



REQUEST FOR PROPOSAL (RFP)

NAME & ADDRESS OF FIRM	DATE: August 21, 2019
	REFERENCE: RFP/UNDP/KALFOR/75564/018/2019 - <i>System Development of Dynamic Tools and Knowledge Media for Regional Forest Management at APL</i>

Dear Sir / Madam:

The United Nations Development Programme (UNDP) hereby invites you to submit a Proposal to this Request for Proposal with reference RFP/UNDP/KALFOR/75564/018/2019 - *System Development of Dynamic Tools and Knowledge Media for Regional Forest Management at APL*.

A bidder's conference will be held on:

Date/Time : Monday, 26th August 2019 starting 0930 hours (GMT+7 - Jakarta Local Time)

Place : Aceh Meeting room, 7th Floor Menara Thamrin Building, Jl. MH. Thamrin Kav. 3 Jakarta 10250

Detailed Terms of Reference (TOR) as well as other requirements are listed in the RFP available on UNDP ATLAS e-Tendering system (<https://etendering.partneragencies.org>) **Event ID: 4257**

Your offer, comprising of a Technical and Financial Proposal, should be submitted in accordance with the RFP requirements, through the UNDP ATLAS e-Tendering system and by the deadline indicated in <https://etendering.partneragencies.org>.

NOTE! The Technical Proposal and Financial Proposal files MUST BE COMPLETELY SEPARATE and uploaded separately in the system and clearly named as either "TECHNICAL PROPOSAL" or "FINANCIAL PROPOSAL", as appropriate. Each document shall include the Proposer's name and address.

The file with the "FINANCIAL PROPOSAL" must be encrypted with a password so that it cannot be opened nor viewed until the Technical Proposal has been found to be pass the technical evaluation stage. Once a Technical Proposal has been found to be responsive by passing the technical evaluation stage, UNDP shall request the Proposer to submit the password to open the Financial Proposal.

The Proposer shall assume the responsibility for not encrypting the Financial Proposal. **NOTE: DO NOT ENTER BID AMOUNT IN THE SYSTEM, INSTEAD ENTER THE NUMBER 1.**

In the course of preparing and submitting your Proposal, it shall remain your responsibility to ensure that it is submitted into the system by the deadline. The system will automatically block and not accept any bid after the deadline. In case of any discrepancies, the deadline indicated in the system shall prevail.

Kindly ensure that supporting documents required are signed and stamped and in the .pdf format, and free from any virus or corrupted files and the **FINANCIAL PROPOSAL IS PASSWORD PROTECTED.**

NOTE: The file name should contain only Latin characters (No Cyrillic or other alphabets.).

You are kindly requested to indicate whether your company intends to submit a Proposal by clicking **"Accept Invitation"** but not later than **26 August 2019**. If this is not the case, UNDP would appreciate indicating your reason, for our records.

If you have not registered in the system before, you can register by logging in using:

Username: event.guest

Password: why2change

The step by step instructions for registration of bidders and quotation submission through the UNDP ATLAS e-Tendering system is available in the attached "Instructions Manual for the Bidders". Should you require any training on the UNDP ATLAS e-Tendering system or face any difficulties when registering your company or submitting your quotation, please send an email to agneta.silvia@undp.org and yusef.millah@undp.org.

Please note that ATLAS has following minimum requirements for password:

1. Minimum length of 8 characters;
2. At least one capital letter; and
3. At least one number.

New proposer registering for the first time, the system will not accept any password that does not meet the above requirement, and thus registration cannot be completed.

For existing vendor whose current password does not meet the abovementioned password requirements, the system will prompt you to change your password upon signing in. Please change your password in accordance with the abovementioned password requirements to be able to login to the system.

The user guide and video are available to you in the UNDP public website in this link: <http://www.undp.org/content/undp/en/home/operations/procurement/business/procurement:notices/resources/>. You can also access the instruction from youtube with link: <https://www.youtube.com/watch?v=Trv1FX6reu8&feature=youtu.be>.

You are advised to use Internet Explorer (Version 10 or above) to avoid any incompatibility issues with the re-tendering system.

No hard copy or email submissions will be accepted by UNDP.

UNDP looks forward to receiving your Proposal and appreciate your interest to participate in UNDP procurement opportunities.

Sincerely yours,



Martin Stephanus Kurnia
Head of Procurement Unit
8/21/2019

Description of Requirements

Context of the Requirement	To deliver a system(s) to monitor forest area released spatially, to manage knowledge and data/information resulted by the projects at national and sub-national levels, and to provide analysis tools and/or interactive-simulation modelling system to ease different users to learnt, monitor, and evaluate the project activities and outputs		
Implementing Partner of UNDP	Ministry of Environment and Forestry		
Brief Description of the Required Services ¹	Please see annex 3 – Term of Reference		
List and Description of Expected Outputs to be Delivered	Please see annex 3 – Term of Reference		
Person to Supervise the Work/Performance of the Service Provider	KLHK team, Project Management Unit and UNDP Country Office		
Frequency of Reporting	Please see annex 3 – Term of Reference		
Progress Reporting Requirements	Please see annex 3 – Term of Reference		
Location of work	<input checked="" type="checkbox"/> At Contractor's Location, if required, for technical works specifically indicated in the proposal		
Expected duration of work	6 (six) months		
Target start date	October 2019		
Latest completion date	March 2020		
Travels Expected	Shall be agreed upon starting, UNDP shall be responsible of any travel out of the agreed duty station.		
	Destination/s	Estimated Duration	Target Date/s
	Samarinda and Sangatta in Kalimantan Timur	2 times	At the initial and final stage
	Pontianak, Sintang and Ketapang in Kalimantan Barat	2 times	
	Palangkaraya and Pangkalan Bun in Kalimantan Tengah	2 times	
	Jakarta	2 times	
	Bogor	2 times	

¹ A detailed TOR may be attached if the information listed in this Annex is not sufficient to fully describe the nature of the work and other details of the requirements.

	Yogyakarta	2 times										
Special Security Requirements	<input checked="" type="checkbox"/> Security Clearance from UN prior to travelling											
Facilities to be Provided by UNDP (i.e., must be excluded from Price Proposal)	N/A											
Implementation Schedule indicating breakdown and timing of activities/sub-activities	<input checked="" type="checkbox"/> Required											
Names and curriculum vitae of individuals who will be involved in completing the services	<input checked="" type="checkbox"/> Required											
Currency of Proposal	<input checked="" type="checkbox"/> United States Dollars <input checked="" type="checkbox"/> Local Currency for Local Bidders											
Value Added Tax on Price Proposal ²	<input checked="" type="checkbox"/> must be exclusive of VAT and other applicable indirect taxes											
Validity Period of Proposals (Counting for the last day of submission of quotes)	<input checked="" type="checkbox"/> 90 days In exceptional circumstances, UNDP may request the Proposer to extend the validity of the Proposal beyond what has been initially indicated in this RFP. The Proposal shall then confirm the extension in writing, without any modification whatsoever on the Proposal.											
Partial Quotes	<input checked="" type="checkbox"/> Not permitted											
Payment Terms ³	<table border="1"> <thead> <tr> <th>No</th> <th>Deliverables</th> <th>Time line</th> <th>Instalment</th> </tr> </thead> <tbody> <tr> <td>1</td> <td> Detailed workplan and preliminary work to include at least: a. List of existing PKTL's system and description </td> <td>30 October 2019</td> <td>10 %</td> </tr> </tbody> </table>				No	Deliverables	Time line	Instalment	1	Detailed workplan and preliminary work to include at least: a. List of existing PKTL's system and description	30 October 2019	10 %
No	Deliverables	Time line	Instalment									
1	Detailed workplan and preliminary work to include at least: a. List of existing PKTL's system and description	30 October 2019	10 %									

² VAT exemption status varies from one country to another. Pls. check whatever is applicable to the UNDP CO/BU requiring the service.

