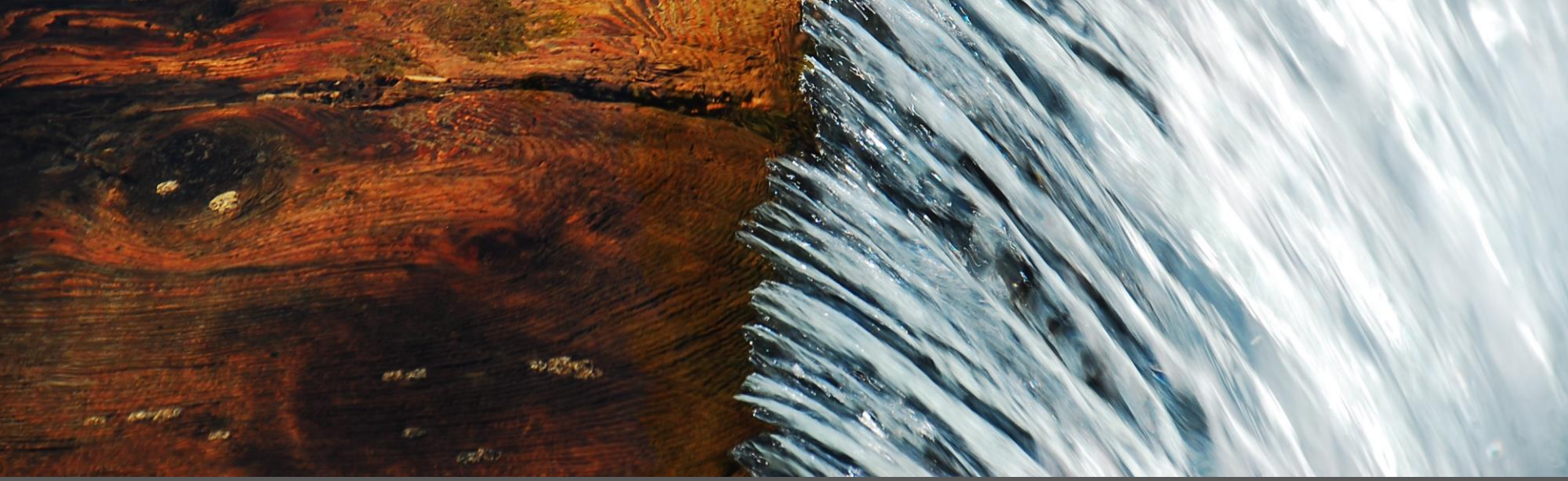

Guidelines for the Multi-Purpose Evaluation of Hydropower Projects

Improving Decision-Making for Mekong Hydropower
MRC's Initiative for Sustainable Hydropower

Sustainable Hydropower Practice Forum
Bangkok: 25-26 October 2016

Dr. Bruce Aylward

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Structure

- Overview of the Guidelines
- Hydropower Planning Support Tool
- Role in the Planning Cycle
- Contribution to Sustainable Hydropower
- Applications of the Guidelines

