

Terms of Reference



GENERAL INFORMATION

Title: National Consultant for Improving Remote Sensing Application and System of Indonesian Aerospace Agency (LAPAN) for Efficient Collection and Dissemination of Maritime Domain Awareness Data.

Project Name: Global Maritime Crime Programme (GMCP).

Reports to: Programme Coordinator for Southeast Asia and the Pacific and UNODC Indonesia Country Manager

Duty Station: Home Based (Jakarta, Bogor, Depok, Tangerang, Bekasi)

Expected Places of Travel (if applicable): Not applicable.

Duration of Assignment: 149 working days within August 2021– February 2022

REQUIRED DOCUMENT FROM HIRING UNIT

	TERMS OF REFERENCE
4	CONFIRMATION OF CATEGORY OF LOCAL CONSULTANT, please select: (1) Junior Consultant (2) Support Consultant (3) Support Specialist (4) Senior Specialist (5) Expert/Advisor CATEGORY OF INTERNATIONAL CONSULTANT, please select: (6) Junior Specialist (7) Specialist (8) Senior Specialist
<input checked="" type="checkbox"/>	APPROVED e-requisition

REQUIRED DOCUMENTATION FROM CONSULTANT

<input checked="" type="checkbox"/>	CV / P11 with three referees
<input checked="" type="checkbox"/>	Copy of education certificate
<input checked="" type="checkbox"/>	Completed financial proposal
<input checked="" type="checkbox"/>	Completed technical proposal

Need for presence of IC consultant in office:

☒ Partial (explain): The contractor will be homebased during his/her consultancy. No requirement to attend daily to the office. However, to be available for any meetings requested by the supervisor.

☐ Intermittent (explain):

☐ Full time/office based (needs justification from the Requesting Unit)

Provision of Support Services:

Office space: ☐ Yes ☐ No

Equipment (laptop etc.): ☐ Yes ☐ No

Secretarial Services ☐ Yes ☐ No

If yes has been checked, indicate here who will be responsible for providing the support services: < Enter name >

I. BACKGROUND

The UNODC Global Maritime Crime Programme (GMCP) supports member states, including Indonesia, to respond to maritime crime challenges. As part of this work, the GMCP provides expert legal and technical advice through events including capacity building events, table-top exercise and round-table discussion related to the specialist area of maritime crime and maritime law.

The UNODC GMCP has been supporting Indonesia Aerospace Agency (LAPAN) to strengthen its Maritime Domain Awareness (MDA) information collection and dissemination tools and system. LAPAN is the agencies in Indonesia which in charge with the development, utilization and dissemination of remote sensing product.

PUSFATJA (*Pusat Pemanfaatan Teknologi Penginderaan Jauh*) or Remote Sensing Technology Utilization Centre is an office in LAPAN who carry out research, development and engineering (R&D) as well as the implementation of space in the field of remote sensing utilization. The utilization and dissemination of remote sensing derived product that conducted by PUSFATJA is under the support of PUSTEKDAT (*Pusat Teknologi dan Data*) or Data and Technology Centre, who provides the raw remote sensing imagery dataset.

PUSFATJA has developed several automation systems which are already operating well. The existing automation system are the fishing potential zone system (ZPPI) the burned area identification system and the rainfall estimation automation system. Meanwhile, the paddy growth phase system, flood estimation system and land cover classification automation system are still under development as well as other system. Furthermore, PUSFATJA has a system dashboard that controls the developed automation system. PUSFATJA has been also providing several marine information, namely oil spill, fishing ground, water quality, coral reef distribution, oceanographic parameter, etc. The data is available as a daily, weekly and monthly report. The data is provided in an online dissemination tool (<https://spbn.pusfatja.lapan.go.id/>, <http://sipandora.lapan.go.id/>). However, the current system available in PUSFATJA is an old system which become difficult to be integrated with other institution's system. Un updating to the current system will be improve ease of data access.

II. SCOPE OF WORK, ACTIVITIES, AND DELIVERABLES

Scope of Work

The purpose of this assignment is to support the UNODC GMCP in updating PUSFATJA of LAPAN's current MDA information collection and dissemination tools and system.