³ UNDP preference is not to pay any amount in advance upon signing of contract. If the Service Provider strictly requires payment in advance, it will be limited only up to 20% of the total price quoted. For any higher percentage, or any amount advanced exceeding \$30,000, UNDP shall require the Service Provider to submit a bank guarantee or bank cheque payable to UNDP, in the same amount as the payment advanced by UNDP to the Service Provider.

		<ul style="list-style-type: none"> b. Work plan to improve the system development; c. Invoice and work plan for supplying hardware and software improvement (Add TV monitor, add firewall software, add external Hardisk) for Simple-K d. Analytical report for the development KALFOR portal and tools (hereafter KMST-DM Tools) 			
	2	<p>Progress report of the implementation of the above mentioned tasks to include at least:</p> <ul style="list-style-type: none"> a. Assessment report of current PKTL's systems b. Newly interface of Simple-K and manuals c. Well run of interface of the Kalfor portal and system tools (KMST-DM Tools) following the requirements of Task A. Development of Interactive Graphical User Interface (GUI) of the KALFOR KMST-DM system 	29 November 2019	15 %	
	3	<p>Progress report of the implementation of the above mentioned tasks to include at least :</p> <ul style="list-style-type: none"> a. Developed Indicators of PKTL's good systems b. Newly developed spatial system of Simple-K c. Well run of the KMST-DM system to include prototype of dynamic system for managing project information to interact with end-users as required by the results of point B2 above 	30 December 2019	15 %	

		d. Prototype of android-based system for field survey and notification			
	4	<p>Progress report of the implementation of the above mentioned tasks to include at least :</p> <ul style="list-style-type: none"> a. Guidance for evaluation of PKTL's system b. On-line user-based entry data with provide file attached firewall system c. Well run of the KMST-DM system to include prototype of user friendly reporting system to ease users in producing reports using a designed template as described in point B5 and upload/access system for related project documents that are provided by the KALFOR activities (e.g., technical guidance, government policy, regulations, and videos or animated media) grouped into specific themes as an integral parts of interactive online-library of KMST-DM. 	30 January 2020	15 %	
	5	<p>Progress report of the implementation of the above mentioned tasks to include at least :</p> <ul style="list-style-type: none"> a. automated Tools for evaluation of PKTL's system b. User Testing of Simple-K for 4 pilot projects c. Well run of the KMST-DM system to include prototype of interactive system for capacity buildings and its 	30 February 2020	15 %	

		<p>measurement to the achievements of participants as required by point B4, and reporting systems for individual and overall capacity building activities. The tools include registration (user authentication & validation), educational materials (video, animated flash media, module, assignment, testing packages and results. The system will be completed with samples of flash media, video dedicated for three targeted tailored user's trainings</p> <p>d. Well run of the KMST-DM system to include prototype of data analysis, simulation, and visualization (point B3) for baseline data and information of the project sites to monitor the achievements at a specific time</p>			
	6	<p>Final report (narration-in a form of compendium) and well operated developed application system to include</p> <p>a. Comprehensive Report Assessment of PKTL's Information System</p> <p>b. Final report of Simple-K testing and verification</p> <p>c. Well run of the KMST-DM system to include fully operational of the 1) Interactive GUI for media and publications, 2) managing project information, 3) data analysis, simulation, and visualization of collected database, 4) Interactive system for capacity buildings completed with samples of modules, flash media, and video dedicated for three</p>	30 March 2020	30 %	

	<p>targeted tailored user's trainings 5) user friendly reporting system for report production, 6) interactive e-library grouped by themes for managing available documents</p> <p>d. Readily available of android-based system for field survey and notification</p> <p>e. Manuals related to knowledge transfers of the developed systems</p> <p>f. Project reports and three trainings materials</p>			
Person(s) to review/inspect/ approve outputs/completed services and authorize the disbursement of payment	KLHK team, Project Management Unit and UNDP Country Office			
Type of Contract to be Signed	<input checked="" type="checkbox"/> professional service contract			
Criteria for Contract Award	<input type="checkbox"/> Lowest Price Quote among technically responsive offers <input checked="" type="checkbox"/> Highest Combined Score (based on the 70% technical offer and 30% price weight distribution) <input checked="" type="checkbox"/> Full acceptance of the UNDP Contract General Terms and Conditions (GTC). This is a mandatory criterion and cannot be deleted regardless of the nature of services required. Non-acceptance of the GTC may be grounds for the rejection of the Proposal.			
Criteria for the Assessment of Proposal	<p><u>Technical Proposal (70%)</u></p> <p><input checked="" type="checkbox"/> Expertise of the Firm 20%</p> <p><input checked="" type="checkbox"/> Methodology, Its Appropriateness to the Condition and Timeliness of the Implementation Plan 50%</p> <p><input checked="" type="checkbox"/> Management Structure and Qualification of Key Personnel 30%</p> <p><i>NOTE: only bidder(s) who received minimum of 70 points where the financial proposal will be opened</i></p> <p><u>Financial Proposal (30%)</u></p> <p>To be computed as a ratio of the Proposal's offer to the lowest price among the proposals received by UNDP.</p>			
UNDP will award the contract to:	<input checked="" type="checkbox"/> One and only one Service Provider			

	<input type="checkbox"/> One or more Service Providers, depending on the following factors: <i>[Clarify fully how and why will this be achieved. Please do not choose this option without indicating the parameters for awarding to multiple Service Providers]</i>
Contract General Terms and Conditions ⁴	<input checked="" type="checkbox"/> General Terms and Conditions for contracts (goods and/or services) <input type="checkbox"/> General Terms and Conditions for de minimis contracts (services only, less than \$50,000) Applicable Terms and Conditions are available at: http://www.undp.org/content/undp/en/home/procurement/business/how-we-buy.html
Annexes to this RFP ⁵	<input checked="" type="checkbox"/> Form for Submission of Proposal (Annex 2) <input checked="" type="checkbox"/> Detailed TOR <i>[optional if this form has been accomplished comprehensively]</i> <input type="checkbox"/> Others ⁶ <i>[pls. specify]</i>
Contact Person for Inquiries (Written inquiries only) ⁷	Agneta Silvia and Yusef Saiful Millah Procurement Unit agneta.silvia@undp.org and yusef.millah@undp.org Any delay in UNDP's response shall be not used as a reason for extending the deadline for submission, unless UNDP determines that such an extension is necessary and communicates a new deadline to the Proposers.
Other Information <i>[pls. specify]</i>	

⁴ Service Providers are alerted that non-acceptance of the terms of the General Terms and Conditions (GTC) may be grounds for disqualification from this procurement process.

⁵ Where the information is available in the web, a URL for the information may simply be provided.

⁶ A more detailed Terms of Reference in addition to the contents of this RFP may be attached hereto.