Guidelines

Overview

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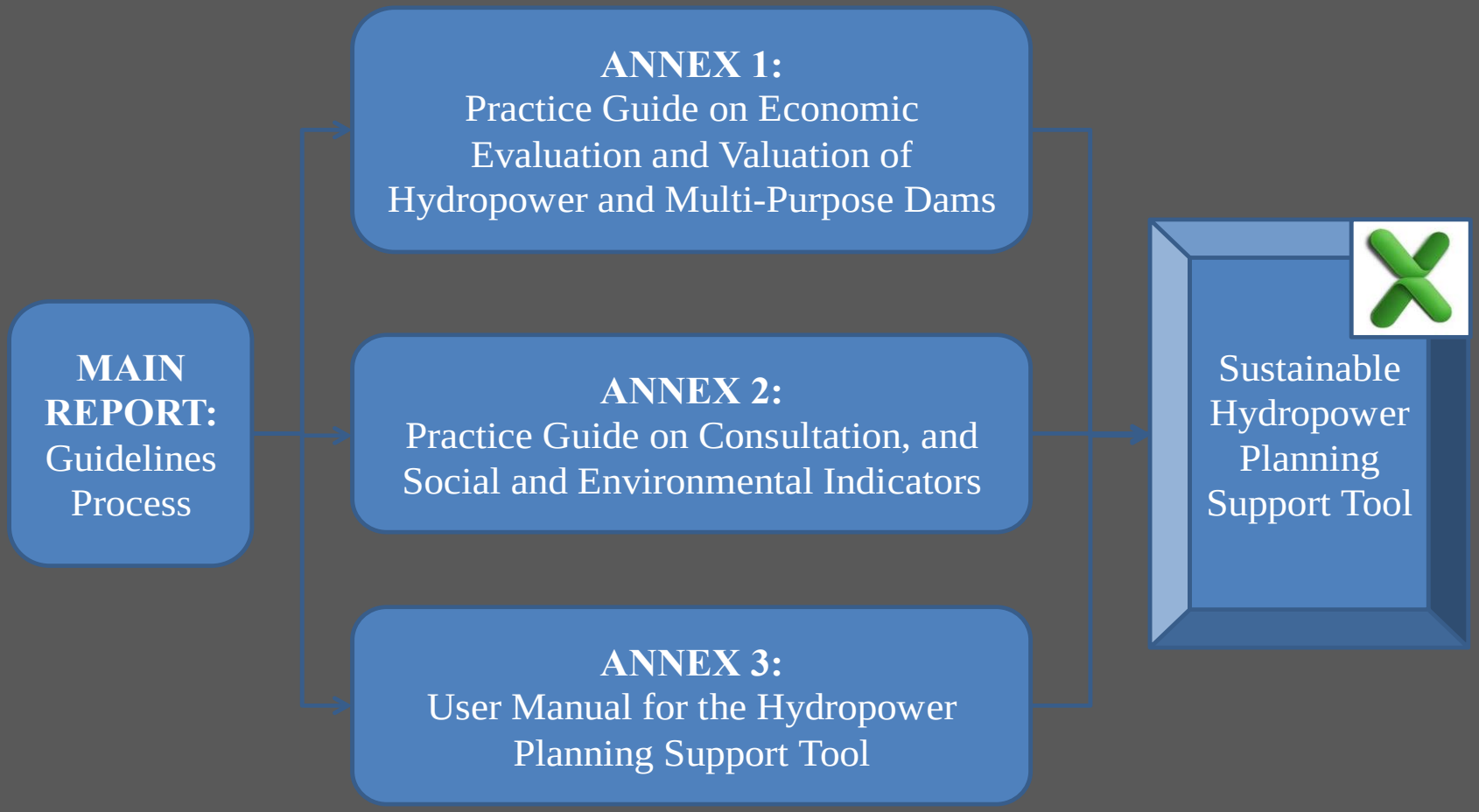
Guidelines Objective

- Address the need to more explicitly integrate social and environmental costs and benefits in hydropower development planning.
- Evaluate hydropower projects from a multi-purpose perspective to increase overall economic benefits and decrease adverse effects on other water uses

ISH02/Guidelines Products



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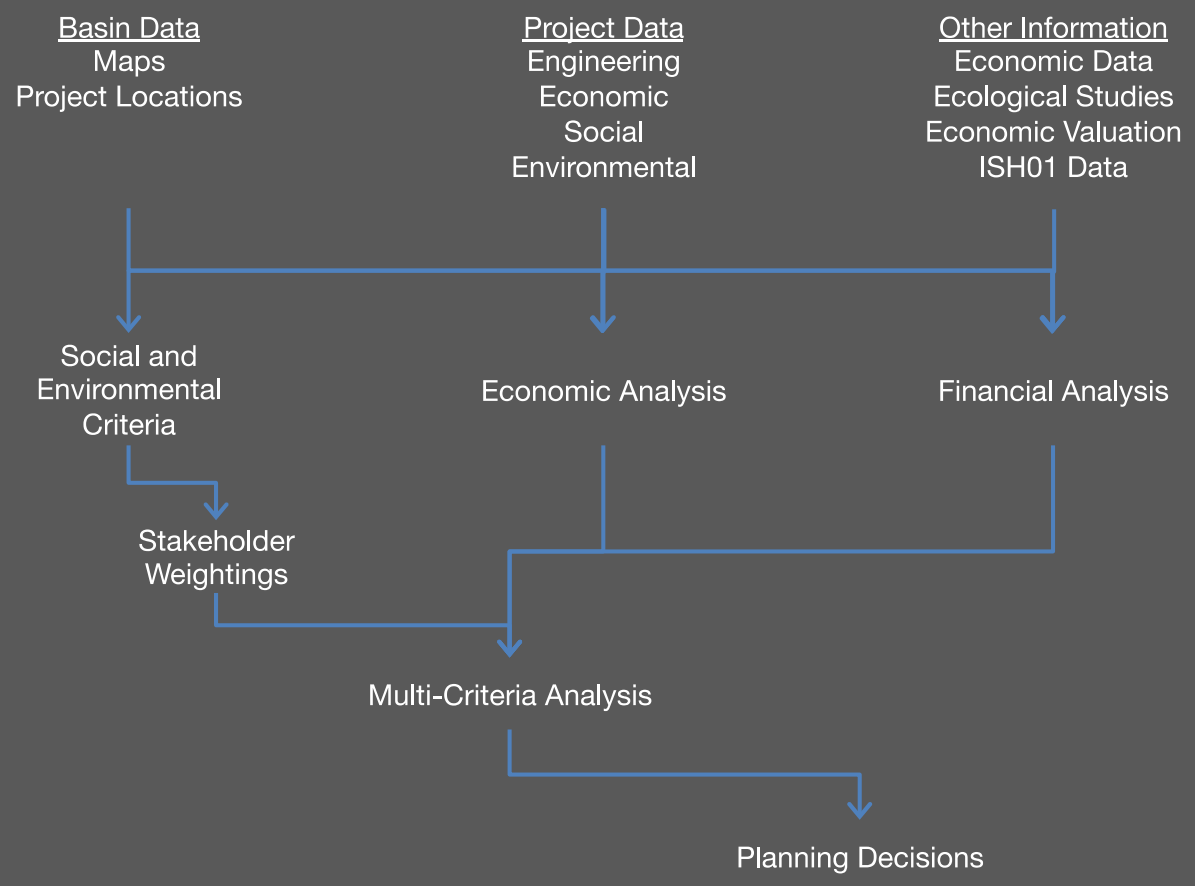
Guidelines Data Flow



