WORLD ENVIRONMENT DAY EVENT SERIES

The Modern Road Ecologist's Toolbox

EMERGING TOOLS AND TECHNOLOGIES FOR BIODIVERSITY ASSESSMENTS ON LINEAR TRANSPORT PROJECTS

BACKGROUND

Baseline Biodiversity Assessment (BBA) is a critical part of mitigation planning for transport infrastructure projects. They are a key prerequisite for sustainable infrastructure development and ensuring environmental sustainability both of which are key components of ADB's Strategy 2030.

Ecological data collection and analysis is predominantly carried out through literature reviews, field surveys and public consultations. Though these methods are technically sound, they are often time consuming, expensive and inefficient. In recent years there has been significant growth in technology, tools, apps and online resources for conducting biodiversity assessments. This brings opportunities to make biodiversity assessments more efficient and accurate.

WHAT IS THE GOAL?

This training program aims to help you develop new skills and use new web mapping technologies for designing ecologically friendly transport infrastructure (roads and railways). We will share online tools and resources to conduct Baseline Biodiversity Assessments (BBA). We will demonstrate Software As A Service (SAAS) and Free and Open Source Software (FOSS) applications used to collect, analyze and communicate spatial information.

WHO IS IT FOR?

This training is the first of more training programs that will be organized by ADB to assist government agencies, consulting firms and lending institutions in devising smart infrastructure planning and design to protect natural habitats and biodiversity. No specialized computer training is required. The training is oriented towards current practitioners working in transport infrastructure development, project planning or management, biodiversity assessment, information management, GIS, and information technology. Participants can either attend a single module or all three modules. Participants that attend all three modules will benefit from gaining knowledge on all steps required for data collection, collation, analysis and designing of mitigation measures.

Participants should sign up for the free trial of ArcGIS Online **HERE**. This will enable participants to explore the tools during the training.

Attendees of the training will leave with an understanding of:

- emerging technologies and online data resources
- how the technologies and online resources can be used during field data collection and analysis
- data platform uses for planning and design of ecologically friendly-transport infrastructure in Asia.

Organized by the Environment Thematic Group and Transport Sector Group

MODULE 1 | 29 June 2021, 1–3 p.m. (Manila Time) Register **HERE** in advance for this webinar

Initial Assessment of Biodiversity Study Design and Data Needs

In the first module we introduce Biodiversity Baseline Assessments (BBA). They are the simple precursors that inform environmentally sustainable infrastructure design and development. We cover information needed to complete standard assessments and how to obtain the data. This will include data collection, amalgamation, visualization and analysis using web GIS and online tools. We will cover species occurrence data using camera traps and sign surveys using point and transect methods as well as arboreal species surveys. Experiences on integrating local indigenous knowledge and citizen science from Asia will be shared.

AGENDA

Moderator: Karma Yangzom, Principal Environment Specialist, SDCC, ADB

1–1:05 p.m.	**Opening Remarks** Qingfeng Zhang, Chief of Rural Development and Food Security (Agriculture) Thematic Group, concurrently OIC, Environment Thematic Group
1:05–1:45 p.m.	**Introduction on Baseline Biodiversity Assessment (BBA) and Data Needs (Case Studies from Bhutan and Bangladesh)** By Anthony P. Clevenger, Ecological Expert
1:45–2:25 p.m.	**Technical Demonstration of tools to create project specific web map to check adequacy of data** By Benjamin Dorsey, Ecological Expert Assignment 1: Creating a map using open source data. *(Participants should sign up for the free trial of ArcGIS Online **HERE**.)*
2:25–2:55 p.m.	**Questions and Answers**
2:55–3 p.m.	**Closing Remarks** Jamie Leather, Chief, Transport Sector Group, SDCC (TBC)

Take-aways:

- Why conduct a BBA and what role they play in mitigating the impacts of infrastructure development?
- What types of data are needed, how are they collected and used to inform BBAs?
- How can web GIS tools expedite and create better informed BBA and science-based assessments?
- How can these data be used to foster regional cooperation and integration as well as strengthen governance and institutional capacity?

MODULE 2 | 6 July 2021, 1–3 p.m. (Manila Time) Register **HERE** in advance for this webinar

Managing and Analyzing Biodiversity Data

When free or open-source data do not exist, the data needs to be collected through other means. This Module covers tools and best practices for rapidly collecting spatial data to inform biodiversity assessment for projects. This module also discusses the need to share data with project partners and collaborators while also keeping it secure. Historically, this was an intensive and laborious task based on sharing large spatial datafiles, creating static cartography and reports. Today, we can utilize dynamic dashboards to visualize spatial and tabular data. By using the ArcGIS Platform, we will demonstrate building data collection tools and a secure project dashboard. We draw on an ongoing ADB project in Nepal as a case study.

AGENDA

Moderator: Karma Yangzom, Principal Environment Specialist, SDCC, ADB

1–1:05 p.m.	**Opening Remarks** Shanny Campbell, Country Director, Tajikistan Resident Mission, ADB
1:05–2:25 p.m.	**Managing and Analyzing Ecological Data – Demonstration of the Data Dashboard for the Nepal Project** By Anthony P. Clevenger, Ecological Expert and Benjamin Dorsey, Ecological Expert Assignment 2: Creating a basic data platform and dashboard for a project *(Post module assignment: Download and familiarize programs MaxEnt and Circuitscape for Module 3)*
2:25–2:55 p.m.	**Questions and Answers**
2:55–3 p.m.	**Closing Remarks** Yoonee Jeong, Senior Digital Technology Specialist, SDCC

Take-aways:

- How can Apps and data platforms be used to collect, store, visualize and edit your project data?
- You too can create your own dashboard of live data, and share it with stakeholders!
- How to assess project progress, information integrity, and evaluate live data using filters, histograms, and tables.

MODULE 3 | 13 July 2021, 1–3 p.m. (Manila Time) Register **HERE** in advance for this webinar

Mapping Habitat Connectivity for Wildlife

The final module in this series will share how wildlife occurrence data collected from camera traps are used to inform a Baseline Biodiversity Assessment (BBA) and inform next steps towards planning sustainable infrastructure that minimizes impacts on wildlife and ecosystems. We demonstrate ways to collect, visualize and analyze these data using Free and Open Source Software (FOSS) including Maxent and Circuitscape. This will be the most technical webinar of the series covering tools that require some ability to understand spatial statistics and analysis.

AGENDA

Moderator: Karma Yangzom, Principal Environment Specialist, SDCC, ADB

1–1:05 p.m.	**Opening Remarks** Hiroaki Yamaguchi, Director, Transport and Communications Division, SERD
1:05–2:05 p.m.	**Technical Demonstration of Mapping Critical Habitat Connectivity for Wildlife** By Clara Grilo, Ecological Expert and Benjamin Dorsey, Ecological Expert Assignment 3: Creating a resistance surface (MaxEnt) and run least-cost path model (Circuitscape) and follow-up with Instructors.
2:05–2:45 p.m.	**Questions and Answers / Open Discussions on Future Training needs** By Tony Clevenger, Ecological Expert
2:45–2:55 p.m.	**Foresight study on Reimagining the Future of Transport across Asia and the Pacific** By Pamela Chiang, Senior Transport Specialist, Transport Sector Group, SDCC
2:55–3 p.m.	**Concluding Remarks** Bruce Dunn, Director, Safeguards Division, SDCC

Take-aways:

- Data and Tools needed to conduct habitat suitability models, map habitat connectivity and potential wildlife corridors .
- How the outputs of these analyses are used to make mitigation recommendations