	Infrastructure Development	-	-	-	-	-	-	-	-	-	-	1,081,081.1	-	-	-	-	-	-	-
1.3	Building And Civil Works	-	-	-	14,170,693.6	-	-	15,802,180.8	-	-	-	-	-	-	-	-	-	-	-
1.4	Landscape	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	**Equipment & Furniture**	**-**	**-**	**-**	**-**	**-**	**-**	**10,008,522.1**	**-**	**-**	**2,399,207.8**	**-**	**172,212.6**	**-**	**-**	**-**	**-**	**-**	**-**
2.1	Equipment	-	-	-	-	-	-	9,110,544.0	-	-	1,583,783.6	-	-	-	-	-	-	-	-
2.2	Furniture	-	-	-	-	-	-	897,978.0	-	-	815,424.2	-	172,212.6	-	-	-	-	-	-
3	ICT (Software, Licenses, Services)	-	-	-	-	-	-	-	-	-	-	578,925.2	-	-	-	337,358.1	-	-	-
4	**Training, International Seminar and Publication**	**-**	**-**	**-**	**-**	**-**	**128,777.9**	**-**	**-**	**128,777.9**	**-**	**-**	**128,777.9**	**-**	**-**	**128,777.9**	**-**	**-**	**-**
4.1	Degree And Non-Degree	-	-	-	-	-	80,563.1	-	-	80,563.1	-	-	80,563.1	-	-	80,563.1	-	-	-
4.2	Seminar, Converence and Publication	-	-	-	-	-	48,214.9	-	-	48,214.9	-	-	48,214.9	-	-	48,214.9	-	-	-
5	**Consulting Services**	297,297.3	465,744.1	-	396,396.4	519,365.8	-	495,495.5	-	-	396,396.4	-	-	198,198.2	-	-	198,198.2	-	-
6	**Study & Workshops**	**-**	**-**	**-**	**-**	**-**	**107,237.0**	**-**	**-**	**107,237.0**	**-**	**-**	**107,237.0**	**-**	**-**	**107,237.0**	**-**	**-**	**-**
6.1	Study	-	-	-	-	-	71,117.6	-	-	71,117.6	-	-	71,117.6	-	-	71,117.6	-	-	-
6.2	Workshop	-	-	-	-	-	36,119.4	-	-	36,119.4	-	-	36,119.4	-	-	36,119.4	-	-	-
7	**Operational cost (counterpart staff, administration, staff travel, etc.)**	29,957.2	-	132,672.1	29,957.2	-	132,672.1	29,957.2	-	132,672.1	31,704.4	-	132,672.1	31,795.4	-	132,672.1	15,943.2	-	66,336.1
	VAT	**-**	**29,750.4**	**-**	**-**	**1,318,160.5**	**-**	**-**	**2,365,680.1**	**-**	**-**	**253,785.3**	**-**	**-**	**20,908.5**	**-**	**-**	**19,467.4**	**-**
	Base Cost	**327,254.5**	**495,494.6**	**132,672.1**	**14,597,047.3**	**1,837,526.3**	**368,687.0**	**26,336,155.6**	**2,365,680.1**	**368,687.0**	**2,827,308.6**	**1,913,791.6**	**540,899.6**	**229,993.6**	**20,908.5**	**706,045.1**	**214,141.4**	**19,467.4**	**66,336.1**
	Contingencies	**35,998.0**	**54,504.4**	**14,593.9**	**1,497,692.6**	**202,127.9**	**40,555.6**	**2,548,798.7**	**260,224.8**	**40,555.6**	**271,409.4**	**210,517.1**	**59,499.0**	**25,299.3**	**2,299.9**	**77,665.0**	**23,555.6**	**2,141.4**	**7,297.0**
	TOTAL	**363,252.5**	**549,999.0**	**147,266.1**	**16,094,739.8**	**2,039,654.2**	**409,242.6**	**28,884,954.3**	**2,625,904.9**	**409,242.6**	**3,098,718.0**	**2,124,308.6**	**600,398.6**	**255,292.9**	**23,208.4**	**783,710.1**	**237,697.0**	**21,608.8**	**73,633.0**

UNIVERSITAS PENDIDIKAN INDONESIA

No	Cost Category	2019			2020			2021			2022			2023			2024		
		ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP
1	**Civil Works**	**1,742,651.4**	**-**	**-**	**12,008,334.9**	**-**	**-**	**19,628,337.4**	**-**	**-**	**839,621.6**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1.1	Earth Work	7,050.0	-	-	54,693.7	-	-	68,730.3	-	-	2,855.8	-	-	-	-	-	-	-	-
1.2	Infrastructure Development	120,553.7	-	-	935,256.3	-	-	1,175,281.9	-	-	48,834.0	-	-	-	-	-	-	-	-
1.3	Building And Civil Works	1,582,336.1	-	-	10,764,608.0	-	-	18,065,418.5	-	-	774,680.9	-	-	-	-	-	-	-	-
1.4	Landscape	32,711.6	-	-	253,776.9	-	-	318,906.6	-	-	13,250.8	-	-	-	-	-	-	-	-
2	**Equipment & Furniture**	**-**	**-**	**-**	**1,709,636.2**	**480,606.0**	**-**	**5,128,908.5**	**1,205,254.8**	**-**	**1,709,636.2**	**698,241.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2.1	Equipment	-	-	-	1,709,636.2	-	-	5,128,908.5	252,918.3	-	1,709,636.2	379,377.5	-	-	-	-	-	-	-
2.2	Furniture	-	-	-	-	480,606.0	-	-	952,336.5	-	-	318,863.7	-	-	-	-	-	-	-
3	ICT (Software, Licenses, Services)	-	-	-	-	-	-	-	-	-	1,869,171.1	-	-	-	-	-	-	-	-
4	**Training, International Seminar and Publication**	**-**	**-**	**-**	**-**	**77,414.7**	**-**	**-**	**283,112.4**	**-**	**-**	**295,515.5**	**-**	**-**	**50,650.7**	**-**	**-**	**-**	**-**
4.1	Degree And Non-Degree	-	-	-	-	77,414.7	-	-	283,112.4	-	-	295,515.5	-	-	50,650.7	-	-	-	-
4.2	Seminar, Converence and Publication	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	Consulting Services	216,216.2	-	418,952.8	288,288.3	11,011.0	86,679.9	360,360.4	14,681.3	72,233.2	288,288.3	11,011.0	-	144,144.1	-	-	144,144.1	-	-
6	**Study & Workshops**	**-**	**49,966.6**	**-**	**-**	**163,245.2**	**-**	**-**	**235,661.0**	**-**	**-**	**27,859.8**	**-**	**-**	**31,488.4**	**-**	**-**	**20,143.7**	**-**
6.1	Study	-	26,026.0	-	-	40,180.4	-	-	24,089.3	-	-	27,859.8	-	-	31,488.4	-	-	20,143.7	-
6.2	Workshop	-	23,940.6	-	-	123,064.7	-	-	211,571.6	-	-	-	-	-	-	-	-	-	-
7	**Operational cost (counterpart staff, administration, staff travel, etc.)**	16,216.2	-	159,416.4	16,216.2	-	40,716.9	16,216.2	-	40,654.4	16,216.2	-	40,654.4	16,216.2	-	40,654.4	9,009.0	-	14,003.5
	VAT	**-**	**178,465.5**	**-**	**-**	**1,263,775.7**	**-**	**-**	**2,262,141.7**	**-**	**-**	**421,506.0**	**-**	**-**	**14,578.2**	**-**	**-**	**13,923.0**	**-**
	Base Cost	**1,975,083.8**	**228,432.1**	**578,369.2**	**14,022,475.6**	**1,996,052.6**	**127,396.8**	**25,133,822.4**	**4,000,851.2**	**112,887.6**	**4,722,933.4**	**1,454,133.4**	**40,654.4**	**160,360.4**	**96,717.3**	**40,654.4**	**153,153.2**	**34,066.7**	**14,003.5**
	Contingencies	**203,980.0**	**25,127.5**	**63,620.6**	**1,408,226.3**	**219,565.8**	**14,013.6**	**2,486,927.1**	**440,093.6**	**12,417.6**	**423,654.5**	**159,954.7**	**4,472.0**	**17,639.6**	**10,638.9**	**4,472.0**	**16,846.8**	**3,747.3**	**1,540.4**
	TOTAL	**2,179,063.8**	**253,559.7**	**641,989.8**	**15,430,701.8**	**2,215,618.4**	**141,410.5**	**27,620,749.6**	**4,440,944.8**	**125,305.2**	**5,146,587.8**	**1,614,088.1**	**45,126.3**	**178,000.0**	**107,356.2**	**45,126.3**	**170,000.0**	**37,814.1**	**15,543.9**

PMU

No	Cost Category	2019			2020			2021			2022			2023			2024		
		ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP	ADB	APBN	PNBP
1	**Civil Works**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2	**Equipment & Furniture**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3	**IT (Software, Licenses, Services)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
4	**Training, International Seminar and Publication**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
5	**Consulting Services**	**219,164.9**	**-**	**-**	**220,147.7**	**-**	**-**	**220,147.7**	**-**	**-**	**220,147.7**	**-**	**-**	**165,110.8**	**-**	**-**	**110,073.9**	**-**	**-**
6	**Study & Workshops**	**-**	**66,733.4**	**-**	**-**	**66,733.4**	**-**	**-**	**66,733.4**	**-**	**-**	**66,733.4**	**-**	**-**	**66,733.4**	**-**	**-**	**66,733.4**	**-**
7	**Operational cost (counterpart staff, administration, staff travel, etc.)**	**37,537.5**	**574,008.0**	**-**	**37,537.5**	**574,008.0**	**-**	**37,537.5**	**574,008.0**	**-**	**37,537.5**	**574,008.0**	**-**	**37,537.5**	**574,008.0**	**-**	**37,537.5**	**574,008.0**	**-**
	VAT	**-**	**25,670.2**	**-**	**-**	**25,768.5**	**-**	**-**	**25,768.5**	**-**	**-**	**25,768.5**	**-**	**-**	**20,264.8**	**-**	**-**	**14,761.1**	**-**
	Base Cost	**256,702.4**	**666,411.7**	**-**	**257,685.3**	**666,510.0**	**-**	**257,685.3**	**666,510.0**	**-**	**257,685.3**	**666,510.0**	**-**	**202,648.3**	**661,006.3**	**-**	**147,611.4**	**655,502.6**	**-**
	Contingencys	**28,237.3**	**73,305.3**	**-**	**28,345.4**	**73,316.1**	**-**	**28,345.4**	**73,316.1**	**-**	**28,345.4**	**73,316.1**	**-**	**22,291.3**	**72,710.7**	**-**	**16,237.3**	**72,105.3**	**-**
	TOTAL	**284,939.7**	**739,717.0**	**-**	**286,030.7**	**739,826.1**	**-**	**286,030.7**	**739,826.1**	**-**	**286,030.7**	**739,826.1**	**-**	**224,939.7**	**733,717.0**	**-**	**163,848.7**	**727,607.9**	**-**

Appendix 6: Sample Quarterly Projection of Contract Awards

	Code of Package	Name of Package	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
			2019				2020				2021				2022				2023				2024			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	UNIMAL																									
	Civil Work																									
1	CWM-01	Construction of 6 (six) School Buildings consist of: 4 School Buildings at Bukit Indah Kampus (Engineering, Social Science and Politics, Law, Economics) and 3 School Buildings at Reuleut Campus (Agriculture, Teaching Education, Medicine)					10,058,945																			
2	CWM-02	Completing unfinished building and changing Admin Building to Central Library and Student Activity Centrum							2,590,909																	
3	CWM-03	Construction of lecture building and laboratory at Bukit Indah and Reuleut Campus, Admin office and general building									14,820,000															
4	CWM-04	Supporting Infrastructure and facilities in Bukit Indah and Reuleut Campus													2,252,536											
	Equipment																									
5	EQM-01	Lab equipment for agriculture and medical												2,181,818												
6	EQM-02	Lab equipment for post-graduate, FPEB FPSD												3,390,170												
	Furniture																									
7	FM-01	Furniture Batch 1								600,000																
8	FM-02	Furniture Batch 2											197,434													
9	FM-03	Furniture Batch 3													900,000											
	IT Product																									
10	ITM-01	Office equipment, computer, software & related services													2,160,073											
	Consulting Services																									
11	CSM-01	Project Management and Construction Supervision Consultant					2,200,000																			
12	CSM-02	Equipment Design Consultant												40,909												
13	CSM-03	Academic & Training Program Consultant							68,182																	
	UNJA																									
	Civil Work																									
	CWJ-01	Construction of 3 (three) Buildings consist of: University and Faculty Administration Centre, Post Graduate Centre and Faculty of Medical and Health Sciences					14,500,215																			
	CWJ-02	Construction of 6 (six) Buildings consist of: Integrated classroom A Mendalo, Integrated classroom B Mendalo, Integrated Classroom C Mendalo, Engineering Science Laboratory, Integrated Social Science Laboratory, Student Activity Centre										19,765,455														
	CWJ-04	Water Treatment System at Mendalo															1,264,434									
	CWJ-05	Solar Energy System at Mendalo					2,471,727																			
	Equipment																									
	EQJ-01	Engineering Laboratory & Social Science										3,304,456														
	EQJ-02	Student sport centre																361,206								
	EQJ-03	Office Equipment 1 (Medical & health, graduate office)																507,062								
	EQJ-04	Office Equipment 2 (Integrated class room A,B, C and student activity centre																1,584,824								
	Furniture																									
	FJ-01	Office Furniture for Building 1 (University and Faculty Admin Center, Post Graduate Center, and Faculty of Medical and Health Sciences)												539,085												
	FJ-02	Office Furniture for Building 2 (Integrated Classroom A , B and C in Mendalao, Science (Engineering) Laboratory, Integrity Social Science Laboratory, Student Activity Center),																				2,206,722				
	Consulting Services																									
	CSJ-01	Project Management and Construction Supervision Consultant					2,200,000																			
	CSJ-02	Detailed Engineering Design for 6 buildings					1,200,000																			

UNRI																													
Civil Works																													
CWR-01	Construction of Integrated Classroom, Integrated Laboratories, Health Studies Complex							15,068,675																					
CWR-02	Construction of Boat House and Marine Center, Postgraduate Center, IT Center, University Main Library										9,507,289																		
CWR-03	Construction of Student Center, University Training Center, Food Science Center										7,296,259																		
Equipment																													
EQR-01	Equipment for Research and teaching lab, microteaching laboratories.										9,293,502																		
EQR-02	Equipment for Research boat, truck and boat house														344,214														
EQR-03	Equipment for laboratories (food science)														516,319														
EQR-04	Equipment for multimedia & extension and improvement of ICT Infrastructure														755,056														
Furniture																													
FR-01	Office Furniture 1 (integrated class room, integrated laboratories, health study complex)										937,117																		
FR-02	Office Furniture 2 (Boat house & marine centre, post graduate centre, IT Centre, University main library) student centre, university training centre, food science centre)														850,965														
Consulting Services																													
CSR-01	PMSC (Project Management and Construction Supervision Consultant)				2,200,000																								
UPI																													
Civil Works																													
CWP-01	Construction of Buildings for PPG, FPTK, dan COE Vocational					18,288,148																							
CWP-02	Construction of School Buildings for FPEB, FPSD, and Post Graduate									16,859,864																			
Equipment																													
EQP-01	Laboratory Equipment 1 for: FPTK, COE, PPG, School of Post Graduate, FPEB & FPSD						9,042,142																						
IT Product																													
ITP-01	IT Equipment for All buildings						2,028,051																						
Consulting Services																													
CSP-01	PMSC Project Management and Supervision Consultant)					1,600,000																							
PMU																													
Consulting Services																													
CS PMU-01	PMC (Project Management Consultant)		1,221,820																										
CS PMU-02	Individual Consultant-Procurement Specialist		30,000																										
CS PMU-03	Individual Consultant-Civil Engineer		30,000																										
Training				260,000.00				710,000					790,000				790,000					450,000							
Operational Cost		35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	45,000	45,000			
Contingency		407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928	407,928			
	TOTAL PER QUARTER	**442,928**	**1,724,748**	**702,928**	**2,642,928**	**52,961,963**	**11,513,121**	**18,880,694**	**1,042,928**	**32,122,792**	**50,547,006**	**1,430,362**	**6,594,910**	**5,755,537**	**2,909,482**	**2,497,362**	**2,896,020**	**442,928**	**442,928**	**892,928**	**2,649,650**	**452,928**	**452,928**	**-**	**-**					
	TOTAL PER YEAR	**5,513,532**				**84,398,706**				**90,695,070**				**14,058,401**				**4,428,434**				**905,856**							

This projection only refers to the items mentioned in the procurement plan.

Appendix 7: Sample Quarterly Projection of Disbursement of ADB Loan

Projection Of Quarterly Disbursement Of ADB Loan Proceeds Per Institution
$ Million

No	UNIVERCITY & PMU	ADB Budget Allocation ($ Million)	2019				2020				2021				2022				2023				2024			
			Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4
1	UNIMAL	43.16	0.08	0.12	0.24	0.36	0.61	0.92	1.84	2.76	1.36	2.05	4.09	6.14	1.51	2.27	4.54	6.81	0.72	1.08	2.17	3.25	0.02	0.03	0.07	0.10
2	UNJA	46.38	0.19	0.28	0.57	0.85	0.89	1.34	2.67	4.01	2.02	3.03	6.06	9.09	1.14	1.71	3.42	5.13	0.38	0.57	1.13	1.70	0.02	0.03	0.06	0.09
3	UNRI	44.45	0.03	0.05	0.10	0.15	1.45	2.18	4.36	6.54	2.63	3.95	7.90	11.85	0.28	0.42	0.85	1.27	0.02	0.03	0.07	0.10	0.02	0.03	0.06	0.10
4	UPI	46.09	0.20	0.29	0.59	0.88	1.40	2.10	4.19	6.29	2.51	3.76	7.53	11.29	0.47	0.71	1.42	2.13	0.02	0.02	0.05	0.07	0.02	0.02	0.05	0.07
5	PMU	1.37	0.03	0.04	0.08	0.11	0.03	0.04	0.08	0.11	0.03	0.04	0.08	0.11	0.03	0.04	0.08	0.11	0.02	0.03	0.06	0.09	0.01	0.02	0.04	0.07
Base Cost		**181.44**	**0.52**	**0.78**	**1.57**	**2.35**	**4.38**	**6.57**	**13.15**	**19.72**	**8.55**	**12.82**	**25.65**	**38.47**	**3.44**	**5.16**	**10.31**	**15.47**	**1.16**	**1.74**	**3.48**	**5.22**	**0.09**	**0.14**	**0.28**	**0.42**
Contingecys		**18.56**	0.06	0.09	0.17	0.26	0.47	0.70	1.40	2.10	0.87	1.30	2.60	3.90	0.34	0.50	1.01	1.51	0.12	0.18	0.35	0.53	0.01	0.02	0.03	0.05
TOTAL		**200.00**	**0.58**	**0.87**	**1.74**	**2.61**	**4.85**	**7.27**	**14.54**	**21.82**	**9.42**	**14.13**	**28.25**	**42.38**	**3.77**	**5.66**	**11.32**	**16.98**	**1.28**	**1.91**	**3.83**	**5.74**	**0.10**	**0.16**	**0.31**	**0.47**

Projection Of Quarterly Disbursement Of ADB Loan Proceeds Per Cost Category
$ Million

No	Category	ADB Budget Allocation ($ Million)	2019				2020				2021				2022				2023				2024			
			Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4
A.	**Investment Costs**																									
1	**Civil Works**																									
1.1	Earth Work	0.13	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.01	0.01	0.02	0.03	0.00	0.00	0.00	0.00	-	-	-	-	-	-	-	-
1.2	Infrastructure Development	7.94	0.01	0.02	0.04	0.05	0.31	0.47	0.94	1.41	0.20	0.31	0.61	0.92	0.15	0.23	0.45	0.68	0.11	0.17	0.34	0.51	-	-	-	-
1.3	Building And Civil Works	119.45	0.31	0.47	0.94	1.41	3.53	5.29	10.58	15.87	6.21	9.32	18.64	27.96	1.54	2.32	4.63	6.95	0.35	0.52	1.05	1.57	-	-	-	-
1.4	Landscape	0.62	0.00	0.00	0.01	0.01	0.03	0.04	0.08	0.11	0.03	0.05	0.10	0.14	0.00	0.00	0.00	0.01	-	-	-	-	-	-	-	-
	Subtotal-1	**128.14**	**0.33**	**0.49**	**0.99**	**1.48**	**3.87**	**5.81**	**11.61**	**17.42**	**6.46**	**9.68**	**19.37**	**29.05**	**1.70**	**2.55**	**5.09**	**7.64**	**0.46**	**0.69**	**1.39**	**2.08**	**-**	**-**	**-**	**-**
2	**Equipment & Furniture**																									
2.1	Equipment	30.24	-	-	-	-	0.17	0.26	0.52	0.77	1.62	2.44	4.87	7.31	0.90	1.36	2.71	4.07	0.32	0.49	0.97	1.46	-	-	-	-
2.2	Furniture	5.75	-	-	-	-	-	-	-	-	0.11	0.16	0.33	0.49	0.26	0.40	0.79	1.19	0.20	0.30	0.60	0.91	-	-	-	-
	Subtotal-2	**35.99**	**-**	**-**	**-**	**-**	**0.17**	**0.26**	**0.52**	**0.77**	**1.73**	**2.60**	**5.20**	**7.80**	**1.17**	**1.75**	**3.50**	**5.25**	**0.53**	**0.79**	**1.58**	**2.37**	**-**	**-**	**-**	**-**
3	**ICT (Software, Licenses, Services)**	3.89	-	-	-	-	-	-	-	-	0.06	0.09	0.18	0.27	0.31	0.46	0.93	1.39	0.02	0.03	0.06	0.09	-	-	-	-
4	**Training, International Seminar and Publication**																									
4.1	Degree And Non-Degree	2.82	0.02	0.04	0.07	0.11	0.07	0.10	0.20	0.30	0.07	0.11	0.22	0.34	0.07	0.11	0.22	0.34	0.04	0.06	0.13	0.19	-	-	-	-
4.2	Seminar, Converence and Publication	0.18	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.02	-	-	-	-
	Subtotal-4	**3.00**	**0.03**	**0.04**	**0.08**	**0.12**	**0.07**	**0.11**	**0.21**	**0.32**	**0.08**	**0.12**	**0.24**	**0.36**	**0.08**	**0.12**	**0.24**	**0.36**	**0.05**	**0.07**	**0.14**	**0.20**	**-**	**-**	**-**	**-**
5	**Consulting Services**	9.63	0.15	0.23	0.46	0.69	0.26	0.38	0.77	1.15	0.21	0.31	0.62	0.93	0.17	0.26	0.51	0.77	0.09	0.14	0.28	0.41	0.08	0.13	0.25	0.38
6	**Study & Workshops**																									
6.1	Study	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.2	Workshop	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Subtotal-6	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
7	**Operational cost (counterpart staff, admin**	0.79	0.01	0.02	0.04	0.06	0.01	0.02	0.04	0.06	0.01	0.02	0.04	0.06	0.01	0.02	0.04	0.06	0.01	0.02	0.04	0.06	0.01	0.01	0.03	0.04
	Total Base Cost	**181.44**	**0.52**	**0.78**	**1.57**	**2.35**	**4.38**	**6.57**	**13.15**	**19.72**	**8.55**	**12.82**	**25.65**	**38.47**	**3.44**	**5.16**	**10.31**	**15.47**	**1.16**	**1.74**	**3.48**	**5.22**	**0.09**	**0.14**	**0.28**	**0.42**
B.	**Contingency**	18.56	0.06	0.09	0.17	0.26	0.47	0.70	1.40	2.10	0.87	1.30	2.60	3.90	0.34	0.50	1.01	1.51	0.12	0.18	0.35	0.53	0.01	0.02	0.03	0.05
	Total Project Cost (A+B)	200.00	0.58	0.87	1.74	2.61	4.85	7.27	14.54	21.82	9.42	14.13	28.25	42.38	3.77	5.66	11.32	16.98	1.28	1.91	3.83	5.74	0.10	0.16	0.31	0.47

Appendix 8: Terms of Reference of External Auditor
The Audit Board of the Republic of Indonesia[29]
(Badan Pemeriksa Keuangan Republik Indonesia, BPK)

To Audit the Executing Agency
(Annual Project Financial Statements of ADB Funded Projects)

A. **The Project Name:** Advanced Knowledge and Skills for Sustainable Growth Project in Indonesia (AKSI)

1. The Project that will be audited, the executing agency (EA), the Project Management Unit (PMU), Project Implementing Units (PIUs) and some audit information are summarized in Annex 1.[30]

B. **Objective of the Audit**

2. The audit of the annual project financial statement (APFS) is primarily designed to ensure that the financial statements (FS) have been prepared in accordance with the relevant legal requirements and accounting standards adopted by the project and give a true and fair view of the financial performance and position of the project.

3. Further, the auditor will provide specific additional audit opinions on:

i. Use of loan and/or grant proceeds; the Government funds and other financiers.
ii. Compliance with financial covenants of the loan and/or grant agreements
iii. Compliance with project account procedures (where applicable)—to confirm or otherwise, whether the advance account (and sub-accounts) gives a true and fair view of the receipts collected and payments made and supports advance and sub-account- liquidations and replenishments during the year.
iv. Compliance with Statement of Expenditure (SOE) procedures (where applicable)—to confirm or otherwise, whether adequate supporting documentation has been maintained to support claims to ADB for reimbursement of expenditures incurred and that the expenditures are eligible for financing under the loan or grant agreement.
v. In addition, the auditors will provide a report highlighting weaknesses in the internal control system, as stipulated in para. 15.

C. **The Conduct of the Audit**

4. The audit will be conducted in accordance with Standard Pemeriksaan Keuangan Negara (SPKN)31 and Standard Professional Akuntan Publik (SPAP, professional standard of public accountant). The standard requires that the auditor plans and performs the audit to obtain reasonable assurance about whether the FS are free from material misstatements. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the

[29] The TOR is subject to amendment for any policy changes in ADB or the Government of Indonesia.
[30] Annex 1 will be completed before Loan Negotiation of the Project.
[31] SPKN (Indonesian State Finance Auditing Standards) are auditing standards used by BPK as an independent state finance auditor who is responsible to audit all state finance in Indonesia.

APFS. An audit also includes assessing the accounting principles used, significant estimates made by the management, as well as evaluating the overall FS presentation.

D. **Audit Procedures**

5. The auditors shall perform audit procedures which include:

i. Review the Report and Recommendation of the President (RRP)[32], its linked and supporting documents;
ii. Plan and conduct the audit in accordance with a risk-based framework. The detailed audit work program should be sufficiently extensive in its coverage to support the opinion given;
iii. Gather sufficient audit evidence to substantiate in all materials respects, the accuracy of information contained in supporting schedules attached to FSs including any and all supporting schedules. This should include verifying samples of transactions and account balances, reviewing any areas where significant estimates and judgments are made by management, as well as performing analysis to verify reported data and confirm year-end balances.
iv. Review SOEs submitted to ADB in support of requests for periodic replenishments of the project advance.[33] Expenditures should be examined for eligibility based on criteria defined in the terms of financing agreement. Where ineligible expenditures are identified as having been included in withdrawal applications and reimbursed, they should be reported;
v. Review and evaluate the system of internal control and assess the internal control environment to determine the degree of reliance that may be placed upon them and to determine the extent of testing of actual transactions needed to assure the auditor of the completeness and accuracy of the accounting records;
vi. Include procedures that are designed to provide reasonable assurance that material misstatements (if any) are detected in accordance with international standards on auditing. The audit coverage will consider the risk of material misstatements as a result of fraud or error; and
vii. Determine whether accounting policies are appropriate and consistently applied, and determine whether all FS disclosures are adequate.

E. **Audit Scope in Compliance with Financing Arrangement**

6. To comply with agreed project financing arrangements the auditor shall carry out tests to evaluate the following documents:

i. The project's advance account(s) and sub-account(s), if any;
ii. Statement of Expenditures (SOEs);
iii. Compliance with covenants contained in the Loan and Grant agreements;
iv. Any material weaknesses in internal control which are identified during the audit;
v. Compliance with Standard Operating Procedures, Financial Management Manual and Procurement Manual;
vi. Fixed assets procured, review the allocation of project vehicles and equipment and whether these are being utilized in accordance with the ADB's Guidelines and/or Loan and/or Grant Agreements; and

[32] RRP is an approval report of ADB's Board of Directors related to the loan proposal.
[33] ADB's term for the project designated accounts.

vii. Any other materials which the auditor considers should be bought to the attention of the borrower/ the Government.

7. Based on the assessment, the auditor shall justify whether:

i. All funds funded by ADB, the Government and other financiers have been used in accordance with the conditions of the relevant loan and/or grant agreements with due attention to economy and efficiency, and only for the purposes for which the Loan and/or the grant was intended;
ii. Counterpart funds and funds from other financiers have been provided and used in accordance with relevant financing agreements, which due attention to economy and efficiency, and only for the purposes for which the loan and/or grant was intended;
iii. Goods, works and services financed, as the procurement plan given in the Project Administration Manual (PAM), have been procured in accordance with relevant financing agreements, including specific provisions of the ADB Guidelines and/or Loan and/or Grant Agreements;
iv. Expenditures submitted to ADB are eligible for financing and all necessary supporting documents, records, and accounts in support of withdrawals have been adequately maintained;
v. All necessary supporting documents, records, and accounts have been kept in respect of all project expenditures (including expenditures reported using SOEs of Advance Fund Procedures);
vi. The Advance Accounts and sub-accounts have been maintained and operated in accordance with the provisions of the relevant financing agreements.

F. **Annual Project Financial Statements (APFSs):**

8. The auditor should verify whether the APFSs have been prepared in accordance with the Standar Akuntansi Pemerintah (SAP)34 and discuss the impact on FSs, if any deviation from SAP.

9. The FSs for the project may include35:

i. A statement of cash receipts and payments for the period;
ii. Advance account(s) and sub-account(s);
iii. Statement of expenditures (SOEs);
iv. Other supplementary schedules of value;
v. Accounting policies and explanatory notes; The explanatory notes should include reconciliation between the amounts shown as "received by the project from ADB " and that disbursed by ADB and a summary of movements on the project's Designated Account; and a comparison of the project budget to accumulated receipts and expenditure (by disbursement categories) since the commencement of the project;

[34] SAP (Indonesian Government Accounting Standards) are standards used by the Indonesian EA to prepare its APFSs, which adopted the I*nternational Public Sector Accounting Standards (IPSAS)*.

[35] This list will be used as a guideline. If there are items that project is not prepared to provide or cannot provide, BPK will accept information in whatever forms that are auditable.

vi. When the entity makes publicly available its approved budget, a comparison of budget and actual amounts either as a separate additional financial statement or as a budget column in the statement of cash receipts and payments.

G. **Audit Methodology**

10. Based on this TOR, BPK will prepare a methodology to ensure that the audit required is comprehensive and it is expected that a high degree of assurance, compliance with the law and accountability be reflected in the methodology. The methodology should, at minimum, shall address the following:

i. SPKN Compliance: The auditor should indicate the extent (if any) that the audit would not conform to SPKN and indicate any alternative standards to which the auditors would conform;
ii. Understanding of the environment and key areas of audit risk for the project;
iii. Audit planning and the role that the EA/PIUs is expected to play in this process;
iv. The resources to be allocated to the audit to address the risks identified;
v. The approach to field work (i.e. gathering of evidence to support assertions to be made in the audit opinions); and
vi. Quality assurance arrangements.

H. **Audit Report**

11. At minimum, the audit report will:

i. state the purpose of the report and its intended use;
ii. state whether SAP have been adopted in the preparation of the APFSs and indicate the effect of any deviations from those standards;
iii. state that the audit was conducted in accordance with SPKN;
iv. the audit opinion will cover both the current period and the cumulative period since the commencement of the Project;
v. the audit opinion will state whether or not the FSs present fairly statement of Expenditures (SOEs), Advance accounts and sub-accounts of the project;
vi. The auditor is also expected to express opinions as the compliance with the terms and conditions of the relevant loan or grant agreement as well as the budget execution regulations;
vii. The auditor should also indicate, where present, the extent of any non-compliance by reference to the financial covenants;
viii. The auditor should also indicate whether any attached supplementary FSs and Notes to the FS have been subjected to the same auditing procedures as in the case of the basic FSs.

12. Irregularities and instances of noncompliance with government or institutional rules and regulations that do not give rise to a qualified opinion or disclaimer of opinion should not be subjects of the report of the auditor. When the auditor has comments that are not material to the opinion, these should be set out in the audit report on project's internal control system or statutory regulations.

13. Where the Loan and/or Grant Agreements of a project requires the separate audit of the SOEs and Advance accounts, respectively, additional paragraphs should be included in audit opinion as follows:

i. Referring to the SOE financial statement, certifying to the eligibility of those expenditures against which SOE disbursement were made; and
ii. Referring to the advance account financial statements

14. At least the following two specific opinions on FS required from the auditor:

i. Opinion on the statement of expenditures; and
ii. Opinion of advance accounts and sub-accounts.

I. Audit Report on The Internal Control System and on Compliance with Statutory Regulations

15. Together with (i) the audit report including the opinion on financial statements, the auditor will submit (ii) audit report addressing weaknesses in the internal control system and on compliance with statutory regulations that should address as a minimum the following:

i. a general overview of the internal control systems of the project and the executing agency, or an opinion on the management systems;
ii. an identification of material deficiencies or weaknesses in the project or executing/implementing agencies' internal controls over financial reporting or on the overall system of internal control;
iii. the auditor's recommendations for improvement or for rectification of identifies weaknesses; and
iv. Follow-up actions/s or status to previously identified issues and findings, if any.

J. Exit Meeting

16. Upon the completion of the field work, the auditor will hold an exit meeting with the EA/PIUs. The exit briefing will give the auditor an opportunity to obtain management's comments on the accuracy and completeness of the auditor's findings, conclusions, and recommendations, including whether or not management concurs with the audit findings. It will also include a discussion of common findings across projects being audited and recommendations for addressing bottlenecks in preparation for the next audit. The auditor will document the exit briefing for inclusion in the audit working papers. The EA/PIUs could invite the other parties to attend the exit briefing as observers.

K. Access to Information and Records

17. The auditor will be provided with unrestricted access to all payments records and supporting documents, invoices, and all types of contracts, except claims of consultants engaged directly with ADB including statements of accounts, legal agreements and minutes of meetings, etc. Project staff shall fully cooperate with the auditor. The auditor shall have the rights to access to banks and depositories, consultants, contractors, or other persons or firms engaged by the project. In case access has been restricted, the auditor must note this in the auditor's opinion.

18. The auditor is encouraged to meet and discuss audit related matters including inputs to the audit plan with ADB project officers.

19. It is highly desirable that the auditor reviews the Loan and Grant Agreements and their supporting documents, which summarize the ADB's financial reporting and auditing requirements. The auditor should also familiar with the ADB's disbursement and Procurement Handbook.

L. **Deliverables and Timing**

20. The PMU/PIUs shall prepare the APFS in 2 sets of currency (US$ dollar and Rupiah). The SOEs in Rupiah and Project Accounts (Pas or Project financial statements in US$).

21. Two sets of the audited APFSs (in US$ and in English) and the corresponding audit report (in English) shall be delivered to each EA in accordance with submission dates states in the Loan Agreement(s).

M. **Annexes**

22. All annexes of this TOR will be completed by the PMU/PIUs and endorsed by ADB prior to the assignment of BPK to conduct the audit of the project.

Annex 1

Project Background, Executing and Implementing Agencies

A. The Project to be Audited:

1. Project No: 50395
2. Loan No:
3. Project Name: Advanced Knowledge and Skills for Sustainable Growth Project in Indonesia (AKSI)
4. Executing Agency: The Ministry of Research, Technology and Higher Education (MORTHE)
5. Implementing Agencies: University of Malikussaleh (UNIMAL), University of Jambi (UNJA), University of Riau (UNRI), and Universitas Pendidikan Indonesia (UPI)
6. Total Project Costs: $266.52 million ($200 million loan from ADB, and $66.52 million government counterpart funding)

B. Project Description

1. The project aims to strengthen access, relevance and quality of the University of Malikussaleh (UNIMAL), the University of Jambi (UNJA), the University of Riau (UNRI), and the Indonesia University for Education (UPI). The scope of work entails three categories of activities: (i) development of teaching and research facilities, supporting infrastructures, and procurement of equipment; (ii) development and improvement of the quality of human resources, including degree and non-degree programs for lecturers and university staff; (iii) development of academic curriculum and management system to improve teaching and research process, particularly in a specific focus area, with the aim of becoming a center of excellence. Investment in UNIMAL, UNJA, and UNRI is aligned with local economic priorities and will focus their centers of excellence on sustainable natural resources, agriculture, and marine and aquatic science, respectively. UPI will focus its center of excellence on TVET-teacher education to meet national priorities for skilled and highly skilled human resources.

2. **Project impact, outcome, and outputs.** The impact of the project will be income and productivity of the working age population increased. The outcome of the project will be access, relevance, and quality of targeted universities strengthened. To achieve the outcome, the project will deliver two outputs: (i) market responsive programs delivered; and (ii) training of TVET teachers improved. These project outputs are described below:

3. Output 1 is delivery of market responsive programs by UNIMAL, UNJA and UNRI, by:
   i. upgrading UNIMAL, UNJA and UNRI through completing construction and equipping 33 new buildings and finishing and equipping 1 unfinished building (with gender responsive, inclusive, and sustainable infrastructure).
   ii. Training at least 586 additional teaching, management, research and support staff (of which 40% women) of UNIMAL, UNJA and UNRI, to increase their understanding on market responsive programs and research
   iii. Supporting development of centers of excellence in UNIMAL, UNJA and UNRI in Sustainable Natural Resources, Agriculture, Marine and Aquatic Science respectively in collaboration with industry, community and other stakeholders (a) to upgrade or develop at least 40 curricula; (b) to launch at least 21 new research programs connected to the center or excellence; (c) to provide at least 65 additional training or

service programs; and (d) to sign at least 21 additional MoUs with industry and other stakeholders.

iv. In addition, as part of output the project will support MORTHE in developing a long-term investment strategy for the Higher Education and Advanced Skills Development Sector (financed by a Trust-fund TA support).

4. Output 2 is provision of improved training of TVET teachers by UPI by:

i. Upgrading UPI by completing construction and equipping 6 new buildings (including gender responsive, inclusive, and sustainable infrastructure) to become center of excellence in TVET teacher education and training.

ii. Training at least 53 teaching, management, research and support staff (of which 40% are women) to increase understanding on designing and delivering accredited TVET teacher education programs.

iii. Supporting UPI as part of its center of excellence development to (a) establish 6 new S1 TVET teacher education programs; (b) to train at least 240 SMK-teachers (at least 35% female) in-service training programs, in collaboration with MOEC, relevant polytechnics, SMKs and industry (c), to certify at least 300 participants (at least 40% female) by the established LSP and PUK, and (d) to disseminate at least 2 case studies of UPI model for TVET teacher education and training model.

iv. In addition, as part of output 2, MORTHE will be supporting to develop a long-term vocational teacher education strategy in collaboration with all relevant stakeholders (financed by Trust fund TA support)

C. **Project Areas:** North Aceh, Jambi, Riau, and Bandung, West Java

D. The Executing and the Implementing Agencies:

5. MORTHE through the Directorate General for Resources for Science, Technology and Higher Education (DGRSTH) will be the executing agency of the project, and UNIMAL, UNJA, UNRI and UPI will be the Implementing Agencies. The four universities will establish project implementation units (PIUs). The MORTHE will establish a steering committee to guide and monitor the AKSI's overall implementation and ensure that the Project can be completed on time and within the available budget. The DGRSTH will establish a Project Management Unit (PMU), headed by the Director for Facilities and Infrastructure. The Project Director will be supported by a dedicated Project Manager who will be responsible for managing the PMU activities, project planning and implementation management, preparation of progress reports, and ensuring that ADB guidelines are complied.

6. The PMU will have full coordination with the PIUs in the universities. The PMU will be supported by a Project Management Consultant (PMC). The PMU, with the support of its consultants, will determine annual works program, monitor progress in project implementation and ensure compliance with ADB's policies, procurement procedures, performance indicators, physical achievements and expenditures and preparation and submittal to the ADB of monthly, quarterly and annual progress reports on overall project implementation.

E. Phasing of the Audit:

7. BPK will submit the final audited APFS and supporting documents, as scheduled in the following table:

Month of Fiscal Year (FY) and Report Submission

Period	FY start	FY End	Report Submission	Remarks
1	1 January 2019	31 December 2019	30 June 2020	
2	1 January 2020	31 December 2020	30 June 2021	
3	1 January 2021	31 December 2021	30 June 2022	
4	1 January 2022	31 December 2022	30 June 2023	
5	1 January 2023	31 December 2023	30 June 2024	
6	1 January 2024	31 December 2024	30 June 2025	

- BPK will automatically be responsible for auditing the Project that will cover for all duration of the project (from the effectiveness date to the closing date of the loan and/or grant). The audit related expenditures would be fully funded by the Government. However, since the Project will cover a wide numbers of project areas, the Project may allocate adequate funds to cover the incremental costs of the auditors to conduct their tasks.

Appendix 9: Terms of Reference for Project Management Consultant to Support the Project Management Unit

A. Background.

1. The Government of Indonesia with the support from the Asian Development Bank (ADB) is implementing the Advanced Knowledge and Skills for Sustainable Growth in Indonesia (AKSI) Project. The AKSI project aims to contribute in improving access, quality and relevance of higher education by upgrading four universities, i.e., University of Malikussaleh (UNIMAL) in Aceh, University of Jambi (UNJA) in Jambi province, University of Riau (UNRI) in Riau province, and Universitas Pendidikan Indonesia (UPI) in Bandung. The Project will construct a number of multi-story buildings for education purposes and the associated infrastructure facilities, such as roads, drainage, and mechanical/electrical equipment and installations, laboratories, and conduct degree and non-degree domestic and overseas training, procure laboratory equipment, and IT facilities.

2. MORTHE through the Directorate General for Resources for Science, Technology and Higher Education (DGRSTH) will be the executing agency of the project, and the above four universities will be the project implementation units (PIUs). The MORTHE will establish a steering committee to guide and monitor the AKSI's overall implementation and ensure that the Project can be completed on time and within the available budget. The DGRSTH will establish a Project Management Unit (PMU), headed by the Director for Facilities and Infrastructure, which will have a Project Manager to be responsible for managing the PMU activities, project planning and implementation management, preparation of progress reports, and ensuring that ADB guidelines are complied. The PMU will have full coordination with the PIUs in the universities.

3. To support the PMU, a qualified project management consultant (PMC) team is sought to: (i) provide day to day management support to the PMU, (ii) closely monitor the project implementation and provide technical and management advice at the 4 (four) universities, (iii) assist the PMU to determine annual works program, (iv) ensure compliance with ADB's policies, social and environmental safeguards requirements, procurement procedures, performance indicators, physical achievements and expenditures and preparation, and (v) ensure timely submission of monthly, quarterly and annual progress reports on overall project implementation, bi-annual environmental safeguards monitoring report, and any other reporting requireds, to all stakeholders including ADB.

B. Project Overview.

4. The AKSI Project is to be implemented within 5 years, from 2019 to 2023, with a project closing on 30 June 2024. The Project has a long-term impact which is aligned with the national long-term development plan (RPJMN 2015-2019) namely increased income and productivity of the working age population due to the increased employability and competence of the graduates, improved research results in relevant areas, and improved collaboration between universities, industry and community.

5. The four universities, UNIMAL, UNJA, UNRI, and UPI have envisioned scope of work entails three categories of activities: (i) Development of teaching and research facilities, supporting infrastructures, and procurement of equipment; (ii) Development and improvement of the quality of human resources, including degree and non-degree programs for lecturers and

university staff; (iii) Development of academic curriculum, applied research, and services, with an aligned management system in a specific focus area, which is referred to as development of center of excellence. Investment in UNIMAL, UNJA, and UNRI will focus their centers of excellence on sustainable natural resources, agriculture, and marine and aquatic sciences respectively, while UPI will focus on TVET-teacher education to meet national priorities for skilled and highly skilled human resources. The project has the following outputs:

6. Output 1 is delivery of market responsive programs by UNIMAL, UNJA, and UNRI, by:
   v. upgrading UNIMAL, UNJA, and UNRI through completing construction and equipping 33 new buildings, and finishing and equipping 1 unfinished building (with gender responsive, inclusive, and sustainable infrastructure).
   vi. Training at least 586 additional teaching, management, research and support staff (of which 40% women) of UNIMAL, UNJA, and UNRI, to increase their understanding on market responsive programs and research
   vii. Supporting development of centers of excellence in UNIMAL, UNJA, and UNRI in Sustainable Natural Resources, Agriculture, Marine and Aquatic Science respectively in collaboration with industry, community and other stakeholders (a) to upgrade or develop at least 40 curricula; (b) to launch at least 21 new research programs connected to the center or excellence; (c) to provide at least 65 additional training or service programs; and (d) to sign at least 21 additional MoUs with industry and other stakeholders.
   viii. In addition, as part of output the project will support MORTHE in developing a long-term investment strategy for the Higher Education and Advanced Skills Development Sector (financed by a Trust-fund TA support).

7. Output 2 is improved training of TVET teacher training by:

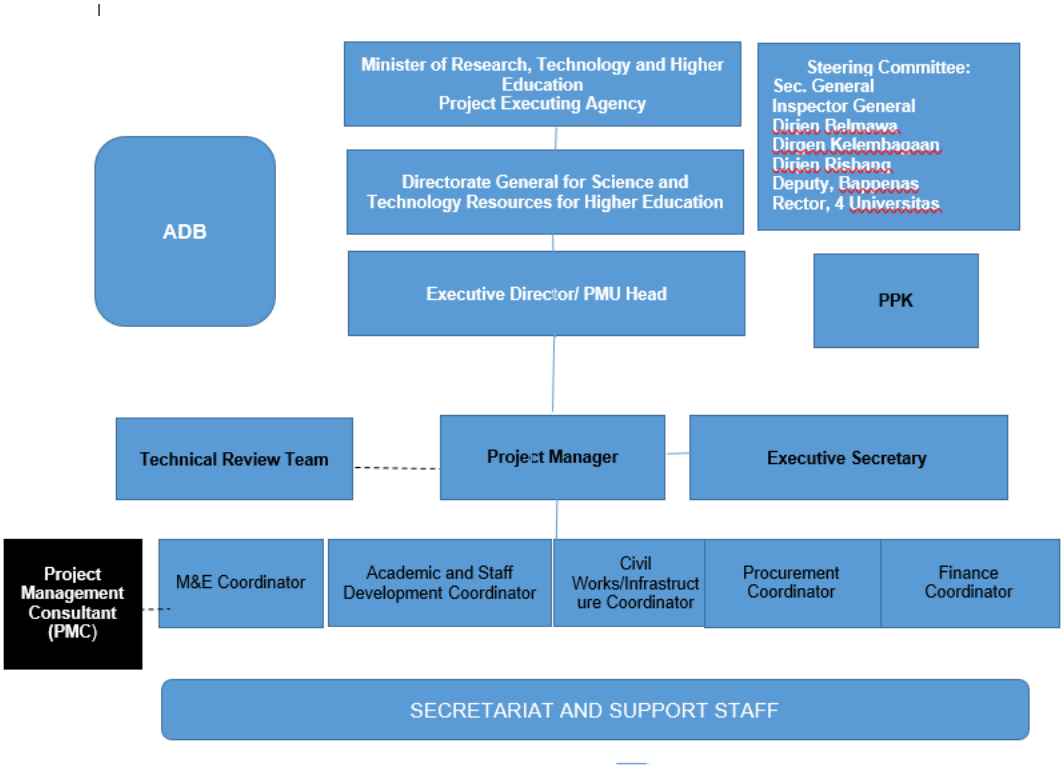
   v. Upgrading UPI by completing construction and equipping 6 new buildings (including gender responsive, inclusive, and sustainable infrastructure) to become center of excellence in TVET teacher education and training.
   vi. Training at least 53 teaching, management, research and support staff (of which 40% are women) to increase understanding on designing and delivering accredited TVET teacher education programs.
   vii. Supporting UPI as part of its center of excellence development to (a) establish 6 new S1 TVET teacher education programs; (b) to train at least 240 SMK-teachers (at least 40 % female) in-service training programs, in collaboration with MOEC, relevant polytechnics, SMKs and industry (c), to certify at least 300 participants (at least 35% female) by the established LSP and PUK, and (d) to disseminate at least 2 case studies of UPI model for TVET teacher education and training model.
   viii. In addition, as part of output 2, MORTHE will be support to develop a long-term vocational teacher education strategy in collaboration with all relevant stakeholders (financed by Trustfund TA support)

8. Each PIU at the university will recruit a Project Management and Supervision Consultant (PMSC) team to support the PIU in day to day project management and construction supervision. The PIU will also recruit a detailed engineering design (DED) consultant to prepare the design of the buildings, supporting infrastructure facilities and furniture, and equipment design consultant to design the required laboratory equipment. The PMC will closely monitor, coordinate, and provide technical and managerial advices to the PMSCs at the four PIUs.

B. Project Organization:

9. The PMC will be recruited by the PMU in the DGRSTH office in Jakarta. The structure of PMU organization is in Table 1, below:

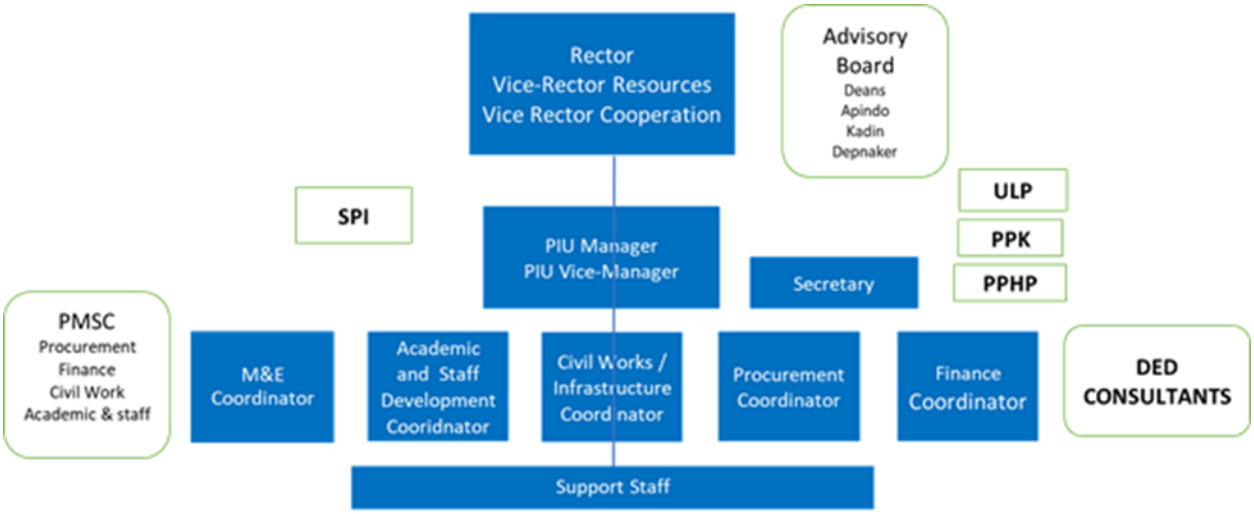
Table 1 – The PMU Organization Structure



10. In each university the PIU will manage the planning, execution, monitoring and control of the project implementation. A PMSC team will support the PIU in managing and supervising the project implementation. The submission of any documents from each PIU at the universities to ADB should be through the PMU office.