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Hydropower Planning Support Tool

HPST

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HPST Structure

Tab Group	Tab Sub Group
Inputs	
Monetary	Financial
	Economic
	Summary
Non-Monetary	
Multi-Criteria Analysis	

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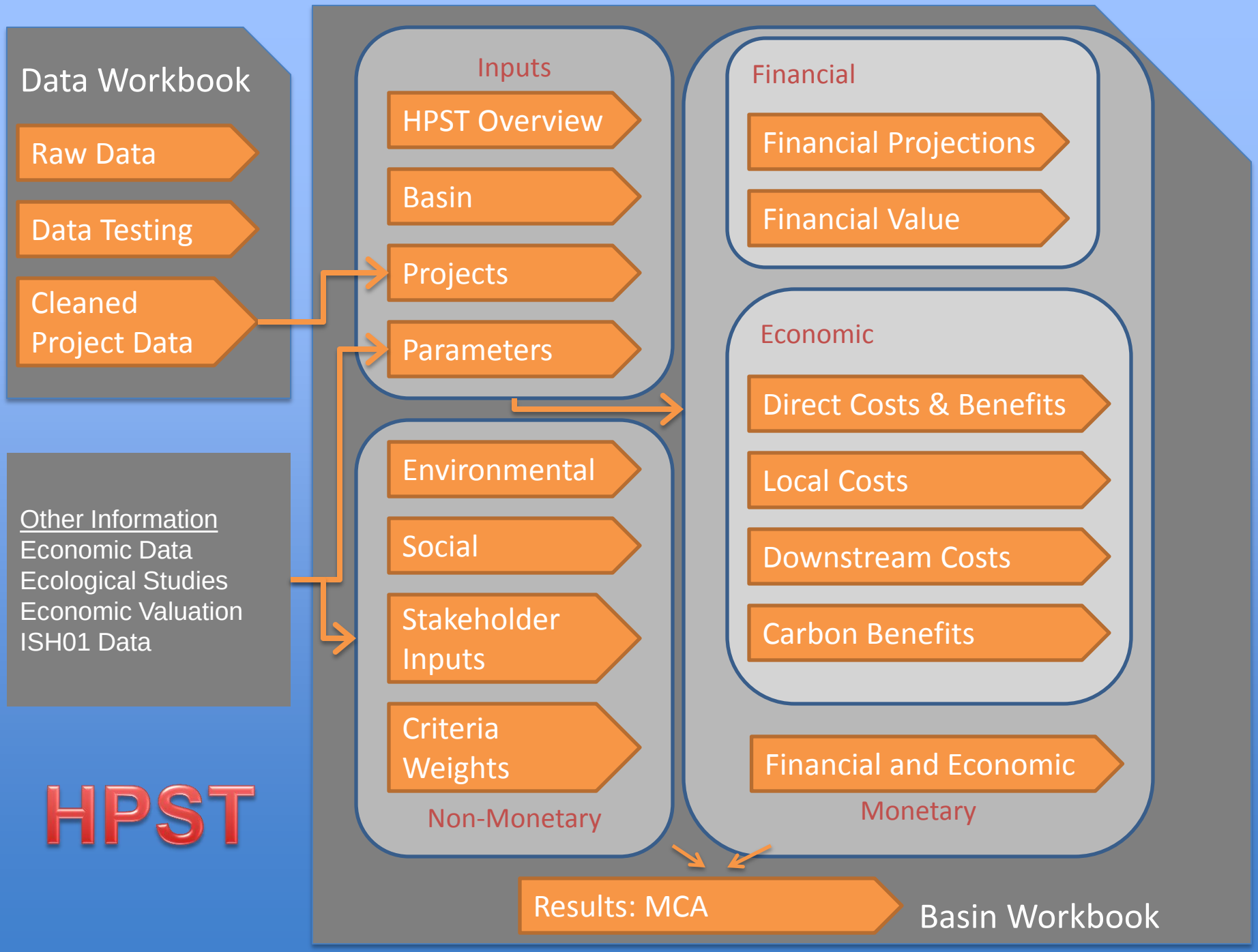
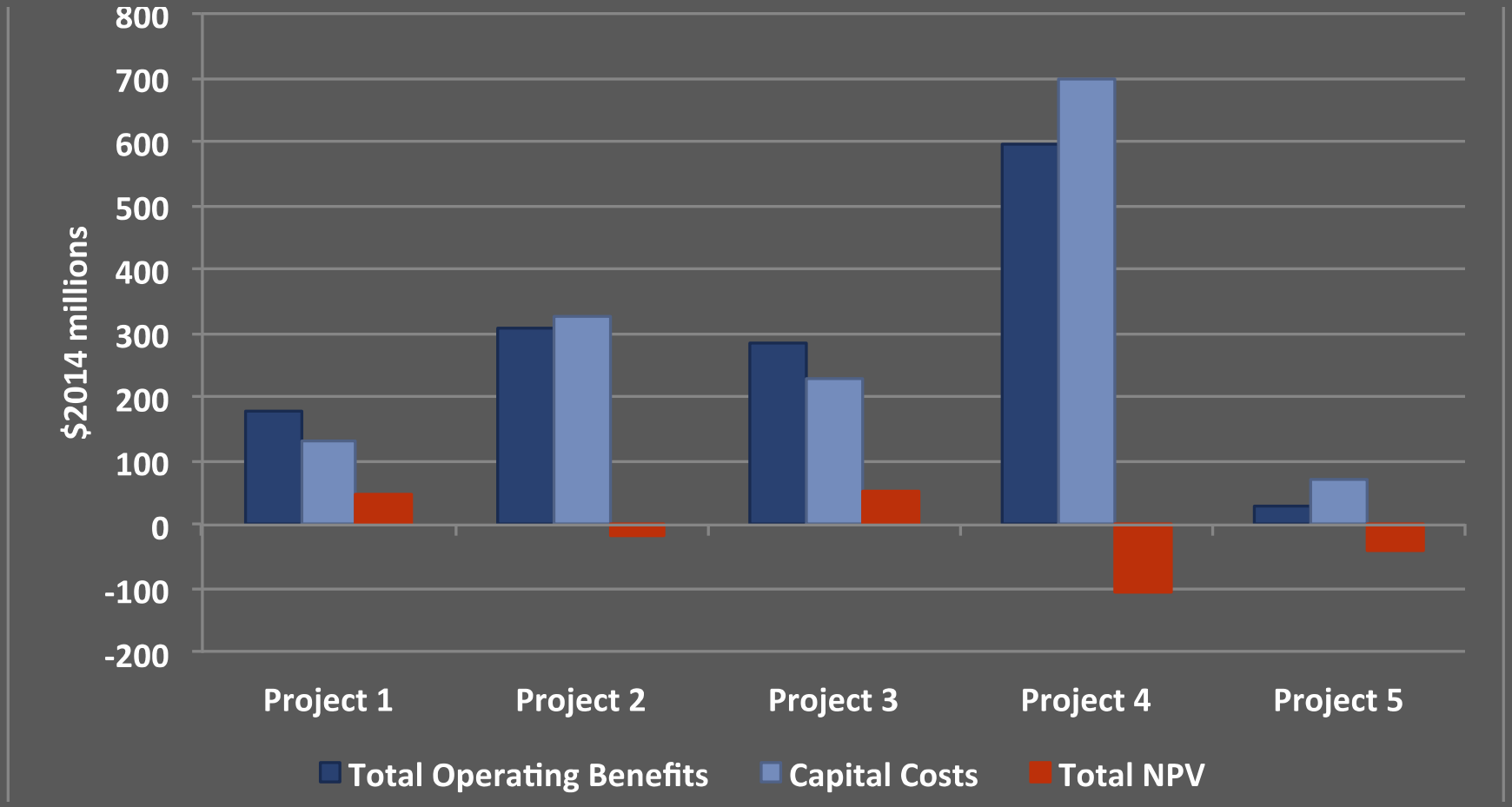

