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# BioRA DSS Workshop

## Recap Day 3

**BioRA DSS Technical Workshop**
**Phnom Penh, Cambodia**
**15-19 February 2016**

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# Thursday Agenda

| | | |
|---|---|---|
| 08:30 AM | Yesterday's Recap Agenda for the Day | Henry Manguerra |
| 08:45 AM | Introduction to Hands-on Testing Process | Cate Brown |
| 09:00 AM | Hands-on practical and testing adjustments | BioRA consultants |
| 10:00 PM | COFFEE BREAK | |
| 10:30 AM | Hands-on practical and testing adjustments | BioRA consultants |
| 12:00 PM | LUNCH<br><br>PARALLEL SESSION (UP TO TWO FROM EACH COUNTRY) – INFORMALLY DISCUSS OUTSTANDING COUNCIL STUDY ISSUES (ROOM 105 TENTATIVE) | |
| 01:00 PM | Hands-on practical and testing adjustments | BioRA consultants |
| 03:00 PM | COFFEE BREAK | |
| 03:30 PM | Hands-on practical and testing adjustments | BioRA consultants |
| 05:00 PM | Close for the day | |

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# Summary

| Workshop Objective | Coverage | Notes |
|---|---|---|
| Knowledge Transfer - Technical Report | Yes | Preliminary Calibration – Volume 3<br><br>Status and Trends |
| Knowledge Transfer – DSS | Yes | Hands-on |
| DSS Testing | Yes | Introduction/Context |
| Compilation of Comments – Technical Report and DSS | Yes | See next slides |



# Knowledge Transfer

- Presentation and discussion on the following:
  - Calibration results – Geomorphology, Fish, Herpetofauna (Interim Report Volume 1)
  - Status and Trends (Interim Report Volume 2)
  - Users Guide (Interim Report Volume 3)
- Hands-on
  - Interrogating and exploring scenarios
  - Running scenarios

# Comments

- Notion: FA1 characterized by bedrock channel, erosion will be limited
  - False notion because of the fact that the bedrock channel is overlain by a thick layer of sediments
  - Observation that the movement of sediment during the season (deposition and erosion/incision) could be as deep/thick as 9-10 meters
  - Field visit to Mekong River could have been educational
- Relative change in clarity between CS4 (25 percent reduction in sediment) and CS10 (75 percent reduction in sediment) is related to TSS threshold = 50 mg/li
  - Below this threshold, clarity increases tremendously
- Choice of sediment reduction (25 and 75 percent reductions) for CS4 and CS10 were completely arbitrary. They were not directly attributed to any water resources developments



# Comments

- Changes in geomorpohology is the next most important driver after flow, sediment, and water quality as all other ecosystem discipline indicators (e.g., vegetation, fish, herpetofauna, etc) also depend on it
- Selection of indicators is based on the major expected drivers. For example for fish indicators, the main drivers are:
  - Hydrological changes
  - Geomorphological changes
  - Food
  - Connectivity
- Other considerations for selecting indicators include data availability and time/budget constraints
  - Initial: 50 linked indicators/indicator/FA for fish
  - Current: 10-12 linked indicators/indicator/FA for fish

# Comments

- For the overall results, in addition to seasonal means, provide also the annual means of changes in the indicator values
- Fish Diversity vs. Fish Abundance
  - Relative change in abundance in guild (and not individual species – or diversity)
- Onset of dry season, and onset of wet season – reiterated as important for migration and spawning and these are accounted for in the DSS
  - Indicators
  - CS3 includes the timing in addition to shortened session



# Comments

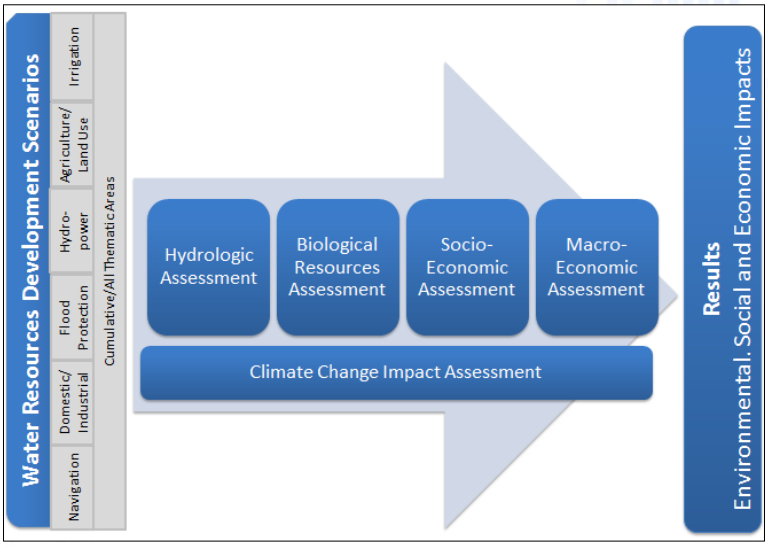
- The completion/finalization of the response curves follows dependencies between disciplines
  - Geormorphology indicators can be completed without waiting for other ecosystem indicators
  - Fish and Herpetofauna depend on geomorphology and other ecosystem indicators such as vegetation