Specific task to be performed by the national consultant:

Under the supervision of, Programme Coordinator UNODC of GMCP for Southeast Asia and the Pacific and overall supervision of the County Manager of Indonesia, the consultant will carry out the following activities:

- *Conduct Resource Management Adjustment for PUSFATJA of LAPAN:*
The consultant will collaborate with PUSFATJA LAPAN IT team to design and reformatting the current data format in preparation for the update dissemination system. Since there are several databases in PUSFATJA LAPAN with different data types and formats, the consultant needs to do an adjustment and integration of all the data to fit the requirements of the new platform.
- *Conduct Application Infrastructure Setup/Adjustment*
The consultant will do an Infrastructure setting and adjustment to prepare the system update. This work will include checking the components of hardware, software, networking components, an operating system (OS), and data storage.
- *Conduct Geoserver/Mapserver Setup, Configuration and Adjustment*
The consultant will develop GIS services based on Geoserver/Mapserver which are configured and adjusted based on user requirements. Geoserver/Mapserver will work together with Web API & other background services to serve client requests.
- *Conduct Application Database Development*
The consultant will develop database schemas that work on both internal system and data collaboration. The schemas work as backbone data schemas for main feature systems such as layers management, master data management, etc.
- *Conduct WEB API Development*
The consultant will build an API service which is tailored for each system to share information. Each API is already customized with header and body data that are required for each system to share information.
- *Conduct Background Service Development*
Background service work as an orchestrator for other services to collaborate together. The consultant will develop background service that run stable and working as expected.
- *Conduct API Integration of Existing Geospatial Platforms*
The consultant will build a standard universal Geospatial sharing mechanism (WMS & WFS) to share information to other GIS platforms.
- *Conduct UI/UX Design*
The consultant will design the UI/UX of web admin and web portal interface. Also provide Adobe XD as UI/UX guidelines development.
- *Conduct Web Admin Front-End Development*
Web Admin is the web interface managed by an internal administrator to manage and configure user accounts, layers, master data and user activities monitoring. The design and algorithm will satisfy the user requirements.
- *Conduct Web Portal Front-End Development*
As the Web Portal is the web interface provides the layers catalogue, maps view and archives download capability of layers. The institution users need secure login to access the portal.

Expected Outputs and Deliverables

- **Database schemas**
Since there are several existing databases and systems that already work in LAPAN's server, it needs special database schemes to provide synchronization data that satisfy the existing data. Some special schemas are also applied to accomplish future data collaboration.
- **Infrastructure which includes hardware, software, and networking components is set up.**
Each hardware (including data storage, etc), software (including OS, etc), networking components are set up and work as expected. The specification is already managed for better performance for the custom system inside.
- **Geoserver/Mapserver system is configured and adjusted.**
Geoserver/Mapserver as GIS service will be configured and adjusted based on internal and external systems requirements. It will apply universal standard GIS data exchange today (WMS & WFS).
- **Database upload system is automated.**
Some technical automated systems will be applied. Task scheduler/Cron job will be used for timely job or big process execution. Socket system will be used for real time processing. Triggered based systems will be applied for small process execution.
- **Secure Web API Services is developed.**
Shared attributes and properties will be distributed properly by API Services. The service also includes some data security systems. It will filter DDOS attacks to avoid system overload and CORS attacks to avoid improper data distribution.
- **Background Service is developed**
As an orchestrator for other services, background services need extra attention to provide secure and stable services. It will manage all services and errors when it appears.
- **Existing Geospatial Platform is integrated.**
Some integration scenarios including API based, database based, service based, component based, etc. The best scenarios will be chosen for each existing platform based on what existing platforms can share.
- **UI/UX is designed.**
UI/UX will be customized based on user need. It develops as Adobe XD files before web format to make better understanding what the user really needs. Some code will develop after to work as a controller to manage the model (database) and view (UI/UX).
- **Web Admin Front-End is developed.**
Web Admin Front-End is developed after UI/UX approved. It will develop first but revised at last as admin is the highest privileges in the system.
- **Web Portal Front-End is developed**
Web Portal Front-End is developed after UI/UX approved and Web Admin Front-End developed. It will bring guest privileges from the admin with some security to filter which data has to show.

III. WORKING ARRANGEMENTS

Institutional Arrangement

The consultant will perform his/her work under the supervision of the Regional Programme Coordinator of Southeast Asia and the Pacific of the Global Maritime Crime Programme of UNODC. In addition, the UNODC Country Manager of Indonesia will provide overall guidance and supervision to the consultant. Additional support will be provided under the guidance of National Programme Officer of Global Maritime Crime Programme.