Data Workbook
Raw Data
Data Testing
Cleaned Project Data
Other Information
Economic Data
Ecological Studies
Economic Valuation
ISH01 Data
HPST
Inputs
HPST Overview
Basin
Projects
Parameters
Environmental
Social
Stakeholder Inputs
Criteria Weights
Non-Monetary
Financial
Financial Projections
Financial Value
Economic
Direct Costs & Benefits
Local Costs
Downstream Costs
Carbon Benefits
Financial and Economic
Monetary
Results: MCA
Basin Workbook

Impact Framework and HPST Monetized Values

Framework	Location	HPST Economic Valuation
Direct		Direct
Hydropower	Project Site	Hydropower
Multi-purpose	Local	Multi-purpose
External		External
Agriculture	Local	Property
Fisheries		Land
Ecosystem Services		Livelihoods
Human Population		
Hydrologic Services	Downstream	Flow Regime
Land Use		Fish Migration
		Sedimentation
	Global	Carbon

Economic Results



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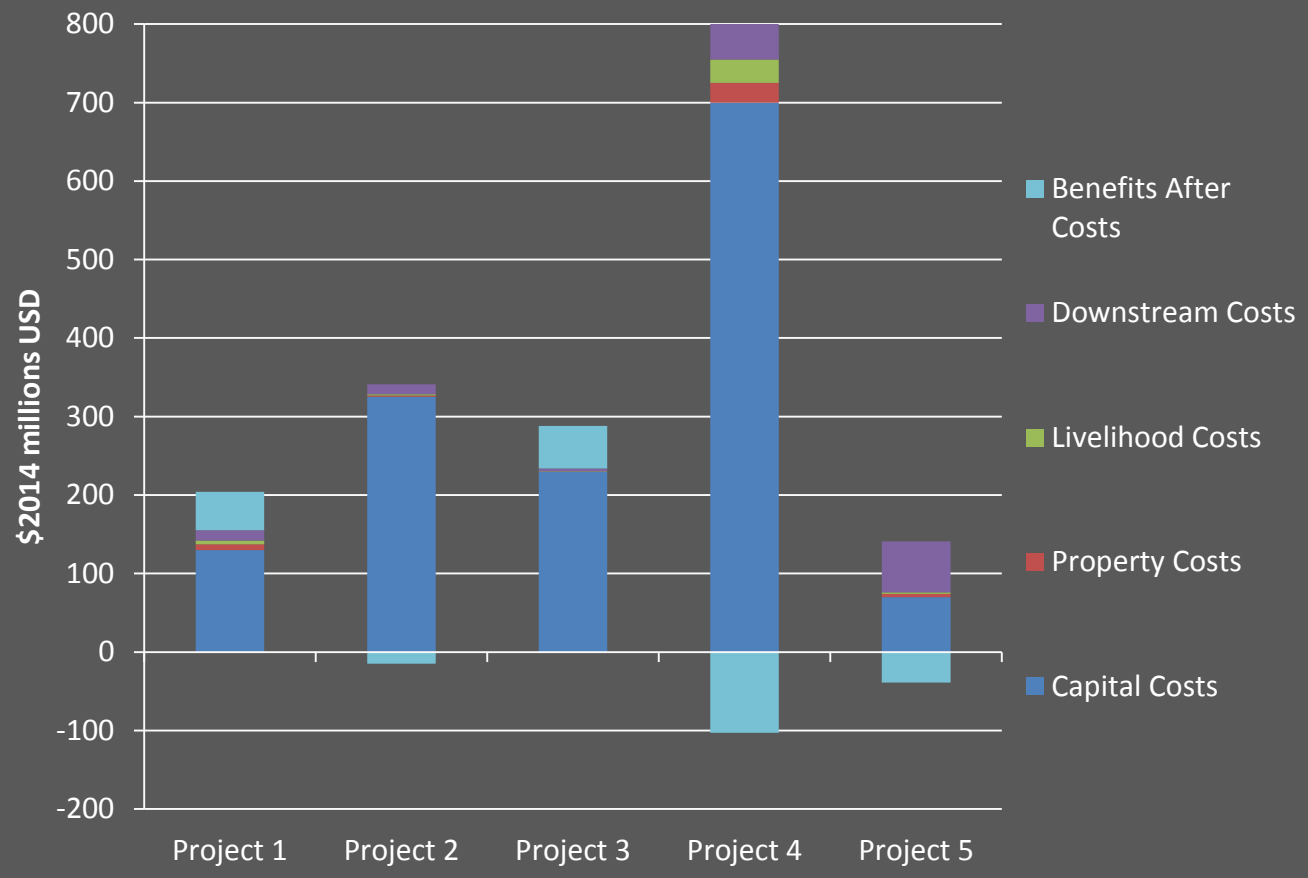
Economic Results



