

Energy-Water Linkages

Work program for Phase 1

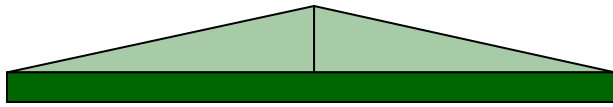
Energy Sector Coordinating Committee

CAREC

Bishkek, Republic of Kyrgyz

September 22-24, 2010

Daryl Fields
World Bank



Energy Action Plan: Three Strategic Themes

Energy-Water Linkages

Action Plan Objective

To strengthen cooperation by integrating energy and water analysis.

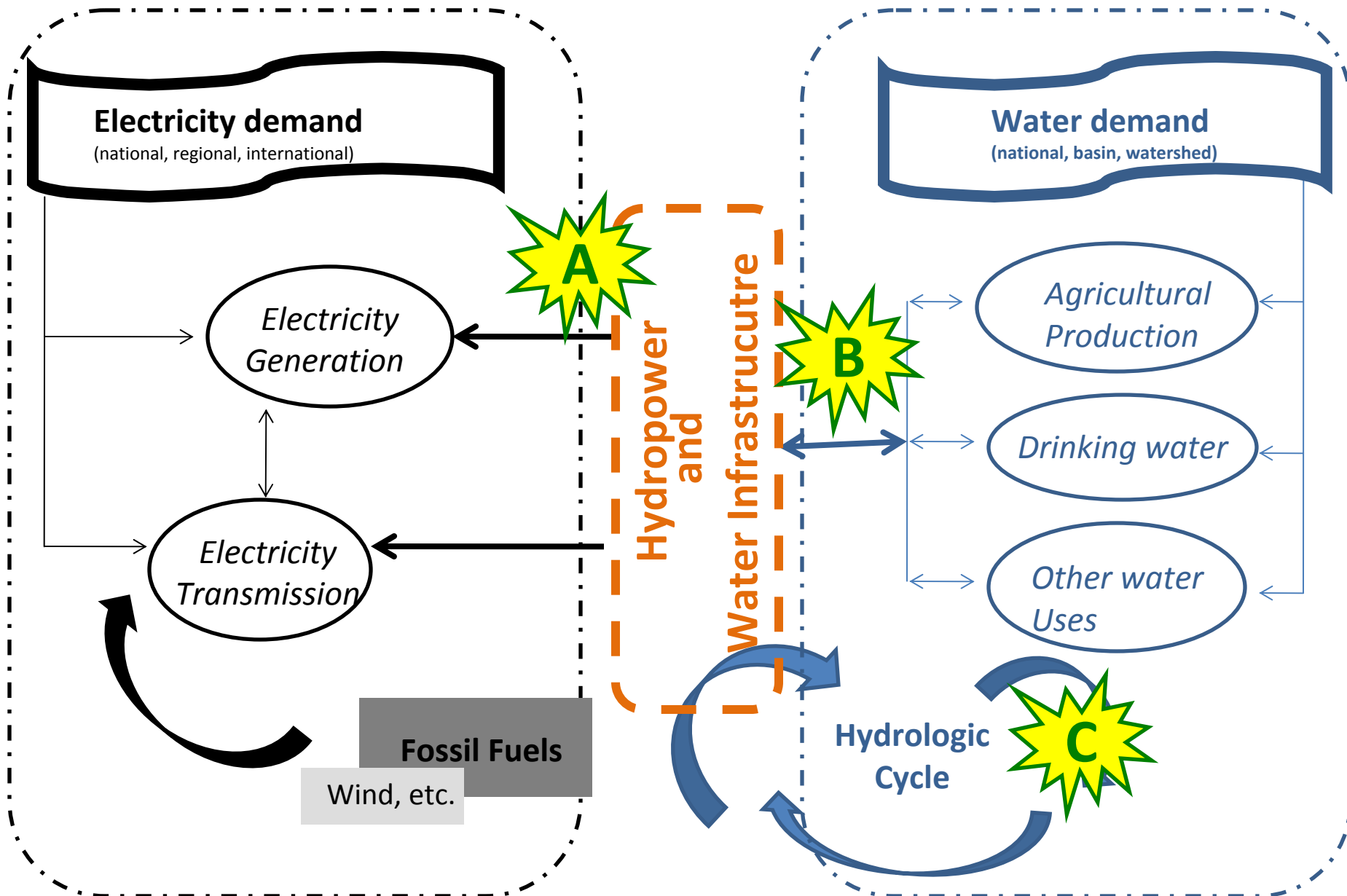
Why

- **Hydropower contributes to the reliability, stability and affordability of an energy system**
- **Transboundary water management** is critical to maximize the value of hydropower to the region's energy sector.

How

Investment	Identify consensus projects to improve the rational and effective use of energy and water
Capacity Building & Knowledge Sharing	Enhance integrated energy-water models, analytical tools, and shared databases
Policy measures	Strengthen Central Asian institutions to lead the dialogue and analysis on rational use of energy-water resources

Schematic of Energy-Water Linkages



Review

September 2009

- Energy Action Plan
- Energy-Water Workshop

Action Plan Objective
To strengthen cooperation by integrating energy and water analysis.

March 2010

- Preliminary diagnostics
- Proposed Phase 1 initiative

Opportunities exist for: Data; Modeling; Engagement (especially needs of decision-makers); Transparency and training

“ESCC discussed and endorsed the proposed phase 1 initiative on Modeling and Decision Support Activities (M&DS) “

July 2010

- Update
- Sub-committee
- Work program

ESCC discussed endorsed the TOR of a sub-committee to play a significant role in the Phase 1 activities, reiterated the need to take advantage of previous work and confirmed the need for involvement of multiple disciplines.