11. Typical organization structure of PIU is in Table 2 below:

Table 2 – The PIU Organization Structure



C. Objective

12. The purpose of the PMC assignment is to enhance the assurance of sound project implementation, monitoring, and reporting by providing management support to the PMU in preparation, monitoring, evaluation, control and documentation of the implementation of AKSI project at four universities. A national consulting firm with national experts who have intensive experiences in project management of “green” building constructions, infrastructure facilities, with associated IT, equipment, and furniture will be recruited.

D. Scope of Services.

13. This section provides an indicative scope of services for the PMC. It shall be the responsibility of the PMC to carry out all tasks to ensure successful implementation of the AKSI project, during the PMC’s contract period. The PMC shall prepare and submit all necessary reports/analysis/documents as required to successfully manage the implementation of the AKSI as envisaged in the loan agreement and associated documents. Furthermore, the PMC shall carry out other tasks related to the AKSI on the instructions of the PMU. The PMC shall be familiar with all background documentation and preparatory work of the AKSI. There will be 5 (five) core tasks of the PMC, i.e., (i) planning, administration and management of the AKSI project, (ii) technical and management advice to the PMU and PIUs, (iii) ensuring compliance of the project implementation to the ADB policies, including safeguards, guidelines, requirements, and government regulations, (iv) monitoring, and (v) reporting.

14. The services to be provided by the PMC include, but are not limited to, the following:

1) assist the PMU in day-to-day project management and coordination with the respective projects in the universities;
2) review the submitted project related documents from each PIU and ensure that the documents fully meet with the requirements and are incompliance with ADB guidelines prior to forward them to the respective stakeholders, including ADB.

3) review bid evaluation and consultant selection reports, prior to the submission to ADB.
4) prepare and maintain the Project Master Schedule for overall AKSI project implementation;
5) based on the available S Curve of the respective projects, prepare annual budget allocation planning on a timely manner in accordance with the government's budgeting cycle;
6) prepare consolidated contract awards and disbursement projections;
7) establish and maintain a GIS-based project performance monitoring system (PPMS), to monitor progress of the respective project at the universities, including: physical, financial, permits, project source of funds, and regularly update of the project cost.
8) support the PMU to ensure that the provision of funds from all financing resources are provided timely;
9) maintain the implementation of environmental management plan (EMP), and support development of updates of Initial Environmental Evaluations (IEE), including the EMP, if and when required. Provide advices on any environmental safeguards compliance issues related to the project implementation.
10) ensure that the gender action plan is implemented in the respective projects, and prepare gender implementation reports
11) prepare monthly and quarterly progress reports; prepare bi-annual environmental safeguards monitoring report
12) establish website for AKSI activities and update regularly
13) organize on-the job training to PIU staff and the university assigned staff during all phases of the project, as directed by the PMU;
14) conduct quarterly meetings with PIUs and PMSCs in the project sites
15) provide technical supports to PIUs for procurement, engineering, management, monitoring & evaluation.
16) prepare draft consolidated financial reports for external auditing purposes
17) ensure that all loan and project covenants are fully complied
18) closely monitor the implementation of in-country and overseas training to be conducted by each university, under the AKSI program, and
19) assist PMU in preparation of final project completion report.

E. Staffing

15. The PMC is required to provide minimum inputs as indicated in **Table 3 below**.

Table 3: Indicative Consultant Inputs

No.	Team Composition	Number	Months of input	General Responsibility
Key Experts: All are National positions				
1.	Team Leader/Project Management Specialist.	1	48 months (Intermittent)	The team leader has overall responsibility for quality assurance, document preparation and coordination, project management and ensuring timely project implementation. S/he will be the main point of contact in assisting PMU with implementation of all aspects of the Project.

				S/he should be proactive in updating project costs regularly, and identify any possible loan savings or shortfalls as early as possible. The Team Leader shall provide technical guidance to all members of the team. S/he has to prepare consolidated reports timely.
2.	Procurement and Contract Specialist	1	24 months (Intermittent)	S/he has an overall responsibility in ensuring that the procurement and contract administration to be conducted in the four universities are in-line with ADB Procurement Policy and Regulation, in timely manner.
3.	Senior Civil Engineer	1	24 months (Intermittent)	S/he has to ensure that the design development and construction of buildings and infrastructures at the four universities in accordance with specification, building codes, within the available budget.
4.	Financial Management Specialist	1	36 months (Intermittent)	S/he will monitor the project and financial management system of the project, and establish a sound accounting practice and system to manage the resources available to the Project.
5.	Gender Specialist	1	18 months (Intermittent)	S/he has overall responsibility in monitoring and developing gender related program at the four universities and ensuring compliance with gender action plan (GAP)
6.	Environmental Specialist	1	6 months (Intermittent)	S/he has overall responsibility in monitoring and maintaining the Environment Management Plan (EMP) at the four universities, updating the Initial Environmental Examination including the EMP, if required, and prepare the bi-annual environmental safeguards monitoring report.
7.	PPMS Specialist	1	6 months (Intermittent)	S/he has overall responsibility in developing GIS based project performance monitoring system. She/he will work closely with the Team Leader to ensure that the PPMS is in accordance with the project design and monitoring framework (DMF) and that the system could identify issues quickly and brought to the attention of government and the ADB for prompt resolution.
Non-Key Expert: National position				
1.	GIS Database Assistant	1	48 months	S/he has overall responsibility in maintaining and updating the PPMS and assisting PMU, and PIUs of the four universities in GIS based project performance monitoring.
Supporting Staff:				
	Bilingual Secretary	1	48 months	

	Administrative Staff	2	48 months	
	Driver	1	36 months	

F. Qualifications and Tasks of Key-Experts and Non-Key Experts

16. The qualifications and tasks of the key and non-key experts are as follows:

a. Team Leader/Project Management Specialist: The specialist will preferably have a master's degree in civil engineering or architecture with relevant experience in managing foreign assisted projects. S/he will have relevant experience of a minimum 15 years and should be fluent in English, both oral written. S/he will be responsible for overall co-ordination of team activities and will be directly responsible to the PMU Manager. The main responsibility will be to do quality assurance and to monitor the project activities in 4 (four) universities and ensure that the projects can be completed on time and within the available budget. The Team Leader will help the PMU to prepare project reporting. The team leader should be proactive in updating project costs regularly and identify any possible loan savings or shortfalls as early as possible. The Team Leader shall provide technical guidance to all members of the team. S/he will have overall responsibility in technical advisory, management and monitoring all tasks under the contract, setting up technical guidance and standards as necessary. This includes ensuring environmental safeguards are properly implemented, based on the advice of the environmental specialist. The Team Leader should have strong organization skills and ability to work in a team-oriented, dynamic and diverse environment with a proven track record of working effectively within multidisciplinary teams.

b. Procurement Specialist: The Specialist should preferably have a master's degree in public administration, law, or other related field with around 10-15 years of experience in public procurement practices and procedures, and around 7 years of procurement experience under ADB or WB funded projects. S/he has to be fluent in English, both written and oral. The consultant shall have experience in drafting contractual agreements and other related documents/agreements and in resolving legal issues related to public procurement in Indonesia. S/he shall have good knowledge of the institutional, technical, and commercial aspects of procurement; demonstrated experience in contract management at managerial level.

c. Senior Civil Engineer: S/he shall have a bachelor degree in civil engineering with demonstrated work experience in construction supervision of buildings of about 15 years, preferably in supervising high-rise buildings. The consultant shall have experience in structural quality control, construction materials laboratory tests, construction problem solving, and project reporting.

d. Financial Specialist: The Specialist should have a bachelor's degree in accounting, business administration, finance and about 8-10 years of relevant experience in financial management of international financed projects. Preference will be given to those who are certified public accountants or have other recognized accounting certification. S/he will monitor the financial management system of the project, and establish a sound accounting practice and system to manage the resources available to the Project.

e. **Gender Specialist:** The specialist will preferably have a bachelor in social science or related field with demonstrated work experience in gender studies. S/he will have relevant experience of about 10 years. The Specialist is to undertake actions to ensure the activities and indicators in the gender action plan (GAP) are implemented by the concerned PIUs to entirely meet the ADB safeguards policy requirements. Actual action shall be included in the GAP Quarterly Progress Monitoring Report.

f. **Senior Environmental Specialist:** The specialist will preferably have a bachelor in environmental management, natural sciences or a related field with demonstrated work experience in environmental studies for building projects. S/he will have relevant experience of about 10 years. S/he must be thoroughly familiar with Indonesia's regulatory framework for environmental management, S/He should be familiair with ADB's environmental safeguards requirements as stipulated in the Safeguards Policy Statement (SPS). Actual experience with implementation of ADB projects in which this policy was applied is preferred. S/he should have accreditation from the government as an environmental specialist as per the EIA Regulations in Indonesia and should be fluent in English and Bahasa Indonesia. The Specialist will be responsible for ensuring and support the the four universities in complying with the environmental safeguards requirements as per the SPS and Indonesian regulations, by assisting in updating the IEE including the EMP if and when required, supporting implementation of the EMP in each university, supporting preparation of the bi-annual monitoring reports, supporting implementation of the grievance redress mechanism, supporting the universities in monitoring and implementation of the CEMP so all agreed mitigation actions are implemented. In the event of occurrence of any unexpected environmental impacts, coordinate with the PMU to recommend necessary mitigation measures to the PIUs.

g. **Project Performance Monitoring System (PPMS) Specialist:** The Specialist will preferably have a bachelor degree in Management or Information and Technology or related field with a minimum of 10 years of demonstrated experience in project M&E. Having experience in developing GIS based project M&E system will be a plus. S/he will be responsible to develop GIS based project performance monitoring system. She/he will work closely with the Team Leader to ensure that the PPMS is in accordance with the project design and monitoring framework (DMF) and that the system could identify issues quickly and brought to the attention of government and the ADB for prompt resolution.

h. **GIS Database Assistant**: The Assistant will preferably have a bachelor degree in Geography or related field and a minimum of 5 years of demonstrated experience in preparing and maintaining GIS database. He/she will work under the Team Leader and PPMS Specialist to prepare, maintain and update GIS database of each work from time to time. The GIS Database Assistant will assist PMU and PIUs of all participating universities in project performance monitoring and reporting.

G. Duration of Services and Deliverable

17. The duration of the PMC services will be 5 (five) years. The tentative schedule of the Project is given in **Annex 1**. During the services the PMC shall conduct the followings:

a. Meetings

18. The PMC shall conduct the following meetings:

1. Internal PMC coordination (bi-weekly meetings).
2. Regular monthly progress meetings with the PMU.
3. Regular quarterly progress meetings with the PMU, PIUs, and PMSCs.
4. Support the PMU to initiate project steering committee meetings and quarterly monitoring meeting as convened by Bappenas.
5. Any incidental meetings as instructed by the PMU

b. Site Inspection and Coordination

19. The PMC shall conduct site inspections to the 4 (four) projects at the universities on quarterly basis. During the site inspection the PMC should discuss with the PIUs and the PMSCs, related to the procurement, quality of the consultants' outputs, building constructions, equipment, training, other project related issues, including physical and financial progress, and provides advice.

c. Reporting

20. A large number of reports will be prepared throughout the duration of this project. The PMU will be responsible that these reports are submitted in timely fashion and are of adequate quality. The PMC will give support towards the effective and efficient fulfilment of this function by assisting the PMU in this activity. The following reports will be required:

(i) Inception reports – within 30 days of commencing of services
(ii) Project Performance Monitoring System (PPMS) reports
(iii) Monthly progress reports
(iv) Quarterly progress reports
(v) Bi-annuanul environmental safeguards monitoring reports
(vi) Annual reports
(vii) Adhoc reports (any specific reports that may be required during the services)
(viii) Consolidated project completion report

H. Contract and Payment Terms

21. The PMU shall sign a time-based contract with the selected PMC for providing project management services. Payment Terms will be determined further.

I. Client's Input, Counterpart Personnel

22. The PMU shall provide the following:
    a. All available documents, reports, data and all other information related to the proposed assignment.
    b. Any letters or assistance required by the consultants in obtaining all necessary permits and authorizations for carrying out the services.
    c. The PMU will assign counterpart personnel to represent the PMU.

J. Others

23. During the services, the PMC shall rent an office space for PMC operation. The office location of the PMC should be close from the PMU office. All required furniture, hardware,

software, internet/phone connections, office stationary etc shall be provided by the PMC. The cost associated to this provision should be included in the financial proposal, as part of non-competitive component. The PMC shall include necessary transportation costs for the PMC operation. The contract will include cost for developing a GIS based PPMS.

Appendix 10: Terms of Reference
Project Management and Supervision Consultant to support the University of Malikussaleh

A. Background.

1. ADB is supporting the Ministry of Research, Technology and Higher Education (MoRTHE) with the preparation of the Advanced Knowledge and Skills for Inclusive Growth Project (AKSI). The proposed AKSI aims to support Indonesia's higher education system in providing advanced skills and knowledge to support inclusive and sustainable economic growth. The Project will support the University of Malikussaleh (UNIMAL), University of Jambi (UNJA), the University of Riau (UNRI), and the Universitas Pendidikan Indonesia (UPI) a teacher education university. The Project will construct a number of multi-storey buildings and the associated infrastructure facilities, such as roads, drainage, and mechanical/electrical equipment and installations, laboratories, and conduct degree and non-degree domestic and overseas training, procure laboratory equipment, and IT facilities. A Project Management and Supervision Consultant (PMSC) will be engaged in the respective universities, to provide day to day management support and construction supervision of the Project, to ensure compliance with environmental and other safeguards requirements, to ensure that the Project be completed in accordance with the defined technical specifications, on time, and within the budget.

B. Project Overview.

2. AKSI Project is part of Indonesia's long-term development plan for higher education, with the stated objectives of: (i) Increasing access to higher education, thus increasing enrollment rate; (ii) Improving quality, relevance, competitiveness, and accreditation of higher education through the enhancement of academic quality, facilities, human resources development, and research; (iii) Increasing quality and competitive higher education graduates.

3. The four universities, UNIMAL, UNJA, UNRI, and UPI have envisioned scope of work entails three categories of activities: (i) Development of teaching and research facilities, supporting infrastructures, and procurement of equipment; (ii) Development and improvement of the quality of human resources, including degree and non-degree programs for lecturers and university staff; (iii) Development of academic curriculum, applied research, and services, with an aligned management system in a specific focus area, which is referred to as development of center of excellence. Investment in UNIMAL, UNJA and UNRI will focus their centers of excellence on sustainable natural resources, agriculture, and marine and aquatic science respectively, while UPI will focus on TVET-teacher education to meet national priorities for skilled and highly skilled human resources. The project has the following outputs:

4. Output 1 is delivery of market responsive programs by UNIMAL, UNJA and UNRI, by:
   ix. upgrading UNIMAL, UNJA and UNRI through completing construction and equipping 33 new buildings, and finishing and equipping 1 unfinished building (with gender responsive, inclusive, and sustainable infrastructure).
   x. Training at least 586 additional teaching, management, research and support staff (of which 40% women) of UNIMAL, UNJA and UNRI to increase their understanding on market responsive programs and research;
   xi. Supporting development of centers of excellence in UNJA, UNIMAL and UNRI in Sustainable Natural Resources, Agriculture, Marine and Aquatic Science respectively in collaboration with industry, community and other stakeholders (a) to upgrade or develop at least 40 curricula; (b) to launch at least 21 new research programs connected to the center or excellence; (c) to provide at least 65 additional training or service programs; and (d) to sign at least 21 additional MoUs with industry and other stakeholders.

xii. In addition, as part of output the project will support MORTHE in developing a long-term investment strategy for the Higher Education and Advanced Skills Development Sector (financed by a Trust-fund TA support).

5. Output 2 is improved training of TVET teachers by:

ix. Upgrading UPI by completing construction and equipping 6 new buildings (including gender responsive, inclusive, and sustainable infrastructure) to become center of excellence in TVET teacher education and training.

x. Training at least 53 teaching, management, research and support staff (of which 40% are women) to increase understanding on designing and delivering accredited TVET teacher education programs.

xi. Supporting UPI as part of its center of excellence development to (a) establish 6 new S1 TVET teacher education programs; (b) to train at least 240 SMK-teachers (at least 40% female) in-service training programs, in collaboration with MOEC, relevant polytechnics, SMKs and industry (c), to certify at least 300 participants (at least 35% female) by the established LSP and PUK, and (d) to disseminate at least 2 case studies of UPI model for TVET teacher education and training model.

xii. In addition, as part of output 2, MORTHE will be support to develop a long-term vocational teacher education strategy in collaboration with all relevant stakeholders (financed by Trust fund TA support)

6. MORTHE through the Directorate General for Resources for Science, Technology and Higher Education (DGRSTH) will be the executing agency of the project, and the above four universities will be the project implementation units (PIUs). The MORTHE will establish a steering committee to guide and monitor the AKSI's overall implementation and ensure that the Project can be completed on time and within the available budget. The DGRSTH will establish a Project Management Unit (PMU), headed by the Director for Facilities and Infrastructure, which will have a Project Manager to be responsible for managing the PMU activities, project planning and implementation management, preparation of progress reports, and ensuring that ADB guidelines are complied. The PMU will have full coordination with the PIUs in the universities. The PMU will be supported by a Project Management Consultant (PMC). The PMU, with the support of its consultants, will determine annual works program, monitor progress in project implementation and ensure compliance with ADB's policies, including safeguards compliance,, procurement procedures, performance indicators, physical achievements and expenditures and preparation and submittal to the ADB of monthly, quarterly, bi-annual safeguards monitoring, and annual progress reports on overall project implementation.

7. UNIMAL, one of the PIUs, is a regional state university that primarily serves its bordering city and districts, located in Aceh province. UNIMAL has 8 (eight) faculties and Master degree programs. UNIMAL has two campuses, i.e., Bukit Indah which has an area of about 105 hectares, and Releut campus which has an area of approximately 84 hectares. Under the AKSI project UNIMAL will construct a number buildings and the associated supporting infrastructure facilities, procure laboratory equipment, and IT/ office computer facilities, mechanical/electrical equipment and installations, and conduct degree and non-degree domestic and overseas training. The new buildings will be designed to align with the current eco-green requirement and aimed to support favorable environment for learning and research. Below are the main features of the project in UNIMAL:

8. **Building Construction.** Table 1 below shows the list of buildings to be constructed by UNIMAL:

Table 1 – List of Buildings to be constructed by UNIMAL.

Buildings

Location	Building – UNIMAL	Fls	M2
Bukit Indah Campus	1) General Lectures Building (C)	3	3,000
	2) Finish and modify the Unfinished Administration Building to become Central Library Building and Student Activity Centrum	3	7,500
	3) Integrated Laboratory of Renewable Energy	2	2,700
	4) School of Engineering Building	2	3,000
	5) School of Economic Building	2	2,800
	6) School of Social Science and Politics Building	2	2,300
	7) School of Law Building	2	2,200
	Supporting Infrastructures: Roads and Parking, Drainage, Culverts, Energy Power Supply, IT connections, Landscaping, Water supply		
Reuleut Campus	8) General Lectures Building (D)	3	3,000
	9) Integrated Laboratory for Agriculture, Medicine and other general Sciences	2	2,700
	10) Green House	1	800
	11) Administration Office of Reuleut Campus, Integrated with Data center, international office and language Training Center	3	8,000
	12) School of Agriculture Building	3	2,300
	13) School of Teaching and Education	3	2,700
	14) School of Medicine Building	3	2,200
	15) University and Community Education, Exposition and Event Center integrated with University Training Center	*2*	4,800
	Supporting Infrastructures: Roads and Parking, Drainage, Culverts, Energy Power Supply, IT connections, Landscaping, Water supply		
Total	15 buildings, 14 new building, 1 unfinished building to be finished.		50,000

9. **IT Equipment, Laboratory Equipment, and Furniture.** UNIMAL will also procure equipment includes laboratory equipment, IT software and services, and Furniture for the buildings to support quality of learning and research to take place in the university.

C. Project Organization.

10. The Rector of UNIMAL will establish a PIU, led by a PIU manager. He/she will be supported by a vice manager, an executive secretary, and 5 (five) coordinators for M/E, Academic and Staff Development, Civil Works/Infrastructure, Procurement and Finance to manage the project. The PMU and the PIU structure is in Figs. 1 and 2, as follows:

Figure 1 - The PMU Organization Structure

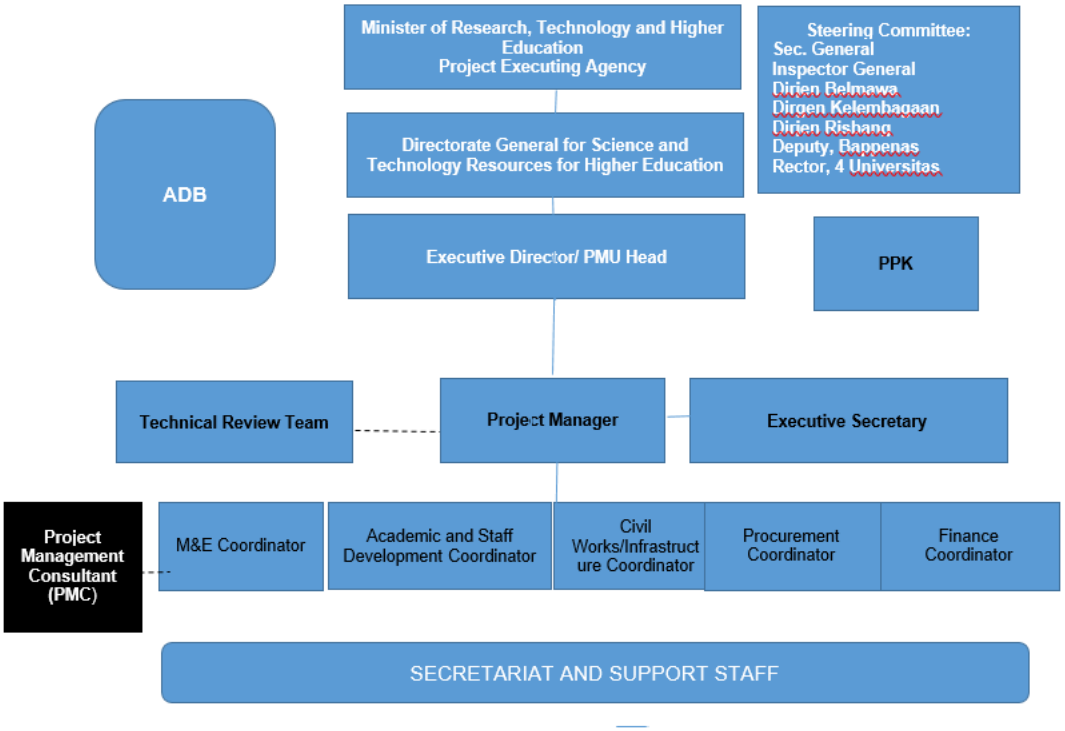
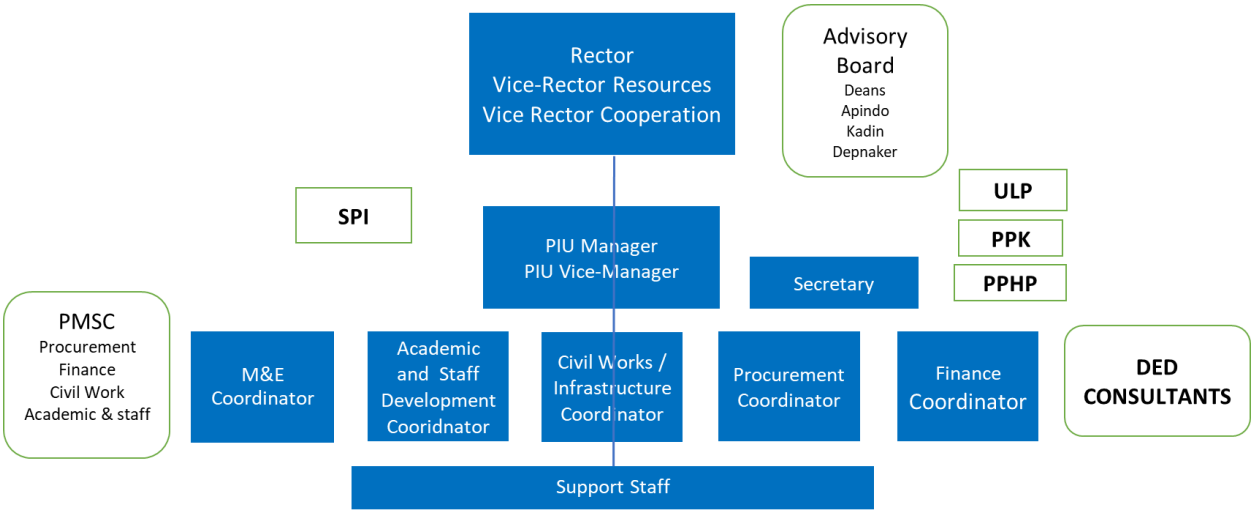


Figure 2 - The PIU Organization Structure



11. **Flow of the Documents.** Any submissions of documents and correspondences from the PIU related to the project implementation to the third parties, including to ADB will be channeled through the PMU office.

D. Objective of the Assignment

12. The PIU will recruit a PMSC team which is a national consulting firm with national experts who have experiences in project management and construction supervision of buildings. The Consultant shall provide support to the PIU in reviewing detailed engineering design (DED) documents, tendering, project management, construction supervision, environmental safeguards monitoring, reporting, and improve the agency's project management capacity. PMSC will also be responsible for the financial management of project-related activities including establishment of a financial management information system, assistance in accounting, and issuance of

payments certificates, etc. The ultimate target of the PMSC assignment is to complete the Project on schedule in a satisfactory manner, meet to the required technical specification, within the budget.

E. Scope of Services.

13. The PMSC shall provide project management services during the project lifetime, supervision to the building construction and the delivery of equipment and furniture.

13.1. **Project Management.** The PMSC shall support the PIU in day-to-day management of the Project. The tasks include but not limited to:

(a) support the PIU manager and team in setting project management plan for building construction, procurement of IT and other equipment, training, and other project related matters for the whole project life, and issuance of construction management and supervision manual (including design review);
(b) prepare and update master schedule of the Project;
(c) implement a system for management and supervising the project progress using computer based project management techniques;
(d) prepare all reporting formats relating to the project planning and implementation, in line with guidance from the PMU;
(e) support the PIU in compliance with environmental safeguards requirements as per the Safeguards Policy Statement and the Indonesian law and regulations, as agreed in the initial environmental examination (IEE) and its Environmental Management Plan (EMP). This includes monitoring the contractors in implementing the CEMP, managing the Grievance Redress Mechanism (GRM), updating the IEE if and when required, and reporting to the PMU.
(f) conduct due diligence to the DED and other supporting documents delivered by the DED consultants. The Consultant shall carry out site inspection to ensure that the DED is prepared accurately in accordance with the site condition, check and assure that the DEDs comply with the conceptual design, all user's requirement, as well as relevant standards and codes. Ensure that the DED documents are ready for bidding;
(g) conduct due diligence to the specifications and documents for IT equipment, other equipment, and furniture produced by the relevant design consultants in consultation with the user units;
(h) support the PIU in preparing tender documents, tendering, and responding to any inquiries from bidders;
(i) support the PIU to conduct preconstruction meetings with the winning contractors;
(i) support the PIU in obtaining all required permits from the national and local government prior to commencing the constructions;
(j) prepare project performance management system (PPMS), implement, and update;
(k) prepare unaudited project account to ensure that the project financial reporting is ready for external audits;
(l) Support the PIU in preparing and organizing review missions by ADB and monitoring and evaluation (M&E) by PMU
(m) prepare monthly, quarterly, bi-annually safeguards monitoring, annually and final reports, and other reports that may be required during the project implementation.

13.2. **Construction Supervision.** The PMSC shall perform the following tasks to supervise the building constructions.

(a) provide assistance and direction to the contractors and suppliers in all matters related to interpretation of the contract documents, testing procedures and other matters to comply with the contract requirements;
(b) ensure that the project implementation in all aspects is incompliance with various laws/Acts concerning the safety requirements and labour welfare;
(c) review daily work-plan submitted by the contractors prior to commencing the works;
(d) prior to the construction or installation, check quality of materials to be used for the Project and ensure incompliance with the technical specification. Conduct laboratory test for all construction materials related to the structure. Ensure that construction quality is compliant with technical specification.
(e) supervise the building construction, installation of the mechanical and electrical works, and IT, construction of supporting infrastructure facilities, and ensure that the technical specification meet the requirement;
(f) closely monitor the project schedule, milestones and manpower requirements, to ensure the completion of the Project timely.
(g) conduct mutual check with the contractors and compare between the bill of quantity (BOQ), drawing, and the actual construction;
(h) advise the PIU of any changes in the technical documents that may be deemed necessary for the completion of works, including information on any effects the change may impact on the contract amount and time of completion of the project and prepare all specifications and other details arising thereof;
(i) where variations of the quantities are requested by the Contractor, the following information should be provided in relation to contract variations: (i) data on which the original as-tendered design was based, (ii) a complete record of all new design data which is relevant to the variation, (iii) an as-built record showing the location and detailed dimensions of all works carried out to date under the contract,(iv) a copy of all previously approved variations and Contract Addenda, (v) a copy of the contractor's bid document, including all the tendered Unit Prices and detailed Unit Price Analysis, (vi) a description of the design assumptions adopted, (vii) drawings clearly showing both the original design and the proposed variation; and (viii) a rescheduled list of quantities and costs, relevant to the proposed variation.
(j) assess adequacy of all inputs including materials and labor and instruct corrective measures to the contractors when inadequacy of inputs is found. Take appropriate action in order to rectify and to expedite progress;
(k) ensure that the construction methods as proposed by the contractors are incompliance with the requirements and justified, this includes compliance with environmental safeguards as well as 'green' standards.;
(l) Monitor implementation of the Contractors Environmental Management Plan (CEMP) and ensure the contractor submits CEMP monitoring reports on a timely basis.
(m) certify achievement of the contractual milestones, and the satisfactory quality of the progress in every step, in line with the progress milestones;
(n) inspect the works on final completion before hand over and indicate to the PIU any outstanding work that needs to be carried out by the Contractor;
(o) ensure that the contractors submit as-built drawings prior to the request for certification of completion of the works;
(p) prepare defect liability list to be rectified by the contractors during maintenance period;
(q) issue certificate of completion, prepare provisional hand over (PHO) report, and final hand over (FHO) report when the defect liabilities have been rectified.

13.3. **Supervision to the Delivery of IT Equipment, Laboratory Equipment, and Office Furniture.** PMSC shall review and supervise the delivery of IT and laboratory equipment, and office furniture under the Project. The tasks include the followings:

(a) supervise the development of user's list proceses carried out by the Equipment Consultant Specialist (EQC), as well as delivery, installation, testing & commissioning carried out by suppliers;
(b) certify the achievement of the contractual milestones, and the satisfactory quality of the progress, in line with the progress milestone laid down in the contract;
(c) ensure that manual operations, and related guarantees and warranties are secured.

12.4. **Certification of Work Completion.** Prior to the issuance of certificate of work completion, and provisional hand over, the PMSC shall conduct mutual check with the contractors and ensure that the items as listed in the BOQ and its variations have been fully constructed or installed, tested and commissioned, and the contractors have submitted as-built drawings, and relevant warranties. A defect liability list to be rectified by the contractors during the maintenance period shall be prepared. Final hand over (FHO) can be done when all defect liabilities have been fully rectified.

12.5 **Dispute settlement.** The PMSC shall assist the PIU with regard to any matters related with subject to adjudication, dispute resolution, inquiry or litigation up to delivery certificate of completion

F. Staffing.

13. A total of 324 of national person-months of professional (key and non-key) experts will be required under the services. The team composition of consultants along with their estimated person-months is provided in Table 2. below:

Table 2 – Composition and Estimated Input of PMSC

No.	Position	Person Months
	Key Experts	
National Specialists		
1	Team Leader (Project Management Specialist – a Senior Civil Engineer or Senior Architect) (1 x 36 person months)	36
2	Deputy Team Leader and Civil Engineer (Structure) (1 x 60 person months)	60
3	Procurement Specialists (1 x 18 person months)	18
4	Project Engineers - Civil Engineers (2 X 48 person months)	96
5	Project Engineer - Architect (1 X 18 person months)	18
6	Project Engineer - Mechanical/Electrical Engineer (1 X 16 person months)	16
	Sub-total of Key-Experts	**244**
	Non-Key Experts (Professional)	
1	Financial Management Specialist/Project Performance Management System (PPMS) Specialist (1 x 48 person months)	48
2	IT /Equipment Specialist (1 x 8 person months)	8
3	Cost and Quantity Engineer (1x18 person months)	18
4	Environmental Specialist (1X6 person months)	6
	Sub Total Non-Key Experts	**80**

List of Sub-Professional and Support Staff (Non-Key Experts)

Sub-Professional Staff		
1	Chief Supervisors – (1X 48 person months)	48
2	Supervisors (Civil/Architects) (3 x 60 person months)	180
3	Supervisors (M/E) (2x 60 person months)	120
4	Supervisor (IT) (1X6 person months)	6
5	Landscape Specialist (1x6 person months)	6
	Sub-total Sub-Professional Staff	**360**

Support Staff		
1	Office Manager (1X40 person months)	40
2	Secretary (1X40 person months)	40
3	CAD Operator (1x54 person months)	54
4	Administrative Staff (2x40 person months)	80
5	Drivers (2x40 person months)	80
6	Security (2x40 person months)	80
	Sub-total Support Staff	**374**

14. **Qualifications and Tasks.** The consultant qualifications and the outlined tasks are as follows:

Qualifications and Tasks of Key-Experts and Non-Key Experts

(i) Team Leader and Senior Civil Engineer or Senior Architect: The specialist will preferably has a master's degree in civil engineering or architecture with relevant experience in managing building construction project teams. S/he will have relevant experience of about 15 years and should be fluent in English. S/he will be responsible for overall co-ordination of team activities and will be directly responsible to the PIU. The main responsibility will be to coordinate the project activities in a timely manner and ensure that the objective of this TOR is fulfilled to the satisfaction of the PIU. The Team Leader will also work as a project management specialist and oversee design works prepared by the DED consultants. The Team Leader shall provide technical guidance to all members of the team. S/he will have overall responsibility in technical advisory, management and monitoring all tasks under the contract, setting up technical guidance and standards as necessary. The responsibilities of the consultant shall include, but not be limited to, the following:

a. Maintain close contact with the PIU and Project Team and local government to ensure that the contract is implemented in accordance with the government's policies and guidelines;
b. Review the DED documents, the soundness, completeness and accuracy of building architectural systems, parts, and elements, and ensure that DED documents complied with national building codes, standards, and regulations;
c. Meet with the DED consultants to discuss the prepared DED;
d. Re-assess the incomplete buildings with the prepared DED;
e. Check quality of the documents prior to tendering;
f. Support the PIU in tendering all packages under the Project;
g. Chair weekly meetings with contractors;
h. Responsible for the overall management of the construction activities and promoting value engineering options where appropriate;
i. Check quality of the reports and cost estimates before submission of reports to the Project Team;
j. Ensure that all provisions of the TOR are fulfilled to the complete satisfaction of Client;
k. Ensure continued liaison, especially on technical matters between the team members and the PIU's Project Team;
l. Responsible for compliance with deliverable and reporting requirements, and provide sufficient resources in order to complete the contract successfully;
m. Reviewing any potential changes during construction, and coordinate with team member to estimate the cost impact.
n. Obtain appropriate reports and information from the PIU, and compilation of regular updates;
o. Prepare quality control documents related to deliverables;
p. Ensure compliance with environmental safeguards, including biannual environmental safeguards reporting reporting, including implementation of the EMP, updating of the IEE, if and when required, implementation of the GRM, and monitoring and maintaining the CEMP by the contractors.

q. Prepare presentations related to deliverables, and preparing workshop materials if required;
r. Prepare accurate evaluations of work done in relation to the defined milestones and facilitating the examination of work by the Client, and
s. Other aspects, as may be necessary for the project based on requirements of the PIU.

(ii) Deputy Team Leader – Senior Civil Engineer (Structure): The expert will preferably have a master's degree in civil engineering with relevant experience in supervision of building constructions. S/he shall assist the Team Leader for overall co-ordination of core team activities and will be responsible to the Team Leader. S/he will have relevant experience of about 10 years, with a valid professional engineering license. The main responsibility will be to coordinate the project activities and ensure that the objective of this TOR is fulfilled to the satisfaction of the Client.

The responsibilities of the consultant shall include, but not be limited to, the following:

a. Assist the Team Leader in the execution of the work in accordance with the TOR and also for the co-ordination of all professional inputs. S/he will be responsible to the Team Leader. S/he will also maintain close contact with the PIU Team and local government to ensure that the contract is implemented in accordance with the government's policies and guidelines;
b. Assist Team Leader to review the DED documents (drawings and specifications)
c. Conduct visual and initial structural assessment together with DED consultants to the incomplete building;
d. Assist the Team Leader in overall project management of the construction activities and advising modifications/revisions where necessary;
e. Check designs and cost estimates prior to approving the contractor to start working of every step of work;
f. Ensure continued liaison, especially on technical matters between the team members and the PIU;
g. Prepare quality control documents related to deliverables;
h. Prepare presentations related to deliverables,
i. Prepare accurate evaluations of work done in relation to the defined milestones and facilitating the examination of work;
j. Assist the Team Leader in timely preparation of reports.

(iii) Procurement Specialist: The consultant should preferably have a master's degree in public administration, law, or other related field with around 10-15 years of experience in public procurement practices and procedures, and around 7 years of procurement experience under ADB or WB funded projects. The consultant shall have experience in drafting contractual agreements and other related documents/agreements and in resolving legal issues related to public procurement in Indonesia. S/he shall have good knowledge of the institutional, technical, and commercial aspects of procurement; demonstrated experience in contract management at managerial level; fluency in spoken English and Bahasa; strong organization skills and ability to work in a team-oriented, dynamic and diverse environment with a proven track record of working effectively within multidisciplinary teams. The tasks of the Procurement Specialist include but are not limited to:

a. Assist PIU in updating procurement documents for bidding to be in line with ADB procurement guidelines;
b. Assist PIU in supporting the PIU to tender all packages under the Project, responding bidder queries, and tender evaluation.
c. Assist the PIU in contract management with the winning contractors;
d. Assist the PIU in all matters related to the use of e – procurement

e. Set up a procurement management tracking system for the PIU that would monitor the implementation of procurement activities;
f. Assess the procurement risk and put in place appropriate review and supervision processes and thresholds to mitigate those risks;
g. Assist PIU in evaluating contract variation from contractors and checking the available budget.
h. Provide inputs on procurement related matters to the team leader for preparing consultant's report.

(iv) Project Engineers (Civil Engineering): The consultant shall have a bachelor degree in civil engineering with demonstrated work experience in construction supervision of buildings of about 10 years, preferably in supervising high-rise buildings. The consultant shall have experience in structural quality control, construction materials laboratory tests, construction problem solving, and project reporting. The tasks include but are not limited to:

Support the Team Leader to:

a. Check the proposed site management by the contractors
b. Supervise all construction works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
c. Certify all materials to be used in the Project prior to construction
d. Check the required permits obtained by the contractors prior to construction
e. Ensure construction safety in each step of implementation of the contractors
f. Check and certify completed works for payment purposes

(v) Project Engineer (Architecture): The consultant shall have a bachelor degree in building architecture with (5) five years demonstrated work experience in design and supervision of buildings architectural works. The Project Engineer for Architectural Works is responsible to the selection of architectural materials in consultation with the PIU and ensure proper installation of the architectural works. The tasks of project engineers include:

a. Supervise all architectural works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
b. Certify all materials to be used in the Project prior to construction;
c. Check the required permits obtained by the contractors prior to construction
d. Ensure construction safety in each step of implementation of the contractors
e. Check and certify completed works for payment purposes

(vi) Project Engineer (Mechanical/Electrical): The consultant shall have a bachelor degree in mechanical/electrical engineering with a minimum of 10 years demonstrated work experience in supervising buildings' mechanical/electrical installation, i.e., escalator, lift, air conditioning, electrical installations. The tasks of the M/E project officer, includes but are not limited to:

Supports the Team Leader to:

a. Supervise all mechanical and electrical works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
b. Review the soundness, completeness, and accuracy of building mechanical, electrical, and plumbing system.
c. Certify all materials to be used in the Project prior to installation
d. Check the required permits obtained by the contractors prior to installation
e. Ensure installation safety in each step of implementation.
f. Test of the completed installations
g. Certify the completed works for payment purposes

(vii) Financial Management Specialist: The consultant should have a bachelor's degree in accounting, business administration, finance and about 8-10 years of relevant experience in financial management of international financed projects. Preference will be given to those who are certified public accountants or have other recognized accounting certification. S/he will monitor the financial management system of the project, and establish a sound accounting practice and system to manage the resources available to the Project.

a. Assist PIU in preparing good quality and timely submission of the monthly, quarterly and annual project financial statements;
b. Assist the PIU in managing fund flow in accordance with component and expenditure categories funded by the project;
c. Assist the PIU in evaluating invoices submitted by contractors and convert them to applicable withdrawal applications in ADB format;
d. Identify any issues in the financial management system for project implementation and recommend measures to address the issues identified;
e. Develop project performance management system and update it regularly

(viii) IT Specialist: The consultant shall have a bachelor degree in information and technology faculty with demonstrated work experience in supervision of building IT installations. The consultant shall have experience in IT installation and quality control of office buildings of at least 7 (seven) years. The IT Specialist is to

a. Supervise all IT works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
b. Certify all materials to be used in the Project prior to installation
c. Check the required permits obtained by the contractors prior to installation
d. Ensure installation safety in each step of implementation.
e. Test the completed installations
f. Certify the completed works for payment purposes
g. Review specification of the IT and the office computers to be procured under the Project and supervise the installation.

(ix) Cost and Quantity Engineer: The consultant shall have a bachelor degree in civil engineering, law, or commerce faculty or related field with demonstrated work experience in preparing contract documents for building projects. Appropriate experience will include procurement of public works infrastructure in Indonesia. S/he will have relevant experience of about 7 years. S/he must be thoroughly familiar with procurement rules in Indonesia. The responsibilities of the consultant to the Team Leader shall include, but not be limited to, the following:

a. Evaluate the quality of data and completing quality control documents as prepared by DED consultants;
b. Evaluate quantity estimates based on the DED as prepared by the DED consultants;
c. Check cost estimates based on approved specifications and formats;
d. Assist in preparing bidding documents for works;
e. Assist the Team Leader and Deputy Team Leader in timely preparation of reports; and
f. Provide other required support to the project based on requirements of the PIU.

(x) Environmental Specialist: The specialist will preferably have a bachelor in environmental management, natural sciences or a related field with demonstrated work experience in environmental studies for building projects. S/he will have relevant experience of about 5 years. S/he must be thoroughly familiar with Indonesia's regulatory framework for environmental management. S/He should be familiair with ADB's environmental safeguards requirements as stipulated in the Safeguards Policy Statement (SPS). Actual experience with implementation of ADB projects in which this policy was applied is preferred. S/he should have

accreditation from the government as an environmental specialist as per the EIA Regulations in Indonesia and should be fluent in English and Bahasa Indonesia. The Specialist will be responsible for implementation of the EMP, monitoring of the implementation of the CEMP by the contractors, preparing the bi-annual environmental monitoring progress reports, and support updating of the IEE, if and when required. The environmental monitoring report, shall include among others: (i) actual environmental mitigation by the contractors, (ii) protection measures, (iii) advices provided to contractors. The report shall be made in quarterly basis.

Sub-Professional Staff	
Chief Supervisor	Bachelor Degree from Civil Engineering or equivalent, with at least 10 (ten) years of experience in construction supervision of building projects. Responsible for supervising all technical works, sequence, construction safety, quantity and quality of the construction to be done by the contractors.
Supervisors (Civil/Architects)	Shall have technical background from at least polytechnic education of civil engineering or architecture or equivalent with at least 10 years of experience in supervising building construction. Responsible for supervising all technical works, sequence, construction safety, quantity and quality of the construction to be done by the contractors.
Supervisors (M/E)	Shall have technical background from at least polytechnic education majoring electrical or mechanical engineering or equivalent with at least 10 years of experience in supervising M/E installations and works in building construction. Responsible for supervising all M/E works, sequence, installation safety, quantity and quality of the M/E installation by the contractors.
Supervisor (IT)	Shall have an IT background from an IT education or polytechnic with at least 7 (seven) years of experience in supervising IT works in building projects. Responsible for supervising all IT works, sequence, installation safety, quantity and quality of the IT installation by the contractors.
Landscape Specialist	Shall have graduated from architecture engineering/landscape or equivalent with at least 5 (five) years of experience in landscape works of building complexes. Responsible for supervising, advising, and ensuring that the landscape works by the contractors are in line with the design and specifications.

G. Duration of Services and Deliverables

15. **Duration of Services**. The expected duration of the consultants' services is 5 (five) years. The first year of the services will be used to support the PIU to review the design as prepared by the DED consultants, and biddings. Construction of buildings is estimated to start by the end of the first year of services. The implementation schedule is in **Annex 1.**

16. During the contractors' defect liability period of 12 months, the deputy team leader and the project engineers (civil engineer, M/E, or architecture) shall be available in the site office on intermittent basis.

17. **Deliverables.** The following meetings, reporting, and preparing of operation manuals shall be delivered timely:

(i) **Meetings.** The Consultant shall conduct meetings with the PIU, the contractors, and other stakeholders, as follows:

a. Daily meetings (to be attended by contractor);
b. Weekly meetings (TL, project engineers, supervisors, and contractors) and PIU representatives.
c. Monthly meetings (TL, project engineers, contractors, DED consultants, EQC, PIU and PMU representatives)
d. Quarterly meetings (TL, project engineers, contractors, DED consultants, EQC, PIU and PMU representatives)
e. Ad-hoc meetings.

(ii) **Reporting**

Inception Report

An inception report along with a construction supervision manual in 5 copies each shall be submitted by the Consultant within 15 days after commencement of services. The inception report shall contain :

a. the details of all meetings held with the PIU and the Contractors and Suppliers/Vendors and the decisions taken therein, the resources mobilized by the Consultants as well as the Contractor and the Consultants' perception in the management and supervision of the project with detailed situational analysis of the current structure**;**
b. the master work program and resource mobilization plan for the project;
c. the supervision 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 Project Management and Supervision Consultant in discharging their duties in a smooth and systematic manner.

Progress reports

The progress reports should clearly indicate the contractor's performance, quality of work, delays, deficiencies, constraints, and the project's financial status, forecasts, and giving recommendation for actions. The reports consist of :

Weekly progress report: to be submitted on the last day of the week, every month.

Monthly progress report: Monthly progress report shall be submitted to the PIU and it shall be brief and concise and provide 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 contractor and supervision staff.
c. Monitoring and evaluation of project progress.
d. Project accounts, payments of approved bills, claims, certificates and payment and variation orders.
e. Photographs showing progress of the works.
f. Other issues as may be necessary to provide additional information to the PIU/PMU Manager.
g. Monthly progress Report will be prepared at the end of each calendar month and delivered before 10^{th} day of the following month in 10 copies.

Quarterly Progress Report: A detailed quarterly report in 5 copies shall be submitted within 7 days of the end of each quarter and one copy each to be sent to PIU. The PIU will then submit the reports to the PMU, MoRTHE, Bappenas and ADB. Quarterly reports should include description of project activities, illustrated by progress/completion photographs, status of any delays and contractual claims, and details of all latest financial projections. The progress reports (monthly and quarterly) shall contain details of all meetings, decisions taken therein, mobilization of resources (Consultants' and the Contractors'), physical and financial progress and the projected progress for the forthcoming periods. The report shall clearly bring out the delays, if any, reasons for such delay (s) and the recommendations for corrective measures. The report shall also contain the performance data for Contractor's plan and equipment.

Specific Report: The relevant specialists should prepare the bi-annual environmental safeguards monitoring report, as well as the gender monitoring and assessment reports on quarterly basis. The reports shall consist of assessment to the inclusion of environmental safeguards requirements and gender in the building designs and construction methodology, during construction, and the specialist's technical advices.

Final report. A detailed final completion report in 5 copies should be submitted to the PIU. The final report is to be submitted, in draft form, one month before the completion of PMSC services, summarizing the method of construction, the construction supervision performed, recommendations on future maintenance requirements, all technical matters arising during the construction of the buildings, potential problems on the newly constructed works which may be expected, and giving suggestions, if any, for various needed improvements in future projects of similar nature undertaken by the University. The final report shall also include a copy of all "As Built Drawings". The Final Report shall be submitted at the completion of services, including any comments received on the draft final report. All Reports and data collected or produced during the project, and all programs and other materials developed, prepared or obtained during the project, will be the property of the University, and are to be provided as requested, and handed over at the end of the Project, to the PIU Project Manager.

Other Reports. The PMSC shall prepare other specific purposes reports that may be required during the project lifetime.

Maintenance Manual. Manual detailing routine and periodic maintenance tasks that will be required to maintain the completed project shall be prepared and submitted by the PMSC. Draft copies of this manual should be submitted for comments to the PIU within 12 months of commencing services.

H. Contract and Payment Terms

18. The PIU shall sign a time-based contract with the selected PMSC for providing project management and supervision services. Payment terms will be determined further.

I. Client's Input and Counterpart Personnel

19. The PIU shall provide the following:

a. All available documents, reports, data and all other information related to the proposed assignment.
b. Any letters or assistance required by the consultants in obtaining all necessary permits and authorizations for carrying out the services.
c. The PIU will assign a counterpart personnel to represent the PIU.

20. The Consultant shall provide the following:

a. The Consultant shall establish a site office. All required furniture, hardware, software, internet/phone connections, office stationary etc shall be provided by the Consultant. The cost associated to this provision should be included in the financial proposal, as part of non-competitive component.
b. The Consultant shall include necessary transportation costs at the project site including vehicles rental and in their cost of operation.

J. Actions Requiring Specific Approval of the PIU

21. The Consultant will require specific approval from the PIU as listed in Table 3 below:

Table 3 – Actions Requiring Specific Approval from PIU

Actions Requiring Specific Approval

1. Consenting to the subcontracting/subletting of any part of the works.
2. Certifying additional cost determined.
3. Ordering suspension of work.
4. Issuing the notice to commence the work.
5. Approval of any extension of contractual time limits.
6. Any variations or deviations proposed by the Contractor with financial implications including variation in work quantities.
7. Approval of any new rates either for existing items of work, which arises from variation quantities beyond the limit, defined in the contract or fixing rates of non-priced works involving any extra item and certifying any additional cost determined under the provisions of work contract;
8. Issuing the order for special tests not provided for in the contract and determining the cost of such tests, which shall be added to the contract price.
9. Issuing/approving the technical specifications, if not provided in the construction contract.

Appendix 11: Terms of Reference
Project Management and Supervision Consultant to support the University of Jambi

A. Background.

1. ADB is supporting the Ministry of Research, Technology and Higher Education (MoRTHE) with the preparation of the Advanced Knowledge and Skills for Inclusive Growth Project (AKSI). The proposed AKSI aims to support Indonesia's higher education system in providing advanced skills and knowledge to support inclusive and sustainable economic growth. The Project will support the University of Malikussaleh (UNIMAL), University of Jambi (UNJA), the University of Riau (UNRI), and the Universitas Pendidikan Indonesia (UPI) a teacher education university. The Project will construct a number of multi-storey buildings and the associated infrastructure facilities, such as roads, drainage, and mechanical/electrical equipment and installations, laboratories, and conduct degree and non-degree domestic and overseas training, procure laboratory equipment, and IT facilities. A Project Management and Supervision Consultant (PMSC) will be engaged in the respective universities, to provide day to day management support and construction supervision of the Project, to ensure compliance with environmental and other safeguards requirements, to ensure that the Project be completed in accordance with the defined technical specifications, on time, and within the budget.

