



Terms of Reference (ToR)

Consultancy Services for the upgrade of the Uganda Wildlife Authority (UWA)- Online Wildlife Offenders Database (OWODAT)

Introduction

Wildlife Conservation Society (WCS) is currently implementing a five year USAID funded project titled "USAID/Uganda Combating Wildlife Crime Activity (CWC)". The overall goal of the Activity is to reduce wildlife crime in Uganda by improving interagency coordination and collaboration; strengthening institutional wildlife crime law enforcement capacity; and improving data management systems to enhance utilisation of high quality data to inform anti-wildlife crime approaches. Under this activity, WCS and its implementing partners are focused on strengthening the capacity of UWA and the National Wildlife Crime Coordination Taskforce (NWCCTF) to detect, deter and prosecute wildlife crime by working directly with security and law enforcement agencies, USAID implementing partners working on related issues, private sector companies, and communities living adjacent to protected areas.

Background

In 2014, Uganda Wildlife Authority (UWA) and Wildlife Conservation Society (WCS) jointly developed an online wildlife offenders' database (OWODAT) to support law enforcement and prosecution of wildlife crimes through capturing and consolidating essential wildlife crime information across protected areas. The database, is implemented at fifteen UWA sites, including ten national parks and five wildlife reserves, UWA Headquarters and Entebbe International Airport. It was created to facilitate better monitoring of arrests, identify offenders, repeat offenders and their associates, and allow wildlife managers to track prosecutions and have easy access to wildlife crime data for further analyses. The database helps UWA to monitor trends in wildlife crimes across the country through statistics generated from the system. The database also allows data to be captured offline for eventual uploading online to address the challenge of unreliable internet connectivity. WCS maintains a dummy database which is used to train UWA staff in the use of the OWODAT.

Justification for the upgrade

As part of the efforts to strengthen the database, WCS sponsored a training in the use and maintenance of the OWODAT in January 2021, with an objective of building the capacity of UWA IT staff to perform routine maintenance of the system and getting access to the database project source code files. The training was conducted by Opiant Technologies Private Limited, the company that developed the current system. The training identified aspects of the OWODAT that needed improvement and made the following recommendations:



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- The database Application to be upgraded and migrated to a more robust, latest and easy to maintain technology stack.
- On the server side, the current PHP version to be upgraded to a latest version with latest security patches.
- The MySQL database to be upgraded to a latest version
- Login passwords to be salted with password hashing function preferably with Bcrypt algorithm.
- Setup Secure Sockets Layer (SSL) certificate for the offender's database portal.

Further, in 2020, UWA with support from the USAID/Uganda CWC Activity performed comprehensive analysis of the data on suspects, arrests and court cases obtained from OWODAT and subsequently several consultations were conducted with the users of the system. Both experiences revealed several human and technical related challenges and limitations with the system including limited entry, analysis and utilisation of the data and multiple technical bugs, that continue to make the system not user friendly. The system is a major source of wildlife crime data for UWA, and if utilized to its full potential will effectively serve the data needs of other stakeholders including the NWCCTF, WCS, other development partners and the donor community. It is on this basis that UWA and the USAID/Uganda CWC Activity are seeking the services of a highly experienced and competent consultant or consultancy firm to upgrade and/or strengthen the system.

Scope of the assignment¹

The consultant or consultancy firm is required to redevelop the database application and migrate it to a more robust and latest technology stack, which is user- friendly and easier to maintain. Specifically, the consultant is required to.

1. Redevelop the application based on Laravel framework of PHP with MySQL and bootstrap with a modern responsive User interface design and a proper reporting module.
2. Upgrade all the necessary Frameworks, Libraries, dependencies, and necessary software to the latest stable versions for the smooth running of the system.
3. Apply stand industry security best practices for securing the database system such as Salting the login passwords with password a hashing function.
4. Setup Secure Sockets Layer (SSL) certificate for the offender's database portal.
5. Redevelop both the online and offline offender's systems, for both the training instance and UWA's Production instance, strictly following the user requirements and data fields requirements captured in annexes 2 and 3

¹ Details of the database user requirements and data fields requirements are captured under the annex section below (Annex 3 and 4)



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6. Train WCS/CWC and UWA staff in the use and maintenance of the upgraded database system including provision of rights to selected in both institutions to make minor changes and adjustments.
7. Support the roll out and initial implementation of the database system for a period of utmost two months and ensure any functional glitches or bugs in the new database are identified and resolved.

