“REDUCING UNCERTAINTY IN ECOSYSTEM BASED APPROACHES TOWARDS MORE HOLISTIC IWRM”

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UNDP GEF KURA II PROJECT ADVANCING IWRM ACROSS THE KURA RIVER BASIN

FOR PRESENTATION AT THE STOCKHOLM WORLD WATER WEEK

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CENTRAL THESIS

1. IWRM RELIES ON PRINCIPALS OF **COMMON POOL RESOURCE MANAGEMENT** WITH RELATIVELY **CLEAR DATA DRIVEN DEMAND FORECASTS,** ALL PLAYERS AS USER **SECTORS,** ARE GIVEN **VOICE** AND **APPORTIONED USER RIGHTS.**

CENTRAL THESIS

2. THE **ECOSYSTEM APPROACH** EXPANDS THE **USER POOL** TO **WIDER AND LESS WELL-DEFINED** USERS AND INTERESTS.

CENTRAL THESIS

3. MUST EXPLORE THE **ECONOMIC TRADE-OFFS** AND INSTITUTIONALIZED **RULES OF THE GAME FOR "TRADITIONAL" IWRM,** FOR THE **"ECOSYSTEM-BASED APPROACH"** TO **INTERLINK** THESE APPROACHES TO **INCREASE LONG TERM SUSTAINABILITY** OF WATER RESOURCES.

CENTRAL THESIS

4. ENVIRONMENTAL FLOW MANAGEMENT SCENARIOS FROM THE **KURA RIVER BASIN** SERVE AS A CASE STUDY TO **HIGHLIGHT EXISTING AND PLANNED MANAGEMENT PRACTICES** DESIGNED TO **EQUITABLY ALLOCATE WATER RESOURCES ACROSS SECTORS** IN CURRENT AND PLANNED DEVELOPMENT SCHEMES FOR IMPROVED SUSTAINABILITY, THAT **EMPHASIZE** NOT ONLY THE **DOWNSTREAM SOCIAL, ECONOMIC, AND ECOSYSTEM DEMANDS** BUT ALSO THE **UPSTREAM CONTRIBUTIONS THAT MUST BE FOSTERED.**

UN-COMMON TERMINOLOGY & CONCEPTS

IWRM Principle

#3. SOCIAL, ECONOMIC, AND ENVIRONMENTAL FACTORS MUST BE INTEGRATED WITHIN WATER RESOURCES PLANNING AND MANAGEMENT.

ECOSYSTEM APPROACH

THE ECOSYSTEM APPROACH IS A STRATEGY FOR INTEGRATING MANAGEMENT OF LAND, WATER AND LIVING RESOURCES THAT PROMOTES CONSERVATION AND SUSTAINABLE USE IN AN EQUITABLE WAY

- CDB

How do we deal with the **inherent uncertainty** in the **ecosystem-based approach** to more effectively implement **a more holistic IWRM** with balanced demands for all sectors and actors based on pareto-optimal outcomes ?

Must explore the **economic trade-offs** and **institutionalized rules of the game** for "traditional" IWRM, for the "ecosystem-based approach" to **interlink these approaches** to increase long term sustainability of water resources

INSTITUTIONAL "RULES OF THE GAME"

	IWRM	Ecosystem Based Approach
Objective:	Division of water services for economic sustainability	Ecosystem Services included in calculations for apportionment of economic resources (water)
Information:	Basic to Extensive	Extensive and multi-inter-disciplinary and Undefined
Players:	Economic and Social Actors – Clearly defined	Economic, Social, and Ecological Actors – Less Clear - amorphous
Voices:	Humans	Human and Nature
Incentives:	Political and Economic	Equitable conservation and sustainable use

UNCERTAINTY IN ES DEMANDS LEADS TO RESOURCE HOARDING

Decision makers will hear only **social and economic needs**

Ecosystem needs are whispered

Uncertainty about future demands or **complex information for ESBA** leads to increased **resource guarding** and **regulatory capture**