B. Project Overview.

2. AKSI Project is part of Indonesia's long-term development plan for higher education, with the stated objectives of: (i) Increasing access to higher education, thus increasing enrollment rate; (ii) Improving quality, relevance, competitiveness, and accreditation of higher education through the enhancement of academic quality, facilities, human resources development, and research; (iii) Increasing quality and competitive higher education graduates.

3. The four universities, UNIMAL, UNJA, UNRI, and UPI have envisioned scope of work entails three categories of activities: (i) Development of teaching and research facilities, supporting infrastructures, and procurement of equipment; (ii) Development and improvement of the quality of human resources, including degree and non-degree programs for lecturers and university staff; (iii) Development of academic curriculum, applied research, and services, with an aligned management system in a specific focus area, which is referred to as development of center of excellence. Investment in UNIMAL, UNJA, and UNRI will focus their centers of excellence on sustainable natural resources, agriculture, and marine and aquatic science respectively, while UPI will focus on TVET-teacher education to meet national priorities for skilled and highly skilled human resources. The project has the following outputs:

4. Output 1 is delivery of market responsive programs by UNJA, UNIMAL and UNRI, by:
   i. upgrading UNJA, UNIMAL and UNRI through completing construction and equipping 33 new buildings and finishing and equipping 1 unfinished building (with gender responsive, inclusive, and sustainable infrastructure).
   ii. Training at least 586 additional teaching, management, research and support staff (of which 40% women) of UNJA, UNIMAL and UNRI, to increase their understanding on market responsive programs and research
   iii. Supporting development of centers of excellence in UNJA, UNIMAL and UNRI in Sustainable Natural Resources, Agriculture, Marine and Aquatic Science respectively in collaboration with industry, community and other stakeholders (a) to upgrade or develop at least 40 curricula; (b) to launch at least 21 new research programs connected to the center or excellence; (c) to provide at least 65 additional training or service programs; and (d) to sign at least 21 additional MoUs with industry and other stakeholders.

iv. In addition, as part of output the project will support MORTHE in developing a long-term investment strategy for the Higher Education and Advanced Skills Development Sector (financed by a Trust-fund TA support).

5. Output 2 is improved training of TVET teachers by:

i. Upgrading UPI by completing construction and equipping 6 new buildings (including gender responsive, inclusive, and sustainable infrastructure) to become center of excellence in TVET teacher education and training.
ii. Training at least 53 teaching, management, research and support staff (of which 40% are women) to increase understanding on designing and delivering accredited TVET teacher education programs.
iii. Supporting UPI as part of its center of excellence development to (a) establish 6 new S1 TVET teacher education programs; (b) to train at least 240 SMK-teachers (at least 40 % female) in-service training programs, in collaboration with MOEC, relevant polytechnics, SMKs and industry (c), to certify at least 300 participants (at least 35% female) by the established LSP and PUK, and (d) to disseminate at least 2 case studies of UPI model for TVET teacher education and training model.
iv. In addition, as part of output 2, MORTHE will be support to develop a long-term vocational teacher education strategy in collaboration with all relevant stakeholders (financed by Trustfund TA support)

6. MORTHE through the Directorate General for Resources for Science, Technology and Higher Education (DGRSTH) will be the executing agency of the project, and the above four universities will be the project implementation units (PIUs). The MORTHE will establish a steering committee to guide and monitor the AKSI's overall implementation and ensure that the Project can be completed on time and within the available budget. The DGRSTH will establish a Project Management Unit (PMU), headed by the Director for Facilities and Infrastructure, which will have a Project Manager to be responsible for managing the PMU activities, project planning and implementation management, preparation of progress reports, and ensuring that ADB guidelines are complied. The PMU will have full coordination with the PIUs in the universities. The PMU will be supported by a Project Management Consultant (PMC). The PMU, with the support of its consultants, will determine annual works program, monitor progress in project implementation and ensure compliance with ADB's policies, including safeguards compliance, procurement procedures, performance indicators, physical achievements and expenditures and preparation and submittal to the ADB of monthly, quarterly, bi-annual safeguards monitoring, and annual progress reports on overall project implementation.

7. UNJA is a regional state university. The activities is spread over 6 (six) campuses, all located in Jambi province. At current state, UNJA has 14 faculties and post graduate's programs. Under the Project, UNJA intends to expand accessibility to higher education, increase quality of education, improve relevance education stakeholders' needs, promote the institutional as well as graduate's competitiveness, and improve the university's management and leadership. UNJA also intends to develop itself in center of excellence in the area sustainable natural resources management, with the support of relevant infrastructure construction and human resources development. The new buildings will be designed to align with the current eco-green requirement and aimed to support favorable environment for learning and research.

8. Table 1 below shows the list of buildings to be constructed by UNJA:

Table 1 – Outline of the UNJA project.

Buildings Proposed by UNJA

Location	Building – **UNJA**	Fls	M2
Mendalo Campus	1) University and Faculty Administration Center	7	9,361
	2) Integrated Classroom A	5	8,500
	3) Integrated Classroom B	5	8,250
	4) Integrated Classroom C	3	6,600
	5) Engineering (Science) Laboratory	3	3,600
	6) Integrated Social Science Laboratory	3	3,600
	7) Student Activity Center	4	4,800
	Road and parking		4,000
	Solar Energy System		
	Water Treatment System		
	Landscaping		
Telanaipura Campus	8) Postgraduate Center	6	8,733
Buluran Campus	9) Faculty of Medical & Health Sciences	6	6,236
Total	9 new buildings		63,680

9. **Equipment and Furniture.** UNJA will also procure equipment includes laboratory equipment, IT software and services, and Furniture for the buildings to support quality of learning and research to take place in the university.

C. Project Organization.

10. The Rector of UNJA will establish a PIU, led by a PIU manager. He/she will be supported by a vice manager, an executive secretary, and 5 (five) coordinators for M/E, Academic and Staff Development, Civil Works/Infrastructure, Procurement and Finance to manage the project. The PMU and the PIU structure is in Figs. 1 and 2, as follows:

Figure 1 - The PMU Organization Structure

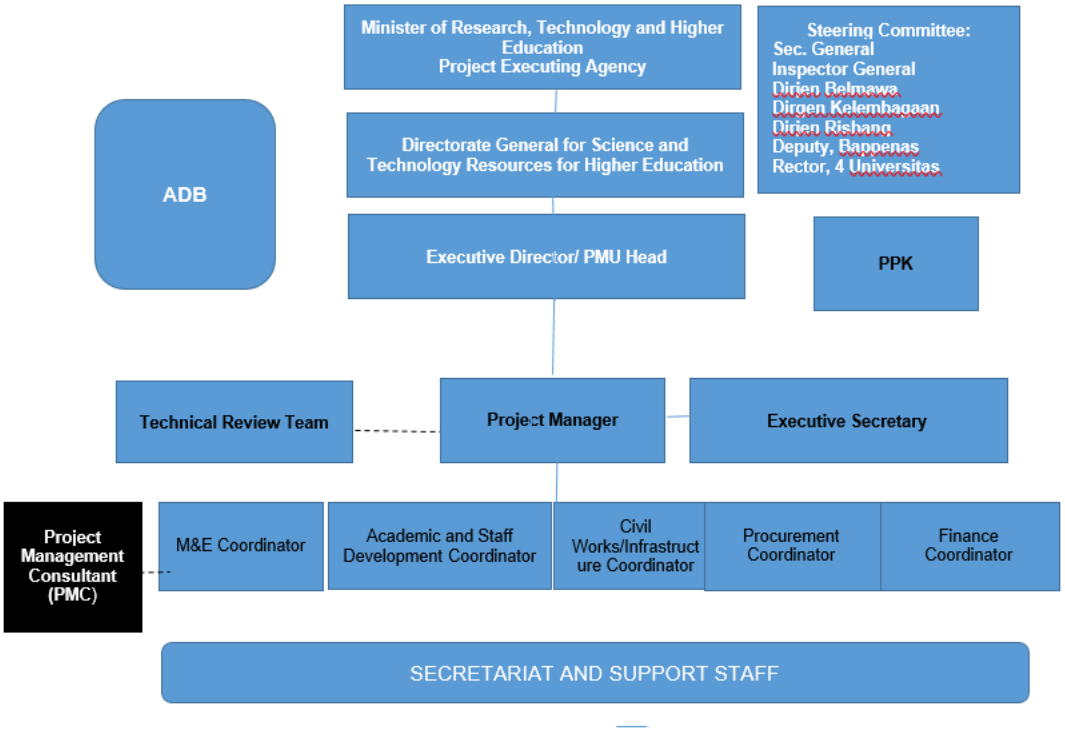
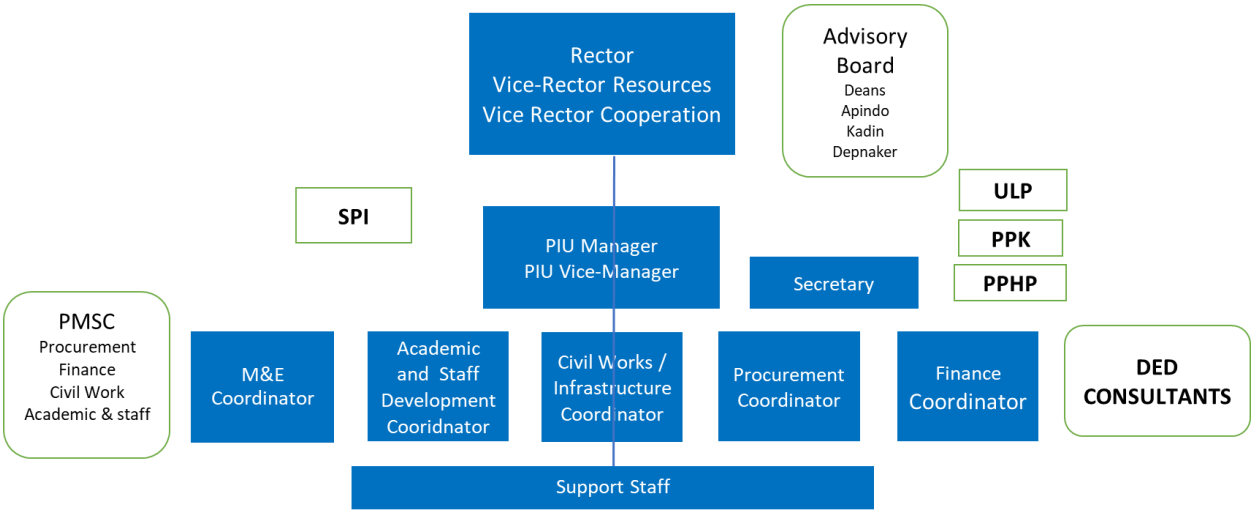


Figure 2 - The PIU Organization Structure



11. **Flow of the Documents.** Any submissions of documents and correspondences from the PIU related to the project implementation to the third parties, including to ADB will be channeled through the PMU office.

D. Objective of the Assignment

12. The PIU will recruit a PMSC team which is a national consulting firm with national experts who have experiences in project management and construction supervision of buildings. The Consultant shall provide support to the PIU in reviewing detailed engineering design (DED) documents, tendering, project management, construction supervision, environmental safeguards monitoring, reporting, and improve the agency's project management capacity. PMSC will also be responsible for the financial management of project-related activities including establishment

of a financial management information system, assistance in accounting, and issuance of payments certificates, etc. The ultimate target of the PMSC assignment is to complete the Project on schedule in a satisfactory manner, meet to the required technical specification, within the budget.

E. Scope of Services.

13. The PMSC shall provide project management services during the project lifetime, supervision to the building construction and the delivery of equipment and furniture.

13.1. **Project Management.** The PMSC shall support the PIU in day-to-day management of the Project. The tasks include but not limited to:

(a) support the PIU's Manager and team in setting project management plan for building construction, procurement of IT and other equipment, training, and other project related matters for the whole project life, and issuance of construction management and supervision manual (including design review);
(b) prepare and update master schedule of the Project;
(c) implement a system for management and supervising the project progress using computer based project management techniques;
(d) prepare all reporting formats relating to the project planning and implementation in line with PMU guidance;
(e) support the PIU in compliance with environmental safeguards requirements as per the Safeguards Policy Statement and the Indonesian law and regulations, as agreed in the initial environmental examination (IEE) and its Environmental Management Plan (EMP). This includes monitoring the contractors in implementing the CEMP, managing the Grievance Redress Mechanism (GRM), updating the IEE if and when required, and reporting to the PMU.
(f) conduct due diligence to the DED and other supporting documents delivered by the DED consultants. The Consultant shall carry out site inspection to ensure that the DED is prepared accurately in accordance with the site condition, check and assure that the DEDs comply with the conceptual design, all user's requirement, as well as relevant standards and codes. Ensure that the DED documents are ready for bidding;
(g) conduct due diligence to the specifications and documents for IT equipment, other equipment, and furniture produced by the relevant design consultants in consultation with the user unit;
(h) support the PIU in preparing tender documents, tendering, and responding to any inquiries from bidders;
(i) support the PIU to conduct preconstruction meetings with the winning contractors;
(i) support the PIU in obtaining all required permits from the national and local government prior to commencing the constructions;
(j) prepare project performance management system (PPMS), implement, and update;
(k) prepare unaudited project account to ensure that the project financial reporting is ready for external audits;
(l) Support the PIU in preparing and organizing review missions by ADB and monitoring and evaluation (M&E) by PMU;

(m) prepare monthly, quarterly, bi-annually safeguards monitoring, annually and final reports, and other reports that may be required during the project implementation.

13.2. **Construction Supervision. The PMSC shall perform the following tasks to supervise the building constructions.**

(a) provide assistance and direction to the contractors and suppliers in all matters related to interpretation of the contract documents, testing procedures and other matters to comply with the contract requirements;
(b) ensure that the project implementation in all aspects is incompliance with various laws/Acts concerning the safety requirements and labour welfare;
(c) review daily work-plan submitted by the contractors prior to commencing the works;
(d) prior to the construction or installation, check quality of materials to be used for the Project and ensure incompliance with the technical specification. Conduct laboratory test for all construction materials related to the structure. Ensure that construction quality is compliant with technical specification.
(e) supervise the building construction, installation of the mechanical and electrical works, and IT, construction of supporting infrastructure facilities, and ensure that the technical specification meet the requirement;
(f) closely monitor the project schedule, milestones and manpower requirements, to ensure the completion of the Project timely.
(g) conduct mutual check with the contractors and compare between the bill of quantity (BOQ), drawing, and the actual construction;
(h) advise the PIU of any changes in the technical documents that may be deemed necessary for the completion of works, including information on any effects the change may impact on the contract amount and time of completion of the project and prepare all specifications and other details arising thereof;
(i) where variations of the quantities are requested by the Contractor, the following information should be provided in relation to contract variations: (i) data on which the original as-tendered design was based, (ii) a complete record of all new design data which is relevant to the variation, (iii) an as-built record showing the location and detailed dimensions of all works carried out to date under the contract,(iv) a copy of all previously approved variations and Contract Addenda, (v) a copy of the contractor's bid document, including all the tendered Unit Prices and detailed Unit Price Analysis, (vi) a description of the design assumptions adopted, (vii) drawings clearly showing both the original design and the proposed variation; and (viii) a rescheduled list of quantities and costs, relevant to the proposed variation.
(j) assess adequacy of all inputs including materials and labor and instruct corrective measures to the contractors when inadequacy of inputs is found. Take appropriate action in order to rectify and to expedite progress;
(k) ensure that the construction methods as proposed by the contractors are incompliance with the requirements and justified; this includes compliance with environmental safeguards as well as 'green' standards
(l) Monitoring implementation of the Contractors Environmental Management Pan (CEMP) and ensure the contractor submits the CEMP monitoring reports on a timely basis
(m) certify achievement of the contractual milestones, and the satisfactory quality of the progress in every step, in line with the progress milestones;
(n) inspect the works on final completion before hand over and indicate to the PIU any outstanding work that needs to be carried out by the Contractor;
(o) ensure that the contractors submit as-built drawings prior to the request for certification of completion of the works;
(p) prepare defect liability list to be rectified by the contractors during maintenance period;
(q) issue certificate of completion prepare provisional hand over (PHO) report, and final hand over (FHO) report when the defect liabilities have been rectified.

13.3. **Supervision to the Delivery of IT Equipment , Laboratory Equipment, and Office Furniture.** PMSC shall review and supervise the delivery of IT and laboratory equipment, and office furniture under the Project. The tasks include the followings:

(a) supervise the development of user's list proceses carried out by the Equipment Consultant Specialist (EQC), as well as delivery, installation, testing & commissioning carried out by suppliers;
(b) certify the achievement of the contractual milestones, and the satisfactory quality of the progress, in line with the progress milestone laid down in the contract;
(c) ensure that manual operations, and related guarantees and warranties are secured.

12.4 **Certification of Work Completion.** Prior to the issuance of certificate of work completion, and provisional hand over, the PMSC shall conduct mutual check with the contractors and ensure that the items as listed in the BOQ and its variations have been fully constructed or installed, tested and commissioned, and the contractors have submitted as-built drawings, and relevant warranties. A defect liability list to be rectified by the contractors during the maintenance period shall be prepared. Final hand over (FHO) can be done when all defect liabilities have been fully rectified.

12.6 **Dispute settlement.** The PMSC shall assist the PIU with regard to any matters related with subject to adjudication, dispute resolution, inquiry or litigation up to delivery certificate of completion

F. Staffing.

22. A total of 324 of national person-months of professional (key and non-key) experts will be required under the services. The team composition of consultants along with their estimated person-months is provided in Table 2. below:

Table 2 – Composition and Estimated Input of PMSC

No.	Position	Person Months
	Key Experts	
National Specialists		
1	Team Leader (Project Management Specialist – a Senior Civil Engineer or Senior Architect) (1 x 36 person months)	36
2	Deputy Team Leader and Civil Engineer (Structure) (1 x 60 person months)	60
3	Procurement Specialists (1 x 18 person months)	18
4	Project Engineers - Civil Engineers (2 X 48 person months)	96
5	Project Engineer - Architect (1 X 18 person months)	18
6	Project Engineer - Mechanical/Electrical Engineer (1 X 16 person months)	16
	Sub-total of Key-Experts	**244**
	Non-Key Experts (Professional)	
1	Financial Management Specialist/Project Performance Management System (PPMS) Specialist (1 x 48 person months)	48
2	IT /Equipment Specialist (1 x 8 person months)	8
3	Cost and Quantity Engineer (1x18 person months)	18
4	Environmental Specialist (1X6 person months)	6
	Sub Total Non-Key Experts	**80**

List of Sub-Professional and Support Staff (Non-Key Experts)

Sub-Professional Staff		
1	Chief Supervisors – (1X 48 person months)	48
2	Supervisors (Civil/Architects) (3 x 60 person months)	180
3	Supervisors (M/E) (2x 60 person months)	120
4	Supervisor (IT) (1X6 person months)	6
5	Landscape Specialist (1x6 person months)	6

	Sub-total Sub-Professional Staff	**360**
Support Staff		
1	Office Manager (1X40 person months)	40
2	Secretary (1X40 person months)	40
3	CAD Operator (1x54 person months)	54
4	Administrative Staff (2x40 person months)	80
5	Drivers (2x40 person months)	80
6	Security (2x40 person months)	80
	Sub-total Support Staff	**374**

23. **Qualifications and Tasks.** The consultant qualifications and the outlined tasks are as follows:

Qualifications and Tasks of Key-Experts and Non-Key Experts

(i) **Team Leader and Senior Civil Engineer or Senior Architect**: The specialist will preferably has a master's degree in civil engineering or architecture with relevant experience in managing building construction project teams. S/he will have relevant experience of about 15 years and should be fluent in English. S/he will be responsible for overall co-ordination of team activities and will be directly responsible to the PIU. The main responsibility will be to coordinate the project activities in a timely manner and ensure that the objective of this TOR is fulfilled to the satisfaction of the PIU. The Team Leader will also work as a project management specialist and oversee design works prepared by the DED consultants. The Team Leader shall provide technical guidance to all members of the team. S/he will have overall responsibility in technical advisory, management and monitoring all tasks under the contract, setting up technical guidance and standards as necessary. The responsibilities of the consultant shall include, but not be limited to, the following:

a. Maintain close contact with the PIU and Project Team and local government to ensure that the contract is implemented in accordance with the government's policies and guidelines;
b. Review the DED documents, the soundness, completeness and accuracy of building architectural systems, parts, and elements, and ensure that DED documents complied with national building codes, standards, and regulations;
c. Meet with the DED consultants to discuss the prepared DED;
d. Re-assess the incomplete buildings with the prepared DED;
e. Check quality of the documents prior to tendering;
f. Support the PIU in tendering all packages under the Project;
g. Chair weekly meetings with contractors;
h. Responsible for the overall management of the construction activities and promoting value engineering options where appropriate;
i. Check quality of the reports and cost estimates before submission of reports to the Project Team;
j. Ensure that all provisions of the TOR are fulfilled to the complete satisfaction of Client;
k. Ensure continued liaison, especially on technical matters between the team members and the PIU's Project Team;
l. Responsible for compliance with deliverable and reporting requirements, and provide sufficient resources in order to complete the contract successfully;
m. Reviewing any potential changes during construction, and coordinate with team member to estimate the cost impact.
n. Obtain appropriate reports and information from the PIU, and compilation of regular updates;

o. Prepare quality control documents related to deliverables;
p. Ensure compliance with environmental safeguards, including biannual environmental safeguardsreporting reporting, including implementation of the EMP, updating of the IEE, if and when required, implementation of the GRM, and monitoring and maintaining the CEMP by the contractors.
q. Prepare presentations related to deliverables, and preparing workshop materials if required;
r. Prepare accurate evaluations of work done in relation to the defined milestones and facilitating the examination of work by the Client, and
s. Other aspects, as may be necessary for the project based on requirements of the PIU.

(ii) Deputy Team Leader – Senior Civil Engineer (Structure): The expert will preferably have a master's degree in civil engineering with relevant experience in supervision of building constructions. S/he shall assist the Team Leader for overall co-ordination of core team activities and will be responsible to the Team Leader. S/he will have relevant experience of about 10 years, with a valid professional engineering license. The main responsibility will be to coordinate the project activities and ensure that the objective of this TOR is fulfilled to the satisfaction of the Client.

The responsibilities of the consultant shall include, but not be limited to, the following:

a. Assist the Team Leader in the execution of the work in accordance with the TOR and also for the co-ordination of all professional inputs. S/he will be responsible to the Team Leader. S/he will also maintain close contact with the PIU Team and local government to ensure that the contract is implemented in accordance with the government's policies and guidelines;
b. Assist Team Leader to review the DED documents (drawings and specifications)
c. Conduct visual and initial structural assessment together with DED consultants to the incomplete building;
d. Assist the Team Leader in overall project management of the construction activities and advising modifications/revisions where necessary;
e. Check designs and cost estimates prior to approving the contractor to start working of every step of work;
f. Ensure continued liaison, especially on technical matters between the team members and the PIU;
g. Prepare quality control documents related to deliverables;
h. Prepare presentations related to deliverables,
i. Prepare accurate evaluations of work done in relation to the defined milestones and facilitating the examination of work;
j. Assist the Team Leader in timely preparation of reports;

(iii) Procurement Specialist: The consultant should preferably have a master's degree in public administration, law, or other related field with around 10-15 years of experience in public procurement practices and procedures, and around 7 years of procurement experience under ADB or WB funded projects. The consultant shall have experience in drafting contractual agreements and other related documents/agreements and in resolving legal issues related to public procurement in Indonesia. S/he shall have good knowledge of the institutional, technical, and commercial aspects of procurement; demonstrated experience in contract management at managerial level; fluency in spoken English and Bahasa; strong organization skills and ability to work in a team-oriented, dynamic and diverse environment with a proven track record of working effectively within multidisciplinary teams. The tasks of the Procurement Specialist include but are not limited to:

a. Assist PIU in updating procurement documents for bidding to be in line with ADB procurement guidelines;

b. Assist PIU in supporting the PIU to tender all packages under the Project, responding bidder queries, and tender evaluation.
c. Assist the PIU in contract management with the winning contractors;
d. Assist the PIU in all matters related to the use of e – procurement
e. Set up a procurement management tracking system for the PIU that would monitor the implementation of procurement activities;
f. Assess the procurement risk and put in place appropriate review and supervision processes and thresholds to mitigate those risks;
g. Assist PIU in evaluating contract variation from contractors and checking the available budget.
h. Provide inputs on procurement related matters to the team leader for preparing consultant's report.

(iv) Project Engineers (Civil Engineering): The consultant shall have a bachelor degree in civil engineering with demonstrated work experience in construction supervision of buildings of about 10 years, preferably in supervising high-rise buildings. The consultant shall have experience in structural quality control, construction materials laboratory tests, construction problem solving, and project reporting. The tasks include but are not limited to:

Support the Team Leader to:

a. Check the proposed site management by the contractors
b. Supervise all construction works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
c. Certify all materials to be used in the Project prior to construction
d. Check the required permits obtained by the contractors prior to construction
e. Ensure construction safety in each step of implementation of the contractors
f. Check and certify completed works for payment purposes

(v) Project Engineer (Architecture): The consultant shall have a bachelor degree in building architecture with (5) five years demonstrated work experience in design and supervision of buildings architectural works. The Project Engineer for Architectural Works is responsible to the selection of architectural materials in consultation with the PIU and ensure proper installation of the architectural works. The tasks of project engineers include:

a. Supervise all architectural works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
b. Certify all materials to be used in the Project prior to construction;
c. Check the required permits obtained by the contractors prior to construction
d. Ensure construction safety in each step of implementation of the contractors
e. Check and certify completed works for payment purposes

(vi) Project Engineer (Mechanical/Electrical): The consultant shall have a bachelor degree in mechanical/electrical engineering with a minimum of 10 years demonstrated work experience in supervising buildings' mechanical/electrical installation, i.e., escalator, lift, air conditioning, electrical installations. The tasks of the M/E project officer, includes but are not limited to:

Supports the Team Leader to:

a. Supervise all mechanical and electrical works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
b. Review the soundness, completeness, and accuracy of building mechanical, electrical, and plumbing system.
c. Certify all materials to be used in the Project prior to installation
d. Check the required permits obtained by the contractors prior to installation
e. Ensure installation safety in each step of implementation.
f. Test of the completed installations
g. Certify the completed works for payment purposes

(vii) Financial Management Specialist: The consultant should have a bachelor's degree in accounting, business administration, finance and about 8-10 years of relevant experience in financial management of international financed projects. Preference will be given to those who are certified public accountants or have other recognized accounting certification. S/he will monitor the financial management system of the project, and establish a sound accounting practice and system to manage the resources available to the Project.

a. Assist PIU in preparing good quality and timely submission of the monthly, quarterly and annual project financial statements;
b. Assist the PIU in managing fund flow in accordance with component and expenditure categories funded by the project;
c. Assist the PIU in evaluating invoices submitted by contractors and convert them to applicable withdrawal applications in ADB format;
d. Identify any issues in the financial management system for project implementation and recommend measures to address the issues identified;
e. Develop project performance management system and update it regularly

(viii) IT Specialist: The consultant shall have a bachelor degree in information and technology faculty with demonstrated work experience in supervision of building IT installations. The consultant shall have experience in IT installation and quality control of office buildings of at least 7 (seven) years. The IT Specialist is to

a. Supervise all IT works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
b. Certify all materials to be used in the Project prior to installation
c. Check the required permits obtained by the contractors prior to installation
d. Ensure installation safety in each step of implementation.
e. Test the completed installations
f. Certify the completed works for payment purposes
g. Review specification of the IT and the office computers to be procured under the Project and supervise the installation.

(ix) Cost and Quantity Engineer: The consultant shall have a bachelor degree in civil engineering, law, or commerce faculty or related field with demonstrated work experience in preparing contract documents for building projects. Appropriate experience will include procurement of public works infrastructure in Indonesia. S/he will have relevant experience of about 7 years. S/he must be thoroughly familiar with procurement rules in Indonesia. The responsibilities of the consultant to the Team Leader shall include, but not be limited to, the following:

a. Evaluate the quality of data and completing quality control documents as prepared by DED consultants;
b. Evaluate quantity estimates based on the DED as prepared by the DED consultants;

c. Check cost estimates based on approved specifications and formats;
d. Assist in preparing bidding documents for works;
e. Assist the Team Leader and Deputy Team Leader in timely preparation of reports; and
f. Provide other required support to the project based on requirements of the PIU.

(x) Environmental Specialist: The specialist will preferably have a bachelor in environmental management, natural sciences or a related field with demonstrated work experience in environmental studies for building projects. S/he will have relevant experience of about 5 years. S/he must be thoroughly familiar with Indonesia's regulatory framework for environmental management. S/He should be familiair with ADB's environmental safeguards requirements as stipulated in the Safeguards Policy Statement (SPS). Actual experience with implementation of ADB projects in which this policy was applied is preferred. S/he should have accreditation from the government as an environmental specialist as per the EIA Regulations in Indonesia and should be fluent in English and Bahasa Indonesia. The Specialist will be responsible for implementation of the EMP, monitoring of the implementation of the CEMP by the contractors, preparing the bi-annual environmental monitoring reports, and support updating the IEE if and when required.. The environmental monitoring report shall include among others: (i) review of the contract document related to environmental provisions, (ii) actual environmental mitigation by the contractors, (iii) protection measures, (iv) advices provided to contractors. The reports shall be made on quarterly basis.

Sub-Professional Staff	
Chief Supervisor	Bachelor Degree from Civil Engineering or equivalent, with at least 10 (ten) years of experience in construction supervision of building projects. Responsible for supervising all technical works, sequence, construction safety, quantity and quality of the construction to be done by the contractors.
Supervisors (Civil/Architects)	Shall have technical background from at least polytechnic education of civil engineering or architecture or equivalent with at least 10 years of experience in supervising building construction. Responsible for supervising all technical works, sequence, construction safety, quantity and quality of the construction to be done by the contractors.
Supervisors (M/E)	Shall have technical background from at least polytechnic education majoring electrical or mechanical engineering or equivalent with at least 10 years of experience in supervising M/E installations and works in building construction. Responsible for supervising all M/E works, sequence, installation safety, quantity and quality of the M/E installation by the contractors.
Supervisor (IT)	Shall have an IT background from an IT education or polytechnic with at least 7 (seven) years of experience in supervising IT works in building projects. Responsible for supervising all IT works, sequence, installation safety, quantity and quality of the IT installation by the contractors.
Landscape Specialist	Shall have graduated from architecture engineering/landscape or equivalent with at least 5 (five) years of experience in landscape works of building complexes. Responsible for supervising, advising, and ensuring that the landscape works by the contractors are in line with the design and specifications.

K. Duration of Services and Deliverables

24. **Duration of Services**. The expected duration of the consultants' services is 5 (five) years. The first year of the services will be used to support the PIU to review the design as prepared by the DED consultants, and biddings. Construction of buildings is estimated to start by the end of the first year of services. The implementation schedule is in **Annex 1.**

25. During the contractors' defect liability period of 12 months, the deputy team leader and the project engineers (civil engineer, M/E, or architecture) shall be available in the site office on intermittent basis.

26. **Deliverables.** The following meetings, reporting, and preparing of operation manuals shall be delivered timely:

(i) **Meetings.** The Consultant shall conduct meetings with the PIU, the contractors, and other stakeholders, as follows:

a. Daily meetings (to be attended by contractor);
b. Weekly meetings (TL, project engineers, supervisors, and contractors) and PIU representatives.
c. Monthly meetings (TL, project engineers, contractors, DED consultants, EQC, PIU and PMU representatives)
d. Quarterly meetings (TL, project engineers, contractors, DED consultants, EQC, PIU and PMU representatives)
e. Ad-hoc meetings.

(ii) **Reporting**

Inception Report

An inception report along with a construction supervision manual in 5 copies each shall be submitted by the Consultant within 15 days after commencement of services. The inception report shall contain :

a. the details of all meetings held with the PIU and the Contractors and Suppliers/Vendors and the decisions taken therein, the resources mobilized by the Consultants as well as the Contractor and the Consultants' perception in the management and supervision of the project with detailed situational analysis of the current structure**;**
b. the master work program and resource mobilization plan for the project;
c. the supervision 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 Project Management and Supervision Consultant in discharging their duties in a smooth and systematic manner.

Progress reports

The progress reports should clearly indicate the contractor's performance, quality of work, delays, deficiencies, constraints, and the project's financial status, forecasts, and giving recommendation for actions. The reports consist of :

Weekly progress report: to be submitted on the last day of the week, every month.

Monthly progress report: Monthly progress report shall be submitted to the PIU and it shall be brief and concise and provide 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 contractor and supervision staff.
c. Monitoring and evaluation of project progress.
d. Project accounts, payments of approved bills, claims, certificates and payment and variation orders.
e. Photographs showing progress of the works.
f. Other issues as may be necessary to provide additional information to the PIU/PMU Manager.
g. Monthly progress Report will be prepared at the end of each calendar month and delivered before 10^{th} day of the following month in 10 copies.

Quarterly Progress Report: A detailed quarterly report in 5 copies shall be submitted within 7 days of the end of each quarter and one copy each to be sent to PIU. The PIU will then submit the reports to the PMU, MoRTHE, Bappenas and ADB. Quarterly reports should include description of project activities, illustrated by progress/completion photographs, status of any delays and contractual claims, and details of all latest financial projections. The progress reports (monthly and quarterly) shall contain details of all meetings, decisions taken therein, mobilization of resources (Consultants' and the Contractors'), physical and financial progress and the projected progress for the forthcoming periods. The report shall clearly bring out the delays, if any, reasons for such delay (s) and the recommendations for corrective measures. The report shall also contain the performance data for Contractor's plan and equipment.

Specific Report: The relevant specialists should prepare the bi-annual environmental safeguards monitoring report as well as the gender monitoring and assessment reports on quarterly basis. The reports shall consists of assessment to the inclusion of environmental safeguards requirements and gender in the building designs and construction methodology, during construction, and the specialist's technical advices.

Final report. A detailed final completion report in 5 copies should be submitted to the PIU. The final report is to be submitted, in draft form, one month before the completion of PMSC services, summarizing the method of construction, the construction supervision performed, recommendations on future maintenance requirements, all technical matters arising during the construction of the buildings, potential problems on the newly constructed works which may be expected, and giving suggestions, if any, for various needed improvements in future projects of similar nature undertaken by the University. The final report shall also include a copy of all "As Built Drawings". The Final Report shall be submitted at the completion of services, including any comments received on the draft final report. All Reports and data collected or produced during the project, and all programs and other materials developed, prepared or obtained during the project, will be the property of the University, and are to be provided as requested, and handed over at the end of the Project, to the PIU Project Manager.

Other Reports. The PMSC shall prepare other specific purposes reports that may be required during the project lifetime.

Maintenance Manual. Manual detailing routine and periodic maintenance tasks that will be required to maintain the completed project shall be prepared and submitted by the PMSC. Draft copies of this manual should be submitted for comments to the PIU within 12 months of commencing services.

L. Contract and Payment Terms

27. The PIU shall sign a time-based contract with the selected PMSC for providing project management and supervision services for the Project. Payment Terms will be determined further.

M. Client's Input and Counterpart Personnel

28. The PIU shall provide the following:

a. All available documents, reports, data and all other information related to the proposed assignment.
b. Any letters or assistance required by the consultants in obtaining all necessary permits and authorizations for carrying out the services.
c. The PIU will assign a counterpart personnel to represent the PIU.

29. The Consultant shall provide the following:

a. The Consultant shall establish a site office. All required furniture, hardware, software, internet/phone connections, office stationary etc shall be provided by the

Consultant. The cost associated to this provision should be included in the financial proposal, as part of non-competitive component.

b. The Consultant shall include necessary transportation costs at the project site including vehicles rental and in their cost of operation.

N. Actions Requiring Specific Approval of the PIU

30. The Consultant will require specific approval from the PIU as listed in Table 3 below:

Table 3 – Actions Requiring Specific Approval from PIU

Actions Requiring Specific Approval
1. Consenting to the subcontracting/subletting of any part of the works.
2. Certifying additional cost determined.
3. Ordering suspension of work.
4. Issuing the notice to commence the work.
5. Approval of any extension of contractual time limits.
6. Any variations or deviations proposed by the Contractor with financial implications including variation in work quantities.
7. Approval of any new rates either for existing items of work, which arises from variation quantities beyond the limit, defined in the contract or fixing rates of non-priced works involving any extra item and certifying any additional cost determined under the provisions of work contract;
8. Issuing the order for special tests not provided for in the contract and determining the cost of such tests, which shall be added to the contract price.
9. Issuing/approving the technical specifications, if not provided in the construction contract.

Appendix 12: Terms of Reference
Project Management and Supervision Consultant to support the University of Riau

A. Background.

1. ADB is supporting the Ministry of Research, Technology and Higher Education (MoRTHE) with the preparation of the Advanced Knowledge and Skills for Inclusive Growth Project (AKSI). The proposed AKSI aims to support Indonesia's higher education system in providing advanced skills and knowledge to support inclusive and sustainable economic growth. The Project will support the University of Malikussaleh (UNIMAL), University of Jambi (UNJA), the University of Riau (UNRI), and the Universitas Pendidikan Indonesia (UPI) a teacher education university. The Project will construct a number of multi-storey buildings and the associated infrastructure facilities, such as roads, drainage, and mechanical/electrical equipment and installations, laboratories, and conduct degree and non-degree domestic and overseas training, procure laboratory equipment, and IT facilities. A Project Management and Supervision Consultant (PMSC) will be engaged in the respective universities, to provide day to day management support and construction supervision of the Project, to ensure compliance with environmental and other safeguards requirements, to ensure that the Project be completed in accordance with the defined technical specifications, on time, and within the budget.

B. Project Overview.

2. AKSI Project is part of Indonesia's long-term development plan for higher education, with the stated objectives of: (i) Increasing access to higher education, thus increasing enrollment rate; (ii) Improving quality, relevance, competitiveness, and accreditation of higher education through the enhancement of academic quality, facilities, human resources development, and research; (iii) Increasing quality and competitive higher education graduates.

3. The four universities, UNIMAL, UNJA, UNRI, and UPI have envisioned scope of work entails three categories of activities: (i) Development of teaching and research facilities, supporting infrastructures, and procurement of equipment; (ii) Development and improvement of the quality of human resources, including degree and non-degree programs for lecturers and university staff; (iii) Development of academic curriculum, applied research, and services, with an aligned management system in a specific focus area, which is referred to as development of center of excellence. Investment in UNIMAL, UNJA, and UNRI will focus their centers of excellence on sustainable natural resources, agriculture, and marine and aquatic science respectively, while UPI will focus on TVET-teacher education to meet national priorities for skilled and highly skilled human resources. The project has the following outputs:

4. Output 1 is delivery of market responsive programs by UNIMAL, UNJA, and UNRI, by:

i. upgrading UNIMAL, UNJA, and UNRI through completing construction and equipping 33 new buildings, and finishing and equipping 1 unfinished building (with gender responsive, inclusive, and sustainable infrastructure).
ii. Training at least 586 additional teaching, management, research and support staff (of which 40% women) of UNIMAL, UNJA, and UNRI, to increase their understanding on market responsive programs and research
iii. Supporting development of centers of excellence in UNIMAL, UNJA, and UNRI in Sustainable Natural Resources, Agriculture, Marine and Aquatic Science respectively in collaboration with industry, community and other stakeholders (a) to upgrade or develop at least 40 curricula; (b) to launch at least 21 new research programs connected to the center or excellence; (c) to provide at least 65 additional training or service programs; and (d) to sign at least 21 additional MoUs with industry and other stakeholders.

iv. In addition, as part of output the project will support MORTHE in developing a long-term investment strategy for the Higher Education and Advanced Skills Development Sector (financed by a Trust-fund TA support).

5. Output 2 is improved training of TVET teachers by:

i. Upgrading UPI by completing construction and equipping 6 new buildings (including gender responsive, inclusive, and sustainable infrastructure) to become center of excellence in TVET teacher education and training.
ii. Training at least 53 teaching, management, research and support staff (of which 40% are women) to increase understanding on designing and delivering accredited TVET teacher education programs.
iii. Supporting UPI as part of its center of excellence development to (a) establish 6 new S1 TVET teacher education programs; (b) to train at least 240 SMK-teachers (at least 40 % female) in-service training programs, in collaboration with MOEC, relevant polytechnics, SMKs and industry (c), to certify at least 300 participants (at least 35% female) by the established LSP and PUK, and (d) to disseminate at least 2 case studies of UPI model for TVET teacher education and training model.
iv. In addition, as part of output 2, MORTHE will be support to develop a long-term vocational teacher education strategy in collaboration with all relevant stakeholders (financed by Trustfund TA support)

6. MORTHE through the Directorate General for Resources for Science, Technology and Higher Education (DGRSTH) will be the executing agency of the project, and the above four universities will be the project implementation units (PIUs). The MORTHE will establish a steering committee to guide and monitor the AKSI's overall implementation and ensure that the Project can be completed on time and within the available budget. The DGRSTH will establish a Project Management Unit (PMU), headed by the Director for Facilities and Infrastructure, which will have a Project Manager to be responsible for managing the PMU activities, project planning and implementation management, preparation of progress reports, and ensuring that ADB guidelines are complied. The PMU will have full coordination with the PIUs in the universities. The PMU will be supported by a Project Management Consultant (PMC). The PMU, with the support of its consultants, will determine annual works program, monitor progress in project implementation and ensure compliance with ADB's policies, including safeguards compliance, procurement procedures, performance indicators, physical achievements and expenditures and preparation and submittal to the ADB of monthly, quarterly, bi-annual safeguards monitoring, and annual progress reports on overall project implementation.

7. UNRI is a regional state university located in Riau Province. This university is under transition to become an autonomous national university. UNRI has 10 (ten) faculties, and post graduate programs. Under the Project, UNRI aims to develop into center of excellent in marine and aqua science. UNRI has a sufficient experience in procurement and is familiar in using e procurement. Under the AKSI project, UNRI will construct a number of multi-story buildings for education purposes and the associated infrastructure facilities, such as roads, drainage, landscape, mechanical/electrical equipment and installations, laboratories, and conduct degree and non-degree domestic and overseas training, procure laboratory equipment, and IT and office computer facilities. The new buildings will be designed to align with the current eco-green requirement, and aimed to support favorable environment for learning and research.

8. Table 1 below shows the list of buildings to be constructed by UNRI:

Table 1 – Outline of the UNRI project.

Location	Building – **UNRI**	Fls	M2
Main Campus	1) Integrated Classrooms	3	8,500
	2) Integrated Laboratories	3	7,500
	3) Information and Technology Center	3	4,000
	4) Student Center	2	3,500
	5) University Main Library	3	2,000
	6) Boat House and Marine Centre	2	1,500
	7) Health Studies Complex	3	5,500
	8) Postgraduate Centre	6	7,500
	9) University Training Centre	2	4,000
	10) Food Science and Technology Centre	3	3,500
	Supporting Infrastructures: (i) Road and facility 10 km; (ii) Drainage 20 km; (iii) Culvert 10 unit (iv) Energy Power Supply 3 unit		
Total	10 new Buildings		47,500

9. **Equipment and Furniture.** UNRI will also procure equipment includes laboratory equipment, IT software and services, and Furniture for the buildings to support quality of learning and research to take place in the university.

C. Project Organization.

10. The Rector of UNRI will establish a PIU, led by a PIU manager. He/she will be supported by a vice manager, an executive secretary, and 5 (five) coordinators for M/E, Academic and Staff Development, Civil Works/Infrastructure, Procurement and Finance to manage the project. The PMU and the PIU structure is in Figs. 1 and 2, as follows:

Figure 1 - The PMU Organization Structure

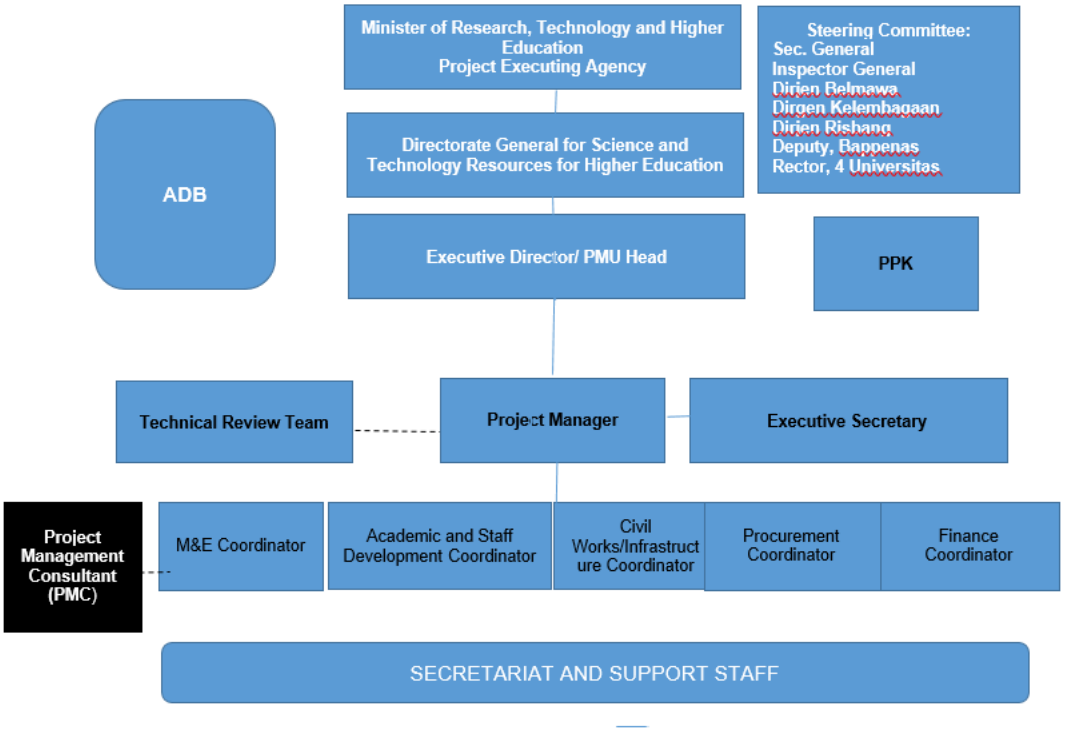
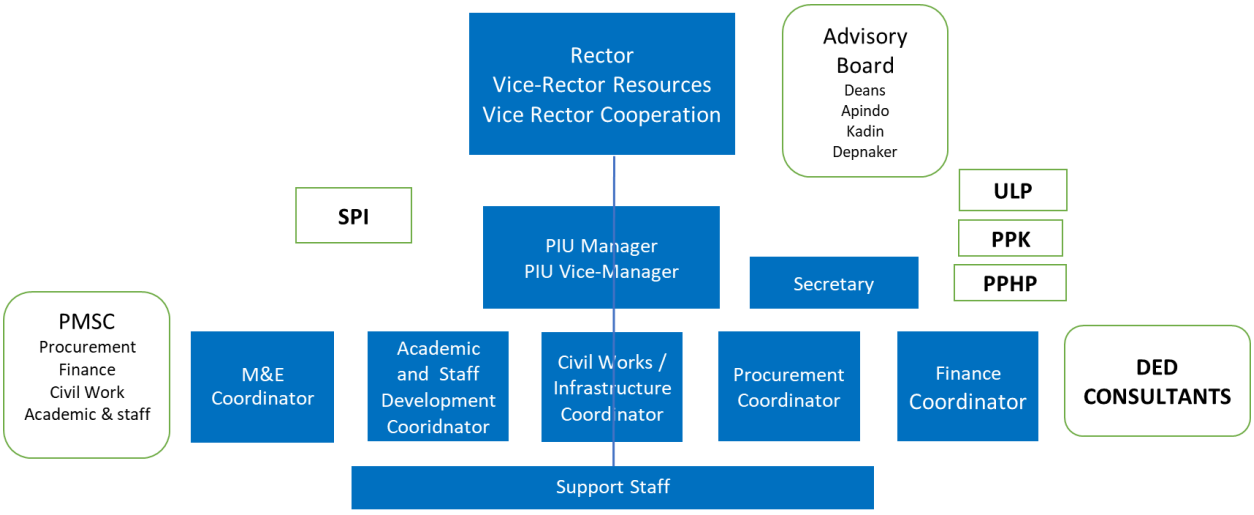


Figure 2 - The PIU Organization Structure



11. **Flow of the Documents.** Any submissions of documents and correspondences from the PIU related to the project implementation to the third parties, including to ADB will be channeled through the PMU office.

D. Objective of the Assignment

12. The PIU will recruit a PMSC team which is a national consulting firm with national experts who have experiences in project management and construction supervision of buildings. The Consultant shall provide support to the PIU in reviewing detailed engineering design (DED) documents, tendering, project management, construction supervision, environmental safeguards monitoring, reporting, and improve the agency's project management capacity. PMSC will also be responsible for the financial management of project-related activities including establishment of a financial management information system, assistance in accounting, and issuance of payments certificates, etc. The ultimate target of the PMSC assignment is to complete the Project

on schedule in a satisfactory manner, meet to the required technical specification, within the budget.

E. Scope of Services.

13. The PMSC shall provide project management services during the project lifetime, supervision to the building construction and the delivery of equipment and furniture.

13.1. **Project Management.** The PMSC shall support the PIU in day-to-day management of the Project. The tasks include but not limited to:

(a) support the PIU's Manager and team in setting project management plan for building construction, procurement of IT and other equipment, training, and other project related matters for the whole project life, and issuance of construction management and supervision manual (including design review);
(b) prepare and update master schedule of the Project;
(c) implement a system for management and supervising the project progress using computer based project management techniques;
(d) prepare all reporting formats relating to the project planning and implementation in line with guidance from the PMU;
(e) support the PIU in compliance with environmental safeguards requirements as per the Safeguards Policy Statement and the Indonesian law and regulations, as agreed in the initial environmental examination (IEE) and its Environmental Management Plan (EMP). This includes monitoring the contractors in implementing the CEMP, managing the Grievance Redress Mechanism (GRM), updating the IEE if and when required, and reporting to the PMU.
(f) conduct due diligence to the DED and other supporting documents delivered by the DED consultants. The Consultant shall carry out site inspection to ensure that the DED is prepared accurately in accordance with the site condition, check and assure that the DEDs comply with the conceptual design, all user's requirement, as well as relevant standards and codes. Ensure that the DED documents are ready for bidding;
(g) conduct due diligence to the specifications and documents for IT equipment, other equipment, and furniture produced by the relevant design consultants in consultation with the user units;
(h) support the PIU in preparing tender documents, tendering, and responding to any inquiries from bidders;
(i) support the PIU to conduct preconstruction meetings with the winning contractors;
(i) support the PIU in obtaining all required permits from the national and local government have prior to commencing the constructions;
(j) prepare project performance management system (PPMS), implement, and update;
(k) prepare unaudited project account to ensure that the project financial reporting is ready for external audits;
(i) Support the PIU in preparing and organizing review missions by ADB and monitoring and evaluation (M&E) by PMU; and
(l) prepare monthly, quarterly, bi-annually safeguards monitoring, annually and final reports, and other reports that may be required during the project implementation.

13.2. **Construction Supervision.** The PMSC shall perform the following tasks to supervise the building constructions.