⁷ This contact person and address is officially designated by UNDP. If inquiries are sent to other person/s or address/es, even if they are UNDP staff, UNDP shall have no obligation to respond nor can UNDP confirm that the query was received.

FORM FOR SUBMITTING SERVICE PROVIDER'S PROPOSAL⁸

(This Form must be submitted only using the Service Provider's Official Letterhead/Stationery⁹)

[insert: Location].

[insert: Date]

To: [insert: Name and Address of UNDP focal point]

Dear Sir/Madam:

We, the undersigned, hereby offer to render the following services to UNDP in conformity with the requirements defined in the RFP dated [specify date] , and all of its attachments, as well as the provisions of the UNDP General Contract Terms and Conditions :

A. Qualifications of the Service Provider

The Service Provider must describe and explain how and why they are the best entity that can deliver the requirements of UNDP by indicating the following :

- a) *Profile – describing the nature of business, field of expertise, licenses, certifications, accreditations;*
- b) *Business Licenses – Registration Papers, Tax Payment Certification, etc.*
- c) *Latest Audited Financial Statement – income statement and balance sheet to indicate its financial stability, liquidity, credit standing, and market reputation, etc. ;*
- d) *Track Record – list of clients for similar services as those required by UNDP, indicating description of contract scope, contract duration, contract value, contract references;*
- e) *Certificates and Accreditation – including Quality Certificates, Patent Registrations, Environmental Sustainability Certificates, etc.*
- f) *Written Self-Declaration that the company is not in the UN Security Council 1267/1989 List, UN Procurement Division List or Other UN Ineligibility List.*

B. Proposed Methodology for the Completion of Services

The Service Provider must describe how it will address/deliver the demands of the RFP; providing a detailed description of the essential performance characteristics, reporting conditions and quality assurance mechanisms that will be put in place, while demonstrating that the proposed methodology will be appropriate to the local conditions and context of the work.

⁸ This serves as a guide to the Service Provider in preparing the Proposal.

⁹ Official Letterhead/Stationery must indicate contact details – addresses, email, phone and fax numbers – for verification purposes

C. Qualifications of Key Personnel

If required by the RFP, the Service Provider must provide :

- a) Names and qualifications of the key personnel that will perform the services indicating who is Team Leader, who are supporting, etc.;*
- b) CVs demonstrating qualifications must be submitted if required by the RFP; and*
- c) Written confirmation from each personnel that they are available for the entire duration of the contract.*

D. Cost Breakdown per Deliverable*

	Deliverables	Percentage of Total Price (Weight for payment)	Price (Lump Sum, All Inclusive – IDR/USD)
1	Detailed workplan and preliminary work to include at least: <ul style="list-style-type: none"> a. List of existing PKTL's system and description b. Work plan to improve the system development; c. Invoice and work plan for supplying hardware and software improvement (Add TV monitor, add firewall software, add external Hardisk) for Simple-K d. Analytical report for the development KALFOR portal and tools (hereafter KMST-DM Tools) 	10 %	
2	Progress report of the implementation of the above mentioned tasks to include at least: <ul style="list-style-type: none"> a. Assessment report of current PKTL's systems b. Newly interface of Simple-K and manuals b. Well run of interface of the Kalfor portal and system tools (KMST-DM Tools) following the requirements of Task A. Development of Interactive Graphical User Interface (GUI) of the KALFOR KMST-DM system 	15 %	
3	Progress report of the implementation of the above mentioned tasks to include at least : <ul style="list-style-type: none"> a. Developed Indicators of PKTL's good systems b. Newly developed spatial system of Simple-K 	15 %	

	<ul style="list-style-type: none"> c. Well run of the KMST-DM system to include prototype of dynamic system for managing project information to interact with end-users as required by the results of point B2 above b. Prototype of android-based system for field survey and notification 		
	<p>Progress report of the implementation of the above mentioned tasks to include at least :</p> <ul style="list-style-type: none"> a. Guidance for evaluation of PKTL's system b. On-line user-based entry data with provide file attached firewall system c. Well run of the KMST-DM system to include prototype of user friendly reporting system to ease users in producing reports using a designed template as described in point B5 and upload/access system for related project documents that are provided by the KALFOR activities (e.g., technical guidance, government policy, regulations, and videos or animated media) grouped into specific themes as an integral parts of interactive online-library of KMST-DM. 	15 %	
	<p>Progress report of the implementation of the above mentioned tasks to include at least :</p> <ul style="list-style-type: none"> a. automated Tools for evaluation of PKTL's system b. User Testing of Simple-K for 4 pilot projects c. Well run of the KMST-DM system to include prototype of interactive system for capacity buildings and its measurement to the achievements of participants as required by point B4, and reporting systems for individual and overall capacity building activities. The tools include registration (user authentication & validation), educational materials (video, animated flash media, module, assignment, testing packages and results. The system will be completed with samples of flash media, video dedicated for three targeted tailored user's trainings d. Well run of the KMST-DM system to include prototype of data analysis, simulation, and visualization (point B3) for baseline data and information of the project sites to monitor the achievements at a specific time 	15 %	

	Final report (narration-in a form of compendium) and well operated developed application system to include <ul style="list-style-type: none"> a. Comprehensive Report Assessment of PKTL's Information System b. Final report of Simple-K testing and verification c. Well run of the KMST-DM system to include fully operational of the 1) Interactive GUI for media and publications, 2) managing project information, 3) data analysis, simulation, and visualization of collected database, 4) Interactive system for capacity buildings completed with samples of modules, flash media, and video dedicated for three targeted tailored user's trainings 5) user friendly reporting system for report production, 6) interactive e-library grouped by themes for managing available documents d. Readily available of android-based system for field survey and notification e. Manuals related to knowledge transfers of the developed systems f. Project reports and three trainings materials 	30 %	
	Total	100%	

**This shall be the basis of the payment tranches*

E. Cost Breakdown by Cost Component [This is only an Example]:

Description of Activity	Remuneration per Unit of Time	Total Period of Engagement	No. of Personnel	Total Rate
I. Personnel Services				
a. Knowledge Management and Modelling Simulation Expert			1	
b. Software Engineering and Information System Developer			1	
c. System Analyst and web design database specialist			1	
d. System Content Analyst and web design programmer			1	
e. Interactive Communication and GIS Platform Specialist			1	
f. Model Simulation developer and multimedia specialist			1	
g. Web-based and/or WebGIS Programmer			7	
h. Mobile Android Platform			2	

Developers				
i. Data Collectors and Analyst			2	
j. Admin Staff			1	
k. Project Assistant			1	
l. Etc. (if any)				
II. Out of Pocket Expenses				
1. Travel Costs				
2. Daily Allowance				
3. Communications				
4. Reproduction				
5. Equipment Lease				
6. Others (if any please specify in detail)				
III. Other Related Costs (if any, please specify in detail)				

*[Name and Signature of the Service Provider's
Authorized Person]*
[Designation]
[Date]

Terms of Reference

“Strengthening Forest Area Planning and Management in Kalimantan” (KALFOR) Project

for

System Development of Dynamic Tools and Knowledge Media for Regional Forest Management at APL