DATA UNCERTAINTY AND FREE RIDING

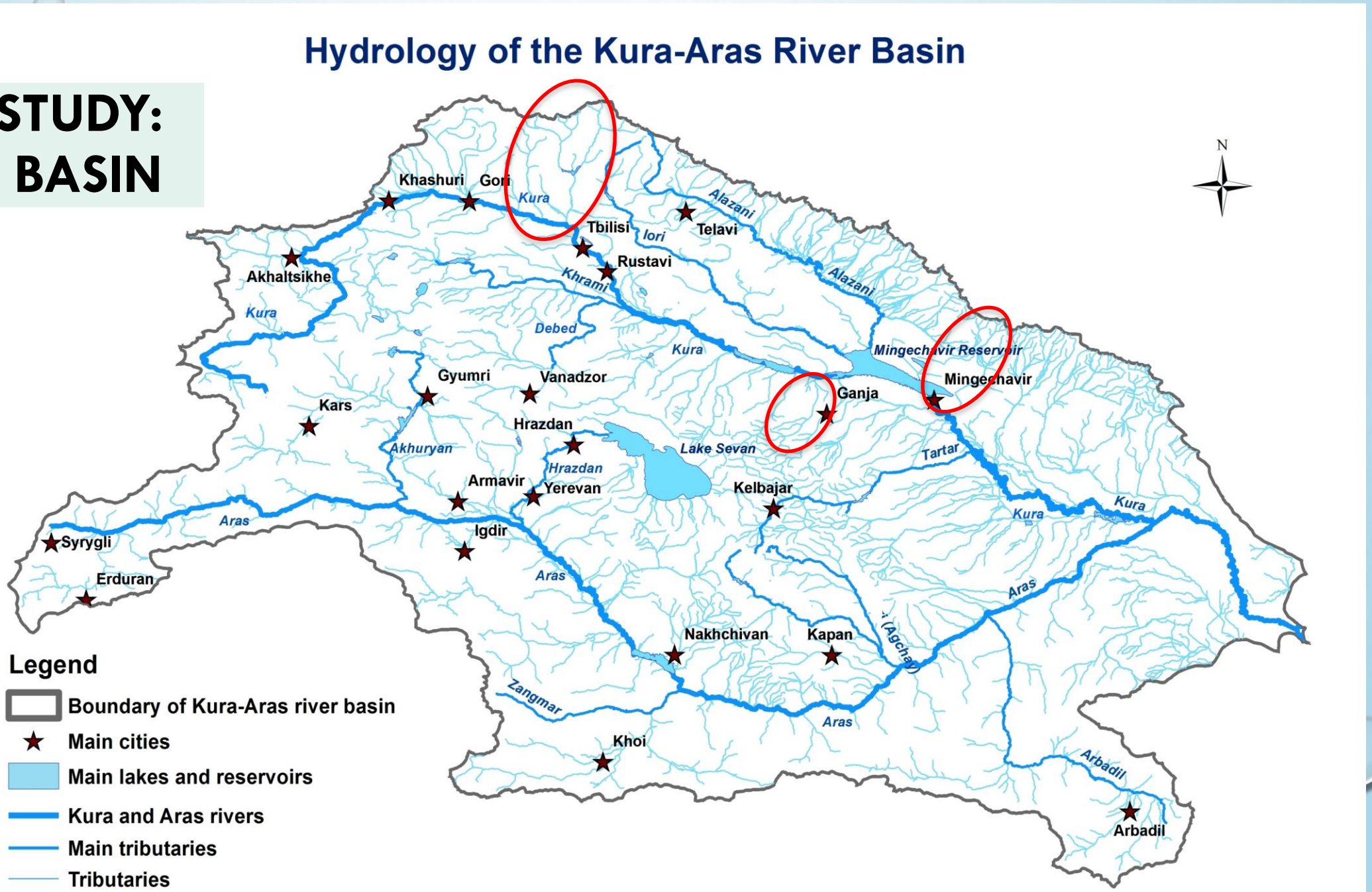
AS LONG AS THERE IS UNCERTAINTY ABOUT THE ECOSYSTEM SERVICES AND **NOT CLEAR UNDERSTANDING** OF THE BENEFITS AND COSTS FOR THOSE, **HUMANS WILL FREE RIDE** ON THE **BENEFITS PROVIDED BY NATURE**