(a) provide assistance and direction to the contractors and suppliers in all matters related to interpretation of the contract documents, testing procedures and other matters to comply with the contract requirements;
(b) ensure that the project implementation in all aspects is incompliance with various laws/Acts concerning the safety requirements and labour welfare;

(c) review daily work-plan submitted by the contractors prior to commencing the works;
(d) prior to the construction or installation, check quality of materials to be used for the Project and ensure incompliance with the technical specification. Conduct laboratory test for all construction materials related to the structure. Ensure that construction quality is compliant with technical specification.
(e) supervise the building construction, installation of the mechanical and electrical works, and IT, construction of supporting infrastructure facilities, and ensure that the technical specification meet the requirement;
(f) closely monitor the project schedule, milestones and manpower requirements, to ensure the completion of the Project timely.
(g) conduct mutual check with the contractors and compare between the bill of quantity (BOQ), drawing, and the actual construction;
(h) advise the PIU of any changes in the technical documents that may be deemed necessary for the completion of works, including information on any effects the change may impact on the contract amount and time of completion of the project and prepare all specifications and other details arising thereof;
(i) where variations of the quantities are requested by the Contractor, the following information should be provided in relation to contract variations: (i) data on which the original as-tendered design was based, (ii) a complete record of all new design data which is relevant to the variation, (iii) an as-built record showing the location and detailed dimensions of all works carried out to date under the contract,(iv) a copy of all previously approved variations and Contract Addenda, (v) a copy of the contractor's bid document, including all the tendered Unit Prices and detailed Unit Price Analysis, (vi) a description of the design assumptions adopted, (vii) drawings clearly showing both the original design and the proposed variation; and (viii) a rescheduled list of quantities and costs, relevant to the proposed variation.
(j) assess adequacy of all inputs including materials and labor and instruct corrective measures to the contractors when inadequacy of inputs is found. Take appropriate action in order to rectify and to expedite progress;
(k) ensure that the construction methods as proposed by the contractors are incompliance with the requirements and justified; this includes compliance with environmental safeguards as well as 'green' standards
(l) Monitor implementation of the Contractors Environmental Management Plan (CEMP) and ensure contractor submits CEMP monitoring reports on a timely basis.
(m) certify achievement of the contractual milestones, and the satisfactory quality of the progress in every step, in line with the progress milestones;
(n) inspect the works on final completion before hand over and indicate to the PIU any outstanding work that needs to be carried out by the Contractor;
(o) ensure that the contractors submit as-built drawings prior to the request for certification of completion of the works;
(p) prepare defect liability list to be rectified by the contractors during maintenance period;
(q) issue certificate of completion, prepare provisional hand over (PHO) report, and final hand over (FHO) report when the defect liabilities have been rectified.

13.3. **Supervision to the Delivery of IT Equipment, Laboratory Equipment, and Office Furniture.** PMSC shall review and supervise the delivery of IT and laboratory equipment, and office furniture under the Project. The tasks include the followings:

(a) supervise the development of user's list proceses carried out by the Equipment Consultant Specialist (EQC), as well as delivery, installation, testing & commissioning carried out by suppliers;
(b) certify the achievement of the contractual milestones, and the satisfactory quality of the progress, in line with the progress milestone laid down in the contract;
(c) ensure that manual operations, and related guarantees and warranties are secured.

14.1. **Certification of Work Completion.** Prior to the issuance of certificate of work completion, and provisional hand over, the PMSC shall conduct mutual check with the contractors and ensure that the items as listed in the BOQ and its variations have been fully constructed or installed, tested and commissioned, and the contractors have submitted as-built drawings, and relevant warranties. A defect liability list to be rectified by the contractors during the maintenance period shall be prepared. Final hand over (FHO) can be done when all defect liabilities have been fully rectified.

13.5 **Dispute settlement.** The PMSC shall assist the PIU with regard to any matters related with subject to adjudication, dispute resolution, inquiry or litigation up to delivery certificate of completion

F. Staffing.

14. A total of 324 of national person-months of professional (key and non-key) experts will be required under the services. The team composition of consultants along with their estimated person-months is provided in Table 2. below:

Table 2 – Composition and Estimated Input of PMSC

No.	Position	Person Months
	Key Experts	
National Specialists		
1	Team Leader (Project Management Specialist – a Senior Civil Engineer or Senior Architect) (1 x 36 person months)	36
2	Deputy Team Leader and Civil Engineer (Structure) (1 x 60 person months)	60
3	Procurement Specialists (1 x 18 person months)	18
4	Project Engineers - Civil Engineers (2 X 48 person months)	96
5	Project Engineer - Architect (1 X 18 person months)	18
6	Project Engineer - Mechanical/Electrical Engineer (1 X 16 person months)	16
	Sub-total of Key-Experts	**244**
	Non-Key Experts (Professional)	
1	Financial Management Specialist/Project Performance Management System (PPMS) Specialist (1 x 48 person months)	48
2	IT /Equipment Specialist (1 x 8 person months)	8
3	Cost and Quantity Engineer (1x18 person months)	18
4	Environmental Specialist (1X6 person months)	6
	Sub Total Non-Key Experts	**80**

List of Sub-Professional and Support Staff (Non-Key Experts)

Sub-Professional Staff		
1	Chief Supervisors – (1X 48 person months)	48
2	Supervisors (Civil/Architects) (3 x 60 person months)	180
3	Supervisors (M/E) (2x 60 person months)	120
4	Supervisor (IT) (1X6 person months)	6
5	Landscape Specialist (1x6 person months)	6

	Sub-total Sub-Professional Staff	**360**
Support Staff		
1	Office Manager (1X40 person months)	40
2	Secretary (1X40 person months)	40
3	CAD Operator (1x54 person months)	54
4	Administrative Staff (2x40 person months)	80
5	Drivers (2x40 person months)	80
6	Security (2x40 person months)	80
	Sub-total Support Staff	**374**

15. **Qualifications and Tasks.** The consultant qualifications and the outlined tasks are as follows:

Qualifications and Tasks of Key-Experts and Non-Key Experts

(i) Team Leader and Senior Civil Engineer or Senior Architect: The specialist will preferably has a master's degree in civil engineering or architecture with relevant experience in managing building construction project teams. S/he will have relevant experience of about 15 years and should be fluent in English. S/he will be responsible for overall co-ordination of team activities and will be directly responsible to the PIU. The main responsibility will be to coordinate the project activities in a timely manner and ensure that the objective of this TOR is fulfilled to the satisfaction of the PIU. The Team Leader will also work as a project management specialist and oversee design works prepared by the DED consultants. The Team Leader shall provide technical guidance to all members of the team. S/he will have overall responsibility in technical advisory, management and monitoring all tasks under the contract, setting up technical guidance and standards as necessary. The responsibilities of the consultant shall include, but not be limited to, the following:

a. Maintain close contact with the PIU and Project Team and local government to ensure that the contract is implemented in accordance with the government's policies and guidelines;
b. Review the DED documents, the soundness, completeness and accuracy of building architectural systems, parts, and elements, and ensure that DED documents complied with national building codes, standards, and regulations;
c. Meet with the DED consultants to discuss the prepared DED;
d. Re-assess the incomplete buildings with the prepared DED;
e. Check quality of the documents prior to tendering;
f. Support the PIU in tendering all packages under the Project;
g. Chair weekly meetings with contractors;
h. Responsible for the overall management of the construction activities and promoting value engineering options where appropriate;
i. Check quality of the reports and cost estimates before submission of reports to the Project Team;
j. Ensure that all provisions of the TOR are fulfilled to the complete satisfaction of Client;
k. Ensure continued liaison, especially on technical matters between the team members and the PIU's Project Team;
l. Responsible for compliance with deliverable and reporting requirements, and provide sufficient resources in order to complete the contract successfully;
m. Reviewing any potential changes during construction, and coordinate with team member to estimate the cost impact.

n. Obtain appropriate reports and information from the PIU, and compilation of regular updates;
o. Prepare quality control documents related to deliverables;
p. Ensure compliance with environmental safeguards including biannual environmental safeguards reporting, including implementation of the EMP, updating of the IEE, if and when required, implementation of the GRM, and monitoring and maintaining the CEMP by the contractors
q. Prepare presentations related to deliverables, and preparing workshop materials if required;
r. Prepare accurate evaluations of work done in relation to the defined milestones and facilitating the examination of work by the Client, and
s. Other aspects, as may be necessary for the project based on requirements of the PIU.

(ii) Deputy Team Leader – Senior Civil Engineer (Structure): The expert will preferably have a master's degree in civil engineering with relevant experience in supervision of building constructions. S/he shall assist the Team Leader for overall co-ordination of core team activities and will be responsible to the Team Leader. S/he will have relevant experience of about 10 years, with a valid professional engineering license.The main responsibility will be to coordinate the project activities and ensure that the objective of this TOR is fulfilled to the satisfaction of the Client.

The responsibilities of the consultant shall include, but not be limited to, the following:

a. Assist the Team Leader in the execution of the work in accordance with the TOR and also for the co-ordination of all professional inputs. S/he will be responsible to the Team Leader. S/he will also maintain close contact with the PIU Team and local government to ensure that the contract is implemented in accordance with the government's policies and guidelines;
b. Assist Team Leader to review the DED documents (drawings and specifications)
c. Conduct visual and initial structural assessment together with DED consultants to the incomplete building;
d. Assist the Team Leader in overall project management of the construction activities and advising modifications/revisions where necessary;
e. Check designs and cost estimates prior to approving the contractor to start working of every step of work;
f. Ensure continued liaison, especially on technical matters between the team members and the PIU;
g. Prepare quality control documents related to deliverables;
h. Prepare presentations related to deliverables,
i. Prepare accurate evaluations of work done in relation to the defined milestones and facilitating the examination of work;
j. Assist the Team Leader in timely preparation of reports;

(iii) Procurement Specialist: The consultant should preferably have a master's degree in public administration, law, or other related field with around 10-15 years of experience in public procurement practices and procedures, and around 7 years of procurement experience under ADB or WB funded projects. The consultant shall have experience in drafting contractual agreements and other related documents/agreements and in resolving legal issues related to public procurement in Indonesia. S/he shall have good knowledge of the institutional, technical, and commercial aspects of procurement; demonstrated experience in contract management at managerial level; fluency in spoken English and Bahasa; strong organization skills and ability to work in a team-oriented, dynamic and diverse environment with a proven track record of working effectively within multidisciplinary teams. The tasks of the Procurement Specialist include but are not limited to:

a. Assist PIU in updating procurement documents for bidding to be in line with ADB procurement guidelines;
b. Assist PIU in supporting the PIU to tender all packages under the Project, responding bidder queries, and tender evaluation.
c. Assist the PIU in contract management with the winning contractors;
d. Assist the PIU in all matters related to the use of e – procurement
e. Set up a procurement management tracking system for the PIU that would monitor the implementation of procurement activities;
f. Assess the procurement risk and put in place appropriate review and supervision processes and thresholds to mitigate those risks;
g. Assist PIU in evaluating contract variation from contractors and checking the available budget.
h. Provide inputs on procurement related matters to the team leader for preparing consultant's report.

(iv) Project Engineers (Civil Engineering): The consultant shall have a bachelor degree in civil engineering with demonstrated work experience in construction supervision of buildings of about 10 years, preferably in supervising high-rise buildings. The consultant shall have experience in structural quality control, construction materials laboratory tests, construction problem solving, and project reporting. The tasks include but are not limited to:

Support the Team Leader to:

a. Check the proposed site management by the contractors
b. Supervise all construction works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
c. Certify all materials to be used in the Project prior to construction
d. Check the required permits obtained by the contractors prior to construction
e. Ensure construction safety in each step of implementation of the contractors
f. Check and certify completed works for payment purposes

(v) Project Engineer (Architecture): The consultant shall have a bachelor degree in building architecture with (5) five years demonstrated work experience in design and supervision of buildings architectural works. The Project Engineer for Architectural Works is responsible to the selection of architectural materials in consultation with the PIU and ensure proper installation of the architectural works. The tasks of project engineers include:

a. Supervise all architectural works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
b. Certify all materials to be used in the Project prior to construction;
c. Check the required permits obtained by the contractors prior to construction
d. Ensure construction safety in each step of implementation of the contractors
e. Check and certify completed works for payment purposes

(vi) Project Engineer (Mechanical/Electrical): The consultant shall have a bachelor degree in mechanical/electrical engineering with a minimum of 10 years demonstrated work experience in supervising buildings' mechanical/electrical installation, i.e., escalator, lift, air conditioning, electrical installations. The tasks of the M/E project officer, includes but are not limited to:

Supports the Team Leader to:

a. Supervise all mechanical and electrical works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.

b. Review the soundness, completeness, and accuracy of building mechanical, electrical, and plumbing system.
c. Certify all materials to be used in the Project prior to installation
d. Check the required permits obtained by the contractors prior to installation
e. Ensure installation safety in each step of implementation.
f. Test of the completed installations
g. Certify the completed works for payment purposes

(vii) Financial Management Specialist: The consultant should have a bachelor's degree in accounting, business administration, finance and about 8-10 years of relevant experience in financial management of international financed projects. Preference will be given to those who are certified public accountants or have other recognized accounting certification. S/he will monitor the financial management system of the project, and establish a sound accounting practice and system to manage the resources available to the Project.

a. Assist PIU in preparing good quality and timely submission of the monthly, quarterly and annual project financial statements;
b. Assist the PIU in managing fund flow in accordance with component and expenditure categories funded by the project;
c. Assist the PIU in evaluating invoices submitted by contractors and convert them to applicable withdrawal applications in ADB format;
d. Identify any issues in the financial management system for project implementation and recommend measures to address the issues identified;
e. Develop project performance management system and update it regularly

(viii) IT Specialist: The consultant shall have a bachelor degree in information and technology faculty with demonstrated work experience in supervision of building IT installations. The consultant shall have experience in IT installation and quality control of office buildings of at least 7 (seven) years. The IT Specialist is to

a. Supervise all IT works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
b. Certify all materials to be used in the Project prior to installation
c. Check the required permits obtained by the contractors prior to installation
d. Ensure installation safety in each step of implementation.
e. Test the completed installations
f. Certify the completed works for payment purposes
g. Review specification of the IT and the office computers to be procured under the Project and supervise the installation.

(ix) Cost and Quantity Engineer: The consultant shall have a bachelor degree in civil engineering, law, or commerce faculty or related field with demonstrated work experience in preparing contract documents for building projects. Appropriate experience will include procurement of public works infrastructure in Indonesia. S/he will have relevant experience of about 7 years. S/he must be thoroughly familiar with procurement rules in Indonesia. The responsibilities of the consultant to the Team Leader shall include, but not be limited to, the following:

a. Evaluate the quality of data and completing quality control documents as prepared by DED consultants;
b. Evaluate quantity estimates based on the DED as prepared by the DED consultants;
c. Check cost estimates based on approved specifications and formats;
d. Assist in preparing bidding documents for works;

e. Assist the Team Leader and Deputy Team Leader in timely preparation of reports; and
f. Provide other required support to the project based on requirements of the PIU.

(x) Environmental Specialist: The specialist will preferably have a bachelor in environmental management, natural sciences or a related field with demonstrated work experience in environmental studies for building projects. S/he will have relevant experience of about 5 years. S/he must be thoroughly familiar with Indonesia's regulatory framework for environmental management. S/he should be familiar with ADB's environmental safeguards requirements as stipulated in the Safeguards Policy Statement (SPS). Actual experience with implementation of ADB projects in which this policy was applied is preferred. S/he should have accreditation from the government as an environmental specialist as per the EIA Regulations in Indonesia and should be fluent in English and Bahasa Indonesia. The Specialist will be responsible for implementation of the EMP, monitoring of the implementation of the CEMP by the contractors, preparing the bi-annual environmental safeguards monitoring progress reports, and support updating of the IEE, if and when required. The environmental monitoring report shall include among others: (i) review of the contract document related to environmental provisions, (ii) actual environmental mitigation by the contractors, (iii) protection measures, (iv) advices provided to contractors. The reports shall be made on quarterly basis.

Sub-Professional Staff	
Chief Supervisor	Bachelor Degree from Civil Engineering or equivalent, with at least 10 (ten) years of experience in construction supervision of building projects. Responsible for supervising all technical works, sequence, construction safety, quantity and quality of the construction to be done by the contractors.
Supervisors (Civil/Architects)	Shall have technical background from at least polytechnic education of civil engineering or architecture or equivalent with at least 10 years of experience in supervising building construction. Responsible for supervising all technical works, sequence, construction safety, quantity and quality of the construction to be done by the contractors.
Supervisors (M/E)	Shall have technical background from at least polytechnic education majoring electrical or mechanical engineering or equivalent with at least 10 years of experience in supervising M/E installations and works in building construction. Responsible for supervising all M/E works, sequence, installation safety, quantity and quality of the M/E installation by the contractors.
Supervisor (IT)	Shall have an IT background from an IT education or polytechnic with at least 7 (seven) years of experience in supervising IT works in building projects. Responsible for supervising all IT works, sequence, installation safety, quantity and quality of the IT installation by the contractors.
Landscape Specialist	Shall have graduated from architecture engineering/landscape or equivalent with at least 5 (five) years of experience in landscape works of building complexes. Responsible for supervising, advising, and ensuring that the landscape works by the contractors are in line with the design and specifications.

G. Duration of Services and Deliverables

16. **Duration of Services**. The expected duration of the consultants' services is 5 (five) years. The first year of the services will be used to support the PIU to review the design as prepared by the DED consultants, and biddings. Construction of buildings is estimated to start by the end of the first year of services. The implementation schedule is in **Annex 1.**

17. During the contractors' defect liability period of 12 months, the deputy team leader and the project engineers (civil engineer, M/E, or architecture) shall be available in the site office on intermittent basis.

18. **Deliverables.** The following meetings, reporting, and preparing of operation manuals shall be delivered timely:

(i) **Meetings.** The Consultant shall conduct meetings with the PIU, the contractors, and other stakeholders, as follows:

a. Daily meetings (to be attended by contractor);
b. Weekly meetings (TL, project engineers, supervisors, and contractors) and PIU representatives.
c. Monthly meetings (TL, project engineers, contractors, DED consultants, EQC, PIU and PMU representatives)
d. Quarterly meetings (TL, project engineers, contractors, DED consultants, EQC, PIU and PMU representatives)
e. Ad-hoc meetings.

(ii) **Reporting**

Inception Report

An inception report along with a construction supervision manual in 5 copies each shall be submitted by the Consultant within 15 days after commencement of services. The inception report shall contain :

a. the details of all meetings held with the PIU and the Contractors and Suppliers/Vendors and the decisions taken therein, the resources mobilized by the Consultants as well as the Contractor and the Consultants' perception in the management and supervision of the project with detailed situational analysis of the current structure**;**
b. the master work program and resource mobilization plan for the project;
c. the supervision 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 Project Management and Supervision Consultant in discharging their duties in a smooth and systematic manner.

Progress reports

The progress reports should clearly indicate the contractor's performance, quality of work, delays, deficiencies, constraints, and the project's financial status, forecasts, and giving recommendation for actions. The reports consist of:

Weekly progress report: to be submitted on the last day of the week, every month.

Monthly progress report: Monthly progress report shall be submitted to the PIU and it shall be brief and concise and provide 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 contractor and supervision staff.
c. Monitoring and evaluation of project progress.
d. Project accounts, payments of approved bills, claims, certificates and payment and variation orders.
e. Photographs showing progress of the works.
f. Other issues as may be necessary to provide additional information to the PIU/PMU Manager.
g. Monthly progress Report will be prepared at the end of each calendar month and delivered before 10^{th} day of the following month in 10 copies.

Quarterly Progress Report: A detailed quarterly report in 5 copies shall be submitted within 7 days of the end of each quarter and one copy each to be sent to PIU. The PIU

will then submit the reports to the PMU, MoRTHE, Bappenas and ADB. Quarterly reports should include description of project activities, illustrated by progress/completion photographs, status of any delays and contractual claims, and details of all latest financial projections. The progress reports (monthly and quarterly) shall contain details of all meetings, decisions taken therein, mobilization of resources (Consultants' and the Contractors'), physical and financial progress and the projected progress for the forthcoming periods. The report shall clearly bring out the delays, if any, reasons for such delay (s) and the recommendations for corrective measures. The report shall also contain the performance data for Contractor's plan and equipment.

Specific Report: The relevant specialists should prepare the bi-annual environmental safeguards monitoring report, as well as the gender monitoring and assessment reports on quarterly basis. The reports shall consists of assessment to the inclusion of environmental safeguards requirements and gender in the building designs and construction methodology, during construction, and the specialist's technical advices.

Final report. A detailed final completion report in 5 copies should be submitted to the PIU. The final report is to be submitted, in draft form, one month before the completion of PMSC services, summarizing the method of construction, the construction supervision performed, recommendations on future maintenance requirements, all technical matters arising during the construction of the buildings, potential problems on the newly constructed works which may be expected, and giving suggestions, if any, for various needed improvements in future projects of similar nature undertaken by the University. The final report shall also include a copy of all "As Built Drawings". The Final Report shall be submitted at the completion of services, including any comments received on the draft final report. All Reports and data collected or produced during the project, and all programs and other materials developed, prepared or obtained during the project, will be the property of the University, and are to be provided as requested, and handed over at the end of the Project, to the PIU Project Manager.

Other Reports. The PMSC shall prepare other specific purposes reports that may be required during the project lifetime.

Maintenance Manual. Manual detailing routine and periodic maintenance tasks that will be required to maintain the completed project shall be prepared and submitted by the PMSC. Draft copies of this manual should be submitted for comments to the PIU within 12 months of commencing services.

H. Contract and Payment Terms

19. The PIU shall sign a time-based contract with the selected PMSC for providing project management and supervision services for the Project. The Payment Terms will be determined further.

I. Client's Input and Counterpart Personnel

20. The PIU shall provide the following:

a. All available documents, reports, data and all other information related to the proposed assignment.
b. Any letters or assistance required by the consultants in obtaining all necessary permits and authorizations for carrying out the services.
c. The PIU will assign a counterpart personnel to represent the PIU.

21. The Consultant shall provide the following:

a. The Consultant shall establish a site office. All required furniture, hardware, software, internet/phone connections, office stationary etc shall be provided by the Consultant. The cost associated to this provision should be included in the financial proposal, as part of non-competitive component.

b. The Consultant shall include necessary transportation costs at the project site including vehicles rental and in their cost of operation.

J. Actions Requiring Specific Approval of the PIU

22. The Consultant will require specific approval from the PIU as listed in Table 3 below:

Table 3 – Actions Requiring Specific Approval from PIU

Actions Requiring Specific Approval
1. Consenting to the subcontracting/subletting of any part of the works.
2. Certifying additional cost determined.
3. Ordering suspension of work.
4. Issuing the notice to commence the work.
5. Approval of any extension of contractual time limits.
6. Any variations or deviations proposed by the Contractor with financial implications including variation in work quantities.
7. Approval of any new rates either for existing items of work, which arises from variation quantities beyond the limit, defined in the contract or fixing rates of non-priced works involving any extra item and certifying any additional cost determined under the provisions of work contract;
8. Issuing the order for special tests not provided for in the contract and determining the cost of such tests, which shall be added to the contract price.
9. Issuing/approving the technical specifications, if not provided in the construction contract.

Appendix 13: Terms of Reference
Project Management and Supervision Consultant to support Universitas Pendidikan Indonesia

A. Background.

1. ADB is supporting the Ministry of Research, Technology and Higher Education (MoRTHE) with the preparation of the Advanced Knowledge and Skills for Inclusive Growth Project (AKSI). The proposed AKSI aims to support Indonesia's higher education system in providing advanced skills and knowledge to support inclusive and sustainable economic growth. The Project will support the University of Malikussaleh (UNIMAL), University of Jambi (UNJA), the University of Riau (UNRI), and the Universitas Pendidikan Indonesia (UPI) a teacher education university. The Project will construct a number of multi-story buildings and the associated infrastructure facilities, such as roads, drainage, and mechanical/electrical equipment and installations, laboratories, and conduct degree and non-degree domestic and overseas training, procure laboratory equipment, and IT facilities. A Project Management and Supervision Consultant (PMSC) will be engaged in the respective universities, to provide day to day management support and construction supervision of the Project, to ensure compliance with environmental and other safeguards requirements, to ensure that the Project be completed in accordance with the defined technical specifications, on time, and within the budget.

B. Project Overview.

2. AKSI Project is part of Indonesia’s long-term development plan for higher education, with the stated objectives of: (i) Increasing access to higher education, thus increasing enrollment rate; (ii) Improving quality, relevance, competitiveness, and accreditation of higher education through the enhancement of academic quality, facilities, human resources development, and research; (iii) Increasing quality and competitive higher education graduates.

3. The four universities, UNIMAL, UNJA, UNRI, and UPI have envisioned scope of work entails three categories of activities: (i) Development of teaching and research facilities, supporting infrastructures, and procurement of equipment; (ii) Development and improvement of the quality of human resources, including degree and non-degree programs for lecturers and university staff; (iii) Development of academic curriculum, applied research, and services, with an aligned management system in a specific focus area, which is referred to as development of center of excellence. Investment in UNIMAL, UNJA, and UNRI will focus their centers of excellence on sustainable natural resources, agriculture, and marine and aquatic science respectively, while UPI will focus on TVET-teacher education to meet national priorities for skilled and highly skilled human resources. The project has the following outputs:

4. Output 1 is delivery of market responsive programs by UNIMAL, UNJA, and UNRI, by:

   i. upgrading UNIMAL, UNJA, and UNRI through completing construction and equipping 33 new buildings, and finishing and equipping 1 unfinished building (with gender responsive, inclusive, and sustainable infrastructure).
   ii. Training at least 586 additional teaching, management, research and support staff (of which 40% women) of UNIMAL, UNJA, and UNRI, to increase their understanding on market responsive programs and research
   iii. Supporting development of centers of excellence in UNIMAL, UNJA, and UNRI in Sustainable Natural Resources, Agriculture, Marine and Aquatic Science respectively in collaboration with industry, community and other stakeholders (a) to upgrade or

develop at least 40 curricula; (b) to launch at least 21 new research programs connected to the center or excellence; (c) to provide at least 65 additional training or service programs; and (d) to sign at least 21 additional MoUs with industry and other stakeholders.

iv. In addition, as part of output the project will support MORTHE in developing a long-term investment strategy for the Higher Education and Advanced Skills Development Sector (financed by a Trust-fund TA support).

5. Output 2 is improved training of TVET teachers by:

i. Upgrading UPI by completing construction and equipping 6 new buildings (including gender responsive, inclusive, and sustainable infrastructure) to become center of excellence in TVET teacher education and training.

ii. Training at least 53 teaching, management, research and support staff (of which 40% are women) to increase understanding on designing and delivering accredited TVET teacher education programs.

iii. Supporting UPI as part of its center of excellence development to (a) establish 6 new S1 TVET teacher education programs; (b) to train at least 240 SMK-teachers (at least 40 % female) in-service training programs, in collaboration with MOEC, relevant polytechnics, SMKs and industry (c), to certify at least 300 participants (at least 35% female) by the established LSP and PUK, and (d) to disseminate at least 2 case studies of UPI model for TVET teacher education and training model.

iv. In addition, as part of output 2, MORTHE will be support to develop a long-term vocational teacher education strategy in collaboration with all relevant stakeholders (financed by Trust fund TA support)

6. MORTHE through the Directorate General for Resources for Science, Technology and Higher Education (DGRSTH) will be the executing agency of the project, and the above four universities will be the project implementation units (PIUs). The MORTHE will establish a steering committee to guide and monitor the AKSI's overall implementation and ensure that the Project can be completed on time and within the available budget. The DGRSTH will establish a Project Management Unit (PMU), headed by the Director for Facilities and Infrastructure, which will have a Project Manager to be responsible for managing the PMU activities, project planning and implementation management, preparation of progress reports, and ensuring that ADB guidelines are complied. The PMU will have full coordination with the PIUs in the universities. The PMU will be supported by a Project Management Consultant (PMC). The PMU, with the support of its consultants, will determine annual works program, monitor progress in project implementation and ensure compliance with ADB's policies, including safeguards compliance, procurement procedures, performance indicators, physical achievements and expenditures and preparation and submittal to the ADB of monthly, quarterly, bi-annual safeguards monitoring, and annual progress reports on overall project implementation.

7. UPI is an autonomous teacher preparation institution, whose function is to educate educators at the undergraduate and graduate level. The Campus is located in Bandung, West Java. Under the Project, UPI is intended to develop the university as a center of excellence in technical and vocational teacher education in response to the government's priority in promoting technical and vocational education and training at both the secondary and tertiary levels in order to help overcome the shortage of good quality teachers.

8. Under the AKSI project, UPI intends to build 6 (six) buildings, procure of equipment and furniture. UPI will also demolish a few older buildings to create space for the new constructions.

UPI has committed this demolition will not have any negative side effects, all users of the demolished buildings will be provided space in the new building. The new buildings will be designed to align with the current eco-green requirement, and aimed to support favorable environment for learning and research. Table 1 below shows the list of buildings to be constructed by UPI:

Table 1 – List of the UPI Buildings.

Buildings

Location	Building – **UPI**	Fls	M2
Main Campus in Bandung	1) Postgraduate Integrated Classrooms and Laboratory	6	8440
	2) Faculty of Economy and Business Education Integrated Classrooms and Laboratories	6	8800
	3) Faculty of Arts and Design Education Integrated Classrooms, Laboratories, Studios and Performing Arts Laboratories	6	9810
	4) Faculty of TVET Integrated Classroom, laboratories, workshops and studios	8	9940
	5) TVET Center of Excellence integrated building - Professional Certification and Competence Test Center - TVET Research and Development - Business Incubator and Partnership Center	8	9820
	6) Professional Teacher Education and Training Center	7	7690
Total	6 new buildings		54,500

Note: To construct new buildings, old buildings need to be demolished.

9. **Equipment and Furniture.** UPI will also procure equipment includes laboratory equipment and Furniture for the buildings to support quality of learning and research to take place in the university.

C. Project Organization.

10. The Rector of UPI will establish a PIU, led by a PIU manager. He/she will be supported by a vice manager, an executive secretary, and 5 (five) coordinators for M/E, Academic and Staff Development, Civil Works/Infrastructure, Procurement and Finance to manage the project. The PMU and the PIU structure is in Figs. 1 and 2, as follows:

Figure 1 - The PMU Organization Structure

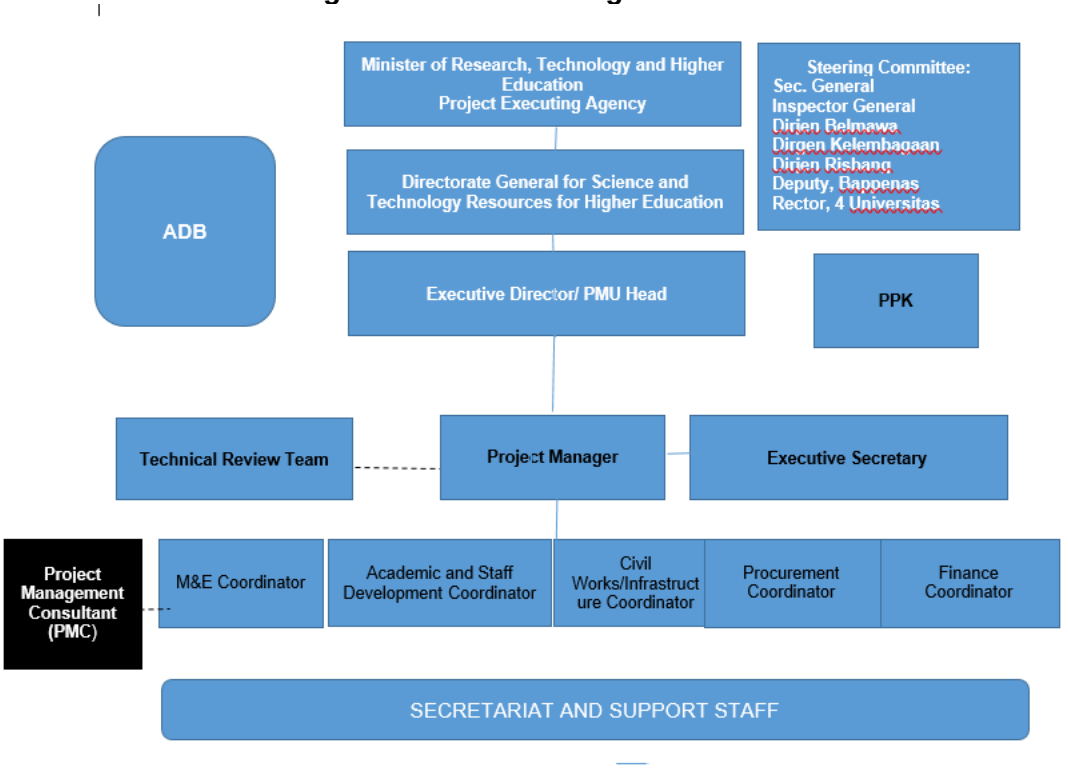
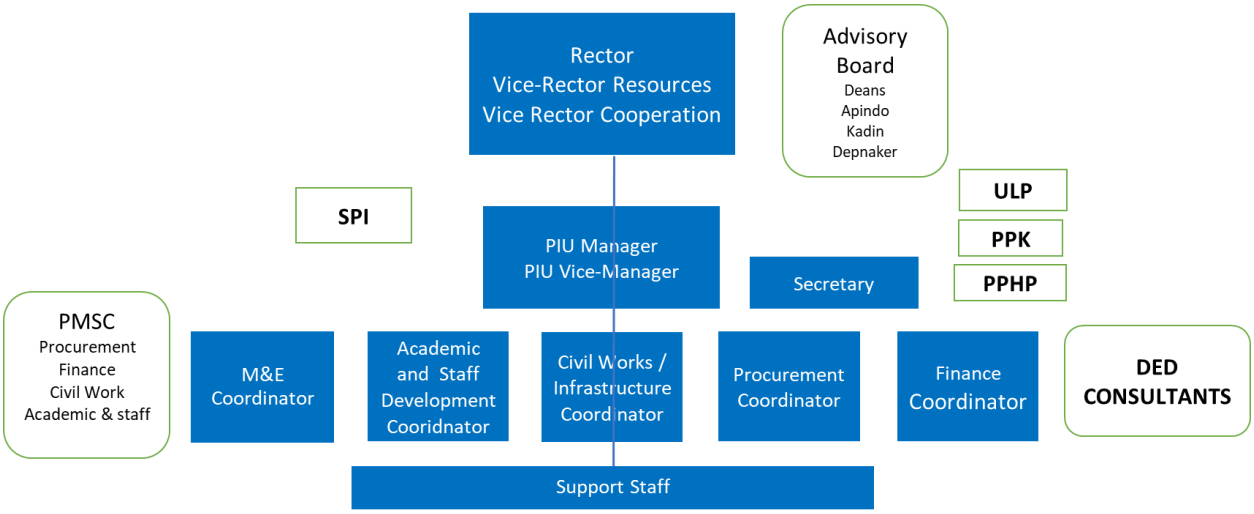


Figure 2 - The PIU Organization Structure



11. **Flow of the Documents.** Any submissions of documents and correspondences from the PIU related to the project implementation to the third parties, including to ADB will be channeled through the PMU office.

D. Objective of the Assignment

12. The PIU will recruit a PMSC team which is a national consulting firm with national experts who have experiences in project management and construction supervision of buildings. The

Consultant shall provide support to the PIU in reviewing detailed engineering design (DED) documents, tendering, project management, construction supervision, environmental safeguards monitoring, reporting, and improve the agency's project management capacity. PMSC will also be responsible for the financial management of project-related activities including establishment of a financial management information system, assistance in accounting, and issuance of payments certificates, etc. The ultimate target of the PMSC assignment is to complete the Project on schedule in a satisfactory manner, meet to the required technical specification, within the budget.

E. Scope of Services.

13. The PMSC shall provide project management services during the project lifetime, supervision to the building construction and the delivery of equipment and furniture.

13.1. **Project Management.** The PMSC shall support the PIU in day-to-day management of the Project. The tasks include but not limited to:

(a) support the PIU's Manager and team in setting project management plan for building construction, procurement of IT and other equipment, training, and other project related matters for the whole project life, and issuance of construction management and supervision manual (including design review);
(b) prepare and update master schedule of the Project;
(c) implement a system for management and supervising the project progress using computer based project management techniques;
(d) prepare all reporting formats relating to the project planning and implementation in line with guidance from the PMU;
(e) support the PIU in compliance with environmental safeguards requirements as per the Safeguards Policy Statement and the Indonesian law and regulations, as agreed in the initial environmental examination (IEE) and its Environmental Management Plan (EMP). This includes monitoring the contractors in implementing the CEMP, managing the Grievance Redress Mechanism (GRM), updating the IEE if and when required, and reporting to the PMU..
(f) conduct due diligence to the DED and other supporting documents delivered by the DED consultants. The Consultant shall carry out inspection survey to ensure that the DED is prepared accurately in accordance with the site condition, check and assure that the DEDs comply with the conceptual design, all user's requirement, as well as relevant standards and codes. Ensure that the DED documents are ready for bidding;
(g) conduct due diligence to the specifications and documents for IT equipment, other equipment, and furniture produced by the relevant design consultants in consultation with the user units;
(h) support the PIU in preparing tender documents, tendering, and responding to any inquiries from bidders;
(i) support the PIU to conduct preconstruction meetings with the winning contractors;
(i) support the PIU in obtaining all required permits from the national and local government have prior to commencing the constructions;
(j) prepare project performance management system (PPMS), implement, and update;
(k) prepare unaudited project account to ensure that the project financial reporting is ready for external audits;

(l) prepare monthly, quarterly, bi-annually safeguards monitoring, annually and final reports, and other reports that may be required during the project implementation.

13.2. **Construction Supervision.** The PMSC shall perform the following tasks to supervise the building constructions.

(a) provide assistance and direction to the contractors and suppliers in all matters related to interpretation of the contract documents, testing procedures and other matters to comply with the contract requirements;
(b) ensure that the project implementation in all aspects is incompliance with various laws/Acts concerning the safety requirements and labour welfare;
(c) review daily work-plan submitted by the contractors prior to commencing the works;
(d) prior to the construction or installation, check quality of materials to be used for the Project and ensure incompliance with the technical specification. Conduct laboratory test for all construction materials related to the structure. Ensure that construction quality is compliant with technical specification.
(e) supervise the building construction, installation of the mechanical and electrical works, and IT, construction of supporting infrastructure facilities, and ensure that the technical specification meet the requirement;
(f) closely monitor the project schedule, milestones and manpower requirements, to ensure the completion of the Project timely.
(g) conduct mutual check with the contractors and compare between the bill of quantity (BOQ), drawing, and the actual construction;
(h) advise the PIU of any changes in the technical documents that may be deemed necessary for the completion of works, including information on any effects the change may impact on the contract amount and time of completion of the project and prepare all specifications and other details arising thereof;
(i) where variations of the quantities are requested by the Contractor, the following information should be provided in relation to contract variations: (i) data on which the original as-tendered design was based, (ii) a complete record of all new design data which is relevant to the variation, (iii) an as-built record showing the location and detailed dimensions of all works carried out to date under the contract,(iv) a copy of all previously approved variations and Contract Addenda, (v) a copy of the contractor's bid document, including all the tendered Unit Prices and detailed Unit Price Analysis, (vi) a description of the design assumptions adopted, (vii) drawings clearly showing both the original design and the proposed variation; and (viii) a rescheduled list of quantities and costs, relevant to the proposed variation.
(j) assess adequacy of all inputs including materials and labor and instruct corrective measures to the contractors when inadequacy of inputs is found. Take appropriate action in order to rectify and to expedite progress;
(k) ensure that the construction methods as proposed by the contractors are incompliance with the requirements and justified; this includes compliance with environmental safeguards as well as 'green' standards
(l) Monitor implementation of the Contractors Environmental Management Plan (CEMP) and ensure the contractor submits CEMP monitoring reports on a timely basis
(m) certify achievement of the contractual milestones, and the satisfactory quality of the progress in every step, in line with the progress milestones;
(n) inspect the works on final completion before hand over and indicate to the PIU any outstanding work that needs to be carried out by the Contractor;

(o) ensure that the contractors submit as-built drawings prior to the request for certification of completion of the works;
(p) prepare defect liability list to be rectified by the contractors during maintenance period;
(q) issue certificate of completion, prepare provisional hand over (PHO) report, and final hand over (FHO) report when the defect liabilities have been rectified.

13.3. **Supervision to the Delivery of IT Equipment , Laboratory Equipment, and Office Furniture.** PMSC shall review and supervise the delivery of IT and laboratory equipment, and office furniture under the Project. The tasks include the followings:

(a) supervise the development of user's list proceses carried out by the Equipment Consultant Specialist (EQC), as well as delivery, installation, testing & commissioning carried out by suppliers;
(b) certify the achievement of the contractual milestones, and the satisfactory quality of the progress, in line with the progress milestone laid down in the contract;
(c) ensure that manual operations, and related guarantees and warranties are secured.

13.4. **Certification of Work Completion.** Prior to the issuance of certificate of work completion, and provisional hand over, the PMSC shall conduct mutual check with the contractors and ensure that the items as listed in the BOQ and its variations have been fully constructed or installed, tested and commissioned, and the contractors have submitted as-built drawings, and relevant warranties. A defect liability list to be rectified by the contractors during the maintenance period shall be prepared. Final hand over (FHO) can be done when all defect liabilities have been fully rectified.

13.5 **Dispute settlement.** The PMSC shall assist the PIU with regard to any matters related with subject to adjudication, dispute resolution, inquiry or litigation up to delivery certificate of completion.

F. Staffing.

14. A total of 282 of national person-months of professional (key and non-key) experts will be required under the services. The team composition of consultants along with their estimated person-months is provided in Table 2. below:

Table 2 – Composition and Estimated Input of PMSC

No.	Position	Person Months
	Key Experts	
National Specialists		
1	Team Leader (Project Management Specialist – a Senior Civil Engineer or Senior Architect) (1 x 12 person months)	12
2	Deputy Team Leader and Civil Engineer (Structure) (1 x 36 person months)	36
3	Procurement Specialists (1 x 18 person months)	18
4	Project Engineers - Civil Engineers (2 X 36 person months)	72
5	Project Engineer - Architect (1 X 36 person months)	36
6	Project Engineer - Mechanical/Electrical Engineer (1 X 24 person months)	24
	Sub-total of Key-Experts	**198**

No.	Position	Person Months
	Non-Key Experts (Professional)	
1	Financial Management Specialist/Project Performance Management System (PPMS) Specialist (1 x 36 person months)	36
2	IT /Equipment Specialist (1 x 24 person months)	24
3	Cost and Quantity Engineer (1x18 person months)	18
4	Environmental Specialist (1X6 person months)	6
	Sub Total Non-Key Experts	**84**

List of Sub-Professional and Support Staff (Non-Key Experts)

Sub-Professional Staff		
1	Chief Supervisors – (1X 36 person months)	36
2	Supervisors (Civil/Architects) (3 x 36 person months)	108
3	Supervisors (M/E) (2x 36 person months)	72
4	Supervisor (IT) (1X6 person months)	6
5	Landscape Specialist (1x6 person months)	6
	Sub-total Sub-Professional Staff	**228**
Support Staff		
1	Office Manager (1X40 person months)	40
2	Secretary (1X40 person months)	40
3	CAD Operator (1x36 person months)	36
4	Administrative Staff (2x40 person months)	80
5	Drivers (2x40 person months)	80
6	Security (2x40 person months)	80
	Sub-total Support Staff	**356**

15. **Qualifications and Tasks.** The consultant qualifications and the outlined tasks are as follows:

Qualifications and Tasks of Key-Experts and Non-Key Experts

(i) Team Leader and Senior Civil Engineer or Senior Architect: The specialist will preferably have a master's degree in civil engineering or architecture with relevant experience in managing building construction project teams. S/he will have relevant experience of about 15 years and should be fluent in English. S/he will be responsible for overall co-ordination of team activities and will be directly responsible to the PIU. The main responsibility will be to coordinate the project activities in a timely manner and ensure that the objective of this TOR is fulfilled to the satisfaction of the PIU. The Team Leader will also work as a project management specialist and oversee design works prepared by the DED consultants. The Team Leader shall provide technical guidance to all members of the team. S/he will have overall responsibility in technical advisory, management and monitoring all tasks under the contract, setting up technical guidance and standards as necessary. The responsibilities of the consultant shall include, but not be limited to, the following:

a. Maintain close contact with the PIU and Project Team and local government to ensure that the contract is implemented in accordance with the government's policies and guidelines;
b. Review the DED documents, the soundness, completeness and accuracy of building architectural systems, parts, and elements, and ensure that DED documents complied with national building codes, standards, and regulations;

c. Meet with the DED consultants to discuss the prepared DED;
d. Re-assess the incomplete buildings with the prepared DED;
e. Check quality of the documents prior to tendering;
f. Support the PIU in tendering all packages under the Project;
g. Chair weekly meetings with contractors;
h. Responsible for the overall management of the construction activities and promoting value engineering options where appropriate;
i. Check quality of the reports and cost estimates before submission of reports to the Project Team;
j. Ensure that all provisions of the TOR are fulfilled to the complete satisfaction of Client;
k. Ensure continued liaison, especially on technical matters between the team members and the PIU's Project Team;
l. Responsible for compliance with deliverable and reporting requirements, and provide sufficient resources in order to complete the contract successfully;
m. Reviewing any potential changes during construction, and coordinate with team member to estimate the cost impact.
n. Obtain appropriate reports and information from the PIU, and compilation of regular updates;
o. Prepare quality control documents related to deliverables;
p. Ensure compliance with environmental safeguards including biannual environmental safeguards reporting, including implementation of the EMP, updating of the IEE, if and when required, implementation of the GRM, and monitoring and maintaining the CEMP by the contractors
q. Prepare presentations related to deliverables, and preparing workshop materials if required;
r. Prepare accurate evaluations of work done in relation to the defined milestones and facilitating the examination of work by the Client, and
s. Other aspects, as may be necessary for the project based on requirements of the PIU.

(ii) Deputy Team Leader – Senior Civil Engineer (Structure): The expert will preferably have a master's degree in civil engineering with relevant experience in supervision of building constructions. S/he shall assist the Team Leader for overall co-ordination of core team activities and will be responsible to the Team Leader. S/he will have relevant experience of about 10 years, with a valid professional engineering license. The main responsibility will be to coordinate the project activities and ensure that the objective of this TOR is fulfilled to the satisfaction of the Client. The responsibilities of the consultant shall include, but not be limited to, the following:

a. Assist the Team Leader in the execution of the work in accordance with the TOR and also for the co-ordination of all professional inputs. S/he will be responsible to the Team Leader. S/he will also maintain close contact with the PIU Team and local government to ensure that the contract is implemented in accordance with the government's policies and guidelines;
b. Assist Team Leader to review the DED documents (drawings and specifications)
c. Conduct visual and initial structural assessment together with DED consultants to the incomplete building;
d. Assist the Team Leader in overall project management of the construction activities and advising modifications/revisions where necessary;
e. Check designs and cost estimates prior to approving the contractor to start working of every step of work;
f. Ensure continued liaison, especially on technical matters between the team members and the PIU;
g. Prepare quality control documents related to deliverables;

h. Prepare presentations related to deliverables,
i. Prepare accurate evaluations of work done in relation to the defined milestones and facilitating the examination of work;
j. Assist the Team Leader in timely preparation of reports;

(iii) Procurement Specialist: The consultant should preferably have a master's degree in public administration, law, or other related field with around 10-15 years of experience in public procurement practices and procedures, and around 7 years of procurement experience under ADB or WB funded projects. The consultant shall have experience in drafting contractual agreements and other related documents/agreements and in resolving legal issues related to public procurement in Indonesia. S/he shall have good knowledge of the institutional, technical, and commercial aspects of procurement; demonstrated experience in contract management at managerial level; fluency in spoken English and Bahasa; strong organization skills and ability to work in a team-oriented, dynamic and diverse environment with a proven track record of working effectively within multidisciplinary teams. The tasks of the Procurement Specialist include but are not limited to:

a. Assist PIU in updating procurement documents for bidding to be in line with ADB procurement guidelines;
b. Assist PIU in supporting the PIU to tender all packages under the Project, responding bidder queries, and tender evaluation.
c. Assist the PIU in contract management with the winning contractors;
d. Assist the PIU in all matters related to the use of e – procurement
e. Set up a procurement management tracking system for the PIU that would monitor the implementation of procurement activities;
f. Assess the procurement risk and put in place appropriate review and supervision processes and thresholds to mitigate those risks;
g. Assist PIU in evaluating contract variation from contractors and checking the available budget.
h. Provide inputs on procurement related matters to the team leader for preparing consultant's report.

(iv) Project Engineers (Civil Engineering): The consultant shall have a bachelor degree in civil engineering with demonstrated work experience in construction supervision of buildings of about 10 years, preferably in supervising high-rise buildings. The consultant shall have experience in structural quality control, construction materials laboratory tests, construction problem solving, and project reporting. The tasks include but are not limited to:

Support the Team Leader to:

a. Check the proposed site management by the contractors
b. Supervise all construction works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
c. Certify all materials to be used in the Project prior to construction
d. Check the required permits obtained by the contractors prior to construction
e. Ensure construction safety in each step of implementation of the contractors
f. Check and certify completed works for payment purposes

(v) Project Engineer (Architecture): The consultant shall have a bachelor degree in building architecture with (5) five years demonstrated work experience in design and supervision of buildings architectural works. The Project Engineer for Architectural Works is responsible to the

selection of architectural materials in consultation with the PIU and ensure proper installation of the architectural works. The tasks of project engineers include:

a. Supervise all architectural works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
b. Certify all materials to be used in the Project prior to construction;
c. Check the required permits obtained by the contractors prior to construction
d. Ensure construction safety in each step of implementation of the contractors
e. Check and certify completed works for payment purposes

(vi) Project Engineer (Mechanical/Electrical): The consultant shall have a bachelor degree in mechanical/electrical engineering with a minimum of 10 years demonstrated work experience in supervising buildings' mechanical/electrical installation, i.e., escalator, lift, air conditioning, electrical installations. The tasks of the M/E project officer, includes but are not limited to:
Supports the Team Leader to:

a. Supervise all mechanical and electrical works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
b. Review the soundness, completeness, and accuracy of building mechanical, electrical, and plumbing system.
c. Certify all materials to be used in the Project prior to installation
d. Check the required permits obtained by the contractors prior to installation
e. Ensure installation safety in each step of implementation.
f. Test of the completed installations
g. Certify the completed works for payment purposes

(vii) Financial Management Specialist: The consultant should have a bachelor's degree in accounting, business administration, finance and about 8-10 years of relevant experience in financial management of international financed projects. Preference will be given to those who are certified public accountants or have other recognized accounting certification. S/he will monitor the financial management system of the project, and establish a sound accounting practice and system to manage the resources available to the Project.

a. Assist PIU in preparing good quality and timely submission of the monthly, quarterly and annual project financial statements;
b. Assist the PIU in managing fund flow in accordance with component and expenditure categories funded by the project;
c. Assist the PIU in evaluating invoices submitted by contractors and convert them to applicable withdrawal applications in ADB format;
d. Identify any issues in the financial management system for project implementation and recommend measures to address the issues identified;
e. Develop project performance management system and update it regularly

(viii) IT Specialist: The consultant shall have a bachelor degree in information and technology faculty with demonstrated work experience in supervision of building IT installations. The consultant shall have experience in IT installation and quality control of office buildings of at least 7 (seven) years. The IT Specialist is to

a. Supervise all IT works and ensure that the materials, methodology, and phasing of the works are in line with technical specifications and agreed work methodology.
b. Certify all materials to be used in the Project prior to installation
c. Check the required permits obtained by the contractors prior to installation
d. Ensure installation safety in each step of implementation.

e. Test the completed installations
f. Certify the completed works for payment purposes
g. Review specification of the IT and the office computers to be procured under the Project and supervise the installation.