I. BACKGROUND INFORMATION

The Government of Indonesia and the UNDP collaborate to run a project entitled “Strengthening Forest Area Planning and Management in Kalimantan”. The development challenge targeted by the project involves the need for Indonesia to define, plan for and create a better balance between the development and management of major estate crops such as rubber, coffee, and oil palm, and the need for improved forest protection. The project is designed to develop and implement various approaches to enhance protection of forested areas in non-national state owned forest land (APL), as well as lands within the convertible forest (HPK) category, both of which are subject to potential conversion (administratively and/or physically) to estate crops and other land uses. The project thus focuses on creating more effective land allocations and management of forest areas with high biodiversity and ecosystem services in the context of potential estate crop development in Kalimantan and particularly in the Heart of Borneo (HoB) area. Competing priorities between the country’s targeted increase in palm oil production and associated growth and employment targets for the sector need to be reconciled with commitments at both national and international levels to reducing rates of deforestation, forest fires and associated GHG emissions and biodiversity loss. The project intervention will be focused on three pilot provinces: West Kalimantan, Central Kalimantan and East Kalimantan. The project team has identified that there are over 2.36 million ha of currently forested land within APL and HPK in the three provinces. It estimates that up to 70% of such lands are found within the biologically critical Heart of Borneo area and that 15-20% of these areas are found on ecologically fragile and fire-prone peat soils. These forested areas—sometimes fragmented and partially degraded, yet also in many cases playing important roles related to biodiversity conservation, ecological connectivity, carbon sequestration and other ecosystem services—constitute the project’s broad ‘zone of conservation interest’. Currently, data and information regarding the above-defined land areas are both limited in scope, e.g. with respect to the location of high conservation value (HCV) forest or of peat soils, and rarely assessed in a holistic manner with respect to the role of particular geographic areas in maintaining landscape-level connectivity and resilience at various levels. Instead, broader social welfare is diminished as both public and private decision-making leads to loss of forest cover of critical areas and, collectively, to increased fragmentation and lowered resilience.

Combating the above trends is best achieved through the participatory development and implementation of strategies, plans and mechanisms at multiple ecological and jurisdictional scales, designed based on enhanced information, rigorously tested, disseminated and adapted for replication and uptake. The project will support this process through an integrated package of co-operation including estate crop dialogue platforms, forest safeguarding plans, identification of priority areas for protection from estate crop agriculture (no go areas), enhanced mapping and demonstration of approaches—including regulatory and incentive-based ones—to delivering change in line with such plans.

Therefore, the project aims to strengthen the capacity of the Ministry of Environment and Forestry (MoEF) and other key government institutions such as the National Planning Authority (Bappenas), the National

Land Board (BPN) and Province/district governments as well as relevant sub-national government institutions to protect areas with retained forest cover from conversion to other landuses including estate crops. The project is structured into four components, with each component comprising a complementary suite of two to three outputs:

- i) Component 1: Mainstreaming of forest ecosystem service and biodiversity considerations into national, provincial, and district policies and decision-making processes for forest area planning and management;
- ii) Component 2: Strengthened and expanded implementation of best practices in the estate crops sector in maintaining biodiversity and ecosystem services in four target landscapes in Kalimantan;
- iii) Component 3: Creation of incentives system to safeguard forests, including biodiversity and ecosystem services, from estate crop sector;
- iv) Component 4: Knowledge management and M&E.

Concrete practices designed to consider and take account of biodiversity and ecosystem services will be mainstreamed into policies and practices for forest area planning and management and into land allocation decision-making for strategic plantations/commodities siting. These practices will be instituted via an improved forest classification system, land-use planning processes and a strengthened mandate and capacity of the forestry sector to ensure a shift from biodiversity-destructive plantations/commodities siting to optimal siting with much improved management practices. In term of forest area planning, improvement in handling forest area released for plantation is one of the project focus. It is identified by using satellite data that there are hectares of forest area released are not utilized according permitted commodities. Even some of them are not utilized yet although the proposers have received license. Current monitoring system is not effective and less transparent due to wide area covered. It is hard to see geographical location of each concession. Consider to the wide area of forest area released, application of database system technology is a must to monitor status of forest area released. Through improvement of systemic and institutional capacity, as well as landscape-level demonstrations, the project will significantly reduce conversion threats from plantations/ commodities in an area covering at least 418,419 ha, with flow on effects in terms of better land siting selection for agriculture development across 2.36 million hectares in the provinces of East, West and Central Kalimantan. This will result in enhanced safeguarding of critical ecosystem areas and protection of biodiversity on a globally significant scale.

There is a clear need for practical, scientifically robust and cost- effective methodologies that can monitor forest status / condition for ensuring the achievement of the objective of sustainable forest resource management. Among aspects to be monitored are forest cover condition, law obedience and environment law enforcement and the usage of government fund. Forest condition monitoring is intended to evaluate impact of forest land management. It includes land cover change, land degradation and its impact to community. Monitoring of law enforcement and law obedience are to ensure that regulations to protect environment and local community are obeyed and enforced, while budget/fund monitoring is to ensure that land base income are collected and budgeted fund are properly utilized.

Monitoring forest management on the field will face many constraints, among the constraints is size of area to be monitored, various permits and various activities in forest area. Monitoring forest management involve forest inventory aspects. They are used to decide location of forest to be managed, forest resources condition, monitoring permit license for forest and land utilization including ensuring that the license is in accordance with spatial planning and suitable for local environment condition, Data on forest and land change are indicator to know effective of ineffective of policy and regulations implementation on the field.

Within the framework of the implementation of the project's components (point i-iv above), it is planned to develop, increased and implement an automatic system of forest area released monitoring spatially that can be accessed by public for KALFOR project area. Advancements of simulation modeling tools for estimating, predicting, and/or analyzing environmental and socio-economic data and information automatically are planned to include in assisting the project to foster the achievement of the project deliverables. Such modeling tools will also enable the project to monitor and evaluate the project activities effectively and efficiently. The proposed use of simulation models, in particular dynamic models which allows users to predict outputs based on a set of inputs, is intended with regards to the needs of a systematic system that can be used upon the project is ended. The development of simulation models for the project will require a design of mathematical and/or statistical models to embrace solutions for simulating the subjects such as measuring the achievements of capacity building, integrated survey system for data collection, analyzing collected data for monitoring and evaluation, systematic guidance for informing policy, regulation, and technical manuals, and automated reporting system for project activities in the pilot sites. Media sharing mechanism for communication of the project activities and deliverables should also be embedded to anticipate numerous lessons learnt resulted by the project activities. The media sharing is designed as e-library system for the project publication that allow users to easily access the lesson learnt based on inputting key words or questions. This system will offer the project benefits to wide beneficiaries as learning media for enhancement of policy, knowledge, attitude and practices. Spatial analysis and/or geographic visualization is also anticipated to be part of the proposed development system. Hence, the overall proposed tools above should be connected and encapsulated into a systematic portal and/or an integrated "Knowledge Management Simulation Tools and Dynamic Media" that allow for effective and efficient monitoring and evaluation system of the KALFOR project activities, targets, and beneficiaries.

Understanding the required contribution of the integrated system tools to support the KALFOR project targets (point i-iv above), UNDP in coordination with PKTL of KLHK is looking for a highly qualified institutions to answer the Project's needs by developing the Knowledge Management and Simulation Tools (KMST) to embrace the advancements of information technology and computational modeling for simulation in order to provide or improve the application system at the PKTL's office. The hired institution will carry out its activities under the overall supervision of the project manager, in close cooperation with the technical adviser, and the direct supervision of the project field coordinator in pilot areas.