ENVIRONMENTAL FLOW APPROACHES AND WATER MANAGEMENT APPROACHES

	Hydrological Simple	**Expert judgement Advanced**	**Holistic Comprehensive**
IWRM Approach	**Basic water services recognition**	Advanced water services articulation	Not suitable
Ecosystem Approach	Not suitable	Minimal ecosystem services recognition	***IDEAL*** **Ecosystem services articulation**

HUMANS ARE
RISK ADVERSE
AND
INTOLERANT OF UNCERTAINTY

CASE STUDY: KURA BASIN




CASE STUDY:
KURA BASIN
FEDERATION
Russian
Federation
GEORGIA
ARMENIA
AZERBAIJAN
TURKEY
IRAN

ARAGVI – *GEORGIA*

- HYDROPOWER
- AGRICULTURE
- MUNICIPAL
- RECREATIONAL
- GRAVEL ABSTRACTION

SHAMKIR CHAY - AZERBAIJAN

- HYDROPOWER
- AGRICULTURE
- GRAVEL ABSTRACTION (LARGE SCALE)

ALIJAN CHAY - AZERBAIJAN

- PENDING RESERVOIR
- PENDING AGRICULTURE
- GRAVEL ABSTRACTION (SMALL SCALE)

TIME FRAME AND RESOURCE CONDITIONS

- **GEORGIA**
- DECLINING POPULATION IN TOTAL
- AGING POPULATION
- WATER ABUNDANCE
- TOURISM BASED ECONOMY

- **AZERBAIJAN**
- INCREASING POPULATIONS
- WATER SCARCITY
- ENERGY AND AGRICULTURAL BASED ECONOMY

IMPACT ON DECISION MAKING AND INCENTIVES

"**E-FLOW** IS THE **LUXURY FOR WATER ABUNDANT COUNTRIES** TO **DISTRIBUTE ACROSS** MULTIPLE SECTORS…"

"… BUT **WATER SCARCITY** AND **COMPETITION BETWEEN HUMAN DEVELOPMENT NEEDS** MEANS HUMANS WILL **PUT THEIR OWN NEEDS FIRST, *ESPECIALLY WHEN THERE ARE MANY UNKNOWNS*.**"

IN GEORGIA AND IN AZERBAIJAN

- ECOSYSTEM = TOURISM
- IMPACTS ON FLOW FROM HYDROPOWER
- DECLINING POPULATION
- WATER ABUNDANCE

- ECOSYSTEM = RESOURCE ABSTRACTION
- IMPACTS ON FLOW FROM AGRICULTURE
- INCREASING POPULATION
- WATER SCARCITY

EXPECTED RESULTS

- **AZERBAIJAN AMELIORATION** WANTS MORE **ECOSYSTEM BASED APPROACHES** FOR ENVIRONMENTAL FLOWS
- ***WHISPERS MAY BECOME LOUDER WITH CLIMATE CHANGE***
- ULTIMATELY **HOLISTIC APPROACH TO E-FLOWS ARE IDEAL,** BUT **MUST BE BUILT** FROM OTHER APPROACHES

TRANSBOUNDARY IMPLICATIONS

- WIDER **SOCIAL, POLITICAL,** AND **ECONOMIC INTERDEPENDENCIES** BETWEEN **GEORGIA AND AZERBAIJAN** WILL **INCLUDE IWRM** AND ***MAY*** INVOLVE **E**COSYSTEM **B**ASED **A**PPROACHES
- **DATA COLLECTION HARMONIZATION** FOR ENVIRONMENTAL FLOWS MOVES **NEIGHBORS** TOWARDS **MORE SYNCHRONIZED** IWRM AND ECOSYSTEM BASED APPROACHES
- **INCREASED UNDERSTANDING** OF THE **COSTS AND BENEFITS** FROM THE ECOSYSTEM BASED APPROACH **REDUCES UNCERTAINTY, DECREASES FREE RIDING,** AND **INCREASES SUSTAINABLE HARMONIZATION OF RIVER BASIN MANAGEMENT**

AND THAT IS NOT A BAD THING

THANK YOU!

FOR MORE INFORMATION AND UPDATES

HTTP://WWW.KURA-RIVER.ORG