(ix) Cost and Quantity Engineer: The consultant shall have a bachelor degree in civil engineering, law, or commerce faculty or related field with demonstrated work experience in preparing contract documents for building projects. Appropriate experience will include procurement of public works infrastructure in Indonesia. S/he will have relevant experience of about 7 years. S/he must be thoroughly familiar with procurement rules in Indonesia. The responsibilities of the consultant to the Team Leader shall include, but not be limited to, the following:

a. Evaluate the quality of data and completing quality control documents as prepared by DED consultants;
b. Evaluate quantity estimates based on the DED as prepared by the DED consultants;
c. Check cost estimates based on approved specifications and formats;
d. Assist in preparing bidding documents for works;
e. Assist the Team Leader and Deputy Team Leader in timely preparation of reports; and
f. Provide other required support to the project based on requirements of the PIU.

(x) Environmental Specialist: The specialist will preferably have a bachelor in environmental management, natural sciences or a related field with demonstrated work experience in environmental studies for building projects. S/he will have relevant experience of about 5 years. S/he must be thoroughly familiar with Indonesia's regulatory framework for environmental management. S/he should be familiar with ADB's environmental safeguards requirements as stipulated in the Safeguards Policy Statement (SPS). Actual experience with implementation of ADB projects in which this policy was applied is preferred. S/he should have accreditation from the government as an environmental specialist as per the EIA Regulations in Indonesia and should be fluent in English and Bahasa Indonesia. The Specialist will be responsible for implementation of the EMP, monitoring of the implementation of the CEMP by the contractors, preparing the bi-annual environmental safeguards monitoring progress reports, and support updating of the IEE, if and when required. The environmental monitoring report shall include among others: (i) review of the contract document related to environmental provisions, (ii) actual environmental mitigation by the contractors, (iii) protection measures, (iv) advices provided to contractors. The reports shall be made on quarterly basis.

Sub-Professional Staff	
Chief Supervisor	Bachelor Degree from Civil Engineering or equivalent, with at least 10 (ten) years of experience in construction supervision of building projects. Responsible for supervising all technical works, sequence, construction safety, quantity and quality of the construction to be done by the contractors.
Supervisors (Civil/Architects)	Shall have technical background from at least polytechnic education of civil engineering or architecture or equivalent with at least 10 years of experience in supervising building construction. Responsible for supervising all technical works, sequence, construction safety, quantity and quality of the construction to be done by the contractors.
Supervisors (M/E)	Shall have technical background from at least polytechnic education majoring electrical or mechanical engineering or equivalent with at least 10 years of experience in supervising M/E installations and works in building construction. Responsible for supervising all M/E works, sequence, installation safety, quantity and quality of the M/E installation by the contractors.

Sub-Professional Staff	
Supervisor (IT)	Shall have an IT background from an IT education or polytechnic with at least 7 (seven) years of experience in supervising IT works in building projects. Responsible for supervising all IT works, sequence, installation safety, quantity and quality of the IT installation by the contractors.
Landscape Specialist	Shall have graduated from architecture engineering/landscape or equivalent with at least 5 (five) years of experience in landscape works of building complexes. Responsible for supervising, advising, and ensuring that the landscape works by the contractors are in line with the design and specifications.

G. Duration of Services and Deliverables

16. **Duration of Services**. The expected duration of the consultants' services is 5 (five) years. The first year of the services will be used to support the PIU to review the design as prepared by the DED consultants, and biddings. Construction of buildings is estimated to start by the end of the first year of services. The implementation schedule is in **Annex 1.**

17. During the contractors' defect liability period of 12 months, the deputy team leader and the project engineers (civil engineer, M/E, or architecture) shall be available in the site office on intermittent basis.

18. **Deliverables.** The following meetings, reporting, and preparing of operation manuals shall be delivered timely:

(i) **Meetings.** The Consultant shall conduct meetings with the PIU, the contractors, and other stakeholders, as follows:

a. Daily meetings (to be attended by contractor);
b. Weekly meetings (TL, project engineers, supervisors, and contractors) and PIU representatives.
c. Monthly meetings (TL, project engineers, contractors, DED consultants, EQC, PIU and PMU representatives)
d. Quarterly meetings (TL, project engineers, contractors, DED consultants, EQC, PIU and PMU representatives)
e. Ad-hoc meetings.

(iii) **Reporting**

Inception Report

An inception report along with a construction supervision manual in 5 copies each shall be submitted by the Consultant within 15 days after commencement of services. The inception report shall contain :

a. the details of all meetings held with the PIU and the Contractors and Suppliers/Vendors and the decisions taken therein, the resources mobilized by the Consultants as well as the Contractor and the Consultants' perception in the management and supervision of the project with detailed situational analysis of the current structure**;**
b. the master work program and resource mobilization plan for the project;
c. the supervision 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 Project Management and Supervision Consultant in discharging their duties in a smooth and systematic manner.

Progress reports

The progress reports should clearly indicate the contractor's performance, quality of work, delays, deficiencies, constraints, and the project's financial status, forecasts, and giving recommendation for actions. The reports consist of :

Weekly progress report: to be submitted on the last day of the week, every month.

Monthly progress report: Monthly progress report shall be submitted to the PIU and it shall be brief and concise and provide 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 contractor and supervision staff.
c. Monitoring and evaluation of project progress.
d. Project accounts, payments of approved bills, claims, certificates and payment and variation orders.
e. Photographs showing progress of the works.
f. Other issues as may be necessary to provide additional information to the PIU/PMU Manager.
g. Monthly progress Report will be prepared at the end of each calendar month and delivered before 10th day of the following month in 10 copies.

Quarterly Progress Report: A detailed quarterly report in 5 copies shall be submitted within 7 days of the end of each quarter and one copy each to be sent to PIU. The PIU will then submit the reports to the PMU, MoRTHE, Bappenas and ADB. Quarterly reports should include description of project activities, illustrated by progress/completion photographs, status of any delays and contractual claims, and details of all latest financial projections. The progress reports (monthly and quarterly) shall contain details of all meetings, decisions taken therein, mobilization of resources (Consultants' and the Contractors'), physical and financial progress and the projected progress for the forthcoming periods. The report shall clearly bring out the delays, if any, reasons for such delay (s) and the recommendations for corrective measures. The report shall also contain the performance data for Contractor's plan and equipment.

Specific Report: The relevant specialists should prepare bi-annual environmental safeguards monitoring progress reports and gender monitoring and assessment reports on quarterly basis. The reports shall consists of assessment to the inclusion of environmental safeguards requirements and gender in the building designs and construction methodology, during construction, and the specialist's technical advices.

Final report. A detailed final completion report in 5 copies should be submitted to the PIU. The final report is to be submitted, in draft form, one month before the completion of PMSC services, summarizing the method of construction, the construction supervision performed, recommendations on future maintenance requirements, all technical matters arising during the construction of the buildings, potential problems on the newly constructed works which may be expected, and giving suggestions, if any, for various needed improvements in future projects of similar nature undertaken by the University. The final report shall also include a copy of all "As Built Drawings". The Final Report shall be submitted at the completion of services, including any comments received on the draft final report. All Reports and data collected or produced during the project, and all programs and other materials developed, prepared or obtained during the project, will be the property of the University, and are to be provided as requested, and handed over at the end of the Project, to the PIU Project Manager.

Other Reports. The PMSC shall prepare other specific purposes reports that may be required during the project lifetime.
Maintenance Manual. Manual detailing routine and periodic maintenance tasks that will be required to maintain the completed project shall be prepared and submitted by the PMSC. Draft copies of this manual should be submitted for comments to the PIU within 12 months of commencing services.

H. Contract and Payment Terms

19. The PIU shall sign a time-based contract with the selected PMSC for providing project management and supervision services for the Project. The Payment Terms will be determined further.

20. The PMSC firm shall be paid based on submission of a consolidated time sheet of time spent by various specialists of the PMSC, and the out of pocket expenditures during the payment period. The payment shall be processed by PIU upon the approval of the time sheet by PIU, for whom the work has been undertaken. Upon PIU's acceptance of the outputs delivered by the PMSC, the payment requests shall be submitted by the PIU through the PMU to ADB for direct payment to the PMSC firm.

21. In case of a significant delayed payment, the PMSC firm shall communicate with the PIU, with copy to the PMU and ADB.

I. Client's Input and Counterpart Personnel

22. The PIU shall provide the following:
    a. All available documents, reports, data and all other information related to the proposed assignment.
    b. Any letters or assistance required by the consultants in obtaining all necessary permits and authorizations for carrying out the services.
    c. The PIU will assign a counterpart personnel to represent the PIU.

23. The Consultant shall provide the following:
    a. The Consultant shall establish a site office. All required furniture, hardware, software, internet/phone connections, office stationary etc shall be provided by the Consultant. The cost associated to this provision should be included in the financial proposal, as part of non-competitive component.
    b. The Consultant shall include necessary transportation costs at the project site including vehicles rental and in their cost of operation.

J. Actions Requiring Specific Approval of the PIU

24. The Consultant will require specific approval from the PIU as listed in Table 3 below:

Table 3 – Actions Requiring Specific Approval from PIU

Actions Requiring Specific Approval
1. Consenting to the subcontracting/subletting of any part of the works.
2. Certifying additional cost determined.
3. Ordering suspension of work.
4. Issuing the notice to commence the work.
5. Approval of any extension of contractual time limits.

Actions Requiring Specific Approval
6. Any variations or deviations proposed by the Contractor with financial implications including variation in work quantities.
7. Approval of any new rates either for existing items of work, which arises from variation quantities beyond the limit, defined in the contract or fixing rates of non-priced works involving any extra item and certifying any additional cost determined under the provisions of work contract;
8. Issuing the order for special tests not provided for in the contract and determining the cost of such tests, which shall be added to the contract price.
9. Issuing/approving the technical specifications, if not provided in the construction contract.

Appendix 14: Terms of Reference for Detailed Engineering Design Consultant to Support the University of Malikussaleh

A. Background.

1. ADB is supporting the Ministry of Research, Technology and Higher Education (MoRTHE) with the preparation of the Advanced Knowledge and Skills for Sustainable Growth in Indonesia (AKSI) Project. The proposed AKSI aims to support Indonesia's higher education system in providing advanced skills and knowledge to support inclusive and sustainable economic growth. The Project will support the University of Malikussaleh (UNIMAL), University of Jambi (UNJA), the University of Riau (UNRI), and the Universitas Pendidikan Indonesia (UPI) - a teacher education university. The Project will construct a number of multi-story buildings and the associated infrastructure and facilities such as roads, drainage, mechanical/electrical equipment and installations, laboratory equipment, and IT facilities. The project will also strengthen the universities by providing degree and non-degree training for staff, both in-country and overseas, as well as strengthening of student certification in line with the Indonesia Qualification Framework.

2. A DED consulting team will be engaged for the Project in UNIMAL to prepare detailed engineering designs for several buildings and supporting infrastructure facilities as listed in **paras.9**.

B. Project Overview.

3. AKSI Project is part of Indonesia's long-term development plan for higher education, with the stated objectives of: (i) Increasing access to higher education, thus increasing enrollment rate; (ii) Improving quality, relevance, competitiveness, and accreditation of higher education through the enhancement of academic quality, facilities, human resources development, and research; (iii) Increasing quality and competitive higher education graduates.

4. The four universities, UNIMAL, UNJA, UNRI and UPI have envisioned scope of work entails three categories of activities: (i) Development of teaching and research facilities, supporting infrastructures, and procurement of equipment; (ii) Development and improvement of the quality of human resources, including degree and non-degree programs for lecturers and university staff; (iii) Development of academic curriculum, applied research, and services, with an aligned management system in a specific focus area, which is referred to as development of center of excellence. Investment in UNIMAL, UNJA, and UNRI will focus their centers of excellence on sustainable natural resources, agriculture, and marine and aquatic science respectively, while UPI will focus on TVET-teacher education to meet national priorities for skilled and highly skilled human resources. The project has the following outputs:

5. Output 1 is delivery of market responsive programs by UNIMAL, UNJA and UNRI, by:
   i. upgrading UNIMAL, UNJA and UNRI through completing construction and equipping 33 new buildings, and finishing and equipping 1 unfinished building (with gender responsive, inclusive, and sustainable infrastructure).
   ii. Training at least 586 additional teaching, management, research and support staff (of which 40% women) of UNIMAL, UNJA and UNRI, to increase their understanding on market responsive programs and research
   iii. Supporting development of centers of excellence in UNIMAL, UNJA and UNRI in Sustainable Natural Resources, Agriculture, Marine and Aquatic Science respectively in collaboration with industry, community and other stakeholders (a) to upgrade or develop at least 40 curricula; (b) to launch at least 21 new research programs

connected to the center or excellence; (c) to provide at least 65 additional training or service programs; and (d) to sign at least 21 additional MoUs with industry and other stakeholders.

iv. In addition, as part of output the project will support MORTHE in developing a long-term investment strategy for the Higher Education and Advanced Skills Development Sector (financed by a Trust-fund TA support).

6. Output 2 is improved training of TVET teachersby:

i. Upgrading UPI by completing construction and equipping 6 new buildings (including gender responsive, inclusive, and sustainable infrastructure) to become center of excellence in TVET teacher education and training.
ii. Training at least 53 teaching, management, research and support staff (of which 40% are women) to increase understanding on designing and delivering accredited TVET teacher education programs.
iii. Supporting UPI as part of its center of excellence development to (a) establish 6 new S1 TVET teacher education programs; (b) to train at least 240 SMK-teachers (at least 40 % female) in-service training programs, in collaboration with MOEC, relevant polytechnics, SMKs and industry (c), to certify at least 300 participants (at least 35% female) by the established LSP and PUK, and (d) to disseminate at least 2 case studies of UPI model for TVET teacher education and training model.
iv. In addition, as part of output 2, MORTHE will be support to develop a long-term vocational teacher education strategy in collaboration with all relevant stakeholders (financed by Trust fund TA support)

7. MORTHE through the Directorate General for Resources for Science, Technology and Higher Education (DGRSTH) will be the executing agency of the project, and the above four universities will be the project implementation units (PIUs). The MORTHE will establish a steering committee to guide and monitor the AKSI's overall implementation and ensure that the Project can be completed on time and within the available budget. The DGRSTH will establish a Project Management Unit (PMU), headed by the Director for Facilities and Infrastructure. The Project Director will be supported by a dedicated Project Manager who will be responsible for managing the PMU activities, project planning and implementation management, preparation of progress reports, and ensuring that ADB guidelines are complied. The PMU will have full coordination with the PIUs in the universities. The PMU will be supported by a Project Management Consultant (PMC). The PMU, with the support of its consultants, will determine annual works program, monitor progress in project implementation and ensure compliance with ADB's policies, including safeguards policies, procurement procedures, performance indicators, physical achievements and expenditures and preparation and submittal to the ADB of monthly, quarterly, bi-annual safeguards monitoring, and annual progress reports on overall project implementation.

8. UNIMAL, one of the PIUs, is a regional state university that primarily serves its bordering city and districts, located in Aceh province. UNIMAL has 8 (eight) faculties and Master degree programs. UNIMAL has two campuses, i.e., Bukit Indah which has an area of about 105 hectares, and Releut campus which has an area of approximately 84 hectares. Under the AKSI project UNIMAL will construct a number buildings and the associated supporting infrastructure facilities, procure laboratory equipment, and IT/ office computer facilities, mechanical/electrical equipment and installations, and conduct degree and non-degree domestic and overseas training. The new buildings will be designed to align with the current eco-green requirement, and aimed to support favorable environment for learning and research. Below is the main features of the project in UNIMAL:

9. **Building Construction.** Table 1 below shows the list of buildings to be constructed by UNIMAL:

Table 1 – List of Buildings to be constructed by UNIMAL.

Buildings

Location	Building – UNIMAL	Fls	M2	DED
Bukit Indah Campus	1) General Lectures Building (C)	3	3,000	
	2) Finish and modify the Unfinished Administration Building to become Central Library Building and Student Activity Centrum	3	7,500	
	3) Integrated Laboratory of Renewable Energy	2	2,700	
	4) School of Engineering Building	2	3,000	
	5) School of Economic Building	2	2,800	
	6) School of Social Science and Politics Building	2	2,300	
	7) School of Law Building	2	2,200	
	Supporting Infrastructures: Roads and Parking, Drainage, Culverts, Energy Power Supply, IT connections, Landscaping, Water supply			
Reuleut Campus	8) General Lectures Building (D)	3	3,000	
	9) Integrated Laboratory for Agriculture, Medicine and other general Sciences	2	2,700	
	10) Green House	1	800	
	11) Administration Office of Reuleut Campus, Integrated with Data center, international office and language Training Center	3	8,000	
	12) School of Agriculture Building	3	2,300	
	13) School of Teaching and Education	3	2,700	
	14) School of Medicine Building	3	2,200	
	15) University and Community Education, Exposition and Event Center integrated with University Training Center	*2*	4,800	
	Supporting Infrastructures: Roads and Parking, Drainage, Culverts, Energy Power Supply, IT connections, Landscaping, Water supply			
Total	15 buildings, 14 new building, 1 unfinished building to be finished.		50,000	

10. The buildings with (**V)** mark in the column of DED of the Table 1 above, shall be interpreted that the DEDs of the corresponding buildings have been prepared, and the scope of the DED consultant shall exclude those buildings.

C. Project Organization.

11. The Rector of UNIMAL will establish a PIU, led by a PIU manager. He/she will be supported by a vice manager, an executive secretary, and 5 (five) coordinators for M/E, Academic and Staff Development, Civil Works/Infrastructure, Procurement and Finance to manage the project. The PMU and the PIU structure is in Figs. 1 and 2, as follows:

Figure 1 - The PMU Organization Structure

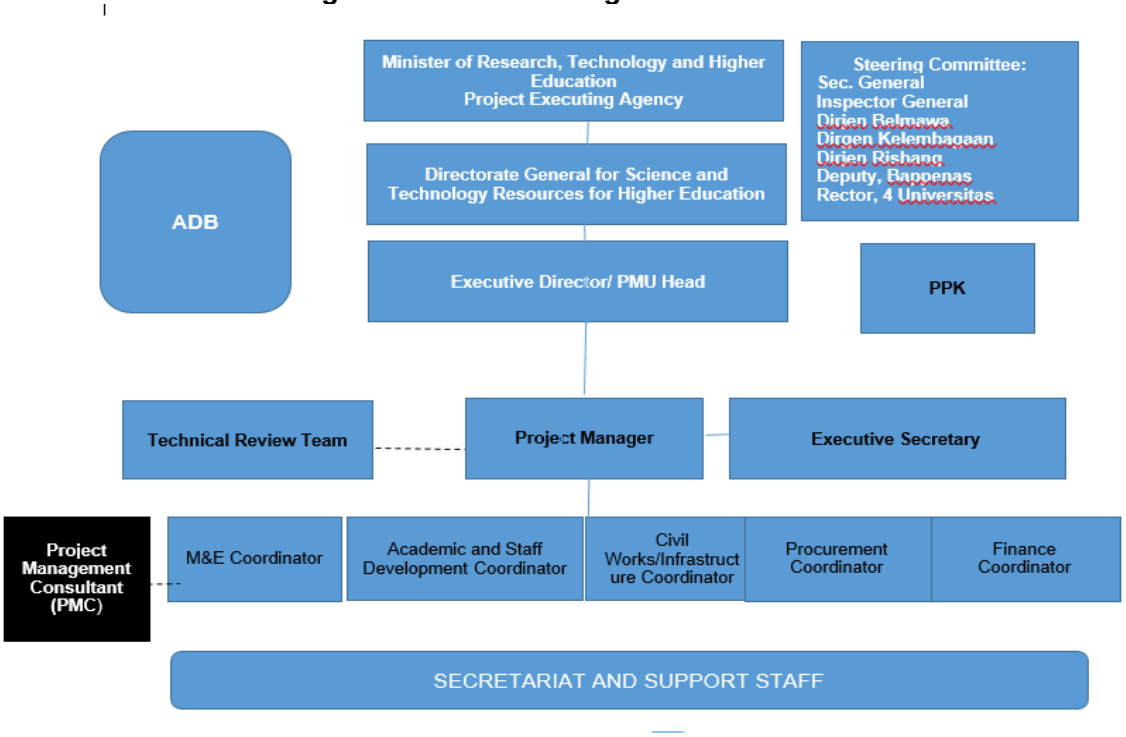
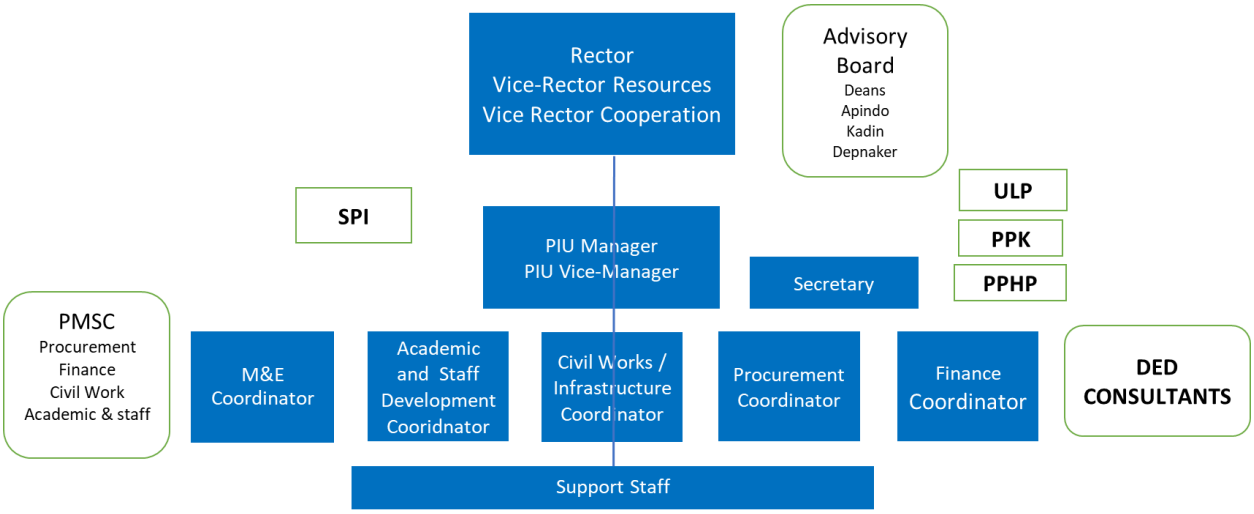


Figure 2 - The PIU Organization Structure



12. **Flow of the Documents.** Any submissions of documents and correspondences from the PIU related to the project implementation to the third parties, including to ADB will be channeled through the PMU office.

D. Objective of the Assignment

13. The objective of this assignment is to develop DED for the construction of new buildings as stated in para.9 above, and supporting infrastructure facilities, including (i) development DED based on available preliminary design provided by UNIMAL, (ii) development of bidding

documents, and (iii) explanation of the designs at each of the pre-construction meetings when required. The DED consultant shall prepare quality DED documents that meet all the legal requirements and criteria pertinent to the construction of buildings and best fit with campus environment and can provide full support to the overall function of the buildings in an academic environment. In preparing DED, the DED consultant shall apply value engineering (VE) principles.

14. The avoidance of conflict of interest is essential. The DED Consultant will need to demonstrate through the quality of its outputs that it has placed professional standards and the interest of the Client above its own commercial interests in situations where conflicts of interest may arise.

15. **Special Features**: The DED consultant shall ensure that the construction of new buildings integrate gender responsive physical design features.[36] Green environment concept shall be adopted in the designs of the building and supporting infrastructure facilities. This concept refers to both for the structure and the application of processes that are environmentally responsible and resource-efficient throughout a building's life-cycle, i.e., planning, design, construction, operation, maintenance, renovation, and demolition. These include:

- Efficient use of energy, water, and other resources
- Lower maintenance cost
- As much as possible, use of renewable energy, such as solar energy
- Pollution and waste reduction measures, and the enabling of re-use and recycling
- Good indoor environmental air quality
- Use of materials that are non-toxic, ethical and sustainable
- Consideration of the environment in design, construction and operation
- Consideration of the quality of life of occupants in design, construction and operation
- A design that enables adaptation to a changing environment

E. Consultant Selection.

16. The DED Consultant will be selected using ADB guidelines for Consultant Recruitment, through Quality and Cost Based Selection (QCBS). The consultant is selected from a shortlist of prequalified consulting firms who have experiences in designing campus and/or other educational facilities. Consulting firm with past experiences in designing green environment concept buildings will be preferred.

F. Scope of Services.

17. At the commencement of the consultancy services, the consultants will be provided with a preliminary design documents prepared by UNIMAL. The DED consultants shall refer to this preliminary design document in developing the DED documents, covering all the detailed work in infrastructures, buildings and facilities for laboratories, classrooms, and other functions. The consultants must also cross-check the conformity and validity of the available information with the management of the university and its related faculties and must be available in the project location. All mistakes and errors due to inaccurate information, which lead to quality of the design, become the responsibility of the consultants.

[36] Refer to Regulation of Minister of Public Works and Housing No. 45/2007 on State Buildings, and Regulation of Minister of Public Works and Housing No. 14/2017 on Ease-of-Access Requirements to Building.

18. The scope of the services to be undertaken by the DED consultant consists of 3 (three) main activities, (i) review of the existing preliminary design, (ii) design development phase, and (iii) detailed design phase including preparation of bidding documents. The DED consultant should conduct site survey to confirm the site lay out for buildings and supporting facilities.

(i) Review to the Existing Preliminary Design. Review and verify the selection of building concepts, sub-system structure and sub-electrical mechanical systems. Propose changes when required, in close consultation with the PIU.

(ii) Design Development Phase, covers:

a. architectural plans, including development of image that explains the building layout, floor plan, architectural views, cut and details the main, the program illustrates room utilization by viewing the building as a single organization, including the reconstructed hall and building landscape;
b. structure plan, together with the description of concepts and calculations, soil investigation reports and plan for testing the soil that will be used as building foundation;
c. utility plan, along with descriptions of concepts and calculations, including the system of air circulation, lighting, electricity including generators, data, vertical transportation (elevators) plumbing, clean water systems, fire hazard prevention and control, termite prevention, and others;
d. develop an outline of technical specifications that describe the type, the type and characteristics of materials/ingredients used;
e. refining cost pre-estimation (architecture, landscape, structural, mechanical and electrical) in accordance with the existing detailed design concept.

(iii) Detailed Design Phase, includes

a. detailed drawings for implementation of architectural, landscape, structure, hall space, utilities and mechanical electrical in accordance with the approved plan drawing;
b. detailed structure analysis of the buildings and calculation;
c. schedule of materials to be used for the project;
d. detailed technical specifications (RKS);
e. water supply scheme design for the respective buildings, offices, and other buildings from the source including reservoir and intake tanks if needed.
f. detailed cost estimates, Bill of Quantity (BOQ) and unit rate analysis.
g. complete sets of bidding documents;
h. obtaining the building permit and the necessary approvals of the designs for construction of the buildings from the authorities concerned
i. construction methods with respect to the existence of heritage buildings (if any);
j. methods of installation of laboratory and education equipment;
k. develop engineer's cost estimate;
l. report of architectural planning, structural, utilities, MEP, and other necessary relement calculations
m. Environmental management plan (EMP). The consultant shall based on the EMP included in Initial Environmental Examination (IEE) identify potential environmental impact due to the use of materials, equipment operation, and the construction, including but not limited with regard to waste management, air quality and noise, and occupational and community health and safety, and prepare a list of actions to be implemented by the contactor to manage and monitor the risks that may arise. This

EMP shall be included in the bidding documents, so the contractor can develop a Contractor's EMP in his proposal.

19. It shall be the responsibility of the DED consultant to: (i) carry out the physical verification of the site for assessing the scope of work, and (ii) conduct necessary tests to determine the design parameters. Soil investigation (2 drill in @ 40 m with SPT every 1.5 m, 5 soil sampling (boring/sondir) with a capacity of 2.5 tons, making 10 sets of soil samples and testing samples soil in the laboratory for each building) is mandatory.

20. Prior to submitting the proposal, the prospective consulting firms should visit the proposed site at its own costs to familiarize with the existing site conditions. A copy of the sketch map of site will be provided for reference. When selected, a detailed survey should be carried out to all the topographical features as may be required for the purpose of design. Also, identification and surveying of appropriate water sources for the buildings should be carried out.

21. Below is the outline of the preliminary design prepared by UNIMAL to be used as references of the DED preparation:

- *General Lecture Building (C) – Bukit Indah Campus*
  3 (three) storey, 3.000 m^2 floor area of building for general lecturing
- *Integrated Laboratory of Renewable Energy for Agriculture – Bukit Indah Campus*
  2 (two) storey, 2.700 m^2 floor area of building for laboratory practice and research in Renewable Energy
- *General Lectures Building (D) – Reuleut Campus*
  3 (three) storey, 3.000 m^2 floor area of building for general lecturing
- *Integrated Laboratory for Agricultural Technology – Reuleut Campus*
  2 (two) storey, 2.700 m^2 floor area of building for laboratory practice and research in Agriculture, Medicine and other General Sciences
- *Green House – Reuleut Campus*
  1 (one) floor, 800 m^2 area of green house for agriculture activities,
- *Administration Office – Reuleut Campus*
  3 (three) storey, 8.000 m2 floor area of administration building, integrated with Data Center, International Office, and language training center,
- *University and Community Education, Exposition and Event/University Training Center*
  This building is to be functioned as auditorium. A 2 (two) storey, 4,800 m^2 of multi-purpose building for large-size lecturing, exposition and training center.
- *Infrastructures*
  Planning and design of campus supporting infrastructure (pavement, drainage, parking lot, landscape, pedestrian path and water supply system) at Bukit Indah and Reuleut Campuses.

22. In developing architectural detailed plan and detailed engineering design, the consultant must consider the following:

(a) The site plan for infrastructure, buildings, and facilities as well as related equipment must support the optimal utilization of each component.
(b) Outdoor and indoor floor areas of each facilities as well as all displayed architectural features must act like an integral part of the latest master plan of UNIMAL.
(c) All plans must accommodate the possibility of future development of educational and research facilities.

(d) All plans should be constructed without disturbing the ongoing academic and administrative activities within UNIMAL, especially in faculties (units) in which the buildings are to be constructed.
(e) All infrastructures, buildings and facilities must accommodate effective, efficient, modern and advanced education and research activities that can take all the academic community accordance with the latest master plan of UNIMAL.
(f) All infrastructures, buildings and facilities shall be designed in accordance the concept of green buildings, to minimize waste and energy usage, and as much as possible with lower maintenance cost.
(g) The required facilities to meet such demands are supporting the following activities:
    (i) Educational activities.
    (ii) Research activities.
    (iii) Functional area activities.
    (iv) Administrative activities.
    (v) Parking services

G. Technical and Design Criteria and Considerations

G.1 General Criteria for Building Design

23. In designing the buildings, the DED consultant must consider the following criteria:

(i) Allocation and intensity requirements:
    a. Ensure the building to be established under provisions of spatial and building set in the regions concerned.
    b. Ensure the building to be utilized in accordance with its function.
    c. Ensure the safety of users, communities, and the environment.
    d. Comply to the principles of:
        - Frugal, not fancy, efficient and in accordance with technical requirements.
        - Directed and controlled in accordance with plans, programs/activities and functions.
        - Maximizing utilization of domestic product by incorporating the ability/national potential to the planning of the building.

(ii) Architectural and environmental requirements:
    a. Guarantee the building to be established under provisions of spatial and building set in the regions concerned.
    b. Guarantee the new building to be harmoniously standing with the existing building.
    c. Ensure building to be built and used without any negative impacts on the environment, as specified in the environmental safeguards requirements.

(iii) Building structure requirements:
    a. Assure the strength of the building in carrying its own weight and external load that could affect the usage life and durability of the building, such as earthquake, wind, live loads, as well as other temporary external loads.
    b. Assure the safety of the occupants. Occupants must be protected from accidents or injuries caused by defective building structure or fire or other catastrophic failures.
    c. Guarantee the protection from physical damage or disability due to the objects' structure.
    d. Ensure the protection of other property from physical damage caused by the failure of the structure.
    e. Ensure the endurance of the building against wreckage, damage, or regular usage decay, that must be divided into three causes; 1) due to the occupants; 2) due to substandard building material used during construction; and/or 3) due to inadequate

building maintenance which is failed to prevent the destructing effect of weather, termite, rain.

(iv) Fire resistant requirement:
   a. Guarantee the establishment of building to support any burden arising from natural and human behaviour.
   b. Guarantee the establishment of building that is structurally stable during the fire:
      - Sufficient time for occupants to evacuate safely
      - Sufficient time for firefighters to enter a location to extinguish the fire.
      - Able to minimizedamage to other property.

(v) Entrance and exit facility requirements:
   a. Guarantee the establishment of building that provide decent, yet safe and convenient access to the buildings and facilities and services in it,
   b. Guarantee sufficient protective measures from illness or injury during an evacuation in an emergency to be available, occupants protection
   c. Ensure the availability of access for the disabled, especially in public area and social facilities.

(vi) Entrance and exit accessibility requirement:
   a. Ensure of adequate means of transport, safe, and comfortable in the building,
   b. Ensure accessibility for the disabled, especially for public buildings and social facilities.

(vii) Emergency lighting, sign for exit direction, and hazard warning system requirements:
   a. Ensure availability of early and informative signs in the building for emergency cases,
   b. Ensure occupants to be able to evacuate easily and safely in case of emergencies.

(viii) Electrical installation, lightning arrester, building maintenance systems and communications requirements:
   a. Guarantee the installation of electrical installations are safe and supporting the implementation of activities within the building according to its function,
   b. Guarantee the security of the building and its occupants from danger caused by lightning,
   c. Ensure availability of adequate facilities to support the implementation of building maintenance
   d. Ensure availability of adequate means of communication in supporting the implementation of the activities inside the building in accordance with its function.

(ix) Gas installation requirements:
   a. Ensure the availability of safe gas installations in supporting the implementation of activities within the building according to its function,
   b. Guarantee the safe and fair use of gas,
   c. Ensure the sustainability continuous gas supplies for the operation and maintenance of equipment.

(x) In building sanitation requirements:
   a. Ensure availability of adequate sanitation facilities in supporting the implementation of the activities inside the building in accordance with its function,
   b. Guarantee the cleanliness, health and provide comfort for building occupants and the environment,
   c. Efforts to ensure the operation of equipment and sanitation supplies as well.

(xi) Ventilation and air conditioning requirements:
   a. Ensure adequate air needs, whether natural or artificial in supporting the implementation of activities in the buildings according to function,
   b. Efforts to ensure the operation of air conditioner and supplies as well.

(xii) Lighting requirement:

a. Ensure adequate lighting needs, whether natural or artificial in supporting the implementation of activities in the buildings according to function,
b. Efforts to ensure the operation of appliances and lighting fixtures as well.

(xiii) Noise and vibration requiremenst:

a. Guarantee the protection of the occupants from undesirable noise and vibration to provide a healthy working environment
b. Guarantee the prevention/protective procedure for noise and vibration producing activities that have negative impacts on health and may contaminate and disturb the environment balance.

(xiv) Appearance and image requirements:

The appearance of the building must comply to the characteristics of University of Jambi

G.2. Codes, Standards, and National and Local Building Regulation.

24. The design must comply with latest codes, standards, and national and local building regulations:

(a) AV-41 (Algemener Voorwarden voor de uitvoering van openbare Werken - Kondisi Pelaksanaan Pekerjaan Umum/Works Execution Conditions) in Indonesia.

(b) Latest Standards and Codes for Building Design from Ministry of Public Works and Housing, such as but not limited to:

1) SNI 6880-2016: Spesifikasi beton struktural
2) SNI 4433-2016: Spesifikasi beton segar siap pakai (ASTM C94/C94M-14, IDT)
3) SNI 6751-2016: Spesifikasi bahan lapis penetrasi macadam (LAPEN)
4) SNI 1729-2015: Spesifikasi untuk gedung baja struktural
5) SNI 7860-2015: Ketentuan seismik untuk struktur baja bangunan gedung (ANSI/AISC 341-10, IDT)
6) SNI 7860-2015: Ketentuan seismik untuk struktur baja bangunan gedung (ANSI/AISC 341-10, IDT)
7) SNI 2405-2015: Tata cara pengendalian serangan rayap tanah pada bangunan rumah dan gedung paska konstruksi
8) SNI 8153-2015: Sistem plambing pada bangunan Gedung
9) SNI 2461-2014: Spesifikasi agregat ringan untuk beton ringan struktural
10) SNI 6882-2014: Spesifikasi mortar untuk pekerjaan unit pasangan (ASTM C270 – 10, IDT)
11) SNI 1727-2013: Beban minimum untuk perancangan bangunan gedung dan struktur lain
12) SNI 7972-2013: Sambungan terprakualifikasi untuk rangka momen khusus dan menengah baja pada aplikasi seismik
13) SNI 2847-2013: Persyaratan beton struktural untuk bangunan Gedung
14) SNI 7973-2013: Spesifikasi desain untuk konstruksi kayu
15) SNI 4810-2013: Tata cara pembuatan dan perawatan specimen uji beton di lapangan (ASTM C 31-10, IDT)
16) SNI 1726-2012: Tata cara perencanaan ketahanan gempa untuk struktur bangunan gedung dan non Gedung
17) SNI 7833-2012: Tata cara perancangan beton pracetak dan beton prategang untuk bangunan Gedung
18) SNI 7834-2012: Metode uji dan kriteria penerimaan sistem struktur rangka pemikul momen beton bertulang pracetak untuk bangunan Gedung
19) SNI 7832-2012: Tata cara perhitungan harga satuan pekerjaan beton pracetak untuk konstruksi bangunan gedung

20) SNI 03-7012-2004: Sistem manajemen asap di dalam mal atrium dan ruangan bervolume besar
21) SNI 03-7015-2004: Sistem proteksi petir pada bangunan
22) SNI 03-6765-2002: Spesifikasi bahan bangunan untuk pencegahan bahaya kebakaran pada bangunan rumah dan Gedung
23) SNI 03-6759-2002: Tata cara perencanaan konservasi energi pada bangunan gedung.
24) SNI 03-6652-2002: Tata cara perencanaan proteksi bangunan dan peralatan terhadap sambaran petir
25) SNI 03-6839-2002: Spesifikasi kayu awet untuk perumahan dan Gedung
26) SNI 03-6769-2002: Spesifikasi sistem pengolahan udara sentral sebagai pengendali asap kebakaran dalam bangunan
27) SNI 03-6571-2001: Sistem pengendalian asap kebakaran pada bangunan Gedung
28) SNI 03-6570-2001: Instalasi pompa yang dipasang tetap untuk proteksi kebakaran
29) SNI 03-6574-2001: Tata cara perancangan pencahayaan darurat, tanda arah dan sistem peringatan bahaya pada bangunan Gedung
30) SNI 03-2396-2001: Tata cara perancangan sistem pencahayaan alami pada bangunan Gedung
31) SNI 03-6575-2001: Tata cara perancangan sistem pencahayaan buatan pada bangunan Gedung
32) SNI 03-6573-2001: Tata cara perancangan sistem transportasi vertikal dalam gedung (lif)
33) SNI 03-6572-2001: Tata cara perancangan sistem ventilasi dan pengkondisian udara pada bangunan Gedung
34) SNI 03-1735-2000: Tata cara perencanaan akses bangunan dan akses lingkungan untuk pencegahan bahaya kebakaran pada bangunan rumah dan gedung.
35) SNI 03-6383-2000: Spesifikasi peralatan pengolah udara individual sebagai sistem pengendalian asap terzona dalam bangunan Gedung
36) Permen PU No28-PRT-M-2016: Pedoman Analisis Harga Satuan Pekerjaan Bidang Pekerjaan Umum

(c) Other acceptable standards such as ASTM, JIS, DIN
(d) Permits and regulation issued by local government; and
(e) Other guides and regulations related to the design process.

G.3. Special Criteria

25. Specific criteria are intended to respond specific needs, associated with AKSI Project, in term of special functions of buildings or other technical terminologies.

(i) Associated with the preservation or conservation of the surrounding existing buildings.
(ii) Unity of the building achieved through respecting the facade of the heritage building, aesthetics aspect and scope of services that exist in the environment, as in the framework of the implementation of the arrangement of buildings and the environment.
(iii) Solutions for contextual constraints, such as the local socio-cultural factors, geography, climatology, and requirement for each laboratory and education room.
(iv) As far as it is not against the building design technical requirements and considering that the educational complex is located in tropical areas, therefore it should optimize the

usage of the available natural potency, such as natural light and/or sunlight as well as natural ventilation.

(v) It is necessary to group the buildings in accordance with their functions and usage, but they should represent one comprehensive unit.

(vi) There should be several specific rooms designed for specific purposes, such as quiet space for home theater and microteaching laboratory, etc.

(vii) The placement of rooms should be effective and efficient considering the people and material movement, and waste treatment.

(viii) The movement of students, lecturers, people and goods vertically and/or horizontally, should be arranged as efficient as possible without disturbing the functions of the building.

(ix) The module should follow with, but not limited to, general criteria of building design-as described in the chapter above.

(x) Natural ventilation is more preferable by using the cross natural ventilation system. Room having specific/particular functions which need low temperature is permitted to use artificial ventilation.

(xi) With respect to exercise the application of green building concept, the design of one of the buildings shall be conformed with the provision for ***greenship*** for new building and shall obtain at least gold level certificate from Green Building Council of Indonesia (GBCI).

G.4 Consideration for Site Planning.

(a) During site planning, it is possible to alter the contour of the site through either cut and fill system or terracing. Nevertheless, preserving the existing contour is preferable;

(b) Entrance to the building must consider easiness for access, safety and convenience during construction periods.

(c) Internal traffic plan of the building is separated into vehicle, goods and pedestrian and cyclist traffic;

(d) Parking area is grouped into parking for cars, motorcycles, and bicycles.

G.5. **Supporting information**. The DED consultant shall obtain supporting information as listed in **Annex 2** to execute the services.

H. Schedule of Works

26. The detailed design works must be finished in period of six (6) months or less. The detailed schedule is described in Table 2 below.

Table 2 Estimated Schedule for Detailed Engineering Design Works.

No	Activity	Month					
		1	2	3	4	5	6
Survey and plotting							
1	Review, discussion, consultation of existing master plan of UNIMAL						
2	Review and site plan design for buildings						
3	Topography survey						
4	Soil investigation and ground water test						
Building and infrastructure design							
5	Detailed architect design						

6	Interior design						
7	Layout equipment design						
8	Infrastructure (drainage, pavement, landscape)						
Design of Structural, mechanical and electric and plumbing							
9	Concept and detailed structural design						
10	Mechanical/Electrical design						
Bidding documents for contractor selection							
11	Request of proposal for building and infrastructure work						
12	Terms of reference for building and infrastructure work						
13	Cost estimate for building and infrastructure work						

Table 3: Estimated Expertise Deployment for Detailed Engineering Design Works

No	Expertise	Month					
		1	2	3	4	5	6
1	Team Leader						
2	Senior Architectural Engineer						
3	Senior Architect - Interior Designer Engineer						
4	Senior Structural Engineer						
5	Senior Mechanical						
6	Senior Electrical Engineer						
7	Senior Environmental Engineer						
8	Senior Soil/Geotechnical Engineer						
9	Senior Civil – Infrastructure Engineer						
10	Senior Cost Estimator						

I. Expertise Tasks and Qualifications

27. The expertise should have minimum qualification as listed in Table4 below.

Table 4. Expertise Tasks and Qualification

Position/Expertise	Tasks	Minimum Qualification
Experts		
Team leader	a. coordinate the DED team members to complete the DED works timely. b. fully responsible for overall quality and completeness of the DED. c. responsible for the quality of the bid documents d. review and develop the available preliminary design and convert it to detailed engineering design. e. conduct regular meetings/consultations with the PIUs technical team.	A degree in civil engineering or architecture. He/she shall possess valid professional architect/engineering license/certificate and have at least 15 years of extensive in (i) designing (ii) project management and (iii) construction in major aspects in the field of high-rise building and/or higher education building projects. Has proven track record in successfully managing detailed engineering design and construction projects as a Team Leader. Competent in planning, designing, resolving problem, budgeting and financial control, progress monitoring,

	f. analyze the curriculum and transform it into room necessity and activities organization; g. define the space, room requirement, and its specification; h. evaluate and design the master plan based on the necessity room program; i. guide activities implementation, both in the phase of data collection, processing and presentation of final results of the overall job; j. other duties as assigned.	communication skills and documentation. Good command in spoken and written English. Computer literate, Computer Aided Design, and Structure Analysis. Experience in working with international agencies is preferred. He/she shall to be able to report in English
Senior Architect – Co-Team Leader	a. provide full support to the works of Team Leader b. design and produce working drawing of Architectural design; c. produce detailed architectural drawings of all infrastructures, buildings and facilities; d. choose the most appropriate materials for the design and budget; e. other duties as assigned	Has an architecture degree. He/she shall possess valid professional architect license/certificate and have at least 12 years of extensive experience in building design, in which 5 years of extensive experience in working with high-rise building and/or campus design development. Good command in spoken and written English; Computer literate, Computer Aided Design
Senior Architect - Interior Designer	a. Support in developing the overall detailed architecture Works. b. Lead the surveys as required during the DED development c. Produce rough sketches and a mood board - a collection of suitable images, colours and materials; d. Develop detailed designs inside the buildings, both fixed and semi-fixed interior, using computer-aided design software or small-scale models; e. recommend the most appropriate materials for the design and budget; f. produce working drawing of interior works; g. perform tasks that may be assigned from time to time.	Has at least a bachelor's degree in architect - interior design, possess valid professional license/certificate, with at least 8 years of relevant professional experience, 4 years of which should be in high-rise building and/or campus design development. Good command in spoken and written English. Good drawing, Audio, Visual, and Lighting skills; Excellence understanding of interior design, including colour and good 3D senses; ability to visualise concepts and explain them to others; high awareness of technical building issues, and the range of relevant products and materials.
Senior Structural Engineer	a. responsible for building building structural calculation, including earthquake responsive buildings, in line with the relevant regulations for earthquake-resistant buildings planning; b. design and produce structural working drawing, blue prints, scaled by 1:200/1:100/1:50; c. produce description on structural implementation plan on site;.	Has a civil engineering degree. He/she shall possess valid professional structural engineering license/certificate and have at least 10 years of extensive experience in high-rise building design. Experience in working with campus design development is preferred. Good command in spoken and written English; Computer literate, Computer Aided Design, and Structure Analysis

	d. recommend the most appropriate materials for the design and budget; e. Other duties as assigned	
Senior Geotechnical Engineer	a. produce detailed soil investigation and tests for the foundations of the whole buildings; b. design the foundation and/or other sub-structure c. Other duties as assigned	Has a degree in civil engineering. He/she shall possess valid professional structural engineering license/certificate and have at least 8 years of extensive experience in earth works and foundation design. Good command in spoken and written English; Computer literate
Senior Electrical Engineer	a. design and produce working drawing of electrical installation system, both inside and outside the building; b. design preparation for ICT networks; c. provide advice and solution to solve the electrical problems during the design and construction process; d. ensure all electrical installations meet safety regulations; e. recommend the most appropriate materials for the design and budget; f. Other duties as assigned.	Has a degree in electrical engineering. He/she shall possess valid professional electrical engineering license/certificate and have at least 8 years of extensive experience in design of building electrical system. Experience in working with campus design development is preferred
Senior Mechanical Engineer	a. design and produce working drawing of mechanical installation system, both inside and outside the building; b. design plumbing system for both clean water and waste water; c. responsible to give advice and solution to solve the mechanical problems during the design and construction process; d. make sure meeting all mechanical and constructions safety regulations; e. recommend the most appropriate materials for the design and budget; f. Other duties as assigned.	Has a degree in mechanical engineering. He/she shall possess valid professional electrical engineering license/certificate and have at least 8 years of extensive experience in design of building mechanical system. Experience in working with campus design development is preferred. Good command in spoken and written English
Senior Civil – Infrastructure Engineer	a. plan and design supporting infrastructure in the within the vicinity of buildings, including sewerage and drainage system, pavement and parking; b. provide advice and solution to solve the infrastructure problems during the design and construction process;	Has a degree in civil engineering. He/she shall possess valid professional civil engineering license/certificate and have at least 8 years of extensive experience in planning and design of pavement, drainage and sewerage system. Experience in working with campus design development is preferred. Good command in spoken and written English

Senior Environmental Engineer	a. design and produce working drawing of solid waste and waste water treatment system, b. design and produce working procedure for environment monitoring system c. assure all environmental regulations are met.	Has a degree in environmental engineering. He/she shall possess valid professional environmental engineering license/certificate and have at least 8 years of extensive experience in design of waste water and solid waste treatment system. Experience in working with campus design development is preferred. Experience or familiarity with implementing ADB financed project is and added advantage. Good command in spoken and written English
Senior Cost Estimator	a. study architectural and engineering drawings and specifications. b. produce a bill of quantities, budget estimation and detail cost estimation for construction of buildings, infrastructure and utilities. c. produce a technical specification for construction of buildings, infrastructure and utilities. d. Other duties as assigned	At least has a diploma in civil or other engineering fields. He/she shall have at least 8 years of extensive experience in design, which at least 5 years of experience as cost estimator or quantity surveyor. Good command in spoken and written English.

J. Schedule of Assignment. The schedule of personnel assignment is in Table 5 below.

Table 5 – Schedule of Personnel Assignment

No	Position	Number of person	Time allocation (man-months)	remarks
	Professional Staff			
1	Team leader	1	6	Key Staff
2	Senior Architect – Co-Team Leader	1	6	Key Staff
3	Senior Architect - Interior Design Engineer	2	6	Key Staff
4	Senior Structural Engineer	2	8	Key Staff
5	Senior Geotechnical Engineer	2	4	Key Staff
6	Senior Mechanical Engineer	2	6	Key Staff
7	Senior Electrical Engineer	2	6	Key Staff
8	Senior Environmental Engineer	1	4	Key Staff
9	Senior Civil – Infrastructure Engineer	1	5	Non-Key
10	Senior Cost Estimator	2	8	Non-Key
	Sub-professional Staff			
11	Junior Architect	3	15	
12	Junior Interior Design Engineer	1	3	
13	Junior Structural Engineer	3	12	
14	Junior Geotechnical Engineer	2	4	
15	Junior Mechanical Engineer	2	6	
16	Junior Electrical Engineer	2	6	
17	Junior Environmental Engineer	1	3	
18	Junior Civil – Infrastructure Engineer	1	2	
19	Junior Cost Estimator	2	8	
20	CAD Operators	8	48	
	Support Staff			

21	Office Manager	1	6	
22	Bi-lingual Secretary	1	6	
23	Administrative Staffs - typists	2	12	

K. Deliverables.

28. All reports shall be delivered in electronic/soft files and in printed document of 10 (ten) copy of each.

K.1 Preliminary Report

29. Preliminary report should consist of the review of the conceptual design and the pre-design provided by UNJA. The report shall also indicates the involvement of the DED consultant' members, and steps to continue with the design development stage. The report shall also list the available data and relevant information to support the DED. The Preliminary Report must be approved by the PIU in order to proceed to the Design Development Phase.