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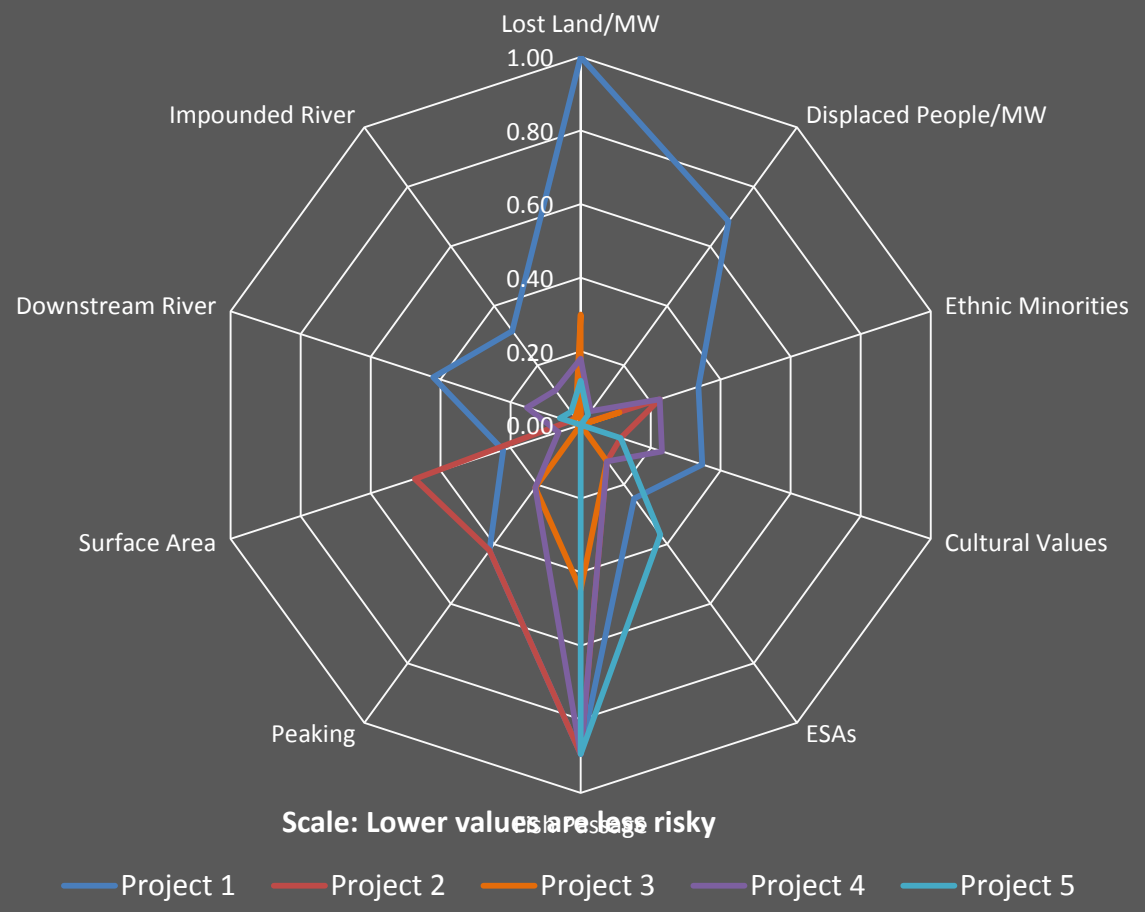
Indicator Results



Scale: Lower values are less risky

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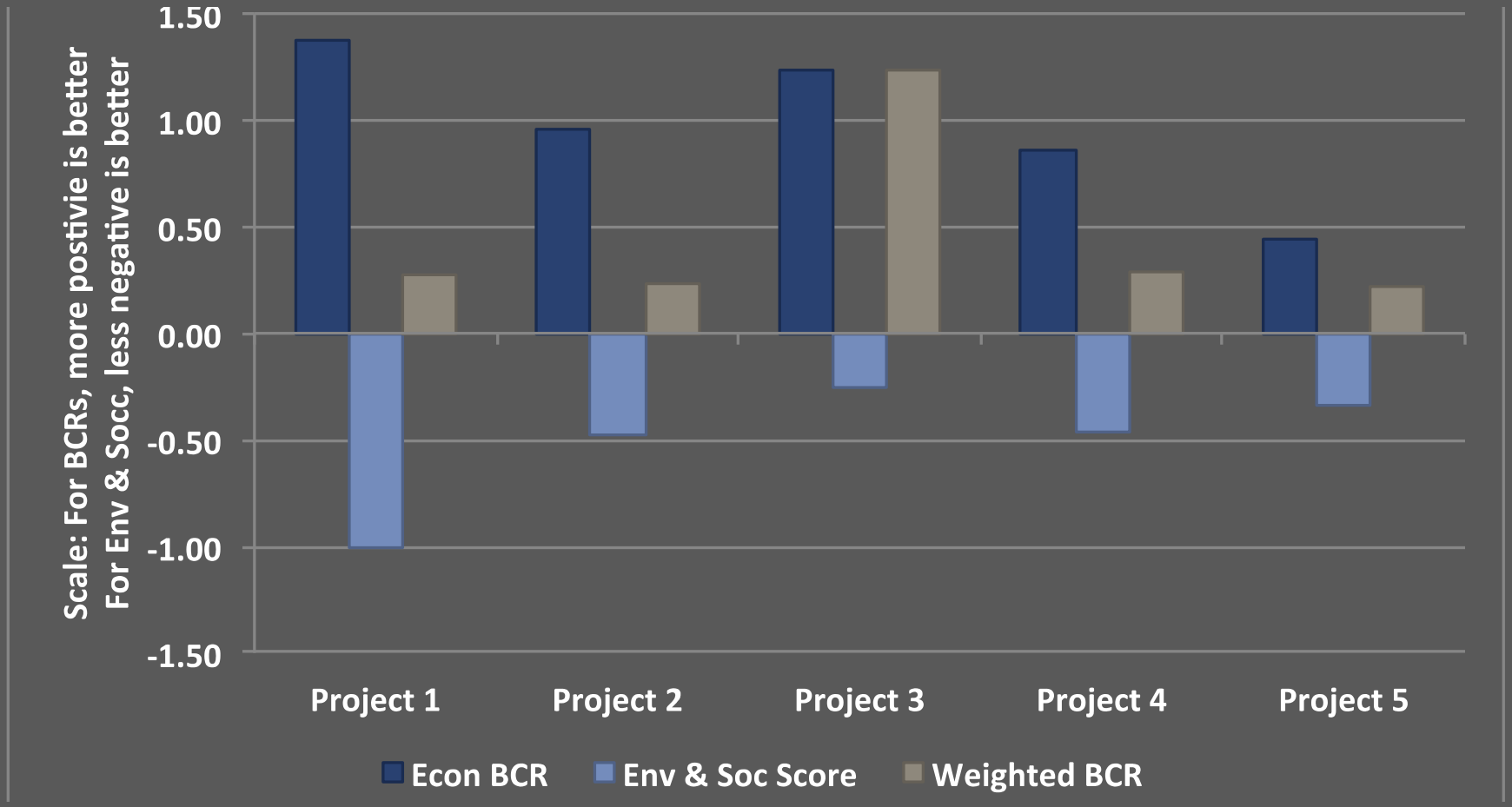
Multi-Criteria Results



