CONCEPT NOTE

Workshop

Geospatial technology for sustainable landscape management and REDD+ implementation in Cambodia

23rd September, 2021

Date: 23rd September 2021

Online format

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Institutional Logos

Acronyms and Abbreviations

AST	Applied Science Team
CEMIS	Cambodia Environment Management Information System
CEO	Collect Earth Online
GPL	Greening Prey Lang
MOE	Ministry of Environment
NASA	National Aeronautics and Space Agency
NFMS	National Forest Management System
PPAM	Provincial Protected Area Management
RLCMS	Regional Land Cover Monitoring System
RUA	Royal University of Agriculture
RUPP	Royal University of Phnom Penh
RS	Remote Sensing
SV-SM	SERVIR-Mekong
USAID	U.S. Agency for International Development
UNDP	United Nation Development Program
REDD+	Reducing Emissions from Deforestation and Forest Degradation
VCS	Verified Carbon Standard
OSU	Oregon State University
WCS	Wildlife Conservation Society
CI	Conservation International
WWF	World Wide Fund
JICA	Japan International Cooperation Agency
FAO	Food and Agriculture Organization
WB	World Bank
ADB	Asian Development Bank

1. Background

Through a unique partnership between the U.S. Agency for International Development (USAID) and the U.S. National Aeronautics and Space Agency (NASA), SERVIR-Mekong is harnessing space technology and open data to help address development challenges related to a changing climate in the Lower Mekong region. SERVIR-Mekong works in partnership with leading regional organizations to help the five Lower Mekong countries of Cambodia, Lao PDR, Myanmar (Burma), Thailand and Vietnam to use information provided by Earth observing satellites and geospatial technologies to manage climate risks.

The USAID Mission to Cambodia (USAID/Cambodia) requested technical support from SERVIR-Mekong to use satellite and geospatial information to help Cambodia manage its protected forests and build capacity of the stakeholders to use such information. That request led to a 2-year engagement with USAID/Cambodia and other stakeholders in the country.

In recent years, forest cover loss in Cambodia has been accelerating and is one of the major global contributors to carbon emissions and climate change. Between 2010 and 2016, forest cover in Cambodia has decreased from 57% to 48.14% (Ministry of Environment, 2020). Deforestation and land degradation have negative impacts on the environment, including biodiversity loss and water resource issues. As such, the USAID bilateral mission in Cambodia has been supporting the country in protecting its forests and protected areas through biodiversity conservation and sustainable landscape management.

Supported by the United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation (UN-REDD), the Cambodian National REDD+ Strategy (NRS) 2017-2026 was officially endorsed in 2017. The NRS aims to reduce annual deforestation by half in comparison to the rate defined during the Forest Reference level period between 2006 and 2014, which was approximately 1.5% per year. In order to achieve this target, one of the objectives focuses on improving management and monitoring of forest resources and forest land use (MOE, 2017).

The UNREDD programme, aims to enable Cambodia to be ready for REDD+ implementation, including development of necessary institutions, policies and

capacity. It would help Cambodia to recognize biodiversity conservation co-benefit and to achieve its national target of maintain 60% forest cover, and align with the National Forest Programme, which aims to develop and manage forests to ensure the sustainable benefits for improving livelihoods, environmental services and overall economic development. UNDP support UNREDD programme to establish National REDD+ Readiness Coordination Mechanism which consists of multi-government agencies and all stakeholders. UNDP support Ministry of Environment to develop the National Forest Monitoring System (NFRS) and the Cambodia Environmental Monitoring Information System (CEMIS) which contribute for the Measurement, Reporting and Verification (MRV) system of REDD+ in Cambodia. The MRV system consist of information of forest monitoring and carbon accounting from national to project level.

Besides the UN-REDD programme, USAID/Cambodia and other development partners strongly support project-level REDD+ activities and their contribution to the voluntary carbon market through validation by the Verified Carbon Standard (VCS). These REDD+ projects will enhance forest protection, reduce carbon emissions and earn carbon credits, which can be sold to the market and ultimately contribute to improving the livelihoods of local communities.