K.2 Design Development Phase Report

30. Design development phase report, consisting of:
- drawing of architecture, structure, and supporting utility development plan based on approved pre-planning.
- description of the concept plan and other calculations are required.
- draft of budget plan.
- draft of work plans and terms (technical specifications)
- this report shall be approved by the PIU in order to proceed to the detailed design phase.

K.3 Final Report (Detail Engineering Design and Bidding Documents Completion Report)

31. The final report comprising the detailed engineering phase activities, stepping, drawings, and bidding documents. The report consists of:

a. detailed drawings of the implementation of development plans.
b. work plan and conditions (technical specifications - RKS)
c. activities plan and volume of work (BQ)
d. construction budget (RAB)
e. report of architectural planning and design of structural elements, utilities, MEP, and other calculations are required. This report should expose but not limited to the following description:
   - master plan scaled by 1:500
   - lay out plan, architectural views, cross views scaled by 1:100
   - detailed architectural views with appropriate scale
   - perspective drawings of building's exterior and interior
   - descriptions on architectural plans
   - information system for all users; such as building map, direction to each room/building, information on vertical transportation usage- if any, etc.
   - miniature physical model, for each building including the utilities and building landscape by scale 1: 200.
   - Video of presentation building design
f. report on room lay out and equipment placement, considering: lay out and work flow; specific material requirement, if any; structural and equipment placement

requirement; security requirement; space requirement; hazardous laboratory waste treatment; fixtures and electrical power requirement; bid document preparation containing those issues.

g. report on detailed engineering design of all infrastructure, buildings, and facilities. It should cover the complete detailed drawings and the detailed calculations (architectural, structural, utilities, mechanical, and electrical calculations). This report should provide - the following descriptions:
   - structural calculations (including earthquake responsive buildings);
   - structural drawings (blue prints) scaled by 1:200;
   - detailed structural drawings with appropriate scale;
   - description on structural implementation plan on site;
   - detailed MEP system;
   - detailed MEP drawings with appropriate scale;
   - plan and calculation of electric system;
   - telephone and communication system;
   - audio system;
   - fire hazard security system;
   - heavy crash of thunder protection system;
   - description on electrical and its implementation on site;
   - plan and calculation of mechanical system;
   - vertical transportation system, if any;
   - system for the anticipation, prevention and evacuation due to fire;
   - machinery system such as generator set;
   - plumbing system (water waste, waste, clean water, rain water drainages);
   - waste water treatment system/plant;
   - ventilation, circulation and air conditioning system;
   - description on mechanical plan and its implementation on site;
   - detailed structural drawings and specification for pavement, drainage and sewerage system

h. report on detailed soil investigation and tests for the foundations of the whole buildings;

i. report on maintenance method of all infrastructure, buildings, and facilities in relation with educational equipment procurement, utilities, and another infrastructure.

j. report on bidding documents for the construction of infrastructure, buildings, equipment and facilities, consisting drawings, specification, and bill of quantity.

k. the Final Reports on detailed engineering design and bidding document shall be presented to PIU for approval.

29. **Contract and Payment Terms**

30. The selected DED consultant will sign a lumpsum contract with the PIU. Payments to the Consultant will be made in accordance with deliverables.

31. **Client's Input and Counterpart Personnel**

32. The PIU shall provide the following:

d. All available documents, reports, data and all other information related to the proposed assignment.

e. Any letters or assistance required by the consultants in obtaining all necessary permits and authorizations for carrying out the services.
f. The PIU will assign a counterpart personnel to represent the PIU.

33. The Consultant shall provide the following:
    a. The Consultant shall establish a site office. All required furniture, hardware, software, internet/phone connections, office stationary etc shall be provided by the Consultant. The cost associated to this provision should be included in the financial proposal, as part of non-competitive component.
    b. The Consultant shall include necessary transportation costs at the project site including vehicles rental and in their cost of operation.

Annex 1

Required Supporting Information

a. Information about the land, including:
   - the physical condition of the location such as: the extent, boundaries and topography
   - soil conditions (soil test results)
   - allotment of land
   - standard lot are area (KDB)
   - standard floor-area ratio (KLB)
   - details of land use, pavement, greening and other

b. Building user:
   - organizational structure
   - number of personnel/occupants
   - main, supporting, and complementary activities
   - equipment/special equipment, type, weight and dimensions

c. Building needs:
   - room data sheet
   - the needs of organization/space utilization

d. The needs of changespossibility for room/building
e. The needs of layout of furniture/fixture for specific rooms (Laboratory of Science)
f. The needs of the utility buildings such as:
   i) water Supply:
      - needs (present and future projections)
      - water resources, networking and capacity
   ii) rain water and grey water:
      - location of city channel
      - drainage
      - recycled water
   iii) waste water (limbah B3) and garbage
      - exhaust system (infection / non-infectious / household)
      - wet and dry garbage
   iv) elevator and other transportation
      - type of transportation (good type)
      - point/location

v) procedures for air circulation / air conditioning (AC):
- load (ton ref)
- burden sharing
- system needed

vi) reduction of fire hazard
- fire detector (type)
- fire alarm (type)
- firefighting equipment (type, capacity)
- evacuation routes

vii) safety from theft and vandalism:
- door with a security system (card/PIN or others)
- CCTV Systems
- alarm (type)
- the chosen system

viii) electricity:
- power requirements (capacity)
- resources and specifications
- power reserve/generator if needed (capacity building, and specifications)

ix) lightning and illumination system

x) building maintenance systems:

xi) emergency response:
- emergency shower units (emergency shower wash)
- emergency eye shower unit
- evacuation routes
- rescue equipment storage for emergency and first aid kit

xii) communication and information networks (telephone, telex, radio, intercom, internet):
- point communication needs
- focus of talks / information / server
- the chosen system

xiii) data/specimen delivery system:
- needs of data/specimen delivery points
- submission of data centers
- the selected systems (pneumatic tube, or any suitable systems)

xiv) special gas (nitrogen or/and any) installation system:
- the needs of gas point
- gas storage center
- channels/flow gas system

Appendix 15: Terms of Reference for Detailed Engineering Design Consultant to Support the University Jambi

A. Background.

1. ADB is supporting the Ministry of Research, Technology and Higher Education (MoRTHE) with the preparation of the Advanced Knowledge and Skills for Sustainable Growth in Indonesia (AKSI) Project. The proposed AKSI aims to support Indonesia's higher education system in providing advanced skills and knowledge to support inclusive and sustainable economic growth. The Project will support the University of Malikussaleh (UNIMAL), University of Jambi (UNJA), the University of Riau (UNRI), and the Universitas Pendidikan Indonesia (UPI) - a teacher education university. The Project will construct a number of multi-storey buildings and the associated infrastructure and facilities such as roads, drainage, mechanical/electrical equipment and installations, laboratory equipment, and IT facilities.. The project will also strengthen the universities by providing degree and non-degree training for staff, both in-country and overseas, as well as strengthening of student certification in line with the Indonesia Qualification Framework.

2. A DED consulting team will be engaged for UNJA to prepare detailed engineering designs for several buildings and supporting infrastructure facilities as listed in **paras.9 and 10**.

B. Project Overview.

3. AKSI Project is part of Indonesia’s long-term development plan for higher education, with the stated objectives of: (i) Increasing access to higher education, thus increasing enrollment rate; (ii) Improving quality, relevance, competitiveness, and accreditation of higher education through the enhancement of academic quality, facilities, human resources development, and research; (iii) Increasing quality and competitive higher education graduates.

4. The four universities, UNIMAL, UNJA, UNRI and UPI have envisioned scope of work entails three categories of activities: (i) Development of teaching and research facilities, supporting infrastructures, and procurement of equipment; (ii) Development and improvement of the quality of human resources, including degree and non-degree programs for lecturers and university staff; (iii) Development of academic curriculum, applied research, and services, with an aligned management system in a specific focus area, which is referred to as development of center of excellence. Investment in UNIMAL, UNJA, and UNRI will focus their centers of excellence on sustainable natural resources, agriculture, and marine and aquatic science respectively, while UPI will focus on TVET-teacher education to meet national priorities for skilled and highly skilled human resources. The project has the following outputs:

5. Output 1 is delivery of market responsive programs by UNIMAL, UNJA and UNRI, by:

i. upgrading UNIMAL, UNJA and UNRI through completing construction and equipping 33 new buildings, and finishing and equipping 1 unfinished building (with gender responsive, inclusive, and sustainable infrastructure).
ii. Training at least 586 additional teaching, management, research and support staff (of which 40% women) of UNIMAL, UNJA and UNRI, to increase their understanding on market responsive programs and research
iii. Supporting development of centers of excellence in UNIMAL, UNJA and UNRI in Sustainable Natural Resources, Agriculture, Marine and Aquatic Science respectively in collaboration with industry, community and other stakeholders (a) to upgrade or develop at least 40 curricula; (b) to launch at least 21 new research programs connected to the center or excellence; (c) to provide at least 65 additional training or

service programs; and (d) to sign at least 21 additional MoUs with industry and other stakeholders.

iv. In addition, as part of output the project will support MORTHE in developing a long-term investment strategy for the Higher Education and Advanced Skills Development Sector (financed by a Trust-fund TA support).

6. Output 2 is improved training of TVET teachersby:

i. Upgrading UPI by completing construction and equipping 6 new buildings (including gender responsive, inclusive, and sustainable infrastructure) to become center of excellence in TVET teacher education and training.

ii. Training at least 53 teaching, management, research and support staff (of which 40% are women) to increase understanding on designing and delivering accredited TVET teacher education programs.

iii. Supporting UPI as part of its center of excellence development to (a) establish 6 new S1 TVET teacher education programs; (b) to train at least 240 SMK-teachers (at least 40 % female) in-service training programs, in collaboration with MOEC, relevant polytechnics, SMKs and industry (c), to certify at least 300 participants (at least 35% female) by the established LSP and PUK, and (d) to disseminate at least 2 case studies of UPI model for TVET teacher education and training model.

iv. In addition, as part of output 2, MORTHE will be support to develop a long-term vocational teacher education strategy in collaboration with all relevant stakeholders (financed by Trust fund TA support)

7. MORTHE through the Directorate General for Resources for Science, Technology and Higher Education (DGRSTH) will be the executing agency of the project, and the above four universities will be the project implementation units (PIUs). The MORTHE will establish a steering committee to guide and monitor the AKSI's overall implementation and ensure that the Project can be completed on time and within the available budget. The DGRSTH will establish a Project Management Unit (PMU), headed by the Director for Facilities and Infrastructure. The Project Director will be supported by a dedicated Project Manager who will be responsible for managing the PMU activities, project planning and implementation management, preparation of progress reports, and ensuring that ADB guidelines are complied. The PMU will have full coordination with the PIUs in the universities. The PMU will be supported by a Project Management Consultant (PMC). The PMU, with the support of its consultants, will determine annual works program, monitor progress in project implementation and ensure compliance with ADB's policies, including safeguards policies, procurement procedures, performance indicators, physical achievements and expenditures and preparation and submittal to the ADB of monthly, quarterly, bi-annual safeguards monitoring, and annual progress reports on overall project implementation.

8. UNJA is a regional state university with a "badan Layanan Umum" (BLU) status.. At present, UNJA has 14 faculties and post graduate programs located in 6 (six) campuses within Jambi province. Under the Project, UNJA intends to expand accessibility to higher education, increase quality of education, improve relevance education stakeholders' needs, promote the institutional as well as graduate's competitiveness, and improve the university's management and leadership. UNJA also intends to develop a center of excellence in the area sustainable natural resources management, with the support of relevant infrastructure construction and human resources development.

9. Table 1 below shows the list of buildings to be constructed by UNJA:

Table 1 – Outline of the UNJA project.

Buildings Proposed by UNJA

Location	Proposed Building	Fls	M^2	DED
Mendalo Campus	1) University and Faculty Administration Center	7	9,361	**V**
	2) Integrated Classroom A	5	8,500	**-**
	3) Integrated Classroom B	5	8,250	**-**
	4) Integrated Classroom C	3	6,600	**-**
	5) Engineering (Science) Laboratory	3	3,600	**-**
	6) Integrated Social Science Laboratory	3	3,600	**-**
	7) Student Activity Center	4	4,800	**-**
	Solar Energy System			**-**
	Water Treatment System			**-**
	Landscaping			**-**
Telanaipura Campus	8) Postgraduate Center	6	8,733	**V**
Buluran Campus	9) Faculty of Medical & Health Sciences	6	6,236	**V**
Total	9 new buildings		63,680	

Note: Road and parking approximately 4,000 m^2

10. The DEDs for the buildings of (i) the University and Faculty Administration Center (item no.1), (ii) Postgraduate Center (item no.8), and (iii) Faculty of Medical & Health Sciences (item no.9) have been prepared. The DED consultant to be recruited is to prepare the remaining buildings and facilities excluding those 3 (three) buildings.

C. Project Organization.

11. The Rector of UNJA will establish a PIU, led by a PIU manager. He/she will be supported by a vice manager, an executive secretary, and 5 (five) coordinators for M/E, Academic and Staff Development, Civil Works/Infrastructure, Procurement and Finance to manage the project. For day-to-day project monitoring, the PIU may establish a Technical Team. The PMU and the PIU structure is in Figs. 1 and 2, as follows:

Figure 1 - The PMU Organization Structure

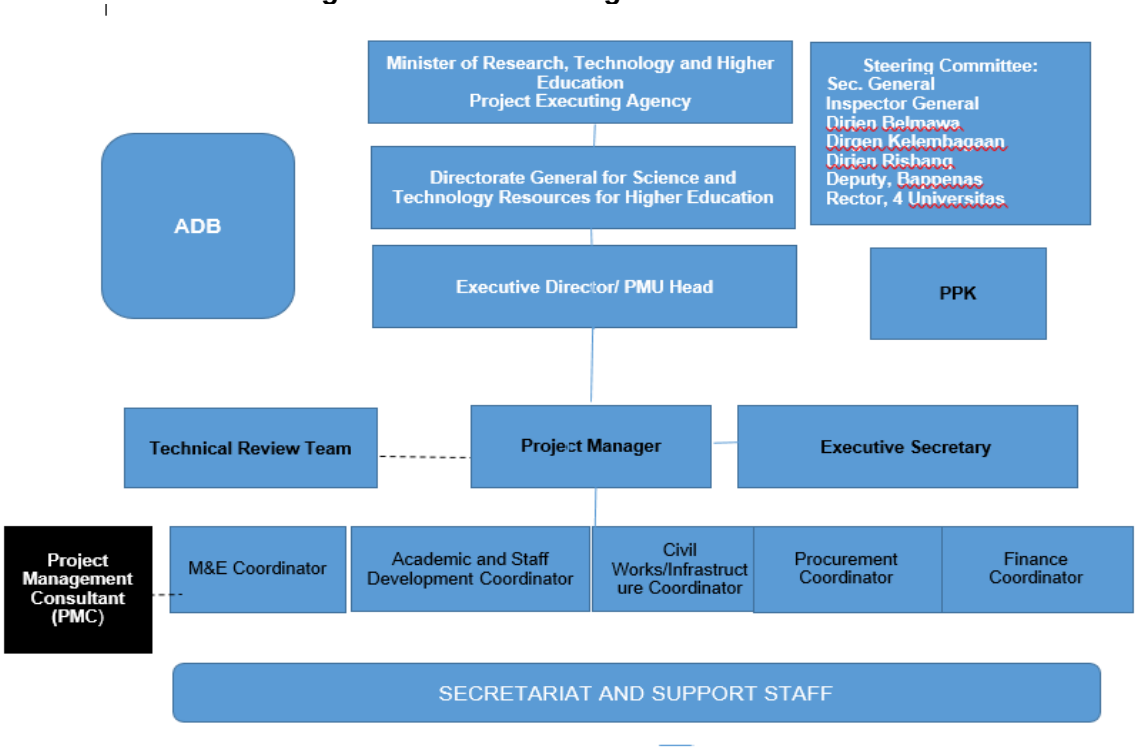
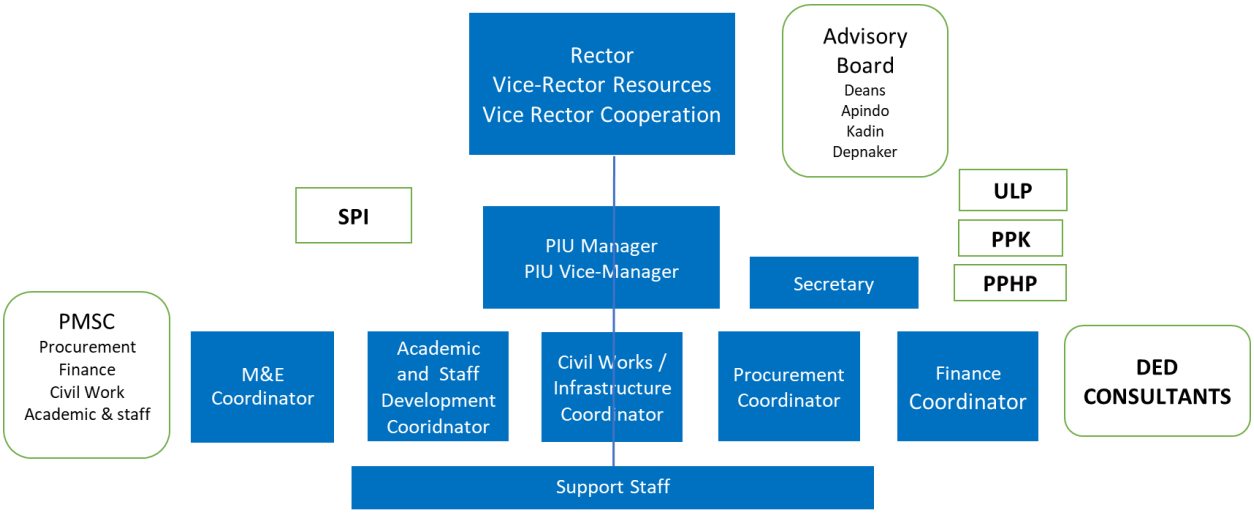


Figure 2 - The PIU Organization Structure



12. **Flow of the Documents.** Any submissions of documents and correspondences from the PIU related to the project implementation to the third parties, including to ADB will be channeled through the PMU office.

D. Objective of the Assignment

13. The objective of this assignment is to develop DED for the construction of new buildings as stated in paras. 9 and10 above, and supporting infrastructure facilities, including (i)

development DED based on available preliminary design provided by UNJA, (ii) development of bidding documents, and (iii) explanation of the designs at each of the pre-construction meetings when required. The DED consultant shall prepare quality DED documents that meet all the legal requirements and criteria pertinent to the construction of buildings and best fit with campus environment and can provide full support to the overall function of the buildings in an academic environment. In preparing DED, the DED consultant shall apply value engineering (VE) principles.

14. The avoidance of conflict of interest is essential. The DED Consultant will need to demonstrate through the quality of its outputs that it has placed professional standards and the interest of the Client above its own commercial interests in situations where conflicts of interest may arise.

15. **Special Features**: The DED consultants shall ensure that construction of new buildings integrate gender responsive physical design features.[37] Also the green environment concept shall be adopted in the designs of the building and supporting infrastructure facilities. This concept refers to both for the structure and the application of processes that are environmentally responsible and resource-efficient throughout a building's life-cycle, i.e, planning, design, construction, operation, maintenance, renovation, and demolition. These include:

- Efficient use of energy, water, and other resources
- Lower maintenance cost
- As much as possible, use of renewable energy, such as solar energy
- Pollution and waste reduction measures, and the enabling of re-use and recycling
- Good indoor environmental air quality
- Use of materials that are non-toxic, ethical and sustainable
- Consideration of the environment in design, construction and operation
- Consideration of the quality of life of occupants in design, construction and operation
- A design that enables adaptation to a changing environment

E. Consultant Selection.

16. The DED Consultant will be selected using ADB guidelines for Consultant Recruitment, through Quality and Cost Based Selection (QCBS). The consultant is selected from a shortlist of prequalified consulting firms who have experiences in designing campus and/or other educational facilities. Consulting firm with past experience in designing green environment concept buildings will be preferred.

F. Scope of Services.

17. At the commencement of the consultancy services, the consultants will be provided with a preliminary design documents prepared by UNJA. The DED consultants shall refer to this preliminary design document in developing the DED documents, covering all the detailed work in infrastructures, buildings and facilities for laboratories, classrooms, and other functions. The consultants must also cross-check the conformity and validity of the available information with the management of the university and its related faculties and must be available in the project location. All mistakes and errors due to inaccurate information, which lead to quality of the design, become the responsibility of the consultants.

[37] Refer to Regulation of Minister of Public Works and Housing No. 45/2007 on State Buildings, and Regulation of Minister of Public Works and Housing No. 14/2017 on Ease-of-Access Requirements to Building.

18. The scope of the services to be undertaken by the DED consultant consists of 3 (three) main activities, (i) review to the existing preliminary design, (ii) design development phase, and (iii) detailed design phase including preparation of bidding documents. The DED consultant should conduct site survey to confirm the site lay out for buildings and supporting facilities.

(i) Review to the Existing Preliminary Design. Review and verify the selection of building concepts, sub-system structure and sub-electrical mechanical systems. Propose changes when required, in close consultation with the PIU.

(ii) Design Development Phase, covers:

a. architectural plans, including development of image that explains the building layout, floor plan, architectural views, cut and details the main, the program illustrates room utilization by viewing the building as a single organization, including the reconstructed hall and building landscape;
b. structure plan, together with the description of concepts and calculations, soil investigation reports and plan for testing the soil that will be used as building foundation;
c. utility plan, along with descriptions of concepts and calculations, including the system of air circulation, lighting, electricity including generators, data, vertical transportation (elevators) plumbing, clean water systems, fire hazard prevention and control, termite prevention, and others;
d. develop an outline of technical specifications that describe the type, the type and characteristics of materials/ingredients used;
e. refining cost pre-estimation (architecture, landscape, structural, mechanical and electrical) in accordance with the existing detailed design concept.

(iii) Detailed Design Phase, includes

a. detailed drawings for implementation of architectural, landscape, structure, hall space, utilities and mechanical electrical in accordance with the approved plan drawing;
b. detailed structure analysis of the buildings and calculation;
c. schedule of materials to be used for the project;
d. detailed technical specifications (RKS);
e. water supply scheme design for the respective buildings, offices, and other buildings from the source including reservoir and intake tanks if needed.
f. detailed cost estimates, Bill of Quantity (BOQ) and unit rate analysis.
g. complete sets of bidding documents;
h. obtaining the building permit and the necessary approvals of the designs for construction of the buildings from the authorities concerned
i. construction methods with respect to the existence of heritage buildings (if any);
j. methods of installation of laboratory and education equipment;
k. develop engineer's cost estimate;
l. report of architectural planning, structural, utilities, MEP, and other necessary relement calculations
m. Environmental management plan (EMP). The consultant shall based on the EMP included in Initial Environmental Examination (IEE) identify potential environmental

impact due to the use of materials, equipment operation, and the construction, including but not limited with regard to waste management, air quality and noise, and occupational and community health and safety, and prepare a list of actions to be implemented by the contactor to manage and monitor the risks that may arise. This EMP shall be included in the bidding documents, so the contractor can develop a Contractor's EMP in his proposal.

19. It shall be the responsibility of the DED consultant to: (i) carry out the physical verification of the site for assessing the scope of work, and (ii) conduct necessary tests to determine the design parameters. Soil investigation(2 drill in @ 40 m with SPT every 1.5 m, 5 soil sampling (boring/sondir) with a capacity of 2.5 tons, making 10 sets of soil samples and testing samples soil in the laboratory for each building) is mandatory.

20. Prior to submitting the proposal, the prospective consulting firms should visit the proposed site at its own costs to familiarize with the existing site conditions. A copy of the sketch map of site will be provided for reference. When selected, a detailed survey should be carried out to all the topographical features as may be required for the purpose of design. Also, identification and surveying of appropriate water sources for the buildings should be carried out.

21. Below is the outline of the preliminary design prepared by UNJA to be used as references of the DED preparation:

21.1 **Integrated Classroom A**

The Integrated Classrooms A is a building with total area of 8,500 m^2, consisting of 6 wings, each of 5-storey forming a hexagonal design, so it is called Hexagon Building. This building is intended for 6 faculties which do not have their own building yet (Public Health, Engineering, Forestry, Agricultural Technology, Cultural Studies, and Sport Science). Each wing will be equipped with classrooms of 20 and 40 capacity, seminar rooms, final examination rooms, rooms for academic staff, rooms for study program/department and quality assurance unit, as well as service facilities such as rest rooms and praying rooms.

21.2 **Integrated Classroom B**

The Integrated Classrooms B is a 5-storey building with total area of 8,250 m^2. It is an integrated facilities with a centralized management system, and their users are students from all study programs at UNJA. The building will be equipped with rooms for teaching and learning (4 theatres, 46 classrooms and 24 seminar/meeting rooms), lecturers' waiting room, study program room, and supporting facilities such as praying room and lavatory. In addition, the integrated classroom will also be provided with innovation development rooms, where students from various study programs can interact with each other, and create ideas for joint activities across courses. For example, preparing a proposal for Student Creativity Program, designing student entrepreneurial activities, writing proposals for thematic student community services, and other activities that are cross-disciplinary.

21.3. **Integrated Classroom C**

The Integrated Classrooms B is a 3-storey building with total area of 6,600 m^2. It is also an integrated facilities with a centralized management system, and their users are students from all study programs at UNJA. The building will be equipped with rooms for teaching and learning (4 theatres, 42 classrooms and 14 tutorial rooms). The integrated classroom C will also be provided with innovation development rooms, where students from various study programs can interact with each other, and create ideas for joint activities across courses. Service facilities such as rest rooms and praying rooms will also available in this building.

21.4**. Engineering (Science) Laboratory**

The Engineering (Science) Laboratory is a 3-storey building with total area of 3,600 m^2. The building is expected to support the functions of administration, storage and workshops for the following laboratories: Civil, Mining, Geology, Geophysics, Electrical, Chemistry, Environmental, Agricultural, Biochemistry, Processing Microbiology, Analysis and Processing, and Soil and Water. In addition to this, service facilities such as rest rooms and praying rooms will also available in this building.

21.5. **Integrated Social Science Laboratory**

The Integrated Social Science Laboratory is a 3-storey building with total area of 3,600 m^2. This building is designed as a university-wide facility which provides a number of rooms to facilitate students to develop their performance, skills, and competencies in social areas, including their proficiency in foreign languages (English, Arabic, Mandarin, Japanese, French and German). Some basic facilities include international language laboratories, cultural and arts centers, exhibitions or performance, theatre and convention center. It is also provided with social science laboratories such as Archeology, Governance Study, Socio-Cultural Science, Political and Public Policy, Economic Science, and Micro-teaching. In addition, service facilities such as rest rooms and praying rooms will also available in this building.

21.6. **Student Activity Center**

The Student Activity Center is a 4-storey building with total area of 4,800 m^2. This building is also designed as a university-wide resource sharing construction. This facility is expected to be used by all students from all faculties and study programs at UNJA. The Student Activity Center will be useful to support students' unions and organizations, and any other activities as part of their academic and non-academic campus experience. The existence of Students Activity Center is also intended to support Faculty of Sports Science with adequate and standardized facilities for teaching and learning activities. Ultimately, the Student Activity Center is expected to support the following functions: administration, student union and organizations, Career Development Center (CDC), indoor sport activities, workshops, exhibitions, arts performances, and services (praying room, lavatory, etc.).

21.7 **Supporting Infrastructure Facilities**

The supporting infrastructure facilities include:

(a) The installation of Solar Energy System.
(b) The installation of Water Treatment System.
(c) The development of access and complex roads and parkings within campus of approximately 4,000 m^2.
(d) The development of environmental landscape.
(e) The development of electrical network throughout campus.

22. In developing architectural detailed plan and detailed engineering design, the consultant must consider the following:

(a) The site plan for infrastructure, buildings, and facilities as well as related equipment must support the optimal utilization of each component.
(b) Outdoor and indoor floor areas of each facilities as well as all displayed architectural features must act like an integral part of the latest master plan of UNJA.
(c) All plans must accommodate the possibility of future development of educational and research facilities.
(d) All plans should be constructed without disturbing the ongoing academic and administrative activities within UNJA, especially in faculties (units) in which the buildings are to be constructed.

(e) All infrastructures, buildings and facilities must accommodate effective, efficient, modern and advanced education and research activities that can take all the academic community accordance with the latest master plan of UNJA.
(f) All infrastructures, buildings and facilities shall be designed in accordance the concept of green buildings, to minimize waste and energy usage, and as much as possible with lower maintenance cost.
(g) The required facilities to meet such demands are supporting the following activities:
(vi) Educational activities.
(vii) Research activities.
(viii) Functional area activities.
(ix) Administrative activities.
(x) Parking services

G. Technical and Design Criteria and Considerations

G.1 General Criteria for Building Design

23. In designing the buildings, the DED consultant must consider the following criteria:

(i) Allocation and intensity requirements:
a. Ensure the building to be established under provisions of spatial and building set in the regions concerned.
b. Ensure the building to be utilized in accordance with its function.
c. Ensure the safety of users, communities, and the environment.
d. Comply to the principles of:
- Frugal, not fancy, efficient and in accordance with technical requirements.
- Directed and controlled in accordance with plans, programs/activities and functions.
- Maximizing utilization of domestic product by incorporating the ability/national potential to the planning of the building.

(ii) Architectural and environmental requirements:
a. Guarantee the building to be established under provisions of spatial and building set in the regions concerned.
b. Guarantee the new building to be harmoniously standing with the existing building.
c. Ensure building to be built and used without any negative impacts on the environment.

(iii) Building structure requirements:
a. Assure the strength of the building in carrying its own weight and external load that could affect the usage life and durability of the building, such as earthquake, wind, live loads, as well as other temporary external loads.
b. Assure the safety of the occupants. Occupants must be protected from accidents or injuries caused by defective building structure or fire or other catastrophic failures.
c. Guarantee the protection from physical damage or disability due to the objects' structure.
d. Ensure the protection of other property from physical damage caused by the failure of the structure.
e. Ensure the endurance of the building against wreckage, damage, or regular usage decay, that must be divided into three causes; 1) due to the occupants; 2) due to substandard building material used during construction; and/or 3) due to inadequate building maintenance which is failed to prevent the destructing effect of weather, termite, rain.

(iv) Fire resistant requirement:

a. Guarantee the establishment of building to support any burden arising from natural and human behaviour.
b. Guarantee the establishment of building that is structurally stable during the fire:
   - Sufficient time for occupants to evacuate safely
   - Sufficient time for firefighters to enter a location to extinguish the fire.
   - Able to minimizedamage to other property.

(v) Entrance and exit facility requirements:
a. Guarantee the establishment of building that provide decent, yet safe and convenient access to the buildings and facilities and services in it,
b. Guarantee sufficient protective measures from illness or injury during an evacuation in an emergency to be available, occupants protection
c. Ensure the availability of access for the disabled, especially in public area and social facilities.

(vi) Entrance and exit accessibility requirement:
a. Ensure of adequate means of transport, safe, and comfortable in the building,
b. Ensure accessibility for the disabled, especially for public buildings and social facilities.

(vii) Emergency lighting, sign for exit direction, and hazard warning system requirements:
a. Ensure availability of early and informative signs in the building for emergency cases,
b. Ensure occupants to be able to evacuate easily and safely in case of emergencies.

(viii) Electrical installation, lightning arrester, building maintenance systems and communications requirements:
a. Guarantee the installation of electrical installations are safe and supporting the implementation of activities within the building according to its function,
b. Guarantee the security of the building and its occupants from danger caused by lightning,
c. Ensure availability of adequate facilities to support the implementation of building maintenance
d. Ensure availability of adequate means of communication in supporting the implementation of the activities inside the building in accordance with its function.

(ix) Gas installation requirements:
a. Ensure the availability of safe gas installations in supporting the implementation of activities within the building according to its function,
b. Guarantee the safe and fair use of gas,
c. Ensure the sustainability continuous gas supplies for the operation and maintenance of equipment.

(x) In building sanitation requirements:
a. Ensure availability of adequate sanitation facilities in supporting the implementation of the activities inside the building in accordance with its function,
b. Guarantee the cleanliness, health and provide comfort for building occupants and the environment,
c. Efforts to ensure the operation of equipment and sanitation supplies as well.

(xi) Ventilation and air conditioning requirements:
a. Ensure adequate air needs, whether natural or artificial in supporting the implementation of activities in the buildings according to function,
b. Efforts to ensure the operation of air conditioner and supplies as well.

(xii) Lighting requirement:
a. Ensure adequate lighting needs, whether natural or artificial in supporting the implementation of activities in the buildings according to function,
b. Efforts to ensure the operation of appliances and lighting fixtures as well.

(xiii) Noise and vibration requiremenst:

a. Guarantee the protection of the occupants from undesirable noise and vibration to provide a healthy working environment
b. Guarantee the prevention/protective procedure for noise and vibration producing activities that have negative impacts on health and may contaminate and disturb the environment balance.

(xiv) Appearance and image requirements:
The appearance of the building must comply to the characteristics of University of Jambi

G.2. Codes, Standards, and National and Local Building Regulation.

24. The design must comply with latest codes, standards, and national and local building regulations:

(a) AV-41 (Algemener Voorwarden voor de uitvoering van openbare Werken - Kondisi Pelaksanaan Pekerjaan Umum/Works Execution Conditions) in Indonesia.

(b) Latest Standards and Codes for Building Design from Ministry of Public Works and Housing, such as but not limited to:

1) SNI 6880-2016: Spesifikasi beton struktural
2) SNI 4433-2016: Spesifikasi beton segar siap pakai (ASTM C94/C94M-14, IDT)
3) SNI 6751-2016: Spesifikasi bahan lapis penetrasi macadam (LAPEN)
4) SNI 1729-2015: Spesifikasi untuk gedung baja struktural
5) SNI 7860-2015: Ketentuan seismik untuk struktur baja bangunan gedung (ANSI/AISC 341-10, IDT)
6) SNI 7860-2015: Ketentuan seismik untuk struktur baja bangunan gedung (ANSI/AISC 341-10, IDT)
7) SNI 2405-2015: Tata cara pengendalian serangan rayap tanah pada bangunan rumah dan gedung paska konstruksi
8) SNI 8153-2015: Sistem plambing pada bangunan Gedung
9) SNI 2461-2014: Spesifikasi agregat ringan untuk beton ringan struktural
10) SNI 6882-2014: Spesifikasi mortar untuk pekerjaan unit pasangan (ASTM C270 – 10, IDT)
11) SNI 1727-2013: Beban minimum untuk perancangan bangunan gedung dan struktur lain
12) SNI 7972-2013: Sambungan terprakualifikasi untuk rangka momen khusus dan menengah baja pada aplikasi seismik
13) SNI 2847-2013: Persyaratan beton struktural untuk bangunan Gedung
14) SNI 7973-2013: Spesifikasi desain untuk konstruksi kayu
15) SNI 4810-2013: Tata cara pembuatan dan perawatan specimen uji beton di lapangan (ASTM C 31-10, IDT)
16) SNI 1726-2012: Tata cara perencanaan ketahanan gempa untuk struktur bangunan gedung dan non Gedung
17) SNI 7833-2012: Tata cara perancangan beton pracetak dan beton prategang untuk bangunan Gedung
18) SNI 7834-2012: Metode uji dan kriteria penerimaan sistem struktur rangka pemikul momen beton bertulang pracetak untuk bangunan Gedung
19) SNI 7832-2012: Tata cara perhitungan harga satuan pekerjaan beton pracetak untuk konstruksi bangunan gedung
20) SNI 03-7012-2004: Sistem manajemen asap di dalam mal atrium dan ruangan bervolume besar
21) SNI 03-7015-2004: Sistem proteksi petir pada bangunan

22) SNI 03-6765-2002: Spesifikasi bahan bangunan untuk pencegahan bahaya kebakaran pada bangunan rumah dan Gedung
23) SNI 03-6759-2002: Tata cara perencanaan konservasi energi pada bangunan gedung.
24) SNI 03-6652-2002: Tata cara perencanaan proteksi bangunan dan peralatan terhadap sambaran petir
25) SNI 03-6839-2002: Spesifikasi kayu awet untuk perumahan dan Gedung
26) SNI 03-6769-2002: Spesifikasi sistem pengolahan udara sentral sebagai pengendali asap kebakaran dalam bangunan
27) SNI 03-6571-2001: Sistem pengendalian asap kebakaran pada bangunan Gedung
28) SNI 03-6570-2001: Instalasi pompa yang dipasang tetap untuk proteksi kebakaran
29) SNI 03-6574-2001: Tata cara perancangan pencahayaan darurat, tanda arah dan sistem peringatan bahaya pada bangunan Gedung
30) SNI 03-2396-2001: Tata cara perancangan sistem pencahayaan alami pada bangunan Gedung
31) SNI 03-6575-2001: Tata cara perancangan sistem pencahayaan buatan pada bangunan Gedung
32) SNI 03-6573-2001: Tata cara perancangan sistem transportasi vertikal dalam gedung (lif)
33) SNI 03-6572-2001: Tata cara perancangan sistem ventilasi dan pengkondisian udara pada bangunan Gedung
34) SNI 03-1735-2000: Tata cara perencanaan akses bangunan dan akses lingkungan untuk pencegahan bahaya kebakaran pada bangunan rumah dan gedung.
35) SNI 03-6383-2000: Spesifikasi peralatan pengolah udara individual sebagai sistem pengendalian asap terzona dalam bangunan Gedung
36) Permen PU No28-PRT-M-2016: Pedoman Analisis Harga Satuan Pekerjaan Bidang Pekerjaan Umum

(c) Other acceptable standards such as ASTM, JIS, DIN
(d) Permits and regulation issued by local government; and
(e) Other guides and regulations related to the design process.

G.3. Special Criteria

25. Specific criteria are intended to respond specific needs, associated with AKSI Project, in term of special functions of buildings or other technical terminologies.

(i) Associated with the preservation or conservation of the surrounding existing buildings.

(ii) Unity of the building achieved through respecting the facade of the heritage building, aesthetics aspect and scope of services that exist in the environment, as in the framework of the implementation of the arrangement of buildings and the environment.

(iii) Solutions for contextual constraints, such as the local socio-cultural factors, geography, climatology, and requirement for each laboratory and education room.

(iv) As far as it is not against the building design technical requirements and considering that the educational complex is located in tropical areas, therefore it should optimize the usage of the available natural potency, such as natural light and/or sunlight as well as natural ventilation.

(v) It is necessary to group the buildings in accordance with their functions and usage, but they should represent one comprehensive unit.

(vi) There should be several specific rooms designed for specific purposes, such as quiet space for home theater and microteaching laboratory, etc.
(vii) The placement of rooms should be effective and efficient considering the people and material movement, and waste treatment.
(viii) The movement of students, lecturers, people and goods vertically and/or horizontally, should be arranged as efficient as possible without disturbing the functions of the building.
(ix) The module should follow with, but not limited to, general criteria of building design- as described in the chapter above.
(x) Natural ventilation is more preferable by using the cross natural ventilation system. Room having specific/particular functions which need low temperature is permitted to use artificial ventilation.
(xi) With respect to exercise the application of green building concept, the design of one of the buildings shall be conformed with the provision for ***greenship*** for new building and shall obtain at least gold level certificate from Green Building Council of Indonesia (GBCI).

G.4 Consideration for Site Planning.

(a) During site planning, it is possible to alter the contour of the site through either cut and fill system or terracing. Nevertheless, preserving the existing contour is preferable;
(b) Entrance to the building must consider easiness for access, safety and convenience during construction periods.
(c) Internal traffic plan of the building is separated into vehicle, goods and pedestrian and cyclist traffic;
(d) Parking area is grouped into parking for cars, motorcycles, and bicycles.

G.5. **Supporting information**. The DED consultant shall obtain supporting information as listed in **Annex 2** to execute the services.

H. Schedule of Works

27. The detailed design works shall be completed within 8 (eight) months or less. The indicative detailed schedule is in Table 2 below.

Table 2 - Indicative Schedule for Detailed Engineering Design Works.

No	Activity	Month							
		1	2	3	4	5	6	7	8
Survey and plotting									
1	Review, discussion, consultation of existing master plan of UNJA								
2	Review and site plan design for buildings								
3	Topography survey								
4	Soil investigation and ground water test								
Building and infrastructure design									
5	Detailed architecture design								
6	Interior design								
7	Layout equipment design								
8	Infrastructure (drainage, pavement, landscape)								

Design of Structural, mechanical and electric and plumbing									
9	Detailed structural design								
10	Mechanical, Electrical and Plumbing detailed design								
Preparation of Bidding Documents									
10	Development of Bidding Documents								
11	Preparation of Owner's Cost Estimate								
Approval of the DED and Bidding Documents									

Table 3: Estimated Expertise Deployment for Detailed Engineering Design Works

No	Expertise	Month							
		1	2	3	4	5	6	7	8
1	Team Leader								
2	Senior Architectural Engineer								
3	Senior Architect - Interior Designer Engineer								
4	Senior Structural Engineer								
5	Senior Mechanical								
6	Senior Electrical Engineer								
7	Senior Environmental Engineer								
8	Senior Soil/Geotechnical Engineer								
9	Senior Civil – Infrastructure Engineer								
10	Senior Cost Estimator								

I. Expertise Tasks and Qualifications

Table 4. Expertise Tasks and Qualification

Position/Expertise	Tasks	Minimum Qualification
Experts		
Team leader	a. coordinate the DED team members to complete the DED works timely. b. fully responsible for overall quality and completeness of the DED. c. responsible for the quality of the bid documents d. review and develop the available preliminary design and convert it to detailed engineering design. e. conduct regular meetings/consultations with the PIUs technical team. f. analyze the curriculum and transform it into room necessity and activities organization; g. define the space, room requirement, and its specification; h. evaluate and design the master plan based on the necessity room program; i. guide activities implementation, both in the phase of data	A degree in civil engineering or architecture. He/she shall possess valid professional architect/engineering license/certificate and have at least 15 years of extensive in (i) designing (ii) project management and (iii) construction in major aspects in the field of high-rise building and/or higher education building projects. Has proven track record in successfully managing detailed engineering design and construction projects as a Team Leader. Competent in planning, designing, resolving problem, budgeting and financial control, progress monitoring, communication skills and documentation. Good command in spoken and written English. Computer literate, Computer Aided Design, and Structure Analysis. Experience in working with international agencies is preferred. He/she shall to be able to report in English

Position/Expertise	Tasks	Minimum Qualification
	collection, processing and presentation of final results of the overall job; j. Ensure all environmental regulations and requirements in the IEE are met k. other duties as assigned.	
Senior Architect – Co-Team Leader	a. provide full support to the works of Team Leader b. design and produce working drawing of Architectural design; c. produce detailed architectural drawings of all infrastructures, buildings and facilities; d. choose the most appropriate materials for the design and budget; e. other duties as assigned	Has an architecture degree. He/she shall possess valid professional architect license/certificate and have at least 12 years of extensive experience in building design, in which 5 years of extensive experience in working with high-rise building and/or campus design development. Good command in spoken and written English; Computer literate, Computer Aided Design
Senior Architect - Interior Designer	a. Support in developing the overall detailed architecture Works. b. Lead the surveys as required during the DED development c. Produce rough sketches and a mood board - a collection of suitable images, colours and materials; d. Develop detailed designs inside the buildings, both fixed and semi-fixed interior, using computer-aided design software or small-scale models; e. recommend the most appropriate materials for the design and budget; f. produce working drawing of interior works; g. perform tasks that may be assigned from time to time.	Has at least a bachelor's degree in architect - interior design, possess valid professional license/certificate, with at least 8 years of relevant professional experience, 4 years of which should be in high-rise building and/or campus design development. Good command in spoken and written English. Good drawing, Audio, Visual, and Lighting skills; Excellence understanding of interior design, including colour and good 3D senses; ability to visualise concepts and explain them to others; high awareness of technical building issues, and the range of relevant products and materials.
Senior Structural Engineer	a. responsible for building building structural calculation, including earthquake responsive buildings, in line with the relevant regulations for earthquake-resistant buildings planning; b. design and produce structural working drawing, blue prints, scaled by 1:200/1:100/1:50; c. produce description on structural implementation plan on site;. d. recommend the most appropriate materials for the design and budget;	Has a civil engineering degree. He/she shall possess valid professional structural engineering license/certificate and have at least 10 years of extensive experience in high-rise building design. Experience in working with campus design development is preferred. Good command in spoken and written English; Computer literate, Computer Aided Design, and Structure Analysis

Position/Expertise	Tasks	Minimum Qualification
	e. Other duties as assigned	
Senior Geotechnical Engineer	a. produce detailed soil investigation and tests for the foundations of the whole buildings; b. design the foundation and/or other sub-structure c. Other duties as assigned	Has a degree in civil engineering. He/she shall possess valid professional structural engineering license/certificate and have at least 8 years of extensive experience in earth works and foundation design. Good command in spoken and written English; Computer literate
Senior Electrical Engineer	a. design and produce working drawing of electrical installation system, both inside and outside the building; b. design preparation for ICT networks; c. provide advice and solution to solve the electrical problems during the design and construction process; d. ensure all electrical installations meet safety regulations; e. recommend the most appropriate materials for the design and budget; f. Other duties as assigned.	Has a degree in electrical engineering. He/she shall possess valid professional electrical engineering license/certificate and have at least 8 years of extensive experience in design of building electrical system. Experience in working with campus design development is preferred
Senior Mechanical Engineer	a. design and produce working drawing of mechanical installation system, both inside and outside the building; b. design plumbing system for both clean water and waste water; c. responsible to give advice and solution to solve the mechanical problems during the design and construction process; d. make sure meeting all mechanical and constructions safety regulations; e. recommend the most appropriate materials for the design and budget; f. Other duties as assigned.	Has a degree in mechanical engineering. He/she shall possess valid professional electrical engineering license/certificate and have at least 8 years of extensive experience in design of building mechanical system. Experience in working with campus design development is preferred. Good command in spoken and written English
Senior Civil – Infrastructure Engineer	a. plan and design supporting infrastructure in the within the vicinity of buildings, including sewerage and drainage system, pavement and parking; b. provide advice and solution to solve the infrastructure problems during the design and construction process;	Has a degree in civil engineering. He/she shall possess valid professional civil engineering license/certificate and have at least 8 years of extensive experience in planning and design of pavement, drainage and sewerage system. Experience in working with campus design development is preferred. Good command in spoken and written English
Senior Environmental Engineer	a. design and produce working drawing of solid waste and waste water treatment system,	Has a degree in environmental engineering. He/she shall possess valid professional environmental engineering license/certificate and have at least 8

Position/Expertise	Tasks	Minimum Qualification
	b. design and produce working procedure for environment monitoring system c. assure all environmental regulations and requirements in the IEE are met.	years of extensive experience in design of waste water and solid waste treatment system. Experience in working with campus design development is preferred. Experience or familiairity with implementing ADB financed project is an added advantage. Good command in spoken and written English
Senior Cost Estimator	a. study architectural and engineering drawings and specifications. b. produce a bill of quantities, budget estimation and detail cost estimation for construction of buildings, infrastructure and utilities. c. produce a technical specification for construction of buildings, infrastructure and utilities. d. Other duties as assigned	At least has a diploma in civil or other engineering fields. He/she shall have at least 8 years of extensive experience in design, which at least 5 years of experience as cost estimator or quantity surveyor. Good command in spoken and written English.

J. Schedule of Assignment

28. The schedule of the personnel assignment is shown in Table 5, below.

Table 5 – Schedule of Personnel Assignment

No	Position	Number of person	month	Time allocation (man-months
1	Team leader	1	8	8
2	Senior Architect – Co-Team Leader	1	8	8
3	Senior Architect - Interior Design Engineer	2	8	16
4	Senior Structural Engineer	2	8	16
5	Senior Geotechnical Engineer	1	5	5
6	Senior Mechanical Engineer	2	5	10
7	Senior Electrical Engineer	1	4	4
8	Senior Environmental Engineer	1	5	5
9	Senior Civil – Infrastructure Engineer	1	4	4
10	Senior Cost Estimator	2	6	12
11	Junior Architect	3	4	12
12	Junior Interior Design Engineer	1	2	2
13	Junior Structural Engineer	2	5	10
14	Junior Geotechnical Engineer	2	2	4
15	Junior Mechanical Engineer	2	4	4
16	Junior Electrical Engineer	2	4	8
17	Junior Environmental Engineer	1	4	4
18	Junior Civil – Infrastructure Engineer	3	3	9
19	Junior Cost Estimator	2	4	8
20	CAD Operators	6	8	48
21	Office Manager	1	8	8
22	Bi-lingual Secretary	1	8	8
23	Administrative Staffs - typists	2	8	16

K. Deliverables. All reports shall be delivered in electronic/soft files and in printed document of 10 (ten) copy of each.

K.1 Preliminary Report

29. Preliminary report should consist of the review of the conceptual design and the pre-design provided by UNJA. The report shall also indicates the involvement of the DED consultant' members, and steps to continue with the design development stage. The report shall also list the available data and relevant information to support the DED. The Preliminary Report must be approved by the PIU in order to proceed to the Design Development Phase.

K.2 Design Development Phase Report

30. Design development phase report, consisting of:

- drawing of architecture, structure, and supporting utility development plan based on approved pre-planning.
- description of the concept plan and other calculations are required.
- draft of budget plan.
- draft of work plans and terms (technical specifications)
- this report shall be approved by the PIU in order to proceed to the detailed design phase.

K.3 Final Report (Detail Engineering Design and Bidding Documents Completion Report)

31. The final report comprising the detailed engineering phase activities, stepping, drawings, and bidding documents. The report consists of:

a. detailed drawings of the implementation of development plans.
b. work plan and conditions (technical specifications - RKS)
c. activities plan and volume of work (BQ)
d. construction budget (RAB)
e. report of architectural planning and design of structural elements, utilities, MEP, and other calculations are required. This report should expose but not limited to the following description:
   - master plan scaled by 1:500
   - lay out plan, architectural views, cross views scaled by 1:100
   - detailed architectural views with appropriate scale
   - perspective drawings of building's exterior and interior
   - descriptions on architectural plans
   - information system for all users; such as building map, direction to each room/building, information on vertical transportation usage- if any, etc.
   - miniature physical model, for each building including the utilities and building landscape by scale 1: 200.
   - Video of presentation building design
f. report on room lay out and equipment placement, considering: lay out and work flow; specific material requirement, if any; structural and equipment placement requirement; security requirement; space requirement; hazardous laboratory waste treatment; fixtures and electrical power requirement; bid document preparation containing those issues.
g. report on detailed engineering design of all infrastructure, buildings, and facilities. It should cover the complete detailed drawings and the detailed calculations

(architectural, structural, utilities, mechanical, and electrical calculations). This report should provide - the following descriptions:

- structural calculations (including earthquake responsive buildings);
- structural drawings (blue prints) scaled by 1:200;
- detailed structural drawings with appropriate scale;
- description on structural implementation plan on site;
- detailed MEP system;
- detailed MEP drawings with appropriate scale;
- plan and calculation of electric system;
- telephone and communication system;
- audio system;
- fire hazard security system;
- heavy crash of thunder protection system;
- description on electrical and its implementation on site;
- plan and calculation of mechanical system;
- vertical transportation system, if any;
- system for the anticipation, prevention and evacuation due to fire;
- machinery system such as generator set;
- plumbing system (water waste, waste, clean water, rain water drainages);
- waste water treatment system/plant;
- ventilation, circulation and air conditioning system;
- description on mechanical plan and its implementation on site;
- detailed structural drawings and specification for pavement, drainage and sewerage system

h. report on detailed soil investigation and tests for the foundations of the whole buildings;
i. report on maintenance method of all infrastructure, buildings, and facilities in relation with educational equipment procurement, utilities, and another infrastructure.
j. report on bidding documents for the construction of infrastructure, buildings, equipment and facilities, consisting drawings, specification, and bill of quantity.
k. the Final Reports on detailed engineering design and bidding document shall be presented to PIU for approval.