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Planning Process

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Portfolio Planning Process

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Guidelines 10-Step Process

TEAM ESTABLISHMENT AND PROBLEM DEFINITION
Step 1: Appoint the Portfolio Planning Facilitator and Planning Team
Step 2: Identify the Scope of the Planning Effort
Step 3: Identify and Recruit Stakeholder Group
Step 4: Inception Stakeholder Workshop to Finalize the Scope

DATA COLLECTION AND ANALYSIS
Step 5: Joint Fact Finding
Step 6a: Economic Valuation and Evaluation of the Costs and Benefits
Step 6b: Assessment of non- monetary social and environmental Indicators
Step 6c: Adapt/validate decision support tool

STAKEHOLDER CONSULTATION AND MULTI CRITERIA ANALYSIS
Step 7: Planning Workshop

REPORTING AND DECISION MAKING
Step 8: Reporting
Step 9: Decision-Making

PROCESS REVIEW AND LESSONS LEARNED
Step 10: Evaluate the process, methods and tools and modify the Guidelines as required.

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Contributions to Sustainable Hydropower

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Key Features

- Practical and replicable method
- Valuation of the assessed socio-economic and environmental costs and benefits of hydropower
- Methods for these valuations to be internalized in the economic or other analysis and integrated with the strategic power planning approaches of the member countries
- Consultative and participatory process led by the responsible national authorities

Advantages

- Organizes available information in a practical form for basin planning purposes
- Develops a model that uses the information to value and consistently compare positive and negative economic impacts across projects
- Identifies and includes key non-monetized environmental and social indicators in a multi-criteria analysis
- Provides a process for on-the-ground stakeholder consultation and involvement

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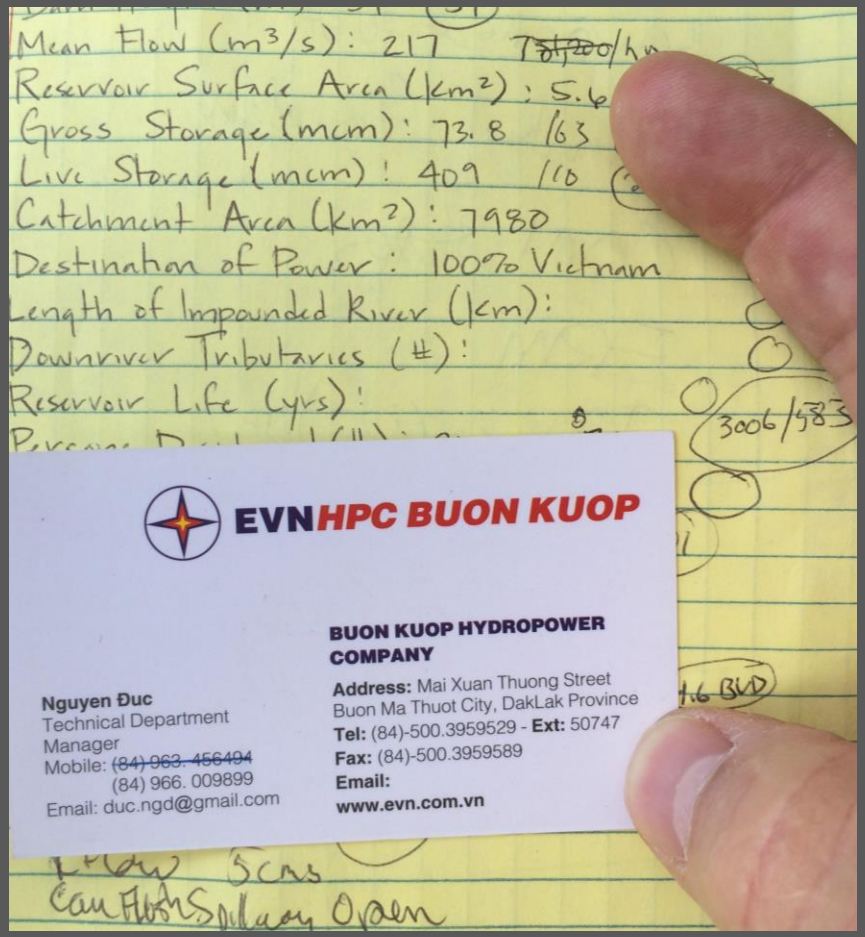
Benefits