The consultant is required to adopt an effective and flexible methodology to execute the assignment in the allocated timeframe. However, for proper guidance and quality assurance, the consultant will work very closely with WCS GIS/IT Technician, Monitoring Evaluation and Learning Manager and UWA's Warden for Software Engineering and OWODAT Administrator.

Deliverables

The key deliverables of this consultancy will be:

1. A final detailed inception report outlining the consultant's understanding of the assignment and the approach to be used. The inception report will be discussed prior to the commencement of the assignment in an inception meeting.
2. A fully functional bug free web-based wildlife offender's database system with offline, and Biometric enrolment modules for UWA.
3. A fully functional bug free replica of the web-based wildlife offender's database system with offline, and Biometric enrolment modules for Training.
4. Source Code for all the project files
5. Data migration and integration with the existing systems
6. A draft report. This will be subject to a validation process with the stakeholders in form of a workshop convened by WCS and UWA. The consultant will be responsible for presenting/facilitating at this workshop.
7. A final report
8. Train WCS and UWA users in the use of the upgraded database system and provide some selected system administrators in both institutions with rights to make minor changes and adjustments whenever necessary.

Timeframe

The consultancy is expected to be carried out over a period of no more than 45 working days. These days are inclusive of preparation, system redevelopment or upgrade, training of users, report writing and technical backstopping. Assignment completion date is 14th October 2022.

Qualification and Experience

The lead Software developer must have the following experience, skills, and qualification to be able to perform the tasks of the TOR:



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- A minimum of a master's degree in computer science, software engineering or a related field.
- Minimum of ten years' experience in designing similar user-friendly digital database applications or platforms.
- Exceptional computer and programming skills (specifically in programming languages such as PHP, JavaScript, C#, MySQL, MySQL lite database languages, bootstrap for modern Web Responsive Design, and other necessary skills)

Specification of Input

All costs deemed necessary to deliver the scope of work described in the Terms of Reference have to be covered by the consultant in the financial offer. The financial proposal should have a clear breakdown of expenses which include professional fees and expenses to cover the actual tasks.

How to Apply

Interested parties can send their technical & financial proposals (In Uganda Shillings) and a resume for each staff that will work on this assignment to Email: wcsuganda@wcs.org and copy roluka@wcs.org and pnsbuga@wcs.org by Friday 29th July, 2022. The email subject should be "Upgrade of the UWA OWODAT System"



Annexes

Annex 1: Other relevant documents or files (*Follow link below to access files*)

- OWODAT online user manual
- OWODAT Field Consultative Report in MFNP and QENP
- PowerPoint presentation of findings of the OWODAT data captured between 2017 to 2022
- User manuals for the offline system
- Fingerprint modules.

https://drive.google.com/drive/folders/1gWK-QtUhvGbw0jGh_GH-ikbMjFSMuHNe?usp=sharing



Annex 3: OWODAT User requirements

#	Current problem	Proposed Solution/Requirement	Navigation
1	The application currently runs on PHP Version 5.4.45 which reached its end-of-life and has not been patched in long while. Therefore, system in its current form is every slow and not user friendly all. In some places, it takes so long to log into the system and navigate through tables and sections during data entry	The database Application needs an upgrade and migration to a more robust and latest technology stack, which will be easier to maintain.	This applies to the entire system, it is not specific to any section (Suspects, Police arrests, Court cases)
2	The current system doesn't capture the accused person's name in the dataset once exported into Excel/CSV file. Sections are not linked	The upgraded system should be able to capture the accused person's name in the exported dataset into Excel. This is about improving how the reports are presented	This applies to all the sections
3	Some fields such as offence, detection method, sentence type among others do not have provision for multiple entries, therefore the data entrant can only enter one option at a time	The upgraded system should provide for multiple entries for all the required variables. The list of options should simply be displayed with provision for checking more than one option for multiple options.	This applies to all fields that require multiple across the three sections
4	The current system requires one to keep opening and closing multiple sub entry screens within a single main entry screen (Suspects, Arrests, and Court cases). This makes data entry extremely slow, going for almost an average of 45 minutes per entry.	Data entry under each main entry screen (such as Suspects, Police arrests and Court Cases) should be done from beginning to end (at the point of submission of the record) without closing and opening multiple sub data entry screens under each section.	This applies to Suspects, Police arrests and Court cases sections.