II. SCOPE OF SERVICES, EXPECTED OUTPUTS AND TARGET COMPLETION

The overall objective of this consultancy is to deliver a system(s) to monitor forest area released spatially, to manage knowledge and data/information resulted by the projects at national and sub-national levels, and to provide analysis tools and/or interactive-simulation modelling system to ease different users to

learnt, monitor, and evaluate the project activities and outputs. It is expected that result of the consultancy will be useful to foster the project deliverables and insight knowledge and practices to better inform policy decisions, investment, MONEV, and other practicable decisions. For this purpose, the selected institution is required to collaborate and engage with all members of the consultancy team and Project Management Unit (PMU) to ensure that necessary outputs feed into and are informed by one another.

The selected agencies will conduct activities to do tasks to include at least but not limited, to:

Task 1.: Assessment of PKTL's Information System

The assessment is intended to have information on how far the available systems at the PKTL's office fulfil as it was expected. The assessment will be conducted on its hardware, software, data integrity, human resources, management and maintenance. The assessment will cover the following aspects:

- a. Review of current existing open source systems within PKTL with detail appears in ANNEX 1
- b. Need assessment for improving the identified system resulted from point a above, and
- c. Based on the point a. and b. above, a Road Map / master plan of establishing good quality of PKTL's Information System is developed.
- d. Develop computational modeling system for simulating the quality levels of the PKTL's information system (i.e., grading system of the PKTL information system) or in other words translation of the point c into dynamic models to evaluate an existing information system and to provide options for strengthening and/or maintaining good quality of an information system
- e. Develop modeling technology and/or simulation system for translating point d into user friendly system that can measure the quality of an information system interactively

The company/institution will coordinate with Forest Management Content Specialist and Forest Institutional management and System Specialist appointed by the Project to ensure that the assessment process in lieu with the requirement from the Ministry of Environment and Forestry. Furthermore, Forest Management Content Specialist and Forest Institutional management and System Specialist will provide insight.

Task 2: Improvement of the Simple-K system

One of the identified systems resulted from task 1 above applied to the Simple-K system. It is an open source system of monitoring of released forest area for other development usage. Currently, the system is developed based on numeric inputs. It is identified that the system needs to be improved to let the system perform results in a form of spatial feature. The Simple-K system is intended to be a platform to provide decision-makers from government agencies and the public with a compelling view of the country's released forests in ways that helps them better see and understand the actual condition of the country's natural resources.

In relation with the Simple-K system, the selected institution is expected to consult with the PKTL, and to give service in a form of improvement of the Simple-K system to include at least, but not limited:

a. Current system improvements to include:

- 1) Improvement of the existing online system of Directorate General of Forestry Planning and Environmental Management (Simple-K) into online and/or android based system connected to OSS database of the Badan Koordinasi Penanaman Modal. (Direktorat PKTL KLHK) to automatically registered applicant and release permission decision (SK) through OSS database and to record inputs (tabular and spatial) all required data, information, and documents through Simple-K system.
- 2) Improvement of the existing visualization from the tabular based system into spatial based system.
- 3) Improvement of the entry data of the Simple-K system into an on-line user-based entry data by providing file attached facility.
- 4) Improvement of the no-firewall system into firewall system.
- 5) Improvement of the notification and communication system facility via message services of Simple-K.

b. Current User Interface improvement to include:

- 2) Improve the design of front end of the Simple-K system to be user friendly information. The information must include at least regulations, permit process, FAQ and spatial visualization of the permit release.
- 3) Improve information stages of the permit process into group based completeness of each stages of the permit process (about 8 (eight) stages).
- 4) Include more interactive communication services that include Simple-K chatting system, and Simple-K social media identification.

c. Management and Human Resources window improvement to include:

- 2) Apply the developed system resulted from task one above to specifically review the Simple-K and identify required improvement of the good quality system.
- 3) Improvement of the Simple-K services to be more systematic institutionally, i.e, organizational structure for effective operationalization of the system, Human Resource issues (Liaison Officer, admin, programmer/maintenance, and analyst)
- 4) Provide the manual guidance and operation for the Simple-K system.
- 5) Manual of operational development and conduct trainings to operate the system

d. Hardware and Software improvement to include:

Additional hardware and software are required to optimize the existing server, the items that need to be provided are as follow:

No	Item Description	Specification	Qty	UoM
1	RAM 16 GB	RAM for Server HP DL 380 G9 16 GB 2Rx4 PC4 2133P R-Kit	6	Units
2	Security System (Fortinet)	FORTINET FortiGate-100E + UTM + DRMA [FG-100E]	1	Unit
3	HPE Drivers Enterprise	HPE Drives Enterprise - 12G SAS - SFF Drives Hot Plug SFF (2.5-inch) SAS Hard Drives HP 1.2TB 12G SAS 15K rpm SFF (2.5-inch) HDD	3	Units
4	Harddisk Server Storage	hardisk Server Storage MSA2050 HPE Server HDD 12TB SATA 7.2K LFF SC [881785-B21	2	Units
5	LED TV	Samsung 65 Inch Smart TV 4K UHD UA65RU7100 or equivalent	1	Unit

Task 3: Knowledge Management Simulation Tools and Dynamic Media Development

The KALFOR project designed to be completed by 2024 with an ultimate target of sustaining about 200 thousand-hectares of forest covers within the forest area for other land uses (Area Penggunaan Lain (APL)). The project is intended to strengthen policy, regulations, investment, incentive mechanisms and other favorable practices to protect areas with retained forest cover from conversion to other landuses including estate crops. For the anticipated 5-years, the project allocates activities into four components as mentioned in the background information of this ToR. One of the component is to develop, install, and establish Knowledge Management and Monitoring-Evaluation that can systematically record, manage, analyze, simulate, report, monitor, and evaluate the project activities, achievements, and impact to the targeted beneficiaries.

Furthermore, the developed system should integrate the abundance information gathered from the 5-year implementation of the KALFOR projects and connects with the existing and/or developed tools such as the outputs of **Task 1** and **Task 2** above in accordance with the direction of one data and one map policy of the Indonesian Government. The proposed system should also be able not only to handle and manage the abundance data and information, but also posses' capacity in analyzing the recorded data and information to allow for quick reporting, monitoring, and evaluation. Modeling tools should also be embedded into the system to allow for faster decision-making process. Additionally, the system can provide function as communication media and/or sharing tools, which allows for data and information sharing at national and sub-national (i.e., project sites) to be more effective and efficient. This feature will lead to ease reporting, monitoring, and evaluation process for the 5-year project duration. This system henceforth is called "Knowledge Management Simulation Tools and Dynamic Media (KMST-DM)". The KMST-DM should also facilitate interaction among different users as a portal for communication digitally along the project duration. Hence, the integrated system should be designed and developed as growing objects in a building house or a digital portal that can be sustained and/or improved along the project timeline as well as when the project is ended.

