The Wildlife Conservation Society (WCS) Cambodia Program
TERMS OF REFERENCE
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Position	: Geospatial Specialist
Report to	: Senior Technical Advisor, Landscape Program Manager, National Geospatial Technical Advisor
Sector	: GCP Asia – Mekong region/WCS Cambodia Program
Unit	: Spatial Analytics Department/Tonle Sap Landscape
Position Type	: Full-Time
Project Name	: WCS Tonle Sap Landscape
Duty Station	: WCS PP Office with regular travel to project sites across the landscape

Organization Background:
The Wildlife Conservation Society (WCS) is a US non-profit, tax-exempt, private organization established in 1895 that saves wildlife and wild places by understanding critical issues, crafting science-based solutions, and taking conservation actions that benefit nature and humanity. With more than a century of experience, long-term commitments in dozens of landscapes, presence in more than 60 nations, and experience helping to establish over 150 protected areas across the globe, WCS has amassed the biological knowledge, cultural understanding, and partnerships to ensure that vibrant, wild places and wildlife thrive alongside local communities. Working with local communities and organizations, that knowledge is applied to address species, habitat, and ecosystem management issues critical to improving the quality of life of poor rural people whose livelihoods depend on the direct utilization of natural resources.

Program Overview:
The Wildlife Conservation Society (WCS) is a world leader in on-the-ground wildlife conservation. WCS has been working in partnership with the Royal Government of Cambodia since 1999, providing technical advice and support for the conservation of key habitats and species across the country. Within the Northern Tonle Sap Lowland Protected Landscape, our collaborative projects with the Ministry of Environment (MoE) and Provincial Department of Environment (PDoE) focus on law enforcement, community-based eco-tourism, rangers, and community SMART patrol, biodiversity research & and monitoring, MoE's protected area zonation and management.
In all protected areas (PA) under the jurisdiction of the Ministry of Environment (MoE) where the community or community land use areas are located inside, the zonation process is required according to the PA Law promulgated in 2008 to ensure effective management, livelihood improvement, and maximize the protection of key species and habitats in the area. MoE and respective PDoE are the lead agencies for CPA establishment, PA law enforcement, protected area zonation & and management plan development, including the demarcation of PAs. WCS cooperates with MoE and PDoE at each target province around the Tonle Sap Landscape to provide technical and financial support to improve the effectiveness of the protected area management, biodiversity conservation, and livelihood improvement in line with the legal framework of the Royal Government of Cambodia.

Purpose of Position:
A geospatial specialist is expected to handle advanced geospatial and drone technology to support conservation efforts on the ground efforts including spatial analysis, mapping and monitoring, spatial data management, drone deployment, and other spatial information platforms of the WCS Cambodia program. The Geospatial Specialist is to work closely with the Spatial Analytics Department, landscape staff, government partners, and key stakeholders on a variety of spatial data, GIS and remote sensing techniques, drone deployment, field support, geospatial database, and data management tasks for WCS Cambodia Tonle Sap Landscape.

Key responsibility and scope of work:

Geospatial Tasks:

1. Using Geographic Information Systems (GIS) and remote sensing (RS) techniques to analyze spatial data related to biodiversity, habitat loss, land use change, and other environmental factors within the Tonle Sap landscape.
2. Collecting, processing, and analyzing geospatial data.
3. Mapping and monitoring the land use and land cover change across the Tonle Sap Landscape by using Google Earth Engine technology in combination with GIS, Remote Sensing, and Drone technology.
4. Organizing, documenting, and managing geospatial datasets, creating metadata for datasets of the project to ensure data quality, accuracy, and integrity.
5. Creating maps and visualizations to support decision-making and planning.
6. Providing mapping services for cartographic requests from the project team
7. Providing drone-based technology surveys for bird counting and biodiversity monitoring to support all wetland sites of the Wildlife Health program across key identical waterbird colonies.
8. Providing technology services for visualization to landscape managers and decision makers such as cartographic, map layouts, satellite imageries, and drone imageries.
9. Collating, manipulating, and updating spatial data from respected project sites across the Tonle Sap Landscape.
10. Deploying drone technology and engine learning-based data-training model for improving biodiversity monitoring and conservation planning.
11. Providing technical support for field teams, including training in GPS data collection, map reading, drone survey, and other geospatial tools relevant to conservation activities.
12. Working closely with team members, government agencies, local communities, and stakeholders to integrate geospatial information into conservation planning and management initiatives.
13. Staying informed about advancements in geospatial technology and methodology to improve analytical capabilities and efficiency.
14. Maintaining spatial datasets by ensuring accuracy and quality.