During the consultancy, the national consultant is expected to work closely and liaise with relevant officials from the Indonesian Aerospace Agency (LAPAN).

Duration of the Work

149 working days within August 2021– Feb 2022

Deliverable	Description of task (deliverable)	Working days	To be accomplished by (date)	Reviewed and Monitored By
A	Database schemas	12	18 Aug 2021	NPO GMCP; Regional Programme Coordinator GMCP.
B	Infrastructure which includes hardware, software, and networking components is set up.	8	30 Aug 2021	NPO GMCP; Regional Programme Coordinator GMCP.
C	Geoserver/Mapserver system is configured and adjusted.	10	13 Sept 2021	NPO GMCP; Regional Programme Coordinator GMCP.
D	Database upload system is automated.	14	1 Oct 2021	NPO GMCP; Regional Programme Coordinator GMCP.
E	Secure Web API Services is developed.	20	29 Oct 2021	NPO GMCP; Regional Programme Coordinator GMCP.

F	Background Service is developed	14	18 Nov 2021	NPO GMCP; Regional Programme Coordinator
G	Existing Geospatial Platform is integrated.	20	16 Dec 2021	NPO GMCP; Regional Programme Coordinator GMCP.
H	UI/UX is designed	15	06 Jan 2022	NPO GMCP; Regional Programme Coordinator GMCP.
I	Web Admin Front-End is developed.	17	31 Jan 2022	NPO GMCP; Regional Programme Coordinator GMCP.
J	Web Portal Front-End is developed	15	21 Feb 2022	NPO GMCP; Regional Programme Coordinator GMCP.
K	Final Report on the project delivery is submitted.	4	25 Feb 2022	NPO GMCP; Regional Programme Coordinator GMCP.

Duty Station

The consultant will be home based during this consultancy with periodic meetings in UNODC office in Jakarta as requested.

IV. REQUIREMENTS FOR EXPERIENCE AND QUALIFICATIONS

Academic Qualifications:

- Bachelor's degree in Geography or Information Technology.

Working Experience:

- Minimum of 7 years of relevant experience in Programming, Artificial Intelligence, Big Data and GIS analysis and WebGIS.
- Experience in working on Data Science and GIS, Data Modelling and GIS, WebGIS and Big Data Analysis
- Experience in dealing with counterparts from various cultural background.

Competencies and Special requirement:

- Demonstrated ability to work in harmony with person of different ethnicity and cultural background.
- Ability to work under pressure and handle multi-tasking situations.
- Excellent English and national language written and spoken skills.

- Strong motivation and good team player.

V. EVALUATION METHOD AND CRITERIA

Individual consultant will be evaluated based on the following methodology:

Cumulative analysis

When using this weighted scoring method, the award of the contract should be made to the individual consultant whose offer has been evaluated and determined as:

a) responsive/compliant/acceptable, and

b) Having received the highest score out of a pre-determined set of weighted technical and financial criteria specific to the solicitation.

** Technical Criteria weight; [70%]*

** Financial Criteria weight; [30%]*

Only candidates obtaining a minimum of 70 point would be considered for the Financial Evaluation

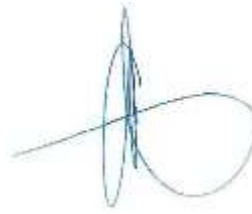
Criteria	Weight	Maximum Point
<u>Technical</u>		
Criteria A: qualification requirements as per TOR:	70%	70
1. Bachelor's degree in Geography or Information Technology.	25 %	25
2. Minimum of 7 years of relevant experience in Programming, Artificial Intelligence, Big Data and GIS analysis and WebGIS.	25%	25
3. Experience in working on Data Science and GIS, Data Modelling and GIS, WebGIS and Big Data Analysis.	15%	15
4. Experience in dealing with counterparts from various cultural background.	5%	5
Criteria B: Brief Description of Approach to Assignment.	30%	30
• Understand the task and applies a methodology appropriate to the task as well as strategy in a coherent manner.	15%	15
• Important aspects of the task addressed clearly and detailed.	10%	10
• Logical, realistic planning for efficient project implementation.	5%	5
Criteria C: Further Assessment by Interview (if any)	-	-

Prepared By

A handwritten signature in blue ink, appearing to read 'Fatimana' followed by a stylized surname.

Fatimana Agustinanto
National Programme Officer

Approved By

A handwritten signature in blue ink, featuring a large, stylized 'C' and 'B'.

Collie Brown
Country Manager