# Comments

- On Thursday morning, review some of the basic concepts that were presented/discussed on Monday
- For testing on Thursday, we need to reinstall a clean copy of the DSS
- On Friday, dedicate a time to hear overall comments from MCs on the report and DSS (3:30 pm Friday)
  - In particular, need comments on S&T
- Presentation on exogenous factors
  - Not due to water resources development factors (e.g., hunting pressures, etc).
  - Combined and is meant to tease out the impact solely of water resources developments
- Comment on geographic units?
- Review how BioRA DSS will be used for assessment of cumulative scenarios



# Overall Assessment Framework

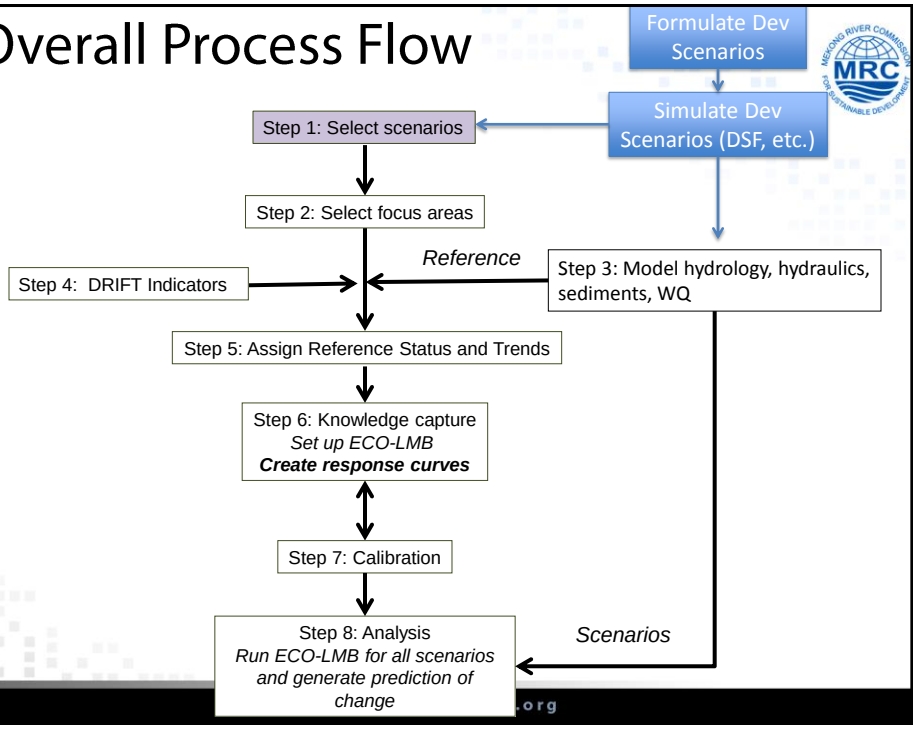


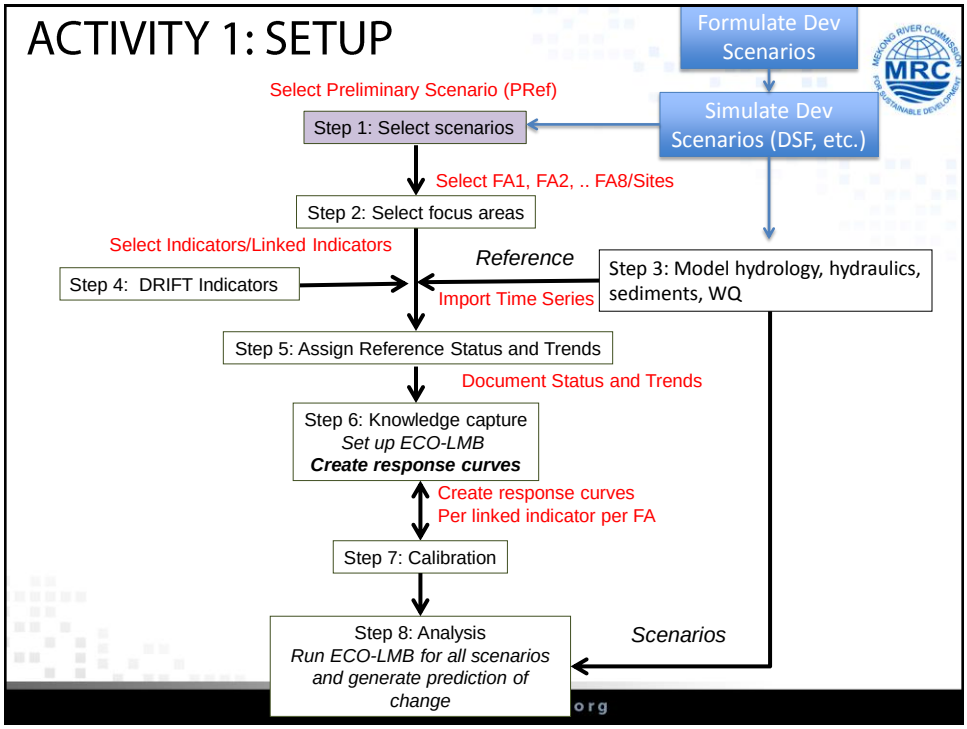
# Three Sequential Activities of the BioRA Team

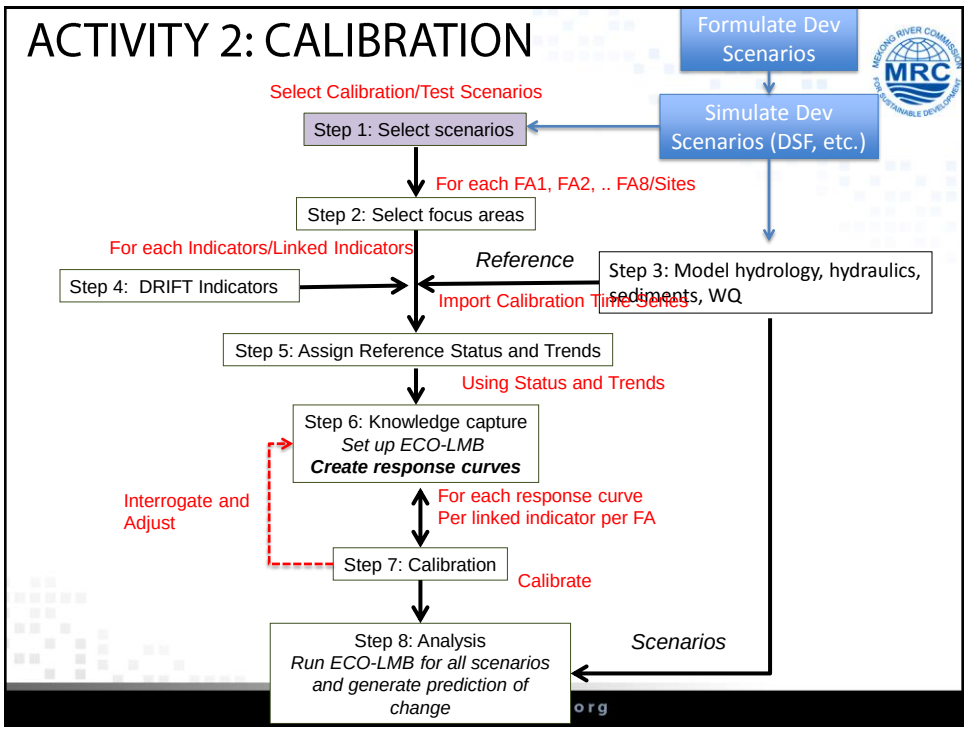
- SETUP AND CONSTRUCT RESPONSE CURVES: Setup of the BioRA DSS which includes the construction of the response curves through KNOWLEDE CAPTURE
  - Using Preliminary Reference Scenario
- CALIBRATE: Calibration of the BioRA DSS
  - Using Calibration Scenarios (and Test Scenarios)
- APPLY (ANALYSIS): Application of the BioRA DSS to assess development scenarios
  - Using Cumulative Scenarios 2007, 2020, and 2040