GIS

1. Responding to Fire Information for Resource Management System (FIRMS) monitoring.
2. Providing training and capacity building to landscape staff on sing NASA FIRMS data for tackling and responding to forest fire threats across the landscape.
3. Assist the National Geospatial Manager in mapping, processing, and reporting of geospatial study reports for the Tonle Sap landscape.
4. Support the livelihood team on mapping process related to the CPA, CFi boundary demarcations, zoning, resources use, and stakeholder mapping tasks.
5. Support the landscape zoning team on the protected area zonation process from the sketches to final products.
6. Support the SRP team on SRP paddy-field geodata collection, manipulation, and map visualizations.
7. Collating, manipulating, and updating all spatial data from respected project landscapes for activity planning and reporting materials.
8. Supporting project teams at each site and six co-applicants to map and present their key inputs on the maps.
9. Supporting the landscape team to digitize, query, compute, and map for any specific assignments.
10. Undertaking spatial analysis to extract, explore, and examine the results (feature data) to prove highly effective for evaluating certain locations for specific purposes, estimating, and predicting outcomes, interpreting and understanding change, and detecting important patterns hidden in the geo-datasets.

11. Using a range of GPS tools in the field and undertaking desk-based data to capture (digitizing) to convert paper maps to GIS datasets for example, recording the location of roads, rivers, forests, lakes, data on people, wildlife population distribution, vegetation, education/awareness raising and livelihood.
12. Performing other tasks as needed by supervisors, project manager, and technical advisor(s).

Remote Sensing

1. Download FIRMS data (e.g., fires detection from Moderate Resolution Imaging Spectroradiometer (MODIS) aboard the Aqua and Terra satellites, and the Visible Infrared Imaging Radiometer Suite (VIIRS) aboard S-NPP and NOAA 20).
2. Obtain available satellite imagery (e.g., Landsat 7, Landsat 8, Sentinel-1A, Sentinel-1B Sentinel-2A, Sentinel-2B, Sentinel-3, Sentinel-5P and other sensor products) as needed.
3. Digitization of landscape features on remote sensed data.
4. Support landscape technical team assess, evaluate, and calculate carbon volume and carbon off-set retained by the peat, flooded forest, and vegetations at all key project sites.
5. Interpret satellite image segmentation for land-use/land-cover mapping for habitat monitoring.
6. Provide image interpretation for remote sensing resampling features.
7. Tasks as needed by supervisor and technical advisor(s).

Others

1. Strong experience in using geographical information system (GIS) software such as Arc GIS,QGIS, web-based mapping application, Google Earth Engine technology and Remote Sensing.
2. Provide technical support for project SMART officers.
3. Coordinate/assist training as needed.

Deliverables

1. Annual LULC Reports, geospatial datasets, and metadata sets.
2. Maps and visualization material for presentation, publications, and technical reports.
3. Training materials.
4. Water quality study reports by satellite images and geo-climate spatial data processing and analyses.

Qualifications and Experience:

- Bachelor's degree in land management and land administration, agriculture, forestry, environmental science, biodiversity conservation, cartography, climate change, computer science/software engineering or a related field.
- Experience working on wildlife conservation, environmental issues, protected area management, fisheries and forestry.
- Minimum four years of experience working in this area.
- Strong facilitation, presentation, and coordination skills, and a good understanding of fisheries management, wildlife conservation, rural context, and rural communities are advantageous.
- Excellent interpersonal and communication skills, and ability to work independently and as part of a team.
- Good in English (especially reading and writing), fluency in Khmer.
- Good analytical/problem-solving and critical thinking skills.
- Good Computer skills (MS Word, Excel and PowerPoint, and GIS).

Ability

- Ability to handle multiple tasks and assignments simultaneously required.
- Spending long periods in remote locations.
- Living and staying with communities.
- Work overtime when required.

- Working on own initiative with minimum supervision and staying on tasks.
- Travelling by boat and motorbike.
- Work in close collaboration with government agencies such as the Department of Agriculture Forestry and Fisheries (DAFF), the Department of Environment (DoE), the Department of Water Resources Management and Meteorology (DoWRAM).
- Maintain excellent communication with and encourage strong participation of local staff.
- Liaise with partners, the private sector, and international and local NGOs as required.