To support Cambodia in enhancing forest protection and monitoring for sustainable landscape management and REDD+ projects in Cambodia, SERVIR-Mekong partnered with USAID-Greening Prey Lang (USAID-GPL), Oregon State University, the NASA Applied Science Team (AST). Collaboratively developed two geospatial tools and associated services. One such tool is the Cambodia Protected Forest Alert System (or SAR alert tool for brevity) which forms part of the Cambodia Environment Monitoring Information System (CEMIS) and is broadly referred to as the Protected Area Monitoring Platform (PAMP). The other is the Biophysical Monitoring and Evaluation (M&E) Dashboard. These tools are useful for forest monitoring at both the project and landscape level and provide important information on protected areas and planning for conservation activities.

The SAR alert tool is built within a cloud-based platform, Google Earth Engine (GEE), with a Machine Learning (ML) model using Sentinel-1 Synthetic Aperture Radar (SAR) data which can detect the change in forest on-the-ground at all times and all weather conditions. Recently, the SAR forest alert tool has been piloted in protected areas

within the Prey Lang extended landscape, including the Prey Lang Wildlife Sanctuary – a nature reserve that covers 3,600 km^2 in northern Cambodia. The forest alert validation process has been piloted among the USAID-GPL team both to test workflow methods and to calculate accuracy of the alert system. USAID-GPL will work with communities and other NGOs to integrate the tool within REDD+ monitoring plans to support community patrolling and REDD+ project Measurement, Reporting, and Verification (MRV) reporting.

The Biophysical M&E Dashboard tool was developed to support USAID/Cambodia and other stakeholders to provide insight and reports on the effectiveness of biodiversity and conservation-related project interventions. The tool is centered around four key components which provide information on biological productivity of vegetation and vegetation health (Enhanced Vegetation Index- EVI, from MODIS), forest monitoring (forest gain/loss, derived from Landsat), forest alerts (threat alerts, derived from Landsat and SAR Sentinel-1), and fire monitoring (hotspots and burned area, derived from MODIS). This tool is useful for evaluation, monitoring and reporting landscape improvements for protected areas and conservation projects in Cambodia. Ensuring ecological stability and biological productivity over large areas is critical for landscape management and conservation policy.

The tools and data are open to all users, with an easy interactive interface that can be applied to all levels of stakeholders who work on forest monitoring, REDD+ projects and protected area management, amongst other applications.

Therefore, SERVIR-Mekong partner with UNDP in Cambodia and USAID Greening Prey Lang and Oregon State University to organize this workshop to introduce the tools of SERVIR-Mekong including their utility and versatility to all partners in Cambodia. This will facilitate an open discussion with stakeholders on how these services can be utilized effectively to enhance the landscape management and REDD+ project implementation in Cambodia, as well as potential opportunities for expansion and replication.

2. Objectives

- To introduce SERVIR-Mekong tools and services, leveraging the opportunity to discuss how geospatial technology and open data can better service local stakeholder needs with regards to forest monitoring and REDD+ activities in Cambodia.
- To take feedback of the wider group of stakeholders on the remaining needs and possible other uses of SERVIR-Mekong's geospatial technology

3. Expected outcomes

- Better understanding of SERVIR-Mekong's geospatial tools and their application in landscape management and REDD+ project implementation.
- Importance of geospatial technology for local stakeholder engagement in forest monitoring and REDD+ project implementation highlighted.
- Potential opportunities and uptake of SERVIR-Mekong's tools identified and discussed.
- Geospatial technology and open data for enhancing sustainable landscape management in Cambodia promoted

4. Proposed Date and Time

- 23rd September, 2021
  Approximately 3 hours in duration (08:30- 11:30).

Meeting: Online with Zoom platform.