To fully establish the KMST-DM system, the selected institution should complete at least the following tasks, but not limited to:

- A. Development of Interactive Graphical User Interface (GUI) of the KALFOR KMST-DM system
 - 1) Fully design interface of the KMST-DM (front end) to provide slots for the entire anticipated tools as growing objects in a building house or a digital portal for compiling, analyzing, visualizing, reporting, monitoring and evaluating data and information
 - 2) Develop the KMST-DM as an integrated system with the existing tools within the PKTL that can be sustained and/or improved along the project timeline
 - 3) Interactive GUI or the KMST-DM interface, whose contents can be updated by the project staffs interactively, must at least, but not limited to, comprising of specific features:
 - i. Dynamic (interactive) front page or home page about the KMST-DM
 - ii. Project information on the four (4) target areas (e.g., baseline data, regulations, institution, and pilot projects)
 - iii. Storage recording system for collecting the project data, information, and documents
 - iv. Multimedia interactive for capacity building activities as learning media centers that are designed differently for registered and un-registered users
 - v. Electronic library system to systematically store and visualize the outputs of project activities on standardized formats (e.g., field reports, technical guidance, policy briefs) and the available government regulations, documents, and the other types of project reports
 - vi. Integrative slots for a portal page to interface the anticipated developed simulation tools and calculators for the outputs of KALFOR project activities
 - vii. Tools for analyzing and visualizing compiled data and information for project monitoring and evaluation to measure the achievements of project activities
 - viii. Information for outreach activities to engage with targeted communities (e.g., competitions, exposes, awareness raising, field schools)
 - ix. Interactive GUI for media and publications in the user friendly formats such as short briefs, spatial information, info-graphics, videos, and animations.
- B. Formulation of Simulation Models for Selected Interactive Tools
 - 1) Develop integrative interface for the FrontPage embedded with Interactive GUI for media and publications in the user friendly formats such as short briefs, spatial information, info-graphics, videos, and animations.
 - 2) Develop dynamic project information to interact with end-users comprising of at least following information, but not limited to:
 - i. Interactive design and computational algorithm to store and visualize the entire information about the project design and targets/achievements on the four (4) target areas (e.g., district information, baseline data, regulations, institution, and pilot projects)
 - ii. Provide prototype of user interface of the interactive design to allow users edits and/or adds and display collected data and information for the four project sites
 - 3) Define tools for data analysis, simulation, and visualization compiling capacities at least on:

- i. Formulate modeling framework for data input and outputs in analyzing collected data and information on forest areas within APL (point A3.iii) in a region across different periods
 - ii. Provide mathematical formula and/or algorithm to calculate and visualize progress on collected data and information of contributing factors to forest cover for monitoring and evaluation of project achievements on maintaining forest area within APL
- 4) Design tools for capacity building and its measurement to participants that include tasks:
 - i. Determine requirements and system analysis for delivering different capacity building activities (i.e., trainings) such as registration, uploading and reading system for on-line modules, notes, animated media, videos, and simulation tests
 - ii. Provide technical formula and/or algorithm for connecting the registration and simulation tests for automated analysis of users' capacity measurements/tests
 - iii. Design analysis and scoring system to measure achievements for capacity building reports
- 5) Formulate engineering architecture for interactive online-library of KMST-DM comprising of:
 - i. Identify requirements and system analytics for automated reporting tools of KALFOR project activities (e.g., meeting notes, field reports, briefs, progress and final reports consisting figures and graphics) to be achieved in a dedicated database
 - ii. Develop system design for e-library system to Integrate the reports on project activities and existing available documents (e.g., technical guidance, government policy, regulations, and videos or animated media) to ease users' access and searching information
- 6) Provide analytical architecture for database system and management (i.e., table requirements and relationships) including system access, storage and manipulation for storing, maintaining, and processing the entire anticipated-data and information of the KMST-DM as the KALFOR information and communication tools to different users
- 7) Provide analytical design for displaying spatial data and information of achieved data and information in a dedicated database for different time periods
- 8) Develop the protocols for user access to the KMST-DM system

C. Development of Supporting Tools and KMST-DM Web-Portal

- 1) Plan the overall layout and organization of the web-portal of KMST-DM
- 2) Develop the portal information system (design, code, and program web pages)
- 3) Create web pages using appropriate web program, language and a Content Management System (CMS). The web contents should include data uploading procedures, report template to facilitate users on uploading and accessing information especially reports from 4 pilot studies, and access mechanism for admin, registered users and guest
- 4) Produce database system and management with capacities on system access, storage and manipulation for storing, maintaining, and processing the entire anticipated-data and information of the KMST-DM
- 5) Develop user friendly interface for displaying spatial data and information of achieved data and information in a dedicated database for different time periods
- 6) Apply the software engineering and simulation modelling principles to develop the anticipated tools as an integrative parts of the KMST-DM architecture. The tools must provide capacity for

analysing collected data and information and/or estimating the achievements of specific tasks as described in part B above which means able to provide analysis results automatically based on simulation models that are built on information and data coming in both spatial, tabular and data points. The delivered tools are:

- Interactive GUI of front-page (**point B1**) for media and publications in the user friendly formats such as short briefs, spatial information, info-graphics, visuals, and project activities tools-FAQ. Additional information can include outreach activities to engage with targeted communities (e.g., competitions, exposes, awareness raising)
- Dynamic system for managing project information to interact with end-users as required by the results of point **B2** above
- Data analysis, simulation, and visualization (point **B3**) for baseline data and information of the project sites to monitor the achievements at a specific time
- Interactive system for capacity buildings and its measurement to the achievements of participants as required by point **B4**, and reporting systems for individual and overall capacity building activities. The tools include registration (user authentication & validation), educational materials (video, animated flash media, module, assignment, testing packages and results. The system will be completed with samples of flash media, video dedicated for three targeted tailored user's trainings.
- User friendly reporting system to ease users in producing reports using a designed template as described in point **B5** and upload/access system for related project documents that are provided by the KALFOR activities (e.g., technical guidance, government policy, regulations, and videos or animated media) grouped into specific themes as an integral parts of interactive online-library of KMST-DM.
- Android-based simulation tools for recording and analyzing system to support field survey at the project sites and notifications or reports

D. Knowledge Transfer and Capacity Building

- 1) Provide document and/or manuals on maintenance system. The manuals should cover at least but not limited to upload data, maintaining the portal, and trouble shootings.
- 2) Ensure compatibility of the portal with different browsers and screen resolutions
- 3) Conduct three (3) tailored users' training as part of after service activities for evaluation system, Simple-K, and KMST-DM
- 4) Facilitate knowledge transfer and capacity building for stakeholder consultation on web access by other ministries and the hand over process.