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5	<p>The current system doesn't link the three data entry sections (suspects, police arrests, court cases) during data entry. Data entry for all the three sections happens independently.</p>	<p>The system should have one entry screen with three sub sections (Suspects, Police arrests and Court cases) but only one screen whose data is available should display during data entry. Since it is usually the case that not all the data under each main section (Suspects, Police arrests and Court cases) may be available at the same time, only the required section should be displayed during data entry and if data for the other sections is available, there should be a question that prompts the transition into the next section for data entry. For example, if both suspects and arrests data is available, the last question (yes/no) should be introduced under each section. For example, before moving to the arrests section for entry, the last question under suspects should be, "Was or were the offenders arrested?" And the same applies for arrests to court cases (Was or were the offenders presented in court?)</p>	<p>This applies for the Suspects and Police arrests section</p>
6	<p>There is a mixture of signs used to record the date. i.e. dashes (-) and strokes (/) are both used in recording the date</p>	<p>The upgraded system should use one style, either a dash or stroke but not mix it up in the recording of dates</p>	<p>Across all sections, wherever the date is required</p>
7	<p>Accessing reports in the current system is quite challenging. For example, the data entry sections (Suspects, Arrests and Court cases) are not linked, therefore if one requires a summary report of a case and chooses to use the suspects search section, details of arrests and court cases data will not be captured even if the data was entered</p>	<p>The upgraded system should provide for a user friendly way of accessing reports and ensure the sections are linked</p>	<p>Applies to all sections (Suspects, Police arrests, Court cases)</p>
8	<p>The current system doesn't have provision for digital data collection using a smart phone</p>	<p>The upgraded system should provide for digital data collection using mobile phones both online and offline</p>	<p>Applies to the entire database</p>



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9	<p>In the current system, some fields such as the offence type has to re-entered in each section (i.e. during Suspects, Police arrests and Court cases entries)</p>	<p>The sections should be linked so that repeated fields are not re-entered in the subsequent sections if the options don't change, but provision should be made for updating those fields in the already entered sections. For example if the offence during suspects data entry changes or additional counts and suspects emerge at the point of arrest or court cases entry, the system should provide for an "update the suspects or police arrests data" option, this allows the suspects/arrests data entry screen to pop up for any updates required, the updates are made then any new data can be entered</p>	<p>Suspects, Police arrests and Court cases sections</p>
10	<p>The current system requires a fresh new entry for all the variables for additional suspects or offenders for a single case or offence. For example, when entering additional suspects, you have to perform a fresh new entry for all the variables to add multiple suspects or offenders on the same case</p>	<p>There should be provision for adding multiple suspects/offenders without closing and adding entries for example after one suspect is entered, there should be a question (yes/no) prompting entry for additional suspects or offenders including the required details before moving on to the next questions or fields</p>	<p>Suspects, Police arrests and Court cases sections</p>
11	<p>The current system has an offline version that developed a technical glitch and is not functional now.</p>	<p>The upgraded system should have an offline system to allow data entry in areas where there is no network and then later upload the data after accessing internet. An offline data entry App is required</p>	<p>Applies for data entry across all sections (Suspects, Police arrests and Court cases)</p>



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Annex 4: Data fields requirements

SUSPECTS SECTION					
#	Variable name	Definition	Data type	Question type	Variable entry type
1	UWA Suspect Number	UWA Suspect Number (Act as a suspect unique identifier)	Not Applicable	Open ended	Automatically generated
2	Name of suspect	Name or names of the suspects	Qualitative	Open ended	Single entry
3	Sex of suspect	Sex (F/M) of the suspects	Qualitative	Open ended	Single entry
4	Age of suspects	Age in years of the suspects	Quantitative	Open ended	Single entry
5	Occupation of suspects	Type of employment of the suspects	Qualitative	Open ended	Single entry
6	Nationality of the suspects	Country of origin of suspects	Qualitative	Closed ended	Single entry
7	District of suspects	District of origin of suspects	Qualitative	Closed ended	Single entry
8	Sub county of suspects	Sub County of origin of suspects	Qualitative	Closed ended	Single entry
9	Parish of suspects	Parish of origin of suspects	Qualitative	Closed ended	Single entry
10	Village of suspects	Village of origin of suspects	Qualitative	Closed ended	Single entry
11	Ethnicity of suspects	Tribe of suspects	Qualitative	Closed ended	Single entry
12	Finger prints	Fingerprints of suspect(s)	Not Applicable		
13	Offence location	Place where the offence is committed			
13.1	<i>District</i>	District where offence is committed	Qualitative	Closed ended	Single entry
13.2	<i>Sub County/Division</i>	Sub County/Division where offence is committed	Qualitative	Closed ended	Single entry
13.3	<i>Parish</i>	Parish where offence is committed	Qualitative	Closed ended	Single entry
13.4	<i>Village</i>	Village where offence is committed	Qualitative	Closed ended	Single entry
13.5	<i>Location coordinates</i>	GPS coordinates of the offence location	Not Applicable	Open ended	Automatically generated
14	Other suspects	This captures unique data fields above if there are additional suspects to an offence	Suspects	Open ended	Single entry