Sept 20 09

First Diagnostic

March 20 10

Phase 1a: Analytical and Modeling Architecture

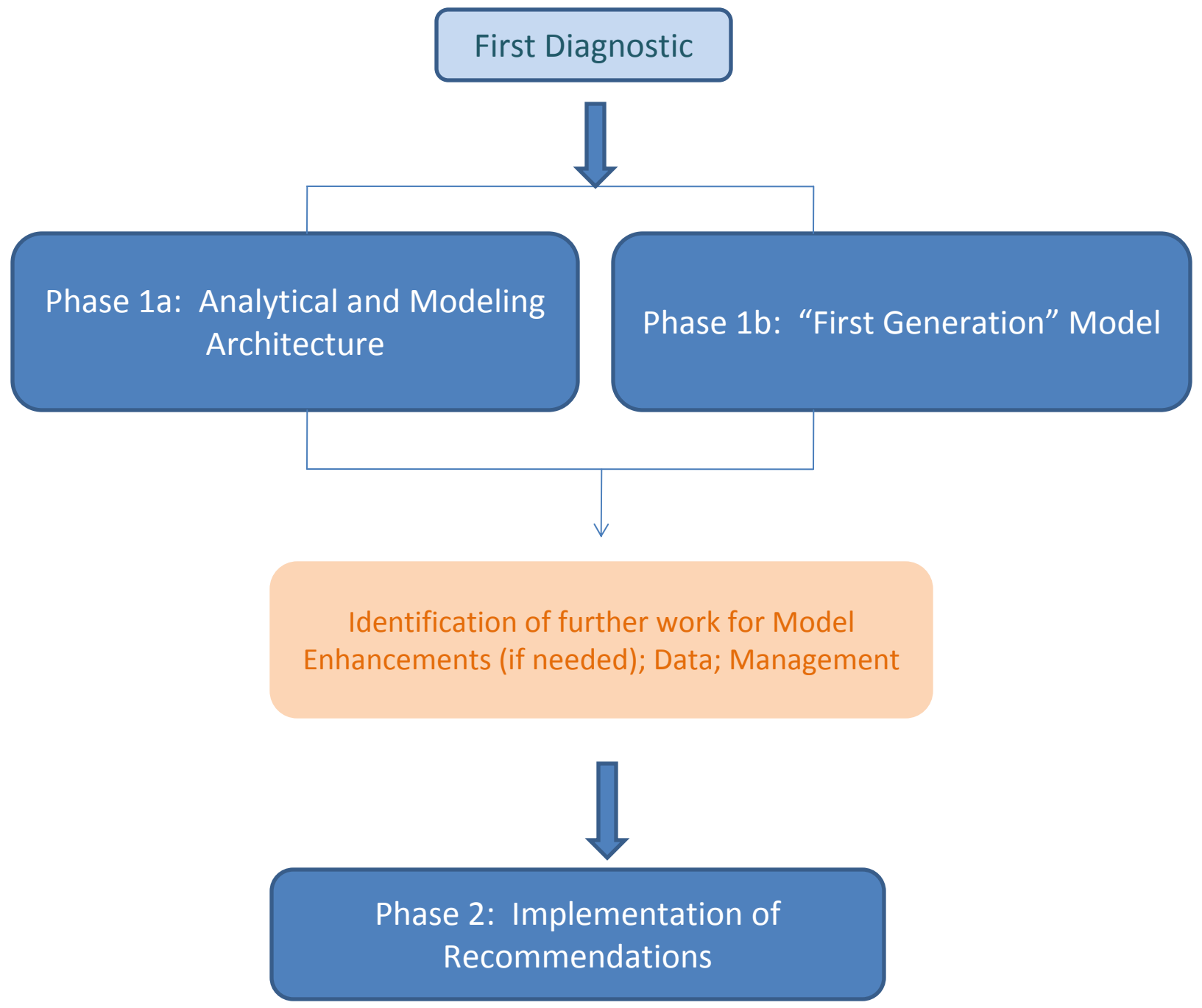
Phase 1b: "First Generation" Model

Spring 2011

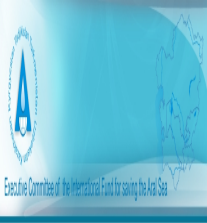
Identification of further work for Model Enhancements (if needed); Data; Management

December 2011?

Phase 2: Implementation of Recommendations




What We Heard


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- Improve quality of information
 - Increase access to information
 - Ensure use of mathematical models



- Agreed tools for regional analysis are not available
- Need to use integrated approach and advanced world experience
- Bring together national experts in a regional team

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- Use layers of spatial data to integrate across resources
 - Take advantage of emerging public data
 - Simulate interactions
 - Present results visually

- Multi-sectoral approach critical to understand trade-offs and motivate inter-ministerial dialogue
- Data challenges can be overcome

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- Recognize that not all interests can be easily quantified
 - Inclusive process is important in developing, calibrating and quality assuring the model/analysis
 - Use simulations to understand trade-offs and system flexibility

- Modeling and analytical tools will be required to understand the energy impact of climate change
- Uncertainty will play an even larger role in managing water and energy

Phase 1b: “First Generation” Model

What: Build a basic basin model using readily available data

How: Independent consultant

- Collect data from international, commercial and local (Central Asia) sources
- Develop a dynamic information framework
- Roughly simulate impacts of climate change, water productivity and water management
- Hold workshops to share model architecture and results

Update:

Contractor: University of Washington

Schedule:

July/August 2010: Set up model platform; Gather internationally available data

October: Initial runs

November: Focus on hydropower and irrigation models

December/January 2011: Model presentation; Upgrade with locally available data

March 2011: Final “First Generation Model”

Phase 1a: Analytical and Modeling Architecture

What: Establish a joint view on modeling needs and institutions

Output: Recommendations for detailed analytical model enhancement and management

- High priority data needs
- Model refinements (e.g., energy operations, climate change, socio-economic indicators)
- Most appropriate modeling platform and interface
- Institutional arrangements for ongoing use, maintenance and sharing of analytics

How?

- September 2009 initial discussions
- September 2010: Initial discussions with technical experts in four countries
- Confirm existing models
- Convene across sectors (to include environment, climate change)
- Bring specialists from across the region in a Modeling and Decision Support Technical Working Group/Sub-Committee, to design best model architecture
- Proposed refinements/adaptation/new components to regional analysis