- Take advantage of early design information and stakeholder inputs
- Provide early and transparent estimates of project worth and identify key risks
- Avoids over-reliance on financial measures of project worth
- Weed out problematic projects at an early stage
- Avoids over-investment in poor projects and developer lock-in

Scope for Guidelines Application

- Sub-basin HPP evaluation, e.g. Srepok
- Mainstream HPP evaluation
- Country HPP evaluation
- Evaluation of a suite of power alternatives, e.g. for a single site or a single tributary



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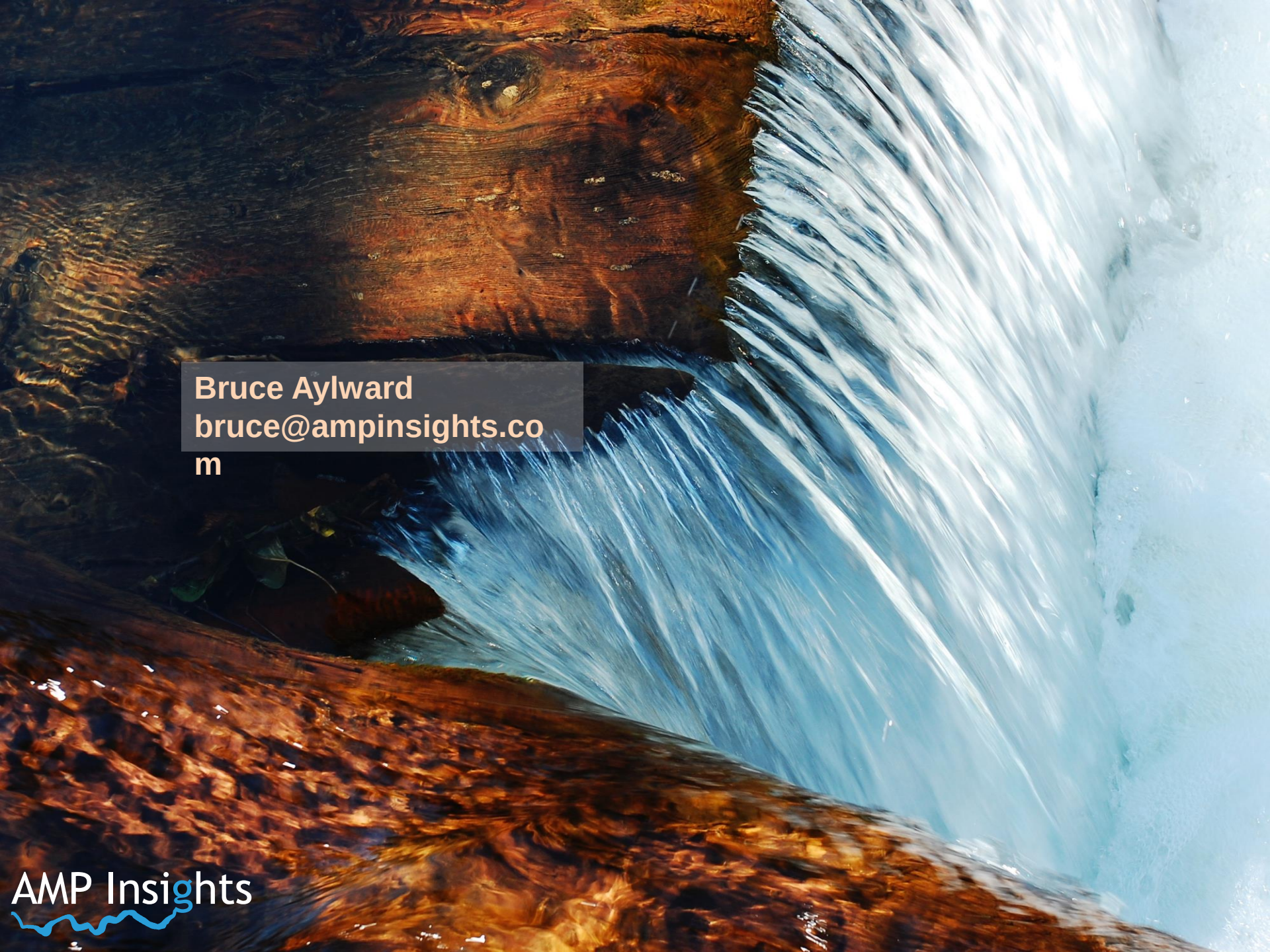

Bruce Aylward
bruce@ampinsights.com

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