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15	Offence	Offences committed by suspects	Qualitative	Closed ended	Multiple entry
16	Was/Were the suspects arrested	Transition question to the next section (Arrests section), if the answer is yes	Qualitative	Closed ended	Single entry
POLICE ARRESTS					
a	Are any updates required under the suspects section?	Before performing data entry for arrests data, the entrant checks a yes or no to this question, then proceeds to search	Qualitative	Closed ended	Single entry
b	Search by name option provided	The data entrant searches for the name of the suspect(s) arrested in case updates are required under the suspects section before entering the police arrests data. The search displays the name, offence and UWA suspects number			
c	If yes, the suspects entry screen is displayed?	Once the suspects screen is displayed, the updates are made, saved and submitted accordingly, then the data entrant proceeds to the police arrests section			
17	Arrest date	Date of arrest	DD/MM/YY	Open ended	Single entry
18	Time of arrest	Time of arrest	Hr:Min:Sec	Open ended	Single entry
19	Place of arrest	Place where the arrest was made and location coordinates			
19.1	District	District where arrest was made	Qualitative	Closed ended	Single entry
19.2	Sub County/Division	Sub County/Division where arrest was made	Qualitative	Closed ended	Single entry
19.3	Parish	Parish where arrest was made	Qualitative	Closed ended	Single entry
19.4	Village	Village where arrest was made	Qualitative	Open ended	Single entry
19.5	Location coordinates	GPS coordinates of the arrest location	Not Applicable	Open ended	Single entry
25	Conservation Area (CA)	CA close to place of arrest	Qualitative	Closed ended	Single entry
26	Police station of origin	Police station where the case/offence was reported first?	Qualitative	Open ended	Single entry
27	Current police station	Where the case is currently being handled	Qualitative	Open ended	Single entry
28	Arresting agency	Institutions that made the arrest	Qualitative	Closed ended	Multiple entry



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29	Additional suspects under the same offence arrested but with unique/varying information above	Any additional suspects under the same offence but with different arrest data details (yes/no)	Qualitative	Closed ended	Single entry
30	Method of detection	How the offence detected	Qualitative	Closed ended	Multiple entry
31	Exhibits	Name of wildlife exhibits, tools, equipment and any other		Open ended	Multiple entry
32	Quantity	Quantity of exhibits in Kgs, Pieces or Numbers		Closed ended	Multiple entry
33	Exhibit type	Wildlife/Implement			
34	Attachments	Photos, files etc (Attach if available)		Open ended	Multiple entry
35	UWA Arrest No.	CA Case Number	Not Applicable	Open ended	Single entry
36	CRB Number	Police CRB Number	Not Applicable	Open ended	Single entry
37	Did the Case appear in Court	Transition question to the next section (Court cases section)	Qualitative	Closed ended	Single entry
COURT CASES					
e	Are any updates required under the suspects or arrests sections?	Before performing data entry for court cases data, the entrant checks a yes or no to this question, then proceeds to search	Qualitative	Closed ended	Single entry
f	Search by CRB Number option provided	The data entrant searches for the CRB number in case updates are required under the suspects and police arrests sections before entering the court cases data. The search displays the name, offence and CRB number			
g	If yes, the suspects or police arrests entry screens is displayed?	Once the suspects or police arrests screen is displayed, the updates are made, saved, and submitted accordingly, then the data entrant proceeds to the court cases section			
38	Prosecutors	Names of the prosecutors	Qualitative	Open ended	Multiple entry
39	Status of case	Ongoing investigation, In Court, Closed, Re-opened	Qualitative	Closed ended	Multiple entry



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40	Specific case status	Fined by Mgt, Cautioned by Mgt, Arrest/Detention, Police bond, Jumped/Skipped bond, Charged, Remand, Bail, Perusal, Further invest., Dismissed, Convicted,	Qualitative	Closed ended	Multiple entry
41	Multiple offenders with varying court case data details	If the case has multiple offenders with varying or unique court case data details e.g., different charges, different case status, there is provision for capturing all these details	Qualitative	Closed ended	Single entry
42	Court name	Name of the court handling the case	Qualitative	Closed ended	Single entry
43	Court Number	Court Case File Number	Not Applicable	Open ended	Single entry