E. Guarantee for the Development Services

- 1) Maintain the developed web portal to ensure the utilization of the portal including input and output system for data communication using at least 3 GB available computational space

- 2) Assist in uploading and maintaining the contents of the portal along the contract period and additional 6-month grace period as part of the transfer process.
- 3) Setup web analytical system using open source to monitoring incoming traffics
- 4) Apply maintenance procedure for data and information as a backup mechanism of hosting services for 6-month of project contract and 6-months of grace period

F. Equipment and facility support

In order to support the activity under task 3, the contractor will have privilege to procure the following items:

No	Item Description	Specification	Qty	UoM	Freq	UoM
1	Server Rental (1 server)	Tower Server Lenovo System X3100 M5 5457-B3A 32GB 4TB	1	Package	6	Months
2	Internet for Data Collection	Internet service 150Mbps + Star	2	Packages	6	Months
3	Computer Rental (10 units)	Dell Optiplex 7010 Core I5 3470s 2.9Ghz	10	Units	6	Months
4	Storage Rental (10 units)	WD My Passport 2 TB	10	Units	6	Months
5	Hardware Multimedia Data Collection equipment rental	Drone, Camera, Recorder, GPS	1	Package	6	Months
6	Internet for Post Services (Maintenance)	Internet service 150Mbps + Star	1	Package	6	Months

III. EXPECTED OUTPUTS

1. Procedure guidance and automated tools for measuring quality levels of the PKTL's Information system Assessment
2. Improved the Simple-K system with spatial visualization and interactive GUI, trained staffs, and operational guideline of the system
3. Fully design interface of well-run KMST-DM portal (front end) that are built as a growing system to provide slots for the entire anticipated tools into an integrative information and communication system. The formulation of engineering architecture for model simulation of the selected tools is provided.
4. Develop and operationalize the KMST-DM portal for KALFOR activities, completed with the selected application tools for: 1) media and publications, 2) managing project information, 3) data analysis, simulation, and visualization of collected database, 4) Interactive system for capacity buildings completed with samples of modules, flash media, and video dedicated for three targeted tailored user's trainings 5) User friendly reporting system for report production, 6) Interactive e-library grouped by themes for managing available documents, 7) Android-based system for field survey and notification,
5. Manuals related to knowledge transfers of the developed systems
6. Project reports and three trainings materials

IV. TRAVEL PLAN

This is a desk and field work with traveling to the following locations:

1. Samarinda and Sangatta in Kalimantan Timur;
2. Pontianak, Sintang and Ketapang in Kalimantan Barat;
3. Palangkaraya and Pangkalan Bun in Kalimantan Tengah;
4. Jakarta;
5. Bogor; and
6. Yogyakarta

In each location there should be meetings, FGDs, seminars with at least twice for each activities in each locations. Such travel expense (accommodations, meals, air fare, and local transportation) should be part of bidder's price proposal. The travel plan should in line with the proposed approach, methodology and implementation plan in order to achieved output or deliverable

V. DELIVERABLE AND PAYMENT SCHEDULE

Duration of contract is six (6) months. Following is the deliverables and timeframe, including at least travel missions to the fields mentioned above for meetings, public consultations, or workshops. Payment will be released in 6 (six) installments below upon timely submission of respective deliverables and their acceptance by KLHK team, PMU and UNDP CO.

No	Deliverables	Time line	Instalment
1	Detailed workplan and preliminary work to include at least: a. List of existing PKTL's system and description b. Work plan to improve the system development; c. Invoice and work plan for supplying hardware and software improvement (Add TV monitor, add firewall software, add external Hardisk) for Simple-K d. Analytical report for the development KALFOR portal and tools (hereafter KMST-DM Tools)	30 October 2019	10 %
2	Progress report of the implementation of the above mentioned tasks to include at least: a. Assessment report of current PKTL's systems b. Newly interface of Simple-K and manuals c. Well run of interface of the Kalfor portal and system tools (KMST-DM Tools) following the requirements of Task A. Development of Interactive Graphical User Interface (GUI) of the KALFOR KMST-DM system	29 November 2019	15 %
3	Progress report of the implementation of the above mentioned tasks to include at least :	30 December 2019	15 %

	<ul style="list-style-type: none"> a. Developed Indicators of PKTL's good systems b. Newly developed spatial system of Simple-K c. Well run of the KMST-DM system to include prototype of dynamic system for managing project information to interact with end-users as required by the results of point B2 above d. Prototype of android-based system for field survey and notification 		
4	<p>Progress report of the implementation of the above mentioned tasks to include at least:</p> <ul style="list-style-type: none"> a. Guidance for evaluation of PKTL's system b. On-line user-based entry data with provide file attached firewall system c. Well run of the KMST-DM system to include prototype of user friendly reporting system to ease users in producing reports using a designed template as described in point B5 and upload/access system for related project documents that are provided by the KALFOR activities (e.g., technical guidance, government policy, regulations, and videos or animated media) grouped into specific themes as an integral parts of interactive online-library of KMST-DM. 	30 January 2020	15 %
5	<p>Progress report of the implementation of the above-mentioned tasks to include at least:</p> <ul style="list-style-type: none"> a. automated Tools for evaluation of PKTL's system b. User Testing of Simple-K for 4 pilot projects c. Well run of the KMST-DM system to include prototype of interactive system for capacity buildings and its measurement to the achievements of participants as required by point B4, and reporting systems for individual and overall capacity building activities. The tools include registration (user authentication & validation), educational materials (video, animated flash media, module, assignment, testing packages and results. The system will be completed with samples of flash media, video dedicated for three targeted tailored user's trainings d. Well run of the KMST-DM system to include prototype of data analysis, simulation, and visualization (point B3) for baseline data and 	30 February 2020	15 %

	information of the project sites to monitor the achievements at a specific time		
6	<p>Final report (narration-in a form of compendium) and well operated developed application system to include:</p> <ul style="list-style-type: none"> a. Comprehensive Report Assessment of PKTL's Information System b. Final report of Simple-K testing and verification c. Well run of the KMST-DM system to include fully operational of the 1) Interactive GUI for media and publications, 2) managing project information, 3) data analysis, simulation, and visualization of collected database, 4) Interactive system for capacity buildings completed with samples of modules, flash media, and video dedicated for three targeted tailored user's trainings 5) user friendly reporting system for report production, 6) interactive e-library grouped by themes for managing available documents d. Readily available of android-based system for field survey and notification e. Manuals related to knowledge transfers of the developed systems f. Project reports and three trainings materials 	30 March 2020	30 %

VI. QUALIFICATIONS OF THE SUCCESSFUL SERVICE PROVIDER/CONTRACTOR

1. Proven practical work experience on the subject not less than 4 years:
 - a. Working experience with the government institution.
 - b. Working experience on Knowledge Management, web-portal development, information application programming/application, geographic information system, remote sensing, spatial analysis, database for actions and planning, designing visual media, and model simulation (utilization and development)
2. Sufficient experience in formulation of modelling application and development of model simulation tools and dynamic media for publications or educational training materials, provided with proof of evidences or sample of previous works
3. Work Experience to build information system connection-technology demonstrated by previous products by sharing link or proof of well-run web-based application for sample of simulation models and analysis, capacity buildings, survey systems, and data collection or information
4. Work experience in conducting workshops, FGDs, surveys, trainings and/or other related capacity building programs
5. Experience in working with International Organization and Government

6. Experience to provide other ad-hoc services in-house e.g. research and information, data mining, analytical and processing support, visual graphics, writing and communications skills
7. Experience in writings extended summary, policy briefs, and reports which can be proposed and translated into templates for automated reporting system
8. time-management, organizational, and interpersonal skills.