L. Contract and Payment Terms

32. The selected DED consultant **will sign a lumpsum contract** with the PIU. Payments to the Consultant will be made in accordance with deliverables.

M. Client's Input and Counterpart Personnel

33. The PIU shall provide the following:

a. All available documents, reports, data and all other information related to the proposed assignment.
b. Any letters or assistance required by the consultants in obtaining all necessary permits and authorizations for carrying out the services.
c. The PIU will assign a counterpart personnel to represent the PIU.

34. The Consultant shall provide the following:

a. The Consultant shall establish a site office. All required furniture, hardware, software, internet/phone connections, office stationary etc shall be provided by the Consultant. The cost associated to this provision should be included in the financial proposal, as part of non-competitive component.
b. The Consultant shall include necessary transportation costs at the project site including vehicles rental and in their cost of operation.

Annex 1

Required Supporting Information

a. Information about the land, including:
   - the physical condition of the location such as: the extent, boundaries and topography
   - soil conditions (soil test results)
   - allotment of land
   - standard lot are area (KDB)
   - standard floor-area ratio (KLB)
   - details of land use, pavement, greening and other
b. Building user:
   - organizational structure
   - number of personnel/occupants
   - main, supporting, and complementary activities
   - equipment/special equipment, type, weight and dimensions
c. Building needs:
   - room data sheet
   - the needs of organization/space utilization
d. The needs of changespossibility for room/building
e. The needs of layout of furniture/fixture for specific rooms (Laboratory of Science)
f. The needs of the utility buildings such as:
   i) water Supply:
      - needs (present and future projections)
      - water resources, networking and capacity
   ii) rain water and grey water:
      - location of city channel
      - drainage
      - recycled water
   iii) waste water (limbah B3) and garbage
      - exhaust system (infection / non-infectious / household)
      - wet and dry garbage
   iv) elevator and other transportation
      - type of transportation (good type)
      - point/location
   v) procedures for air circulation / air conditioning (AC):
      - load (ton ref)
      - burden sharing
      - system needed
   vi) reduction of fire hazard
      - fire detector (type)

- fire alarm (type)
- firefighting equipment (type, capacity)
- evacuation routes

vii) safety from theft and vandalism:
- door with a security system (card/PIN or others)
- CCTV Systems
- alarm (type)
- the chosen system

viii) electricity:
- power requirements (capacity)
- resources and specifications
- power reserve/generator if needed (capacity building, and specifications)

ix) lightning and illumination system

x) building maintenance systems:

xi) emergency response:
- emergency shower units (emergency shower wash)
- emergency eye shower unit
- evacuation routes
- rescue equipment storage for emergency and first aid kit

xii) communication and information networks (telephone, telex, radio, intercom, internet):
- point communication needs
- focus of talks / information / server
- the chosen system

xiii) data/specimen delivery system:
- needs of data/specimen delivery points
- submission of data centers
- the selected systems (pneumatic tube, or any suitable systems)

xiv) special gas (nitrogen or/and any) installation system:
- the needs of gas point
- gas storage center
- channels/flow gas system

Appendix 16: Terms of Reference for Detailed Engineering Design Consultant to Support the University of Riau

A. Background.

1. ADB is supporting the Ministry of Research, Technology and Higher Education (MoRTHE) with the preparation of the Advanced Knowledge and Skills for Sustainable Growth in Indonesia (AKSI) Project. The proposed AKSI aims to support Indonesia's higher education system in providing advanced skills and knowledge to support inclusive and sustainable economic growth. The Project will support the University of Malikussaleh (UNIMAL), University of Jambi (UNJA), the University of Riau (UNRI), and the Universitas Pendidikan Indonesia (UPI) - a teacher education university. The Project will construct a number of multi-storey buildings and the associated infrastructure and facilities such as roads, drainage, mechanical/electrical equipment and installations, laboratory equipment, and IT facilities. The project will also strengthen the universities by providing degree and non-degree training for staff, both in-country and overseas, as well as strengthening of student certification in line with the Indonesia Qualification Framework.

2. A DED consulting team will be engaged for UNRI to prepare detailed engineering designs for several buildings and supporting infrastructure facilities as listed in **paras.9**.

B. Project Overview.

3. AKSI Project is part of Indonesia's long-term development plan for higher education, with the stated objectives of: (i) Increasing access to higher education, thus increasing enrollment rate; (ii) Improving quality, relevance, competitiveness, and accreditation of higher education through the enhancement of academic quality, facilities, human resources development, and research; (iii) Increasing quality and competitive higher education graduates.

4. The four universities, UNIMAL, UNJA, UNRI and UPI have envisioned scope of work entails three categories of activities: (i) Development of teaching and research facilities, supporting infrastructures, and procurement of equipment; (ii) Development and improvement of the quality of human resources, including degree and non-degree programs for lecturers and university staff; (iii) Development of academic curriculum, applied research, and services, with an aligned management system in a specific focus area, which is referred to as development of center of excellence. Investment in UNIMAL, UNJA, and UNRI will focus their centers of excellence on sustainable natural resources, agriculture, and marine and aquatic science respectively, while UPI will focus on TVET-teacher education to meet national priorities for skilled and highly skilled human resources. The project has the following outputs:

5. Output 1 is delivery of market responsive programs by UNIMAL, UNJA and UNRI, by:

i. upgrading UNIMAL, UNJA and UNRI through completing construction and equipping 33 new buildings, and finishing and equipping 1 unfinished building (with gender responsive, inclusive, and sustainable infrastructure).
ii. Training at least 586 additional teaching, management, research and support staff (of which 40% women) of UNIMAL, UNJA and UNRI, to increase their understanding on market responsive programs and research
iii. Supporting development of centers of excellence in UNIMAL, UNJA and UNRI in Sustainable Natural Resources, Agriculture, Marine and Aquatic Science respectively in collaboration with industry, community and other stakeholders (a) to upgrade or develop at least 40 curricula; (b) to launch at least 21 new research programs

connected to the center or excellence; (c) to provide at least 65 additional training or service programs; and (d) to sign at least 21 additional MoUs with industry and other stakeholders.

iv. In addition, as part of output the project will support MORTHE in developing a long-term investment strategy for the Higher Education and Advanced Skills Development Sector (financed by a Trust-fund TA support).

6. Output 2 is improved training of teachersby:

i. Upgrading UPI by completing construction and equipping 6 new buildings (including gender responsive, inclusive, and sustainable infrastructure) to become center of excellence in TVET teacher education and training.

ii. Training at least 53 teaching, management, research and support staff (of which 40% are women) to increase understanding on designing and delivering accredited TVET teacher education programs.

iii. Supporting UPI as part of its center of excellence development to (a) establish 6 new S1 TVET teacher education programs; (b) to train at least 240 SMK-teachers (at least 40 % female) in-service training programs, in collaboration with MOEC, relevant polytechnics, SMKs and industry (c), to certify at least 300 participants (at least 35% female) by the established LSP and PUK, and (d) to disseminate at least 2 case studies of UPI model for TVET teacher education and training model.

iv. In addition, as part of output 2, MORTHE will be support to develop a long-term vocational teacher education strategy in collaboration with all relevant stakeholders (financed by Trust fund TA support)

7. MORTHE through the Directorate General for Resources for Science, Technology and Higher Education (DGRSTH) will be the executing agency of the project, and the above four universities will be the project implementation units (PIUs). The MORTHE will establish a steering committee to guide and monitor the AKSI's overall implementation and ensure that the Project can be completed on time and within the available budget. The DGRSTH will establish a Project Management Unit (PMU), headed by the Director for Facilities and Infrastructure. The Project Director will be supported by a dedicated Project Manager who will be responsible for managing the PMU activities, project planning and implementation management, preparation of progress reports, and ensuring that ADB guidelines are complied. The PMU will have full coordination with the PIUs in the universities. The PMU will be supported by a Project Management Consultant (PMC). The PMU, with the support of its consultants, will determine annual works program, monitor progress in project implementation and ensure compliance with ADB's policies, including safeguards policies, procurement procedures, performance indicators, physical achievements and expenditures and preparation and submittal to the ADB of monthly, quarterly, bi-annual safeguards monitoring, and annual progress reports on overall project implementation.

8. UNRI is a regional state university located in Riau Province. This university is under transition to become an autonomous national university. UNRI has 10 (ten) faculties, and post graduate programs. Under the Project, UNRI aims to develop into center of excellent in marine and aqua science. UNRI has a sufficient experience in procurement and is familiar in using e procurement. Under the AKSI project, UNRI will construct a number of multi-story buildings for education purposes and the associated infrastructure facilities, such as roads, drainage, landscape, mechanical/electrical equipment and installations, laboratories, and conduct degree and non-degree domestic and overseas training, procure laboratory equipment, and IT and office computer facilities. The new buildings will be designed to align with the current eco-green requirement, and aimed to support favorable environment for learning and research.

9. Table 1 below shows the list of buildings to be constructed by UNRI:

Table 1 – Outline of the UNRI project.

Location	Building – **UNRI**	Fls	M2
Main Campus	1) Integrated Classrooms	3	8,500
	2) Integrated Laboratories	3	7,500
	3) Information and Technology Center	3	4,000
	4) Student Center	2	3,500
	5) University Main Library	3	2,000
	6) Boat House and Marine Centre	2	1,500
	7) Health Studies Complex	3	5,500
	8) Postgraduate Centre	6	7,500
	9) University Training Centre	2	4,000
	10) Food Science and Technology Centre	3	3,500
	Supporting Infrastructures: (i) Road and facility 10 km; (ii) Drainage 20 km; (iii) Culvert 10 unit (iv) Energy Power Supply 3 unit		
Total	10 new Buildings		47,500

C. Project Organization.

10. The Rector of UNRI will establish a PIU, led by a PIU manager. He/she will be supported by a vice manager, an executive secretary, and 5 (five) coordinators for M/E, Academic and Staff Development, Civil Works/Infrastructure, Procurement and Finance to manage the project. For day-to-day project monitoring, the PIU may establish a Technical Team. The PMU and the PIU structure is in Figure 1 and 2, as follows:

Figure 1 - The PMU Organization Structure

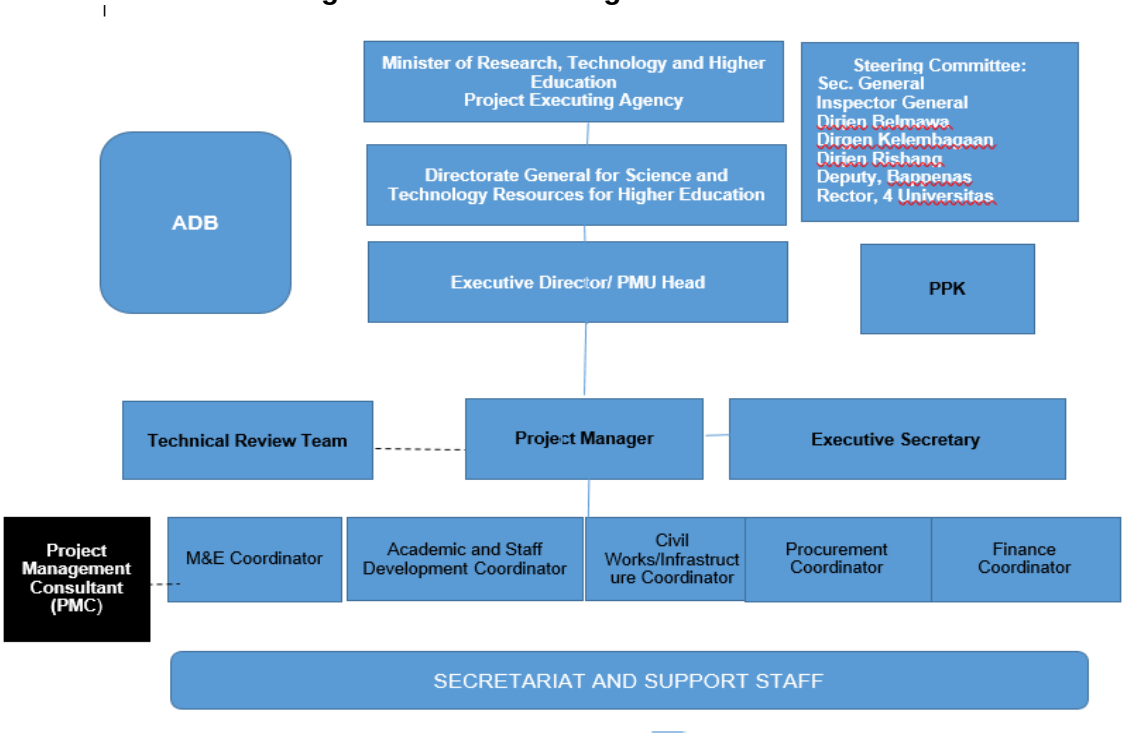
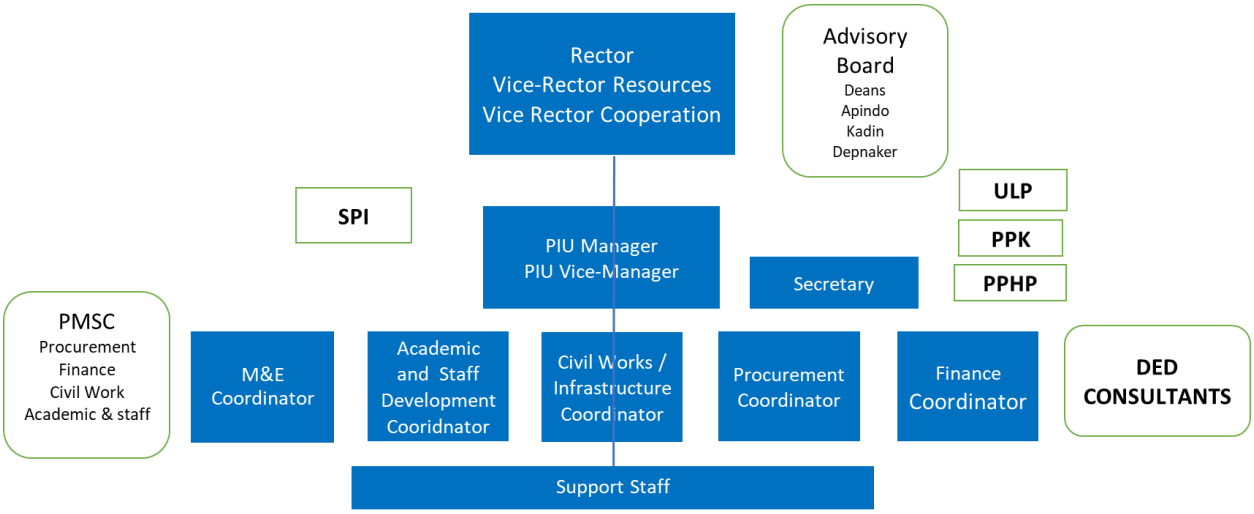


Figure 2 - The PIU Organization Structure



11. **Flow of the Documents.** Any submissions of documents and correspondences from the PIU related to the project implementation to the third parties, including to ADB will be channeled through the PMU office.

D. Objective of the Assignment

12. The objective of this assignment is to develop DED for the construction of new buildings as stated in para.9 above, and supporting infrastructure facilities, including (i) development DED based on available preliminary design provided by UNRI, (ii) development of bidding documents, and (iii) explanation of the designs at each of the pre-construction meetings when required. The DED consultant shall prepare quality DED documents that meet all the legal requirements and criteria pertinent to the construction of buildings and best fit with campus environment and can provide full support to the overall function of the buildings in an academic environment. In preparing DED, the DED consultant shall apply value engineering (VE) principles.

13. The avoidance of conflict of interest is essential. The DED Consultant will need to demonstrate through the quality of its outputs that it has placed professional standards and the interest of the Client above its own commercial interests in situations where conflicts of interest may arise.

14. **Special Features**: The DED consultant shall ensure that the construction of new buildings integrate gender responsive physical design features.[38] Green environment concept shall be adopted in the designs of the building and supporting infrastructure facilities. This concept refers to both for the structure and the application of processes that are environmentally responsible and resource-efficient throughout a building's life-cycle, i.e, planning, design, construction, operation, maintenance, renovation, and demolition. These include:

- Efficient use of energy, water, and other resources
- Lower maintenance cost
- As much as possible, use of renewable energy, such as solar energy
- Pollution and waste reduction measures, and the enabling of re-use and recycling

[38] Refer to Regulation of Minister of Public Works and Housing No. 45/2007 on State Buildings, and Regulation of Minister of Public Works and Housing No. 14/2017 on Ease-of-Access Requirements to Building.

- Good indoor environmental air quality
- Use of materials that are non-toxic, ethical and sustainable
- Consideration of the environment in design, construction and operation
- Consideration of the quality of life of occupants in design, construction and operation
- A design that enables adaptation to a changing environment

E. Consultant Selection.

15. The DED Consultant will be selected using ADB guidelines for Consultant Recruitment, through Quality and Cost Based Selection (QCBS). The consultant is selected from a shortlist of prequalified consulting firms who have experiences in designing campus and/or other educational facilities. Consulting firm with past experiences in designing green environment concept buildings will be preferred.

F. Scope of Services.

16. At the commencement of the consultancy services, the consultants will be provided with a preliminary design documents prepared by UNRI. The DED consultants shall refer to this preliminary design document in developing the DED documents, covering all the detailed work in infrastructures, buildings and facilities for laboratories, classrooms, and other functions. The consultants must also cross-check the conformity and validity of the available information with the management of the university and its related faculties and must be available in the project location. All mistakes and errors due to inaccurate information, which lead to quality of the design, become the responsibility of the consultants.

17. The scope of the services to be undertaken by the DED consultant consists of 3 (three) main activities, (i) review of the existing preliminary design, (ii) design development phase, and (iii) detailed design phase including preparation of bidding documents. The DED consultant should conduct site survey to confirm the site lay out for buildings and supporting facilities.

(i) Review to the Existing Preliminary Design. Review and verify the selection of building concepts, sub-system structure and sub-electrical mechanical systems. Propose changes when required, in close consultation with the PIU.

(ii) Design Development Phase, covers:

a. architectural plans, including development of image that explains the building layout, floor plan, architectural views, cut and details the main, the program illustrates room utilization by viewing the building as a single organization, including the reconstructed hall and building landscape;
b. structure plan, together with the description of concepts and calculations, soil investigation reports and plan for testing the soil that will be used as building foundation;
c. utility plan, along with descriptions of concepts and calculations, including the system of air circulation, lighting, electricity including generators, data, vertical transportation (elevators) plumbing, clean water systems, fire hazard prevention and control, termite prevention, and others;
d. develop an outline of technical specifications that describe the type, the type and characteristics of materials/ingredients used;
e. refining cost pre-estimation (architecture, landscape, structural, mechanical and electrical) in accordance with the existing detailed design concept.

(iii) Detailed Design Phase, includes

a. detailed drawings for implementation of architectural, landscape, structure, hall space, utilities and mechanical electrical in accordance with the approved plan drawing;
b. detailed structure analysis of the buildings and calculation;
c. schedule of materials to be used for the project;
d. detailed technical specifications (RKS);
e. water supply scheme design for the respective buildings, offices, and other buildings from the source including reservoir and intake tanks if needed.
f. detailed cost estimates, Bill of Quantity (BOQ) and unit rate analysis.
g. complete sets of bidding documents;
h. obtaining the building permit and the necessary approvals of the designs for construction of the buildings from the authorities concerned
i. construction methods with respect to the existence of heritage buildings (if any);
j. methods of installation of laboratory and education equipment;
k. develop engineer's cost estimate;
l. report of architectural planning, structural, utilities, MEP, and other necessary relement calculations
m. Environmental management plan (EMP). The consultant shall based on the EMP included in Initial Environmental Examination (IEE) identify potential environmental impact due to the use of materials, equipment operation, and the construction, including but not limited with regard to waste management, air quality and noise, and occupational and community health and safety, and prepare a list of actions to be implemented by the contactor to manage and monitor the risks that may arise. This EMP shall be included in the bidding documents, so the contractor can develop a Contractor's EMP in his proposal.

18. It shall be the responsibility of the DED consultant to: (i) carry out the physical verification of the site for assessing the scope of work, and (ii) conduct necessary tests to determine the design parameters. Soil investigation (2 drill in @ 40 m with SPT every 1.5 m, 5 soil sampling (boring/sondir) with a capacity of 2.5 tons, making 10 sets of soil samples and testing samples soil in the laboratory for each building) is mandatory.

19. Prior to submitting the proposal, the prospective consulting firms should visit the proposed site at its own costs to familiarize with the existing site conditions. A copy of the sketch map of site will be provided for reference. When selected, a detailed survey should be carried out to all the topographical features as may be required for the purpose of design. Also, identification and surveying of appropriate water sources for the buildings should be carried out.

20. Below is the outline of the preliminary design prepared by UNRI to be used as references of the DED preparation:

- Integrated Classrooms
  3 (three) storey, 8.500 m^2 floor area of building for general lecturing and teaching facilities;
- Integrated laboratories
  3 (three) storey, 7.500 m^2 floor area of laboratory facility for research and practices.
- Information and Technology Center
  3 (three) storeys, 4.000 m^2 floor area of buildings for electronic data storage and processing that integrate the university information system;
- Student Center

2 (two) storeys, 3.500 m^2 floor area of buildings for student non-curriculum activities, including general purpose rooms;

- University Main Library
  2 (two) storeys, 2.000 m^2 floor area of library facilities and reading rooms;
- Boat House and Marine Facilities
  2 (two) storeys, 1.500 m^2 floor area facility for boat storage and other marine research and practices;
- Health Study Complex
  3 (three) storeys, 5.500 m^2 floor area facility for teaching, practices and research in the area of health study.
- Post-graduate Center
  6 (six) storeys, 7.500 m^2 floor area of building to facilitate the teaching, research and administration of graduate programs;
- University Training Center
  2 (two) storeys, 4.000 m^2 floor area of building to facilitate various training and practices, which to include seminar and general-purpose rooms;
- Food Science and Technology Center
  3 (three) storeys, 3.500 m^2 floor area of building to facilitate teaching, practices and research in the area of food sciences;
- Supporting Infrastructure Facilities
  Planning and design of campus supporting infrastructure (10 km or road pavement, 20 km of drainage, parking lot, landscape, pedestrian path and water supply system) at University of Riau main campus.

21. In developing architectural detailed plan and detailed engineering design, the consultant must consider the following:

(a) The site plan for infrastructure, buildings, and facilities as well as related equipment must support the optimal utilization of each component.
(b) Outdoor and indoor floor areas of each facilities as well as all displayed architectural features must act like an integral part of the latest master plan of UNRI.
(c) All plans must accommodate the possibility of future development of educational and research facilities.
(d) All plans should be constructed without disturbing the ongoing academic and administrative activities within UNRI, especially in faculties (units) in which the buildings are to be constructed.
(e) All infrastructures, buildings and facilities must accommodate effective, efficient, modern and advanced education and research activities that can take all the academic community accordance with the latest master plan of UNRI.
(f) All infrastructures, buildings and facilities shall be designed in accordance the concept of green buildings, to minimize waste and energy usage, and as much as possible with lower maintenance cost.
(g) The required facilities to meet such demands are supporting the following activities:
  (i) Educational activities.
  (ii) Research activities.
  (iii) Functional area activities.
  (iv) Administrative activities.
  (v) Parking services

G. Technical and Design Criteria and Considerations

G.1 General Criteria for Building Design

22. In designing the buildings, the DED consultant must consider the following criteria:

(i) Allocation and intensity requirements:

a. Ensure the building to be established under provisions of spatial and building set in the regions concerned.
b. Ensure the building to be utilized in accordance with its function.
c. Ensure the safety of users, communities, and the environment.
d. Comply to the principles of:

- Frugal, not fancy, efficient and in accordance with technical requirements.
- Directed and controlled in accordance with plans, programs/activities and functions.
- Maximizing utilization of domestic product by incorporating the ability/national potential to the planning of the building.

(ii) Architectural and environmental requirements:

a. Guarantee the building to be established under provisions of spatial and building set in the regions concerned.
b. Guarantee the new building to be harmoniously standing with the existing building.
c. Ensure building to be built and used without any negative impacts on the environment.

(iii) Building structure requirements:

a. Assure the strength of the building in carrying its own weight and external load that could affect the usage life and durability of the building, such as earthquake, wind, live loads, as well as other temporary external loads.
b. Assure the safety of the occupants. Occupants must be protected from accidents or injuries caused by defective building structure or fire or other catastrophic failures.
c. Guarantee the protection from physical damage or disability due to the objects' structure.
d. Ensure the protection of other property from physical damage caused by the failure of the structure.
e. Ensure the endurance of the building against wreckage, damage, or regular usage decay, that must be divided into three causes; 1) due to the occupants; 2) due to substandard building material used during construction; and/or 3) due to inadequate building maintenance which is failed to prevent the destructing effect of weather, termite, rain.

(iv) Fire resistant requirement:

a. Guarantee the establishment of building to support any burden arising from natural and human behaviour.
b. Guarantee the establishment of building that is structurally stable during the fire:

- Sufficient time for occupants to evacuate safely
- Sufficient time for firefighters to enter a location to extinguish the fire.
- Able to minimizedamage to other property.

(v) Entrance and exit facility requirements:

a. Guarantee the establishment of building that provide decent, yet safe and convenient access to the buildings and facilities and services in it,
b. Guarantee sufficient protective measures from illness or injury during an evacuation in an emergency to be available, occupants protection
c. Ensure the availability of access for the disabled, especially in public area and social facilities.

(vi) Entrance and exit accessibility requirement:

a. Ensure of adequate means of transport, safe, and comfortable in the building,
b. Ensure accessibility for the disabled, especially for public buildings and social facilities.

(vii) Emergency lighting, sign for exit direction, and hazard warning system requirements:
   a. Ensure availability of early and informative signs in the building for emergency cases,
   b. Ensure occupants to be able to evacuate easily and safely in case of emergencies.

(viii) Electrical installation, lightning arrester, building maintenance systems and communications requirements:
   a. Guarantee the installation of electrical installations are safe and supporting the implementation of activities within the building according to its function,
   b. Guarantee the security of the building and its occupants from danger caused by lightning,
   c. Ensure availability of adequate facilities to support the implementation of building maintenance
   d. Ensure availability of adequate means of communication in supporting the implementation of the activities inside the building in accordance with its function.

(ix) Gas installation requirements:
   a. Ensure the availability of safe gas installations in supporting the implementation of activities within the building according to its function,
   b. Guarantee the safe and fair use of gas,
   c. Ensure the sustainability continuous gas supplies for the operation and maintenance of equipment.

(x) In building sanitation requirements:
   a. Ensure availability of adequate sanitation facilities in supporting the implementation of the activities inside the building in accordance with its function,
   b. Guarantee the cleanliness, health and provide comfort for building occupants and the environment,
   c. Efforts to ensure the operation of equipment and sanitation supplies as well.

(xi) Ventilation and air conditioning requirements:
   a. Ensure adequate air needs, whether natural or artificial in supporting the implementation of activities in the buildings according to function,
   b. Efforts to ensure the operation of air conditioner and supplies as well.

(xii) Lighting requirement:
   a. Ensure adequate lighting needs, whether natural or artificial in supporting the implementation of activities in the buildings according to function,
   b. Efforts to ensure the operation of appliances and lighting fixtures as well.

(xiii) Noise and vibration requiremenst:
   a. Guarantee the protection of the occupants from undesirable noise and vibration to provide a healthy working environment
   b. Guarantee the prevention/protective procedure for noise and vibration producing activities that have negative impacts on health and may contaminate and disturb the environment balance.

(xiv) Appearance and image requirements:
The appearance of the building must comply to the characteristics of University of Jambi

G.2. Codes, Standards, and National and Local Building Regulation.

23. The design must comply with latest codes, standards, and national and local building regulations:

(a) AV-41 (Algemener Voorwarden voor de uitvoering van openbare Werken - Kondisi Pelaksanaan Pekerjaan Umum/Works Execution Conditions) in Indonesia.

(b) Latest Standards and Codes for Building Design from Ministry of Public Works and Housing, such as but not limited to:

1) SNI 6880-2016: Spesifikasi beton struktural

2) SNI 4433-2016: Spesifikasi beton segar siap pakai (ASTM C94/C94M-14, IDT)
3) SNI 6751-2016: Spesifikasi bahan lapis penetrasi macadam (LAPEN)
4) SNI 1729-2015: Spesifikasi untuk gedung baja struktural
5) SNI 7860-2015: Ketentuan seismik untuk struktur baja bangunan gedung (ANSI/AISC 341-10, IDT)
6) SNI 7860-2015: Ketentuan seismik untuk struktur baja bangunan gedung (ANSI/AISC 341-10, IDT)
7) SNI 2405-2015: Tata cara pengendalian serangan rayap tanah pada bangunan rumah dan gedung paska konstruksi
8) SNI 8153-2015: Sistem plambing pada bangunan Gedung
9) SNI 2461-2014: Spesifikasi agregat ringan untuk beton ringan struktural
10) SNI 6882-2014: Spesifikasi mortar untuk pekerjaan unit pasangan (ASTM C270 – 10, IDT)
11) SNI 1727-2013: Beban minimum untuk perancangan bangunan gedung dan struktur lain
12) SNI 7972-2013: Sambungan terprakualifikasi untuk rangka momen khusus dan menengah baja pada aplikasi seismik
13) SNI 2847-2013: Persyaratan beton struktural untuk bangunan Gedung
14) SNI 7973-2013: Spesifikasi desain untuk konstruksi kayu
15) SNI 4810-2013: Tata cara pembuatan dan perawatan specimen uji beton di lapangan (ASTM C 31-10, IDT)
16) SNI 1726-2012: Tata cara perencanaan ketahanan gempa untuk struktur bangunan gedung dan non Gedung
17) SNI 7833-2012: Tata cara perancangan beton pracetak dan beton prategang untuk bangunan Gedung
18) SNI 7834-2012: Metode uji dan kriteria penerimaan sistem struktur rangka pemikul momen beton bertulang pracetak untuk bangunan Gedung
19) SNI 7832-2012: Tata cara perhitungan harga satuan pekerjaan beton pracetak untuk konstruksi bangunan gedung
20) SNI 03-7012-2004: Sistem manajemen asap di dalam mal atrium dan ruangan bervolume besar
21) SNI 03-7015-2004: Sistem proteksi petir pada bangunan
22) SNI 03-6765-2002: Spesifikasi bahan bangunan untuk pencegahan bahaya kebakaran pada bangunan rumah dan Gedung
23) SNI 03-6759-2002: Tata cara perencanaan konservasi energi pada bangunan gedung.
24) SNI 03-6652-2002: Tata cara perencanaan proteksi bangunan dan peralatan terhadap sambaran petir
25) SNI 03-6839-2002: Spesifikasi kayu awet untuk perumahan dan Gedung
26) SNI 03-6769-2002: Spesifikasi sistem pengolahan udara sentral sebagai pengendali asap kebakaran dalam bangunan
27) SNI 03-6571-2001: Sistem pengendalian asap kebakaran pada bangunan Gedung
28) SNI 03-6570-2001: Instalasi pompa yang dipasang tetap untuk proteksi kebakaran
29) SNI 03-6574-2001: Tata cara perancangan pencahayaan darurat, tanda arah dan sistem peringatan bahaya pada bangunan Gedung
30) SNI 03-2396-2001: Tata cara perancangan sistem pencahayaan alami pada bangunan Gedung
31) SNI 03-6575-2001: Tata cara perancangan sistem pencahayaan buatan pada bangunan Gedung

32) SNI 03-6573-2001: Tata cara perancangan sistem transportasi vertikal dalam gedung (lif)
33) SNI 03-6572-2001: Tata cara perancangan sistem ventilasi dan pengkondisian udara pada bangunan Gedung
34) SNI 03-1735-2000: Tata cara perencanaan akses bangunan dan akses lingkungan untuk pencegahan bahaya kebakaran pada bangunan rumah dan gedung.
35) SNI 03-6383-2000: Spesifikasi peralatan pengolah udara individual sebagai sistem pengendalian asap terzona dalam bangunan Gedung
36) Permen PU No28-PRT-M-2016: Pedoman Analisis Harga Satuan Pekerjaan Bidang Pekerjaan Umum

(c) Other acceptable standards such as ASTM, JIS, DIN
(d) Permits and regulation issued by local government; and
(e) Other guides and regulations related to the design process.

G.3. Special Criteria

24. Specific criteria are intended to respond specific needs, associated with AKSI Project, in term of special functions of buildings or other technical terminologies.

(i) Associated with the preservation or conservation of the surrounding existing buildings.
(ii) Unity of the building achieved through respecting the facade of the heritage building, aesthetics aspect and scope of services that exist in the environment, as in the framework of the implementation of the arrangement of buildings and the environment.
(iii) Solutions for contextual constraints, such as the local socio-cultural factors, geography, climatology, and requirement for each laboratory and education room.
(iv) As far as it is not against the building design technical requirements and considering that the educational complex is located in tropical areas, therefore it should optimize the usage of the available natural potency, such as natural light and/or sunlight as well as natural ventilation.
(v) It is necessary to group the buildings in accordance with their functions and usage, but they should represent one comprehensive unit.
(vi) There should be several specific rooms designed for specific purposes, such as quiet space for home theater and microteaching laboratory, etc.
(vii) The placement of rooms should be effective and efficient considering the people and material movement, and waste treatment.
(viii) The movement of students, lecturers, people and goods vertically and/or horizontally, should be arranged as efficient as possible without disturbing the functions of the building.
(ix) The module should follow with, but not limited to, general criteria of building design- as described in the chapter above.
(x) Natural ventilation is more preferable by using the cross natural ventilation system. Room having specific/particular functions which need low temperature is permitted to use artificial ventilation.
(xi) With respect to exercise the application of green building concept, the design of one of the buildings shall be conformed with the provision for ***greenship*** for new building and shall obtain at least gold level certificate from Green Building Council of Indonesia (GBCI).

G.4 Consideration for Site Planning.

(a) During site planning, it is possible to alter the contour of the site through either cut and fill system or terracing. Nevertheless, preserving the existing contour is preferable;
(b) Entrance to the building must consider easiness for access, safety and convenience during construction periods.
(c) Internal traffic plan of the building is separated into vehicle, goods and pedestrian and cyclist traffic;
(d) Parking area is grouped into parking for cars, motorcycles, and bicycles.

G.5. **Supporting information**. The DED consultant shall obtain supporting information as listed in **Annex 2** to execute the services.

H. Schedule of Works

25. The detailed design works must be finished in period of six (6) months or less. The detailed schedule is described in Table 2 below.

Table 2: Estimated Schedule for Detailed Engineering Design Works.

No	Activity	Month					
		1	2	3	4	5	6
Survey and plotting							
1	Review, discussion, consultation of existing master plan of UNRI						
2	Review and site plan design for buildings						
3	Topography survey						
4	Soil investigation and ground water test						
Building and infrastructure design							
5	Detailed architect design						
6	Interior design						
7	Layout equipment design						
8	Infrastructure (drainage, pavement, landscape)						
Design of Structural, mechanical and electric and plumbing							
9	Concept and detailed structural design						
10	Mechanical/Electrical design						
Bidding documents for contractor selection							
11	Request of proposal for building and infrastructure work						
12	Terms of reference for building and infrastructure work						
13	Cost estimate for building and infrastructure work						

Table 3: Estimated Expertise Deployment for Detailed Engineering Design Works

No	Expertise	Month					
		1	2	3	4	5	6
1	Team Leader						
2	Senior Architectural Engineer						
3	Senior Architect - Interior Designer Engineer						
4	Senior Structural Engineer						

5	Senior Mechanical						
6	Senior Electrical Engineer						
7	Senior Environmental Engineer						
8	Senior Soil/Geotechnical Engineer						
9	Senior Civil – Infrastructure Engineer						
10	Senior Cost Estimator						

I. Expertise Tasks and Qualifications

26. The expertise should have minimum qualification as listed in Table4 below.

Table 4. Expertise Tasks and Qualification

Position/Expertise	Tasks	Minimum Qualification
Experts		
Team leader	a. coordinate the DED team members to complete the DED works timely. b. fully responsible for overall quality and completeness of the DED. c. responsible for the quality of the bid documents d. review and develop the available preliminary design and convert it to detailed engineering design. e. conduct regular meetings/consultations with the PIUs technical team. f. analyze the curriculum and transform it into room necessity and activities organization; g. define the space, room requirement, and its specification; h. evaluate and design the master plan based on the necessity room program; i. guide activities implementation, both in the phase of data collection, processing and presentation of final results of the overall job; j. Ensure all environmental regulations and requirements in the IEE are met k. other duties as assigned.	A degree in civil engineering or architecture. He/she shall possess valid professional architect/engineering license/certificate and have at least 15 years of extensive in (i) designing (ii) project management and (iii) construction in major aspects in the field of high-rise building and/or higher education building projects. Has proven track record in successfully managing detailed engineering design and construction projects as a Team Leader. Competent in planning, designing, resolving problem, budgeting and financial control, progress monitoring, communication skills and documentation. Good command in spoken and written English. Computer literate, Computer Aided Design, and Structure Analysis. Experience in working with international agencies is preferred. He/she shall to be able to report in English
Senior Architect – Co-Team Leader	a. provide full support to the works of Team Leader b. design and produce working drawing of Architectural design; c. produce detailed architectural drawings of all infrastructures, buildings and facilities; d. choose the most appropriate materials for the design and budget;	Has an architecture degree. He/she shall possess valid professional architect license/certificate and have at least 12 years of extensive experience in building design, in which 5 years of extensive experience in working with high-rise building and/or campus design development.

Position/Expertise	Tasks	Minimum Qualification
	e. other duties as assigned	Good command in spoken and written English; Computer literate, Computer Aided Design
Senior Architect - Interior Designer	a. Support in developing the overall detailed architecture Works. b. Lead the surveys as required during the DED development c. Produce rough sketches and a mood board - a collection of suitable images, colours and materials; d. Develop detailed designs inside the buildings, both fixed and semi-fixed interior, using computer-aided design software or small-scale models; e. recommend the most appropriate materials for the design and budget; f. produce working drawing of interior works; g. perform tasks that may be assigned from time to time.	Has at least a bachelor's degree in architect - interior design, possess valid professional license/certificate, with at least 8 years of relevant professional experience, 4 years of which should be in high-rise building and/or campus design development. Good command in spoken and written English. Good drawing, Audio, Visual, and Lighting skills; Excellence understanding of interior design, including colour and good 3D senses; ability to visualise concepts and explain them to others; high awareness of technical building issues, and the range of relevant products and materials.
Senior Structural Engineer	a. responsible for building building structural calculation, including earthquake responsive buildings, in line with the relevant regulations for earthquake-resistant buildings planning; b. design and produce structural working drawing, blue prints, scaled by 1:200/1:100/1:50; c. produce description on structural implementation plan on site;. d. recommend the most appropriate materials for the design and budget; e. Other duties as assigned	Has a civil engineering degree. He/she shall possess valid professional structural engineering license/certificate and have at least 10 years of extensive experience in high-rise building design. Experience in working with campus design development is preferred. Good command in spoken and written English; Computer literate, Computer Aided Design, and Structure Analysis
Senior Geotechnical Engineer	a. produce detailed soil investigation and tests for the foundations of the whole buildings; b. design the foundation and/or other sub-structure c. Other duties as assigned	Has a degree in civil engineering. He/she shall possess valid professional structural engineering license/certificate and have at least 8 years of extensive experience in earth works and foundation design. Good command in spoken and written English; Computer literate
Senior Electrical Engineer	a. design and produce working drawing of electrical installation system, both inside and outside the building; b. design preparation for ICT networks; c. provide advice and solution to solve the electrical problems	Has a degree in electrical engineering. He/she shall possess valid professional electrical engineering license/certificate and have at least 8 years of extensive experience in design of building electrical system. Experience in working with campus design development is preferred

Position/Expertise	Tasks	Minimum Qualification
	during the design and construction process; d. ensure all electrical installations meet safety regulations; e. recommend the most appropriate materials for the design and budget; f. Other duties as assigned.	
Senior Mechanical Engineer	a. design and produce working drawing of mechanical installation system, both inside and outside the building; b. design plumbing system for both clean water and waste water; c. responsible to give advice and solution to solve the mechanical problems during the design and construction process; d. make sure meeting all mechanical and constructions safety regulations; e. recommend the most appropriate materials for the design and budget; f. Other duties as assigned.	Has a degree in mechanical engineering. He/she shall possess valid professional electrical engineering license/certificate and have at least 8 years of extensive experience in design of building mechanical system. Experience in working with campus design development is preferred. Good command in spoken and written English
Senior Civil – Infrastructure Engineer	a. plan and design supporting infrastructure in the within the vicinity of buildings, including sewerage and drainage system, pavement and parking; b. provide advice and solution to solve the infrastructure problems during the design and construction process;	Has a degree in civil engineering. He/she shall possess valid professional civil engineering license/certificate and have at least 8 years of extensive experience in planning and design of pavement, drainage and sewerage system. Experience in working with campus design development is preferred. Good command in spoken and written English
Senior Environmental Engineer	a. design and produce working drawing of solid waste and waste water treatment system, b. design and produce working procedure for environment monitoring system c. assure all environmental regulations and requirements in IEE are met.	Has a degree in environmental engineering. He/she shall possess valid professional environmental engineering license/certificate and have at least 8 years of extensive experience in design of waste water and solid waste treatment system. Experience in working with campus design development is preferred. Experience of familiaryity with implementing ADB financed projects is an added advantage. Good command in spoken and written English
Senior Cost Estimator	a. study architectural and engineering drawings and specifications. b. produce a bill of quantities, budget estimation and detail cost estimation for construction of buildings, infrastructure and utilities.	At least has a diploma in civil or other engineering fields. He/she shall have at least 8 years of extensive experience in design, which at least 5 years of experience as cost estimator or quantity surveyor. Good command in spoken and written English.

Position/Expertise	Tasks	Minimum Qualification
	c. produce a technical specification for construction of buildings, infrastructure and utilities. d. Other duties as assigned	

J. Schedule of Assignment. The schedule of personnel assignment is in Table 5 below.

Table 5 – Schedule of Personnel Assignment

No	Position	Number of person	Time allocation (man-months)	remarks
1	Team leader	1	6	
2	Senior Architect – Co-Team Leader	1	6	
3	Senior Architect - Interior Design Engineer	2	6	
4	Senior Structural Engineer	2	8	
5	Senior Geotechnical Engineer	2	4	
6	Senior Mechanical Engineer	2	6	
7	Senior Electrical Engineer	2	6	
8	Senior Environmental Engineer	1	4	
9	Senior Civil – Infrastructure Engineer	1	3	
10	Senior Cost Estimator	2	8	
11	Junior Architect	3	15	
12	Junior Interior Design Engineer	1	3	
13	Junior Structural Engineer	3	12	
14	Junior Geotechnical Engineer	2	4	
15	Junior Mechanical Engineer	2	6	
16	Junior Electrical Engineer	2	6	
17	Junior Environmental Engineer	1	3	
18	Junior Civil – Infrastructure Engineer	1	2	
19	Junior Cost Estimator	2	8	
20	CAD Operators	8	48	
21	Office Manager	1	6	
22	Bi-lingual Secretary	1	6	
23	Administrative Staffs - typists	2	12	

K. Deliverables.

27. All reports shall be delivered in electronic/soft files and in printed document of 10 (ten) copy of each.

K.1 Preliminary Report

28. Preliminary report should consist of the review of the conceptual design and the pre-design provided by UNJA. The report shall also indicates the involvement of the DED consultant' members, and steps to continue with the design development stage. The report shall also list the available data and relevant information to support the DED. The Preliminary Report must be approved by the PIU in order to proceed to the Design Development Phase.

K.2 Design Development Phase Report

29. Design development phase report, consisting of:
- drawing of architecture, structure, and supporting utility development plan based on approved pre-planning.
- description of the concept plan and other calculations are required.
- draft of budget plan.
- draft of work plans and terms (technical specifications)
- this report shall be approved by the PIU in order to proceed to the detailed design phase.

K.3 Final Report (Detail Engineering Design and Bidding Documents Completion Report)

30. The final report comprising the detailed engineering phase activities, stepping, drawings, and bidding documents. The report consists of:

a. detailed drawings of the implementation of development plans.
b. work plan and conditions (technical specifications - RKS)
c. activities plan and volume of work (BQ)
d. construction budget (RAB)
e. report of architectural planning and design of structural elements, utilities, MEP, and other calculations are required. This report should expose but not limited to the following description:
   - master plan scaled by 1:500
   - lay out plan, architectural views, cross views scaled by 1:100
   - detailed architectural views with appropriate scale
   - perspective drawings of building's exterior and interior
   - descriptions on architectural plans
   - information system for all users; such as building map, direction to each room/building, information on vertical transportation usage- if any, etc.
   - miniature physical model, for each building including the utilities and building landscape by scale 1: 200.
   - Video of presentation building design
f. report on room lay out and equipment placement, considering: lay out and work flow; specific material requirement, if any; structural and equipment placement requirement; security requirement; space requirement; hazardous laboratory waste treatment; fixtures and electrical power requirement; bid document preparation containing those issues.
g. report on detailed engineering design of all infrastructure, buildings, and facilities. It should cover the complete detailed drawings and the detailed calculations (architectural, structural, utilities, mechanical, and electrical calculations). This report should provide - the following descriptions:
   - structural calculations (including earthquake responsive buildings);
   - structural drawings (blue prints) scaled by 1:200;
   - detailed structural drawings with appropriate scale;
   - description on structural implementation plan on site;
   - detailed MEP system;
   - detailed MEP drawings with appropriate scale;
   - plan and calculation of electric system;
   - telephone and communication system;

- audio system;
- fire hazard security system;
- heavy crash of thunder protection system;
- description on electrical and its implementation on site;
- plan and calculation of mechanical system;
- vertical transportation system, if any;
- system for the anticipation, prevention and evacuation due to fire;
- machinery system such as generator set;
- plumbing system (water waste, waste, clean water, rain water drainages);
- waste water treatment system/plant;
- ventilation, circulation and air conditioning system;
- description on mechanical plan and its implementation on site;
- detailed structural drawings and specification for pavement, drainage and sewerage system

h. report on detailed soil investigation and tests for the foundations of the whole buildings;
i. report on maintenance method of all infrastructure, buildings, and facilities in relation with educational equipment procurement, utilities, and another infrastructure.
j. report on bidding documents for the construction of infrastructure, buildings, equipment and facilities, consisting drawings, specification, and bill of quantity.
k. the Final Reports on detailed engineering design and bidding document shall be presented to PIU for approval.

31. **Contract and Payment Terms**

32. The selected DED consultant will sign a lumpsum contract with the PIU. Payments to the Consultant will be made in accordance with deliverables.

33. **Client's Input and Counterpart Personnel**

34. The PIU shall provide the following:
a. All available documents, reports, data and all other information related to the proposed assignment.
b. Any letters or assistance required by the consultants in obtaining all necessary permits and authorizations for carrying out the services.
c. The PIU will assign a counterpart personnel to represent the PIU.

33. The Consultant shall provide the following:
a. The Consultant shall establish a site office. All required furniture, hardware, software, internet/phone connections, office stationary etc shall be provided by the Consultant. The cost associated to this provision should be included in the financial proposal, as part of non-competitive component.
b. The Consultant shall include necessary transportation costs at the project site including vehicles rental and in their cost of operation.

Annex 1

Required Supporting Information

a. Information about the land, including:
   - the physical condition of the location such as: the extent, boundaries and topography
   - soil conditions (soil test results)
   - allotment of land
   - standard lot are area (KDB)
   - standard floor-area ratio (KLB)
   - details of land use, pavement, greening and other

b. Building user:
   - organizational structure
   - number of personnel/occupants
   - main, supporting, and complementary activities
   - equipment/special equipment, type, weight and dimensions

c. Building needs:
   - room data sheet
   - the needs of organization/space utilization

d. The needs of changespossibility for room/building

e. The needs of layout of furniture/fixture for specific rooms (Laboratory of Science)

f. The needs of the utility buildings such as:
   i) water Supply:
   - needs (present and future projections)
   - water resources, networking and capacity

   ii) rain water and grey water:
   - location of city channel
   - drainage
   - recycled water

   iii) waste water (limbah B3) and garbage
   - exhaust system (infection / non-infectious / household)
   - wet and dry garbage

   iv) elevator and other transportation
   - type of transportation (good type)
   - point/location

   v) procedures for air circulation / air conditioning (AC):
   - load (ton ref)
   - burden sharing
   - system needed

   vi) reduction of fire hazard
   - fire detector (type)
   - fire alarm (type)
   - firefighting equipment (type, capacity)
   - evacuation routes

   vii) safety from theft and vandalism:
   - door with a security system (card/PIN or others)
   - CCTV Systems
   - alarm (type)

- the chosen system

viii) electricity:
- power requirements (capacity)
- resources and specifications
- power reserve/generator if needed (capacity building, and specifications)

ix) lightning and illumination system

x) building maintenance systems:

xi) emergency response:
- emergency shower units (emergency shower wash)
- emergency eye shower unit
- evacuation routes
- rescue equipment storage for emergency and first aid kit

xii) communication and information networks (telephone, telex, radio, intercom, internet):
- point communication needs
- focus of talks / information / server
- the chosen system

xiii) data/specimen delivery system:
- needs of data/specimen delivery points
- submission of data centers
- the selected systems (pneumatic tube, or any suitable systems)

xiv) special gas (nitrogen or/and any) installation system:
- the needs of gas point
- gas storage center
- channels/flow gas system

Appendix 17: Terms of Reference for the Civil Engineer as Bridging Consultant

A. Background.

1. ADB is supporting the Ministry of Research, Technology and Higher Education (MoRTHE) with the preparation of the Advanced Knowledge and Skills for Inclusive Growth Project (AKSI). The proposed AKSI aims to support Indonesia's higher education system in providing advanced skills and knowledge to support inclusive and sustainable economic growth. The Project will support the University of Malikussaleh (UNIMAL), University of Jambi (UNJA), the University of Riau (UNRI), and the Universitas Pendidikan Indonesia (UPI) a teacher education university. The Project will construct a number of multi-storey buildings and the associated infrastructure facilities, such as roads, drainage, and mechanical/electrical equipment and installations, laboratories, and conduct degree and non-degree domestic and overseas training, procure laboratory equipment, and IT facilities.

2. MORTHE through the Directorate General for Resources for Science, Technology and Higher Education (DGRSTH) will be the executing agency of the project, and the above four universities will be the project implementation units (PIUs). The MORTHE will establish a steering committee to guide and monitor the AKSI's overall implementation and ensure that the Project can be completed on time and within the available budget. The DGRSTH will establish a PMU, headed by the Director for Facilities and Infrastructure, which will have a Project Manager to be responsible for managing the PMU activities, project planning and implementation management, preparation of progress reports, and ensuring that ADB guidelines are complied. The PMU will have full coordination with the PIUs in the universities. The PMU will be supported by a Project Management Consultant (PMC). The PMU, with the support of its consultants, will determine annual works program, monitor progress in project implementation and ensure compliance with ADB's policies, procurement procedures, performance indicators, physical achievements and expenditures and preparation and submittal to the ADB of monthly, quarterly and annual progress reports on overall project implementation. At the 4 (four) universities, Project Management and Supervision Consultant (PMSC) teams will be engaged to provide project management and construction supervision, and also to deal with procurement related matters.