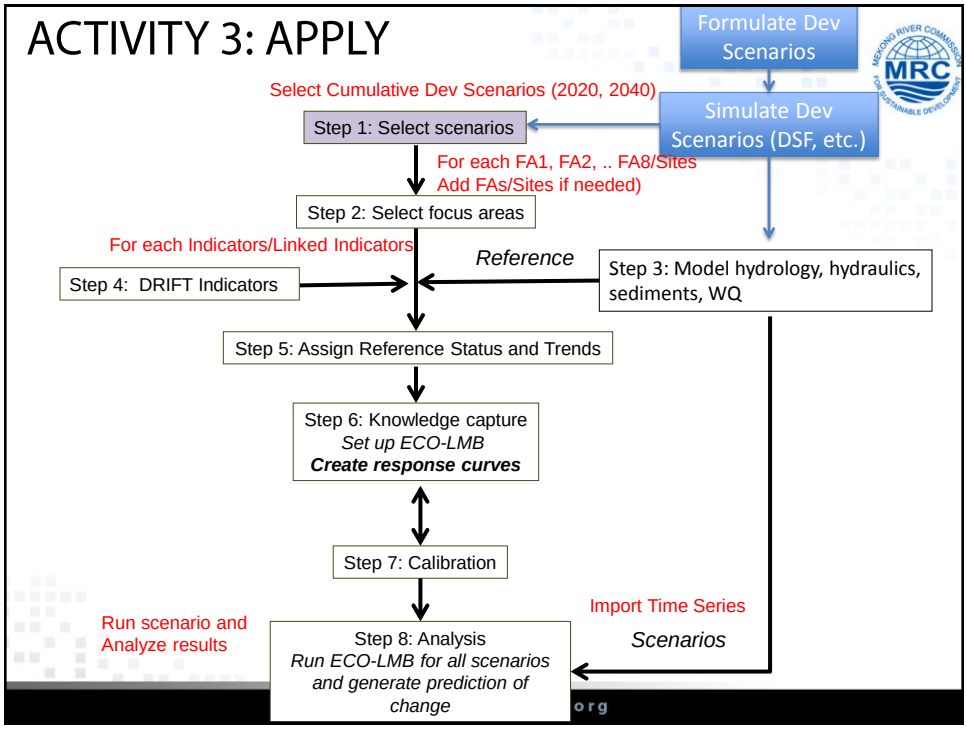
# Overall Process Flow




ACTIVITY 1: SETUP
Formulate Dev Scenarios
Simulate Dev Scenarios (DSF, etc.)
Select Preliminary Scenario (PRef)
Step 1: Select scenarios
Select FA1, FA2, .. FA8/Sites
Step 2: Select focus areas
Select Indicators/Linked Indicators
Step 4: DRIFT Indicators
Reference
Import Time Series
Step 3: Model hydrology, hydraulics, sediments, WQ
Step 5: Assign Reference Status and Trends
Document Status and Trends
Step 6: Knowledge capture
Set up ECO-LMB
Create response curves
Create response curves
Per linked indicator per FA
Step 7: Calibration
Step 8: Analysis
Run ECO-LMB for all scenarios and generate prediction of change
Scenarios


ACTIVITY 2: CALIBRATION
Formulate Dev Scenarios
Simulate Dev Scenarios (DSF, etc.)
Select Calibration/Test Scenarios
Step 1: Select scenarios
For each FA1, FA2, .. FA8/Sites
Step 2: Select focus areas
For each Indicators/Linked Indicators
Step 4: DRIFT Indicators
Reference
Import Calibration Time Series
Step 3: Model hydrology, hydraulics, sediments, WQ
Step 5: Assign Reference Status and Trends
Using Status and Trends
Step 6: Knowledge capture
Set up ECO-LMB
Create response curves
Interrogate and Adjust
For each response curve
Per linked indicator per FA
Step 7: Calibration
Calibrate
Step 8: Analysis
Run ECO-LMB for all scenarios and generate prediction of change
Scenarios

# ACTIVITY 3: APPLY




# Reminders – Friday Wrap Up

| Workshop Objective | Expectation |
|---|---|
| Knowledge Transfer - Technical Report | MCs "good" understanding |
| Knowledge Transfer – DSS | |
| DSS Testing | Suggestions for adjustments and concerns<br><br>Decision to move to next step |
| Compilation of Comments – Technical Report and DSS | Written Comments on Reports<br><br>Any other Comments |

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# Thank You

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