VII. PERSONNEL

Understanding the complexity of the assigned tasks to achieve the results in accordance with the terms of reference, the company should have the following experts, specialists, and supporting staff as part of the team with their qualification as follow:

A. System Design and Modelling Group

- **Knowledge Management and Modelling Simulation Expert (1 person)** with a minimum master degree (S2) of Environmental Science, Geography, Natural Resource Economics, Management or related fields with minimum of 5 years relevant experience in designing frameworks, knowledge management, modeling tools and system development, geographic information system, data management and/or handling big data. Already familiar with team management, organizational skills, planning skills, analytical work and reporting. Having substantial experience and understanding on environmental modeling and risk assessments for development of simulation tools for decision making process as part of Knowledge Management strategy. Additional consideration includes socio-economics background, understanding on environmental modelling, risk assessments for development planning and managing humanitarian sectors, environmental vulnerability, watershed management, policy and advocacy, sustainable livelihood. Proven track record of engagement with Government of Indonesia in development of system dynamic models for various sectors. Previous experience of directly working with the Government of Indonesia and/or UN agencies is highly desirable.
- **Software Engineering and Information System Developer (1 person)** with a minimum master degree of (S2) with minimum 5 years relevant experience in technology engineering, artificial intelligence, intelligent systems, database information management system, robotics, wirelles and mobile communications, and/or big-data system. Master's Degree in Computer Science, Information Technology Engineering, environmental science or a related information modelling system with a combination of professional training, project or research experience in software engineering. Practical expertise in designing and developing computational algorithm and system thinking, and other data/information sharing system supported with experience in computation or software engineering. Experience in development of computational Intelligence and/or knowledge sharing system such as management and simulation tabulation and modeling results are equally considered.

- **System Analyst and web design database specialist (1 person)** with a minimum master's degree of (S2) with 3 years relevant experience in software engineering, information science, human-computer interaction, database information management system, mixed reality, big-data and computer vision. Master's Degree in Computer Science, Information Technology Engineering, or environmental science. Practical expertise to implementation electronic system in community services, development for design in monitoring and evaluation system, UI/UX for communication strategy. Having deep knowledge in PHP/Java Script/HTML/Java, mobile platform utility and familiar with SQL Database.
- **System Content Analyst and web design programmer (1 person)** with a minimum master degree of (S2) with 3 years relevant experience in web-design engineering, information science, human-computer interaction, database management system, big-data and computer vision. Master's Degree in Computer Science, Information Technology Engineering, environmental science. Practical expertise to searching and visualization of information content based on web, retrieval systems and network, communication interactive content, language integrated learning, database management system.

B. Modelling Implementation and Technical Support

- **Interactive Communication and GIS Platform Specialist (1 person)** with a minimum bachelor degree (S1) with 3 years relevant experience in natural science, geographic information system, remote sensing, and/or database management. Bachelor's Degree in GIS, Geography, Climatology, Meteorology, Hydrology, social science or a related GIS-intensive discipline with a combination of professional training, certification and experience in GIS mapping/remote sensing. Practical expertise in designing and field -testing surveys and other data collection instruments supported with experience in managing data collection, entry and maintenance. Experience in vulnerability and risk assessment specifically in Indonesia is strong. Able to manage and simulation climate and biophysical data. Able to use GIS based software such as QGIS, Arcmap, Ermapper and DIVA-GIS. An ability to gather and analyze the data/information as well as to develop the reports in smart visualization design with interactive media communication (flash media, video, animation).
- **Model Simulation developer and multimedia specialist (1 person)** with a minimum bachelor degree (S1) with 3 years relevant experience in watershed model, information and technology systems, and earth system data analysis (land, atmosphere, marine) . Bachelor's or Diploma Degree in Computer Science, Natural Science/Applied Meteorology or other ICT-related studies, minimum three years of progressively responsible experience is required in software development, modelling and simulation, web design and use of hardware/software, telecommunications facilities, knowledge of database packages, collecting survey data based on online tools. Practical expertise to implementation watershed model, information and technology systems, and land data analysis (forest, river, agricultural) based on web platform. An able to use simulation software on hydrology like WEAP, Aquacrop, HEC-HMS, HEC-RAS and climate

simulation like CDO, NCO, NCL, and Ferret. Having deep knowledge in PHP/Java Script/HTML/Java and familiar with SQL Database. An ability to gather and analyze the data/information as well as to develop the reports in smart visualization design, Computer literacy and coding systems for measuring a system dynamic such as watershed and/or forest functions.

- **Web-based and/or WebGIS Programmer (7 person)** with a minimum bachelor degree of (S1) with 2 years relevant experience in software engineering, information science, human-computer interaction, database information management system, mixed reality, big-data and computer vision, WEB-GIS. Bachelor's Degree in Computer Science, Information Technology Engineering, applied meteorology, environmental science, geography or GIS, and/or computer engineering. Practical expertise to implementation electronic system in community services, intensive GIS data processes or complex spatial analysis, development for design in project M&E system. Having deep knowledge in PHP/Java Script/HTML/Java, mobile platform utility and familiar with ASP.NET, MVC, ArcGIS, Oracle databases, SQL, and GIS database design. Familiar Object-Oriented Programming and REST full API Structure. Practical expertise to implementation a dynamic modelling system such as watershed or forest, information and technology system, and institutional data analysis based on web platform. An ability to gather and analyze the data/information as well as to develop the reports in smart visualization design, computer literacy and modelling system for measuring specific functions and services are preferred.
- **Mobile Android Platform Developers (2 person)** with a minimum bachelor degree of (S1) with 2 years relevant experience in multi user application, big data processing, hybrid application programming, and/or programming interface. Bachelor's Degree in Computer Science, Information Technology Engineering, computer engineering. Familiar with Front-end and UI/UX design. Practical expertise on internet of think, collection data multiuser with online/offline database system. Having depth knowledge of the different computer languages such as C++, Java, HTML, MySQL, PHP, Objective-C, and Wireless Networks are encouraged.
- **Data Collectors and Analyst (2 person)** with a minimum bachelor degree (S1) with 2 years or relevant experience in survey, socio-economics data analysis, community development, geography analysis, image processing, statistic, or other relevant works. Bachelor's Degree in Economics, Communications, Sociology, Statistics, Geography and Finance or any related disciplines. Minimum two years or sufficient experience on the subjects of socio-economics, gender, earth system, model simulations, and/or capacity building. An Ability to design field surveys, collect, and analyze field data/information and regional statistical data. Familiar to use statistical software such as SPSS, Minitab, Stata, Matlab, R, QGIS, or other related spatial statistic tools.
- **Admin Staff (1 person)** with a minimum bachelor's degree (S1) with 2 years relevant experience in supporting finance and administration of project works. Bachelor's Degree in Economics, Communications, Accounting and Finance, would be desirable, but it is not a requirement. Having Strong knowledge and experience in project management supports are essential as well as ability

to draft correspondence on budget-related issues, briefing notes, graphic and statistical summaries, accounting spreadsheets.

- **Project Assistant (1 person)** with a minimum bachelor's degree (S1) with at least one-year relevant experience in coordinating the implementation of the project, overseeing the activities of the project, convening and reporting periodically on the status of the project, procurement of equipment needed for training, mapping and monitoring, preparation of the project completion report. An Able to use Statistics and GIS software. Bachelor's Degree in Economics, Communications, Sociology, Statistics, Meteorology, Geography, Marine Science and Finance or any related disciplines. An Able to use software SPSS, Minitab, Stata, and QGIS.

LINKS TO EXISTING SYSTEM

1. SIMONTANA: <https://geoportal.menlhk.go.id/arcgis/home/>
2. SIPKH: <http://ppkh.menlhk.go.id/index.php/panel/login>
3. National Forest: <https://nationalforest.com/>
4. AMDALNET: <http://153.92.4.138/amdal/>
5. Web GIS KEMENLHK: <http://webgis.menlhk.go.id:8080/kemenhut/index.php/id/>