3. As the PMC and the PMSCs are scheduled to be fielded in June/July 2019, an individual Civil Engineer (the Consultant), will be engaged. The Consultant is to fill the gap of services related to the civil engineering matters and documents of building constructions and procurement at PMU and at the 4 (four) universities in the period between the loan effectiveness and the fielding of the PMC/PMSCs. The Consultant will be recruited by the PMU and based in the office of DGRSTH in Jakarta, but will s/he will also support the PIUs in the 4 (four) universities.

B. Project Organization.

4. The PMU and the PIU organization structures are shown in Figs. 1 and 2, as follows:

Figure 1 - The PMU Organization Structure

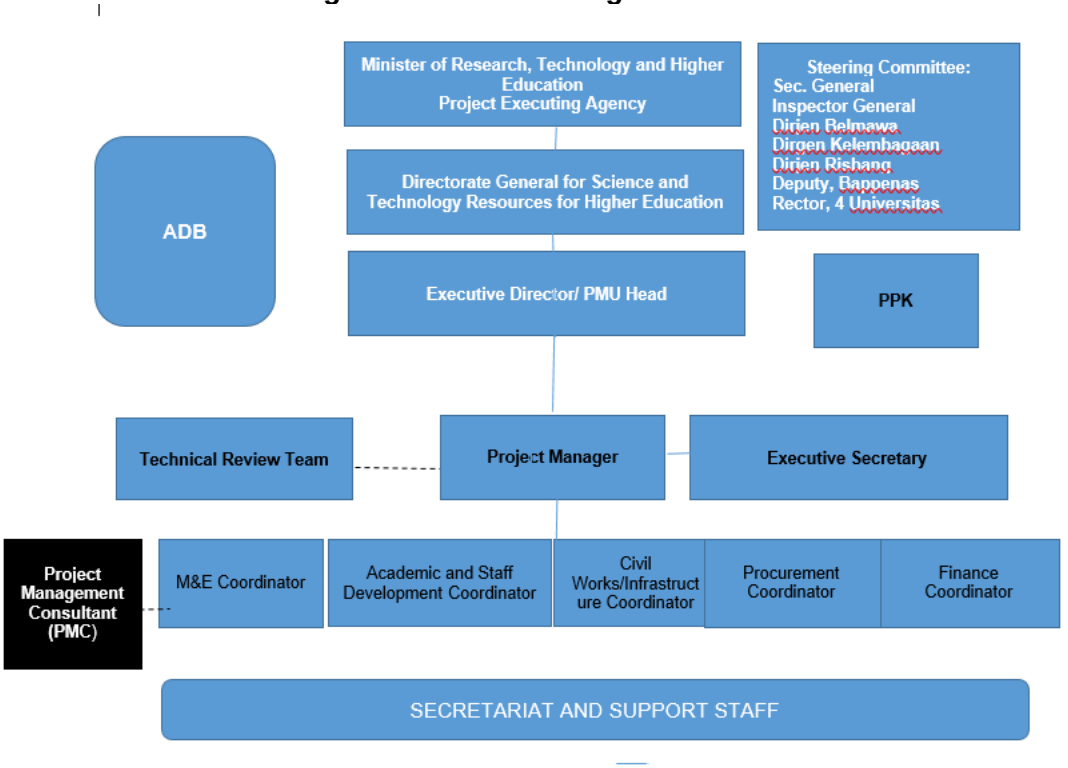
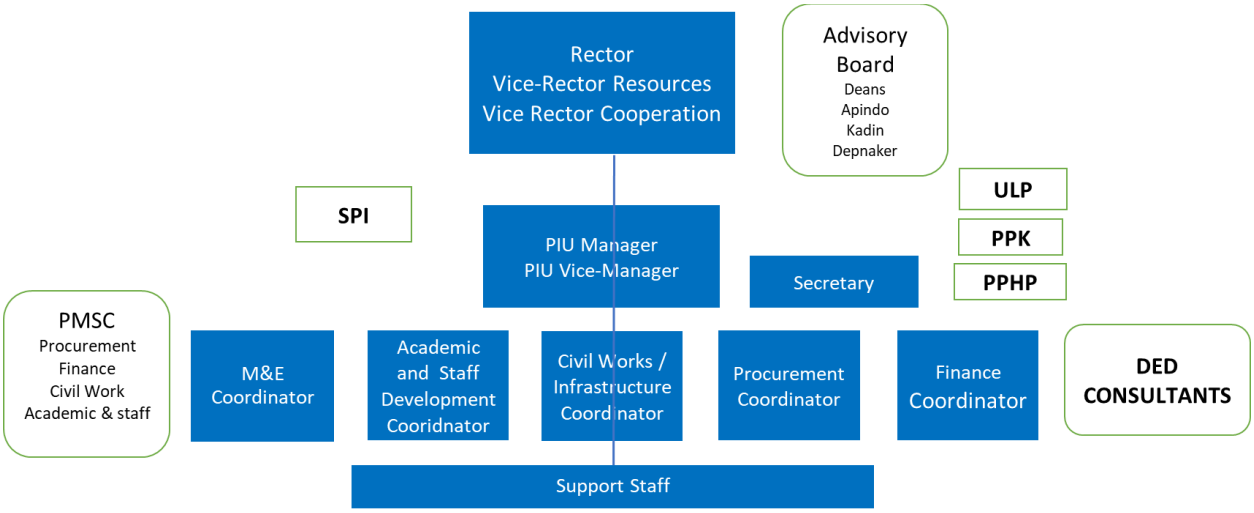


Figure 2 - The PIU Organization Structure



5. **Flow of the Documents.** Any submissions of documents and correspondences from the PIUs related to the project implementation to the third parties, including to ADB will be channeled through the PMU office.

D. Objective of the Assignment

6. The Civil Engineer, together with a Procurement Specialist (to be recruited separately) is expected to provide "bridging" services to the PMU and the PIUs related to the preparation of building construction documents, bidding, as well as procurement and management of the Project prior to the fielding of the PMC and PMSCs. The Civil Engineer and the Procurement Specialist has 3 (three) main tasks, i.e., (i) ensure that the building construction documents, procurement and recruitment of consultants at the project start-up are prepared and executed without delays, (ii) bridge between document reviews and procurement activities before and after loan signing,[39] and (ii) ensure quality bidding documents are delivered, and the procurement and recruitment of consultants under the Project are incompliance with ADB guidelines.

E. Scope of Services.

7. The Consultant shall support the PMU and the PIUs related to the preparation and evaluation of bidding documents, biddings, bid evaluation, contract preparation, and pre-construction meetings. The Consultant shall also provide project management services at the project start-up, to avoid delays in project implementation. The tasks of the Consultant, include but not be limited to:

(i) **Support the PMU to:**

(a) set detailed project procurement schedule for the first year of project implementation, based on the procurement plan as indicated in the Project Administration Manual (PAM);
(b) support the PMU's POKJA to recruit the PMC Team. If the recruitment of PMC has been initiated, the Procurement Specialist should be able to support the POKJA in finalizing the recruitment process timely;
(c) prepare contractual documents for the PMC;
(d) participate in the first meeting with the PMC;
(e) closely monitor of timely preparation of building construction documents and procurement process at the universities;
(f) prepare "review and improvement notes" to the bidding documents.

(ii) **Support the PIUs of UNIMAL, UNJA, UNRI and UPI to:**

(a) set detailed project procurement schedule for the first year of project implementation based on the Procurement Plan as indicated in the PAM;
(b) prepare bidding documents using ADB Standard Bidding Documents forms, and ensure that quality bidding documents are delivered;
(c) familiarize with the project site conditions in the respective universities;
(d) facilitate site visit and surveys of the prospective bidders to the project locations at the respective universities;
(e) continue the bidding process if the advance procurement actions have been initiated;
(f) support the POKJA in evaluating bids when requested;
(g) prepare Request for Proposal (RFP) documents for consultants under the PIUs;
(h) recruit consultants under the PIUs including PMSCs, Detailed Engineering Design (DED) consultants, and other consultants under the AKSI project;
(i) evaluate consultants' proposals;
(j) support PIUs' POKJAs in negotiation with the selected consultants;

[39] The Project adopts Advance Procurement Action to conduct biddings and recruitment of consultants prior to the loan signing. The signing of the contracts, however, will be done after the loan effectiveness.

(k) prepare contractual documents for consultants and contractors;
(l) participate in the preconstruction meetings with the selected contractors;
(m) prepare “review and improvement notes” to the bidding documents and monthly reports
(n) together with the Procurement Specialist prepare minutes of hand-over with the PMSC Teams

F. Qualification.

13. The consultant shall have a bachelor degree in civil engineering with demonstrated work experience in design reviews and construction supervision of buildings of about 10 years, preferably in supervising high-rise buildings. The consultant shall have experience in construction problem solving, and project reporting, and preferably, has around 5 (five) years in dealing with donor financed projects, particularly ADB or WB. The consultant shall be familiar with contractual agreements and other related documents/agreements of building projects. S/he shall have good knowledge of the institutional, technical, and commercial aspects of a contract agreement, and fluency in spoken English and Bahasa.

14. The Consultant shall be able to work independently with minimum supervision.

F. Duration of the Assignment.

15. The Consultant is to provide services of about 132 working days, spread over 8 (eight) months. The Consultant will be based in the office of the PMU, and needs to travel intensively to UNIMAL, UNJA, UNRI and UPI.

G. Deliverables.

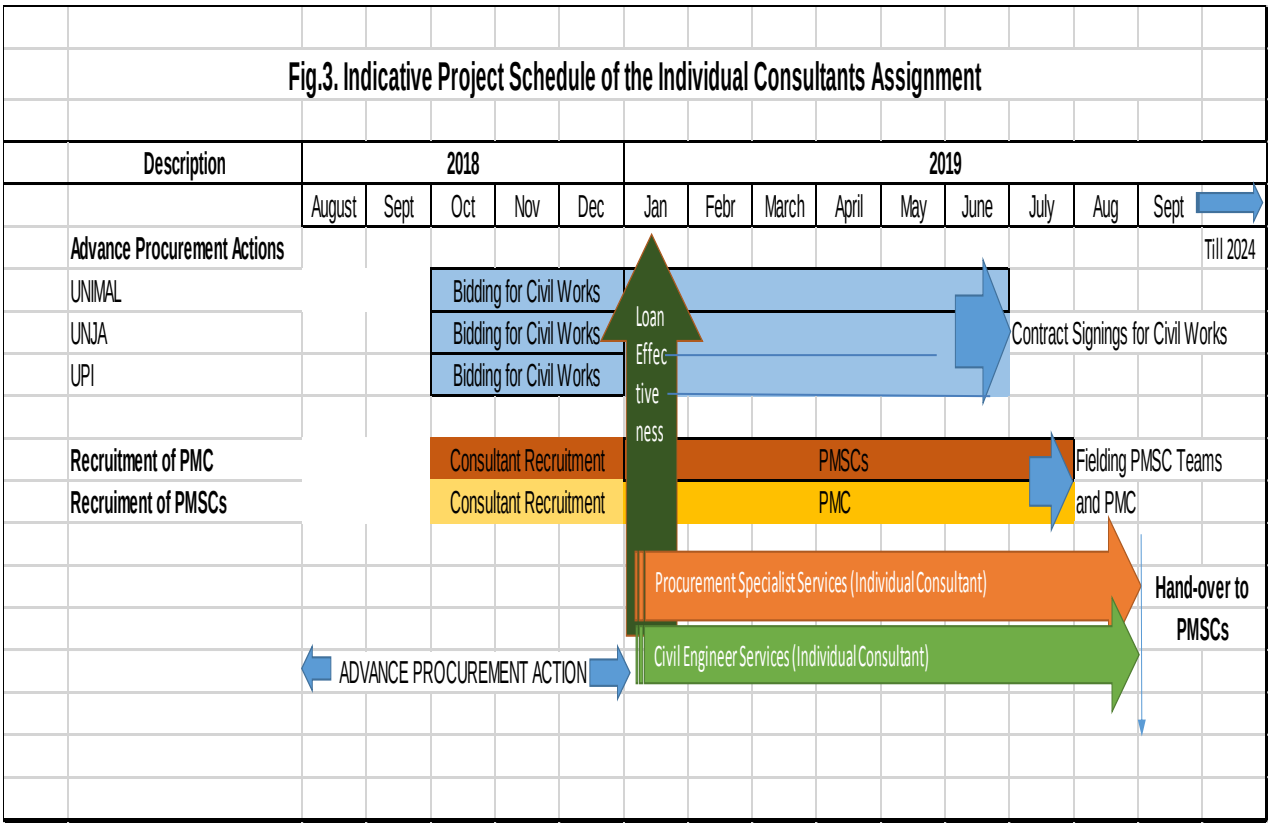
16. The Consultant, together with the Procurement Specialist, shall prepare the followings:

(a) minutes of meetings between the PMU or PIUs with the consultants, and the contractors, and any meetings related to the AKSI project;
(b) Quality bidding documents and RFPs;
(c) procurement report summarizing the bid/proposals evaluation reports prepared by the POKJA of each bidding and recruitment of consultants;
(d) monthly reports during the assignment;
(e) official hand-over report to PMSCs of the respective universities.

H. Indicative Schedule of the Assignment.

17. The indicative schedule of the project and the assignment is shown in Figure. 3 below.

Fig.3. Indicative Project Schedule of the Individual Consultants Assignment



Appendix 18: Terms of Reference for the Procurement Specialist as Bridging Consultant

A. Background.

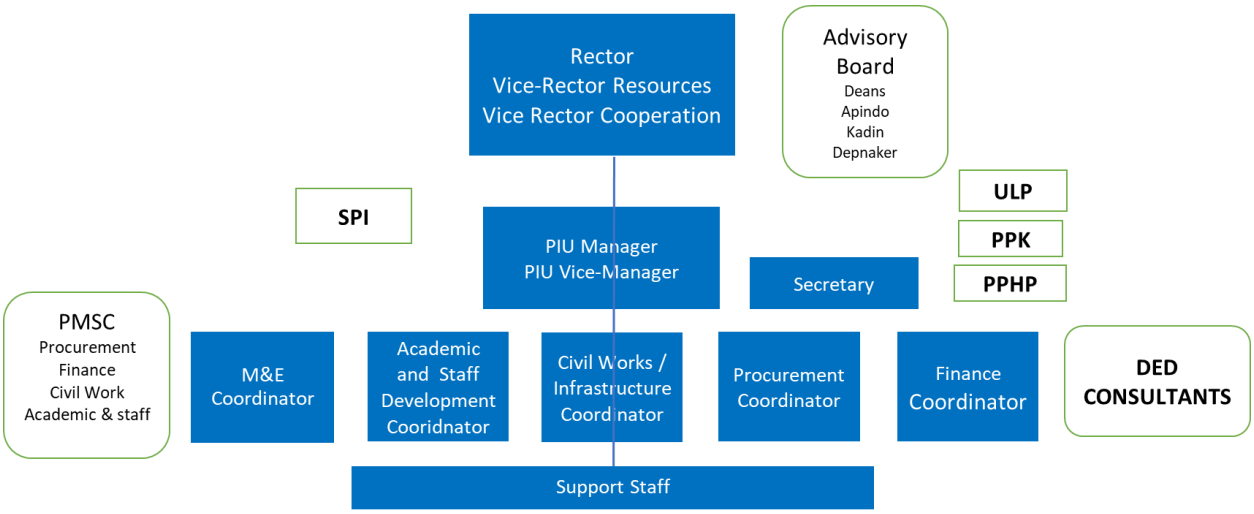
1. ADB is supporting the Ministry of Research, Technology and Higher Education (MoRTHE) with the preparation of the Advanced Knowledge and Skills for Inclusive Growth Project (AKSI). The proposed AKSI aims to support Indonesia's higher education system in providing advanced skills and knowledge to support inclusive and sustainable economic growth. The Project will support the University of Malikussaleh (UNIMAL), University of Jambi (UNJA), the University of Riau (UNRI), and the Universitas Pendidikan Indonesia (UPI) a teacher education university. The Project will construct a number of multi-storey buildings and the associated infrastructure facilities, such as roads, drainage, and mechanical/electrical equipment and installations, laboratories, and conduct degree and non-degree domestic and overseas training, procure laboratory equipment, and IT facilities.

2. MORTHE through the Directorate General for Resources for Science, Technology and Higher Education (DGRSTH) will be the executing agency of the project, and the above four universities will be the project implementation units (PIUs). The MORTHE will establish a steering committee to guide and monitor the AKSI's overall implementation and ensure that the Project can be completed on time and within the available budget. The DGRSTH will establish a PMU, headed by the Director for Facilities and Infrastructure, which will have a Project Manager to be responsible for managing the PMU activities, project planning and implementation management, preparation of progress reports, and ensuring that ADB guidelines are complied. The PMU will have full coordination with the PIUs in the universities. The PMU will be supported by a Project Management Consultant (PMC). The PMU, with the support of its consultants, will determine annual works program, monitor progress in project implementation and ensure compliance with ADB's policies, procurement procedures, performance indicators, physical achievements and expenditures and preparation and submittal to the ADB of monthly, quarterly and annual progress reports on overall project implementation. At the 4 (four) universities, Project Management and Supervision Consultant (PMSC) teams will be engaged to provide project management and construction supervision, and also to deal with procurement related matters.

3. As the PMU and the PMSCs are scheduled to be fielded in June/July 2019, an individual Procurement Specialist (the Consultant), will be engaged. The Consultant is to fill the gap of services related to the procurement at PMU and at the 4 (four) universities in the period between the loan effectiveness and the fielding of the PMC/PMSCs. The Consultant will be recruited by the PMU and based in the office of DGRSTH in Jakarta but will s/he will also support the PIUs in the 4 (four) universities.

B. Project Organization.

4. The PMU and the PIU organization structures are shown in Figure. 1 and 2, as follows:



5. **Flow of the Documents.** Any submissions of documents and correspondences from the PIUs related to the project implementation to the third parties, including to ADB will be channeled through the PMU office.

D. Objective of the Assignment

6. The Procurement Specialist, together with a Civil Engineer (to be recruited separately) is expected to provide "bridging" services to the PMU and the PIUs related to the procurement and management of the Project , to the fielding of the PMC and PMSCs. The Procurement Specialist has 3 (three) main tasks, i.e., (i) ensure that the procurement and recruitment of consultants at the project start-up are executed without delays, (ii) bridge between procurement activities before and after loan signing,[40] and (ii) ensure quality bidding documents are delivered, and the procurement and recruitment of consultants under the Project are incompliance with ADB guidelines.

E. Scope of Services.

7. The Consultant shall support the PMU and the PIUs related to the preparation of bidding documents, biddings, bid evaluation, contract preparation, and pre-construction meetings. The Consultant shall also provide project management services at the project start-up, to avoid delays in project implementation. The tasks of the Consultant, include but not be limited to:

(i) **Support the PMU to:**

(a) set detailed project procurement schedule for the first year of project implementation, based on the procurement plan as indicated in the Project Administration Manual (PAM);
(b) support the PMU's POKJA to recruit the PMC Team. If the recruitment of PMC has been initiated, the Procurement Specialist should be able to support the POKJA in finalizing the recruitment process timely;
(c) prepare contractual documents for the PMC;
(d) participate in the first meeting with the PMC;

[40] The Project will adopts Advance Procurement Action to conduct biddings and recruitment of consultants prior to the loan signing. The signing of the contracts, however, will be done after the loan effectiveness.

(e) closely monitor procurement process at the universities;
(f) prepare procurement reports to the PMU.

(ii) **Support the PIUs of UNIMAL, UNJA, UNRI and UPI to:**

(a) set detailed project procurement schedule for the first year of project implementation based on the Procurement Plan as indicated in the PAM;
(b) prepare bidding documents using ADB Standard Bidding Documents forms, and ensure that quality bidding documents are delivered;
(c) continue the bidding process if the advance procurement actions have been initiated;
(d) support the POKJA in evaluating bids when requested;
(e) prepare Request for Proposal (RFP) documents for consultants under the PIUs;
(f) recruit consultants under the PIUs including PMSCs, Detailed Engineering Design (DED) consultants, and other consultants under the AKSI project;
(g) evaluate consultants' proposals;
(h) support PIUs' POKJAs in negotiation with the selected consultants;
(i) prepare contractual documents for consultants and contractors;
(j) participate in the preconstruction meetings with the selected contractors;
(k) prepare specific procurement reports and monthly reports
(l) prepare minutes of hand-over with the PMSC Teams

F. Qualification.

13. The Consultant should have minimum qualification of bachelor degree in civil engineering, public administration, law, or other related field with around 10-15 years of experience in public procurement practices and procedures, and around 7 years of procurement experience under ADB or WB funded projects. The consultant shall have experience in drafting contractual agreements and other related documents/agreements and in resolving legal issues related to public procurement in Indonesia. S/he shall have good knowledge of the institutional, technical, and commercial aspects of procurement; demonstrated experience in contract management at managerial level; fluency in spoken English and Bahasa; strong organization skills and ability to work in a team-oriented, dynamic and diverse environment with a proven track - record of working effectively within multidisciplinary teams. Familiar with the Government's e procurement system will be preferable.

14. The Consultant shall be able to work independently with minimum supervision.

F. Duration of the Assignment.

15. The Consultant is to provide services of about 132 working days, spread over 8 (eight) months. The Consultant will be based in the office of the PMU, and needs to travel intensively to UNIMAL, UNJA, UNRI and UPI.

G. Deliverables.

16. The Consultant shall prepare the followings:

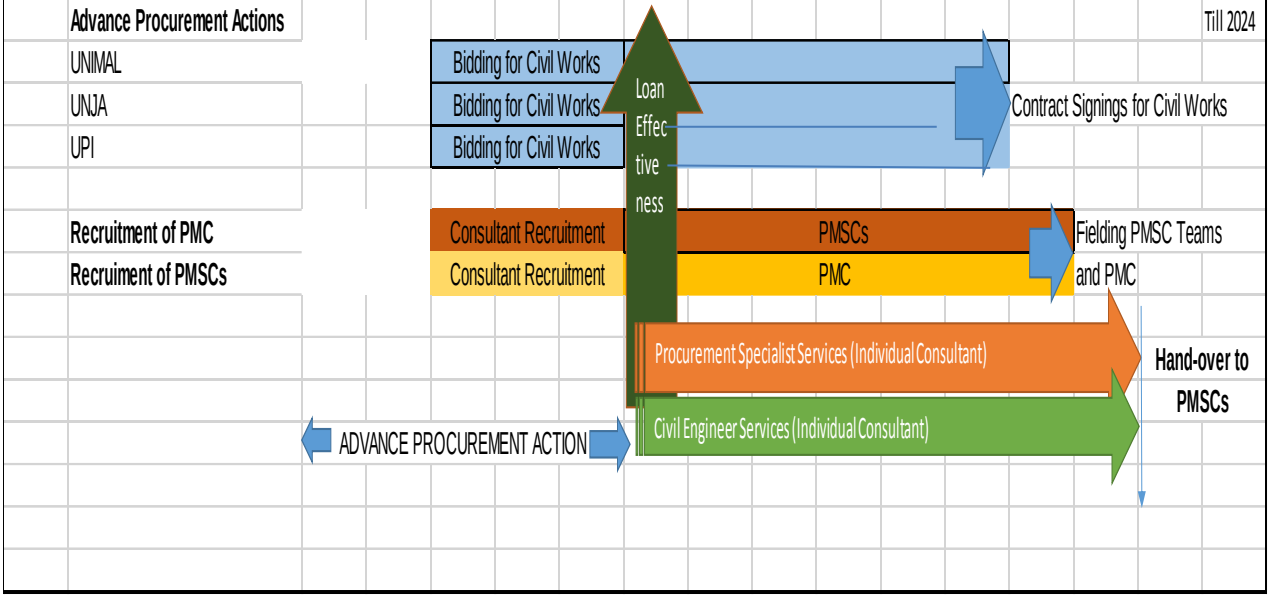
(a) minutes of meetings between the PMU or PIUs with the consultants, and the contractors, and any meetings related to the AKSI project;
(b) Quality bidding documents and RFPs;

(c) procurement report summarizing the bid/proposals evaluation reports prepared by the POKJA of each bidding and recruitment of consultants;
(d) monthly reports during the assignment;
(e) official hand-over report to PMSCs of the respective universities.

H. Indicative Schedule of the Assignment.

17. The indicative schedule of the project and the assignment is shown in Figure. 3 below.

Fig.3. Indicative Project Schedule of the Individual Consultants Assignment



Appendix 19: Financial Management Internal Control and Risk Management Assessment

Table 1. Financial Management Internal Control and Risk Management Assessment

	Risks Area	Risk Description	Risk Assessment Rating	Mitigation Measures
Inherent Risks				
1.	**Country Specific**			
	Overall country level	The Public Expenditures and Financial Accountability (PEFA) assessment has been done three times, in 2002, 2007 and 2016. Overall the PEFA performance score for 2016 was slightly below B, which is above basic level of performance broadly consistent with good international practices.	Moderate.	.
	Budget process. Annual budget allocation (DIPA) is centralized at the MORTHE, most of the implementation is in the universities and other institutions	Annual budget to be used from loan funds for all loan-financed activities under MORTHE is capped. There is a chance of delays in receiving sufficient allocation to complete all planned activities within a particular project year, as different projects compete for capped allocation.	Moderate	(i) MORTHE coordinates annual expenditure plans for all loan-financed projects and submit the annual budget plan timely to Bappenas; (ii) PMU maintains close coordination with planning and budgeting unit in MORTHE (iii) PMU and PIUs ensure that the annual budget plan is accurately prepared based on actual needs and capacity of absorption/disbursement (iv) In case an annual budget revision is needed, the proposed revision has to be submitted timely to the Bappenas/MOF.
	Different status of universities, leading to differences in budgeting process, including in allocation of tax-revenue (APBN) and non-tax-revenue (PNBP)	Possible delays in budget allocation and implementation as procedures for each university are not followed properly	moderate	(i) PMU to share the government guidelines with the PIUs targeted for the procedures applicable for each university. (ii) Consultant support for training and implementation support (iii) Ensure in the budget

	Risks Area	Risk Description	Risk Assessment Rating	Mitigation Measures
				that packages are financed 100% from one source (iv) Close monitoring by PMU and ADB, for timely approvals.
2.	**Entity Specific Risk** The roles of the respective parties involved in the Project is clear.	The tasks of the Steering Committee, the Project Management Unit (PMU), and the Project Implementation Units (PIUs), are clearly defined. Three main consultants will be recruited, including project management consultant (PMC) at the PMU office, the project management and supervision consultant (PMSC), at four universities, and detailed engineering design consultants.	Low.	A clear organization structure has been established at the PMU and PIUs level. The effectiveness of the respective parties will be closely monitored during implementation.
			Moderate	
Control Risks				
1.	**Implementing Entity**			
(i)	Capacity of the Executing Agency.	DGRSTH as executing agency has experience in implementing development partner financed projects. Currently comparable construction projects financed by the Islamic Development Bank and Japan International Cooperation Agency are ongoing. It has no experience with ADB – finance projects.	Moderate	Prior to or during initial stage of project implementation ADB will provide training to the PMU staff to familiarize with ADB guidelines and procedures. During project implementation ADB will provide intensive guidance and training to the project staff through workshops and technical meetings. Consultants with relevant experience to support PMU
(ii)	Capacity of the Implementing Agencies.	The 4 (four) universities, UNIMAL, UNJA, UNRI and UPI have experiences in managing foreign aid funds (World Bank, IDB), but have never been managing ADB funds.	Moderate	ADB will conduct training to project staff on ADB guidelines, including procurement, disbursement, and reporting at the project start-up; and provide

	Risks Area	Risk Description	Risk Assessment Rating	Mitigation Measures
				close guidance during implementation Experienced consultants to assist PIUs
2.	**Funds Flow** The funds flow will be channelled through (i) direct payment and (ii) advance payment.	The submission of withdrawal applications to ADB will be through Client Portal for Disbursement (CPD) online, in which the PIUS and PMUs have not been familiar with. Potential delays are anticipated.	Moderate	Disbursement training will be provided at the project start-up; guidance will be provided during implementation as necessary
3.	**Staffing**			
(i)	**Staff at the Project Management Unit (PMU).** MORTHE will not be able to provide staff for the PMU including staff for the financial management work in the PMU.	Lack of project monitoring and potential project implementation delays. Under the government's standard, challenging to find quality staff to serve as project management team.	Moderate	The PMU will recruit staff from the universities as PMU staff. Additional salaries will be provided to ensure high quality staff. In addition, the PMU will be fully supported by the Project Management Consultant (PMC)
(ii)	**Staff at the Project Implementation Units (PIUs).** The project staff in the PIUs besides handling the loan, is also handling the routine funds from the Government (APBN) and the universities' non-tax revenues (PNBP).	Potential overlap and excessive workload of staff are identified.	Moderate	The Project Management and Supervision Consultant (PMSC) Team in the respective PIUs will substantially supports the PIUs.
4.	**Accounting Policies and Procedures** Accounting policies in UNJA, UNRI, UNIMAL implement Accrual Base Institution Accounting System (SAIBA)	Delays in financial reporting, and accountability of the financial reporting in UPI.	Low.	Currently UPI financial accounting is being tested to upgrade to use the computerized system by 2019.

	Risks Area	Risk Description	Risk Assessment Rating	Mitigation Measures
	established by the MoF. All expenditures and receipts are accounted for using the Treasurer's Reporting System (SILABI). Both systems use computer-based applications The process of financial accounting in UPI is still done manually (use the Excel program).			
5.	**Fixed Asset Control** Fixed asset control in each university is computerized with proper coding. New fixed assets will be recorded properly by staff involved in the asset management.	There is no potential risk identified.	Low	
6.	**Internal Check** Due to limited number of the MORTHE staff as well as the four universities staff involved in the financial management, internal check will rely on consultants' existence.	Sustainability of the internal checking procedure will be an issue.	Moderate	Encourage universities to increase staff involved in the internal check. Immediate work is done in collaboration with the consultant.
7.	**Internal Audit** Three internal auditors will involve in auditing the project expenditures annually. The auditors are: (i) Internal Supervision Unit (SPI) in each university, (2) inspectorate general at MORTHE, and (3) Financial and Development	The auditing procedures of each auditor may confuse project staff in preparing reports and follow up.	Moderate.	Clear procedure and tasks for preparing the financial reports should be established, coordinated by the PMU.

	Risks Area	Risk Description	Risk Assessment Rating	Mitigation Measures
	Supervisory Board (BPKP)			
8.	**External Audit** The Supreme Audit Board (BPK) will be the external auditor of the Project.	ADB has agreed on a standard TOR with the Government of Indonesia. MORTHE is familiar with the auditing procedure by BPK. No risk	Low.	
9.	**Reporting and Monitoring**	MORTHE as well the four universities have been familiar with financial reporting for routine expenditures and projects. No major risk is identified.	Low	Financial report is prepared using computer-based accounting system (called SAIBA). Monitoring on budget implementation using SIMONEV and SIMKEU system. Implementation Unit prepares budget disbursement report and implementation of activities periodically (quarterly
			Moderate	

Appendix 20: Format for Quarterly, Semi-Annual and Annual Progress Reports

To be prepared by PIU and PMU with the assistance of PMSC

GENERAL:

1. In the cover of the Progress Report, specify the title of the report (e.g. Quarterly Progress Report, annual report etc.), period covered by the report (e.g. from January-March 2019), name of the executing/implementing agency who prepares the report (e.g. PIU, University of Jambi), and date of the report.

A. PHYSICAL PROGRESS OF PROJECT IMPLEMENTATION

2. Assess the progress of project implementation for each of the project components during the reporting period compared to the work plan during the year:

Development of teaching and research facilities and supporting infrastructure:

- Number of DED completed compared to the planned target
- Number of new teaching and research buildings being constructed compared to the planned target
- Number of new teaching and research buildings completed compared to the planned target
- Number of new teaching and research building which have become operational compared to the planned target
- The quality of completed buildings constructed by the contractors.

Procurement of equipment:

- Number and types of equipment procured by PIU
- Number and types of equipment procured and installed by PIU in the new teaching and research buildings
- The quality of equipment procured by PIU

Development and improvement of the human resource quality:

- Number of additional teaching, management, research and support staff of UNJA, UNIMAL and UNRI trained in principles of market responsive programs compared to the planned target
- Number of additional training or service programs delivered as part of their center of excellence development in Sustainable Natural Resources, Agriculture and Aquatic and Marine Science especially in collaboration with industry, community and other stakeholders, compared to the target

Development of academic curriculum:

- Number of upgraded or new curricula included in the academic program as part of their center of excellence development in Sustainable Natural Resources, Agriculture and Aquatic and Marine Science, especially in collaboration with industry, community and other stakeholders

- Increase in the number of upgraded or new curricula by 2023 compared to the target of 40 upgraded or new curricula

B. PROCUREMENT PROGRESS

3. Assess the progress of the procurement of civil work, goods and consultants during the reporting period compared to the procurement plan approved by ADB during the year:

- Number of contracts which have been tendered, signed and implemented compared to the planned contracts during the reporting period
- The value of contracts which have been tendered, signed and implemented compared to the planned contracts during the reporting period.
- Number and value of contracts which have been completed during the reporting period
- Amount of contract awards financed by ADB during the reporting period
- Cumulative contract awards financed by ADB from the date of loan effectiveness up to the end of the reporting period.

C. FINANCIAL PROGRESS

4. Assess the status of financial progress in terms of total expenditure and loan disbursement during the reporting period compared to the total budget received by the Executing and Implementing Agencies during the year:

- Total expenditure for each of the project components during the reporting period and cumulative expenditure from beginning of the fiscal year up to the end of the reporting period, compared to the total budget allocated for each project component.
- Percentage of budget realization by comparing the total expenditure with total budget received for each of the project components and for the whole project.
- Total disbursement from ADB loan for each of the project components and for the whole project during the reporting period
- Cumulative loan disbursement for the whole project from loan effectiveness up to the end of the reporting period
- Total expenditure from the Government and university resources for each of the project components during the reporting period and cumulative from loan January of the fiscal year up to the end of the reporting period.
- Percentage of ADB loan disbursement by comparing the cumulative loan disbursement with the total amount of loan allocated to the project.

D. KEY PERFORMANCE INDICATORS (OUTPUT AND OUTCOME) PROGRESS

5. Assess the overall performance of the Project in terms of its achievement of project outputs and project outcome. (details per university are in attachment 1)

6. Assess outputs no. 1 related to market-responsive programs delivered by UNJA, UNRI and UNIMAL compared to the targets:

i. Number of new or unfinished buildings constructed and completed with gender responsive, inclusive, and sustainable infrastructure during the reporting period compared to the targets (Indicator Target : 33 new buildings constructed and 1 partially constructed building completed by 2023 at UNRI, UNJA, and UNIMAL)

ii. Increased understanding on market responsive programs and research (Indicator Target: At least 586 additional teaching, management, research and support staff (of which at least 40% women) of UNJA, UNIMAL and UNRI trained in principles of market responsive programs and research by 2023
iii. Number of upgraded or new curricula included in the curriculum as part of their center of excellence development in Sustainable Natural Resources, Agriculture and Aquatic and Marine Science, especially in collaboration with industry, community and other stakeholders
iv. Increase in the number of upgraded or new curricula by 2023 compared to the target of 40 upgraded or new curricula
v. Increase in new research programs delivered as part of their center of excellence development in Sustainable Natural Resources, Agriculture and Aquatic and Marine Science especially in collaboration with industry, community and other stakeholders compared to the target of 21 new research programs (Indicator Target: at least 21 new research programs connected to Center of Excellence)
vi. Number of additional training or service programs delivered as part of their center of excellence development in Sustainable Natural Resources, Agriculture and Aquatic and Marine Science especially in collaboration with industry, community and other stakeholders (Indicator Target: There will be at least 65 additional training or services programs)
vii. The number of MoUs with industry and other stakeholders signed as part of their center of excellence development in Sustainable Natural Resources, Agriculture and Aquatic and Marine Science especially in collaboration with industry, community and other stakeholders (Indicator Target: There will be at least 21 additional MOUs with Industry and other stakeholders signed by 2023)

7. Assess outputs no. 2 related to Improved Training of TVET Teachers compared to the targets:

i. Number of new buildings constructed in UPI (with gender responsive, inclusive, and sustainable infrastructure) to create Center of Excellence in vocational education teacher training compared to the target (Indicator Target**:** There will be 6 new buildings at UPI by the year 2023).

ii. Number of teaching, management, research and support staff in participating HEIs with increased understanding on designing and delivering accredited vocational teacher education compared to the target (Indicator Target: At least 53 teaching, management, research and support staff, of which 40% are women, complete training programs on designing and delivering accredited vocational teacher education in 2023)
iii. Number of new S1 TVET teacher education programs established compared to the target (Indicator Target: There will be 6 new S1 Training Vocational Educational Teacher or TVET teacher education programs by 2023).
iv. Number of trained SMK teachers through in-service training programs compared to the target (Indicator Target: At least 240 SMK teachers (at least 40% female) complete in-service training programs implemented by PPG by 2023)
v. Number of participants successfully complete certification process to be established by LSP and PUKs prepared and implemented in collaboration with polytechnics, SMK, and

industry (Indicator Target: 300 participants (at least 35% women) certified by established LSP and PUKs in collaboration with polytechnics, SMK, and industry by 2023)

vi. Number of disseminated 2 case studies in TVET Model (Indicator Target: There will be 2 case studies in TVET learning models developed and disseminated)

8. Assess the outcomes of the project in terms of access, relevance, and quality of targeted Universities compared to the targets:

i. Increase in enrollment of students during the reporting period compared to the target;
ii. Cummulative increase in student enrollment compared to the target of 20,000 (with at least 50% of female students by 2025 (baseline for male 45,900 and Female 67.700 students).
iii. Average study duration for S1 programs during the reporting period compared to the target (Indicator Target: average study duration for S1 students decreases to 55 months for male and 52 for female by 2025 (baseline 2017 60 months for male and 56 months for female)
iv. Time required by S1 graduates to obtain their first employment after graduation during the reporting period (Indicator Target: Average share of graduates of targeted universities finding paid employment within 6 months of graduation increased with 5% for male and 5% for female (baseline 2018: 34.7% for male and 35% for female)
v. Status of Accreditation score of the University during the reporting period (Indicator Target: Cumulative accreditation score of the targeted universities increases at university level to 1442 (baseline 2018: 1305), and at program level to 141 programs rated A (baseline 2018: 93 programs rated A) representing 38% of all programs rated as A by 2025 (baseline 2018: 27% rated A).
vi. Number of Programs accreditation rated A during the reporting period (Indicator Target: Cumulative accreditation score of the targeted universities increases at university level to 1442 (baseline 2018: 1305), and at program level to 141 programs rated A (baseline 2018: 93 program rated A) representing 38% of all programs rated as A by 2025 (baseline 2018: 27% rated A).

E. GENDER ACTION PLAN IMPLEMENTATION PROGRESS,

9. Assess the progress of the Executing and Implementing Agencies in implementing the agreed gender action plan during the reporting period compared to the targets.

10. **Assess the Output No 1 related to Market Responsive program delivered by UNJA, UNRI and UNIMAL**

i. Number of new buildings constructed which integrate gender physical design features with a clear maintenance plan.
ii. Number of new buildings constructed which include appropriate measures to provide PWD access to the physical environment.
iii. Amount of budget earmarked for maintenance and for sanitation facilities.
iv. Number of new buildings constructed which integrate gender physical design features with a clear maintenance plan.
v. Number of gender analysis carried out by the universities which has been integrated with the new research programs to support UNJA, UNIMAL and UNRI COE development in sustainable Natural Resources, Agriculture and Aquatic and Marine Science.

11. Assess Output no. 2 related to Improved Training of TVET eachers

i. Number of new buildings constructed which integrate gender physical design features with a clear maintenance plan (By Q4, 2021)
ii. Number of new buildings constructed which include appropriate measures to provide PWD access to the physical environment. (By Q4, 2021)
iii. Amount of budget earmarked for maintenance and for sanitation facilities.
iv. Number of modules developed on gender responsive and inclusive teaching learning, and evaluation methods for TVET teacher education programs[41] (By Q4, 2021)
v. Number of instructors at TVET teacher education programs trained on gender responsive and inclusive teaching, learning and evaluation methods.(By Q4, 2021)
vi. Number of orientation/Matriculation of new students(By Q4, 2022)
vii. Number of new curricula of TVET teacher education programs which is gender responsonive and inclusive.(By Q4, 2022)
viii. Number of female SMK teachers who have access to in-service training programs. (2017 baseline: students in Faculty of Education Technology and Vocational from year 2013 to 2017: 5061 male (30.2%) and 11.680 female (69.8%), overall target 240 SMK teachers by 2023)
ix. Number of female teachers who have access for certification by the established LSP and PUKs in collaboration with polytechnics, SMK, and industry (2017 Baseline: students in Faculty of Education Technology and Vocational from year 2013 to 2017: 5061 male (30.2%) and 11.680 female (69.8%), overall target 300 teachers by 2023)

F. ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION PROGRESS, AND POSSIBLE OTHER SAFEGUARDS

12. Assess the progress of Executing Agency and Implementing Agencies in complying with the SPS, the relevant government's laws and regulations, and international good practices, as stipulated in the IEE and the EMP.

13. Assess compliance of the Contractors in implementing the agreed mitigation plans included in the contractor EMP.

14. Assess how the Contractors, PIU, Environment Complaint Committee and PMU address the complaint and concern of the affected people in the project area regarding the adverse impact of the project on the environment.

15. Report progress on the outcome of quantitative environmental monitoring per EMoP

G. LEGAL/COVENANTS

16. Assess the compliance of the Government to the agreed Loan Covenants included in the Loan Agreement:

[41] The term 'gender responsive or sensitive' refer to among others: responding to the different needs of female and male in education and employment setting, ensuring females and males have equal opportunity e.g. to respond in question and answer sessions or to present in front of the class; content and images of teaching and learning materials or resources promote gender equality and are free of gender bias and stereotypes; career counseling that encourages female and male students to study and work in non-traditional areas/occupations.

- Government's Compliance to financial loan covenants: whether the financial statement of the project has been audited annually by BPKB, and whether the certified copy of the audited financial statement has been submitted to ADB on schedule.
- Government's compliance to each of the project specific loan covenants included in the Loan Agreement:

Attachment 1 Individual KPI targets for Universities

OUTCOME KPI's

Cumulative enrolment increase of 20,000 (at least 50% female) students for all four universities by 2025 (Baseline 2018: Male: 45,900 Female: 67,700)

	2018			2025		
	Male Students	Female Students	Total Students	Male Students	Female Students	Total Students
UNIMAL	6,987	10,278	17,265	8,734	12,848	21,582
UNJA	11,325	14,718	26,043	16,944	19,339	36,283
UNRI	14,147	20,792	34,939	15,200	23,790	38,990
UPI	13,448	21,972	35420	15,448	23,972	39,420
Total	45,907	67,760	113,667	56,326	79,949	136,275

Average study duration for bachelor graduates decreased to 55 months for male graduates and 52 months for female graduates by 2025 (baseline 2018, 60 months for male, 56 months for female)

	2018			2025		
	Male Graduates	Female Graduates	Total Graduates	Male Graduates	Female Graduates	Total Graduates
UNIMAL	61	58	59.5	58	54	56
UNJA	60	50	54	56	46	49
UNRI	65	62	63.5	58	53	54
UPI	58	53	55.5	54	51	53
Total	**60**	**56**		**55**	**52**	

Average share of graduates of targeted universities finding paid employment within 6 months from graduation increased to 37.1% for male and 34.4% (baseline 2018: 32.1% for male and 29.4% for female)

	2018			2025				
	Male Graduates	Female Graduates	Total Graduates	Male Graduates		Female Graduates		Total Graduates
				target	+	Target	+	
UNIMAL	15.0%	13.5%	14.2%	20.0%	5%	18.7%	5%	17.5%
UNJA	34.7%	35.0%	34.9%	39.7%	5%	40.0%	5%	40.0%
UNRI	54.9%	45.1%	50.0%	60.0%	5%	50.0%	5%	55.0%
UPI	23.9%	24.0%	24.0%	29.9%	6%	30.0%	6%	30.0%
Average	**32.1%**	**29.4%**	**30.8%**	**37.4%**	**5.25%**	**34.7%**	**5.25%**	**35.6%**

Cumulative accreditation score of the targeted universities increases at university level to 1442 (baseline 2018: 1305)).

Cumulative accreditation score of the targeted universities increased at program level to 141 programs rated A (baseline 2018: 93 rated A) representing 38% of all programs rated as A by 2024 (baseline 2018: 27% rated A).

	2018			2025		
	University rating (last rating year)	Number of programs A	% of programs A	University rating	Number of programs A	% of programs A
UNIMAL	303 (2016)	0	0.0%	345	9	38.0%
UNJA	322 (2015)	4	5.0%	352	18	21.0%
UNRI	308 (2014)	17	20.9%	365	29	37.0%
UPI	372 (2016)	72	49.6%	380	90	63.0%
Total/Average	**1305**	**93**	**26.0%**		**146**	**38.0%**

Output Targets specified per university for Output 1

UNIMAL, UNJA and UNRI upgraded through completing construction and equipping 33 new buildings, and finishing and equipping 1 unfinished building (including gender responsive, inclusive, sustainable, and academically conducive infrastructure) by 2023 (2017 baseline: 0)

	2017	2023
	Buildings	Buildings
UNIMAL	0	14 new 1 unfinished
UNJA	0	9
UNRI	0	10
Total	0	33 new and 1 unfinished

At least 586 additional teaching, management, research and support staff (of which 40% women) of UNJA, UNIMAL and UNRI, with increased understanding on market responsive programs and research by 2023 (2017 baseline: 0).

	2018			2023		
	Male staff	Female staff	Total	Male staff	Female staff	Total
UNIMAL				90	60	150
UNJA				82	120	202
UNRI				180	54	234
Total	-	-	-	352	234	586

UNIMAL, UNJA and UNRI, COEs deliver at least 40 upgraded or new curricula by 2023.
UNIMAL, UNJA and UNRI launch at least 21 new research programs connected to the COE by 2023. (2018 baseline:0)
UNIMAL, UNJA and UNRI conduct at least 65 additional training or service programs connected to the COE by 2023
UNIMAL, UNJA and UNRI sign at least 21 additional MOUs with industry and other stakeholders, by 2023.

	2018				2023			
	Curricula	Research	Service programs	MOU	Curricula	Research	Service programs	MOU
UNIMAL					10	5	20	8
UNJA					12	8	20	8
UNRI					18	8	25	5
Average	**-**	**-**	**-**	**-**	**40**	**21**	**65**	**21**

Output 2 for UPI

UPI upgraded by completing construction and equipping six new buildings (including gender responsive, inclusive, and sustainable infrastructure) to become COE in TVET teacher education by 2023

	2017	2023
	Buildings	Buildings
UPI	0	6

At least 53 teaching, management, research and support staff (of which at least 40% women) with increased understanding on designing and delivering accredited TVET teacher education programs by 2023.

	2018			2023		
	Male staff	Female staff	Total	Male staff	Female staff	Total
UPI				37	16	53

UPI has established 6 new bachelor TVET teacher education programs by 2023.

	2017	2023
	New programs	New programs
UPI	0	6

UPI has trained at least 240 SMK-teachers (of which at least 40% women) in-service training programs, in collaboration with MOEC, polytechnics, SMKs and industry by 2023.

	2018			2023		
	Male teachers	Female teachers	Total	Male teachers	Female teachers	Total
UPI	0	0	0	144	96	240

UPI has, certified at least 300 participants (of which at least 35% women) by the established LSP and PUK by 2023.

	2018			2023		
	Male participants	Female participants	Total	Male participants	Female participants	Total
UPI	0	0	0	37	16	300

UPI has disseminated at least two case studies of UPI model for TVET teacher education and training model by 2023.

	2017	2023
	Models	Models
UPI	0	2

Attachment 2 Tracer Study

1. Tracer study is required for all universities by MORTHE to measure quality and relevance of education in terms of learning outcome, educational experience and study-to-work transition. The information collected and the analysis is intended to provide feedback to the education system, the program structure as well as the curriculum and teaching and learning process improvements. MORTHE is promoting implementation of tracer study systematically every year, among others, by means of competitive grant funding to support university to conduct tracer study.

2. In order to collect valid and accurate data on graduate labor market performance nationally to allow comparability and analysis at the national level, the Directorate General of Learning and Student Affairs of MORTHE issued a circular (*SE Dirjen Belmawa No. 313/B/SE/2016*) to provide guidance and standard for all higher education institutions to follow in their tracer studies. First of all, tracer study is to be conducted at university level by the career development center of the university, so as to ensure standardized design, methodology, and questionnaire across faculties/departments/study programs within the university. This would allow data compilation and data comparison across faculties/departments/study programs within the universities at national level.

3. Tracer study conducted by the universities as described above will have to refer to the standardized designed and methodology developed and issued by the Directorate General of Learning and Student Affairs, as follows:

a. Tracer study must target population of graduates and not sample drawn from them. The target population of a tracer study in a particular year are all the graduates constituting cohort of those graduating two years before. Tracer study 2018 will target all members of cohort of graduates in 2016.
b. Tracer study conducted by universities must cover at least all core questionnaire in the ***Online Tracer Study*** developed by DG of Learning and Student Affairs. Universities are allowed to add question to serve their specific need and objective of tracer study, however they are not allowed to reduce or alter the core questionnaire. This is to ensure instrument standard to allow compilation and comparability at national level at the analytical stage.
c. Universities awarded career development center grants and advanced career development center are required to upload the result of their Tracer Study to the provided site http://pkts.belmawa.ristekdikti.go.id by the date provided in the grant contract.
d. Universities not receiving grants but conduct tracer study in accordance with the standard provided also are expected to upload their result onto the same website. This is important to enrich and strengthen the national level data on study-to-work transitions to contribute towards policy development to improve quality and relevance of higher education.
e. Universities are expected to conduct tracer study regularly every year in order to fulfill data requirement for accreditation and for socialization purposes and to feed into development of curriculum and teaching and learning improvements.
f. Without neither intention to apply uniformity nor to undermine university autonomy, an accurate data compilation at the national level is badly needed to develop national higher education policy.

4. Discussion with the four AKSI target universities reveal that most of them have conducted tracer studies at various degree of depth and sophistication. University of Jambi has conducted a very limited survey, sending questionnaire to a number of graduates resulting in limited response followed-up by limited and less systematic analytical work to inform the university about their graduates' performance. UPI at the other end of the spectrum has done routinely tracer study, utilizing the system developed by ITB, but still of limited scope. Instead of doing it for the population of graduates, UPI apply the method to a set of sample graduates.

5. Two prominent implementations of MORTHE's ***Online Tracer Study*** by the Bandung Institute of Technology (ITB) and by the University of Indonesia (UI) are being considered. The two have demonstrated successful implementation of tracer study with various enrichment questionnaires. ITB conducts tracer study one to three years after graduation. More than 90% of graduates filled out tracer study questionnaire which is designed to easy to access, even using smartphone. A report from recent tracer study conducted by UI resulted in between more than 70% return. Key to successful implementation of ITB and UI approaches is the development of sense of community among graduates of the same batch, and militant contacting performed by the Tracer Study Team. ITB has disseminated the software it developed and provide technical supports to university using the system. Among the four target universities, UPI is one that already adopted ITB system to conduct tracer study.