Join Zoom Meeting
https://zoom.us/j/97761653693?pwd=VDQrU1NCT21jYWVYa1NuUFIvLzdvZz09

Meeting ID: 977 6165 3693
Passcode: 479337

5. Organizing Partners

The workshop is organized by SERVIR-Mekong in partnership and supported by UNDP/Cambodia, the USAID Greening Prey Lang project and Oregon State University

- USAID/Greening Prey Lang (GPL): Project leading an integrated approach to promote conservation-friendly, resilient, and low-emission sustainable economic development. Project improving participation and evidence-based decision making in Cambodia's management of its forests and biodiversity to lower greenhouse gas emissions, create economic opportunities for rural people, and mobilize investment in forest carbon, ecotourism, and sustainable agriculture. GPL prioritize applied technology in forest monitoring and conserve biodiversity.
- Oregon State University (OSU): The Applied Science Team as Tools technical development partner, OSU leading the Geo-spatial technology in forest land cover and ecosystem mapping and management.
- United Nation Development Program (UNDP) in Cambodia: UNDP lead the UNREDD programme, one of the main focus on encourage stakeholders' engagement from governmental agencies to civil society, NGOs and Private sector, in the REDD+ Readiness process and develop a comprehensive national consultation validation process for the National REDD+ Strategy and implementation. UNDP support MOE to development of National Forest Monitoring System, Cambodia Environmental Monitoring Information System (CEMIS) which contribute information to MRV system and pave the road to unify forest and carbon data from local to national scale in Cambodia.

6. Tentative agenda

Agenda

An interactive session from 08:30-11:30

Time	Content	Presenter
8:30 - 8:45	Opening speech remarks - USAID/Cambodia (Mr. Richard Chen – Director of USAID mission in Cambodia) - UNDP (Ms Sonali Dayaratne – UNDP Country Resident Representative -OIC)	
8:45 - 8:55	First Speaker and Presentation: Importance of geospatial technology for national forest monitoring and REDD+ approach in Cambodia.	Jamil Mahmood, UNDP
8:55 - 9:30	Second Speaker and Presentation: Introduction SERVIR-Mekong tools and services (SAR Alert tool and Biophysical M&E Dashboard).	Nguyen Hanh Quyen, SERVIR-Mekong
9:30 - 9:45	Third Speaker and Presentation: Implementation of forest alerts and forest monitoring in the Prey Lang Extended Landscape	Kong Sophalrachana , USAID-GPL
9:45 - 9:55	Technical Q&A	Ate Poortinga, SERVIR-Mekong
9:55 - 10:10	**Coffee break**	
10:10 - 10:25	Fourth Speaker and Presentation: Geospatial data needs for conservation activities and REDD+ activities in Cambodia (from NGO perspective).	Vises Ung, Conservation International
10:25 - 10:40	The role of community and stakeholder engagement in conservation activities and livelihood support	Colin Moore, Wildlife Conservation Society
10:40 - 11:25	**Facilitated discussion** Topic of discussion: *How can geospatial technology and open data better serve local stakeholders' needs while ensuring community engagement in forest monitoring and REDD+ activities in Cambodia?* The moderator: Dr. David Saah - SERVIR-Mekong Invited panelist: - Mr. Menglim Kim - USAID Cambodia - Mr. Colin Moore – Wildlife Conservation Society	

	- Mr. Werner Kornexl - World Bank - Mr. Jeff Silverman – Conservation International	
11:25 - 11:30	Closing remarks	SERVIR-Mekong

7. Expected Participants:

- SERVIR-Mekong and partners: USAID-GPL; OSU; UNDP; NASA
- USAID: RDMA, Cambodia Mission, Vietnam Mission, Laos Mission, SL experts from the Asia Bureau
- NGO conservation partners network in Cambodia: Conservation International; Wildlife Conservation Society Fauna and Flora International; World Wide Fund; Wildlife Alliance, Maddox Jolie Pitt Foundation, Rising Phoenix Co.,Ltd.
- International Org in Cambodia: FAO; JICA; World Bank; Asian Development Bank; the British Embassy
- University: RUPP; RUA; University of Batambang
- Local non-conservation NGO working on remote sensing technology: Open Development Cambodia, LICADHO

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