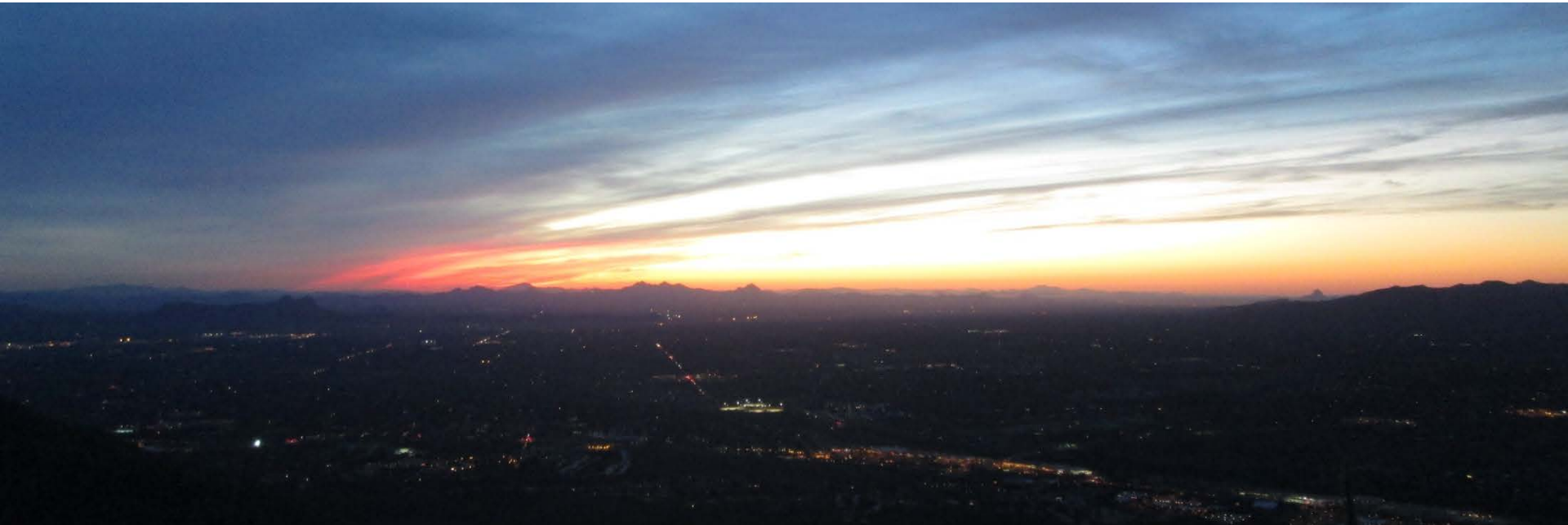




The Tucson Basin Case Study

(or how did we get here)



Timeline

- Tucson – April 2012: SWAN Kick-off
Arizona Inn Brainstorming: “An Agenda for a SWC” (April 26).

Tucson – April 2012: SWAN Kick-off

Arizona Inn Brainstorming Session: “An Agenda for a SWC”

- Ed Curley, Claire Zucker, Joaquin Ruiz, Larry Winter, Tom Maddock, French Counselor for Science and Technology, and others were there.
- “if SWC wants to be a real and concrete center (not merely a virtual one), **Tucson’s** sparse rainfall, its concerns about water shortage [...] make it an **ideal location**” (CZ).
- *“... to make the SWC a concrete place:
- for the researchers to meet and exchange experiences and methodologies, and
- for the decision-makers to find practical resources “*

Timeline

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Institutional & watershed spatial (mis)fit: SCALE

Bristol – October 2012

Institutional & watershed spatial (mis)fit: SCALE

“- A methodological discussion [...] for comparative case studies :

A study area, urban watershed or other spatial unit?

An interdisciplinary scientific objet? (flood, drought)

A governance or stakeholders challenge? ”

“To move forward and test the first interactions between partners and work packages it was recently decided :

*- to use a large definition of watershed as a spatial unit combining an **hydrological approach** together with a **human and social sciences definition** (economic, functional, cultural).”*

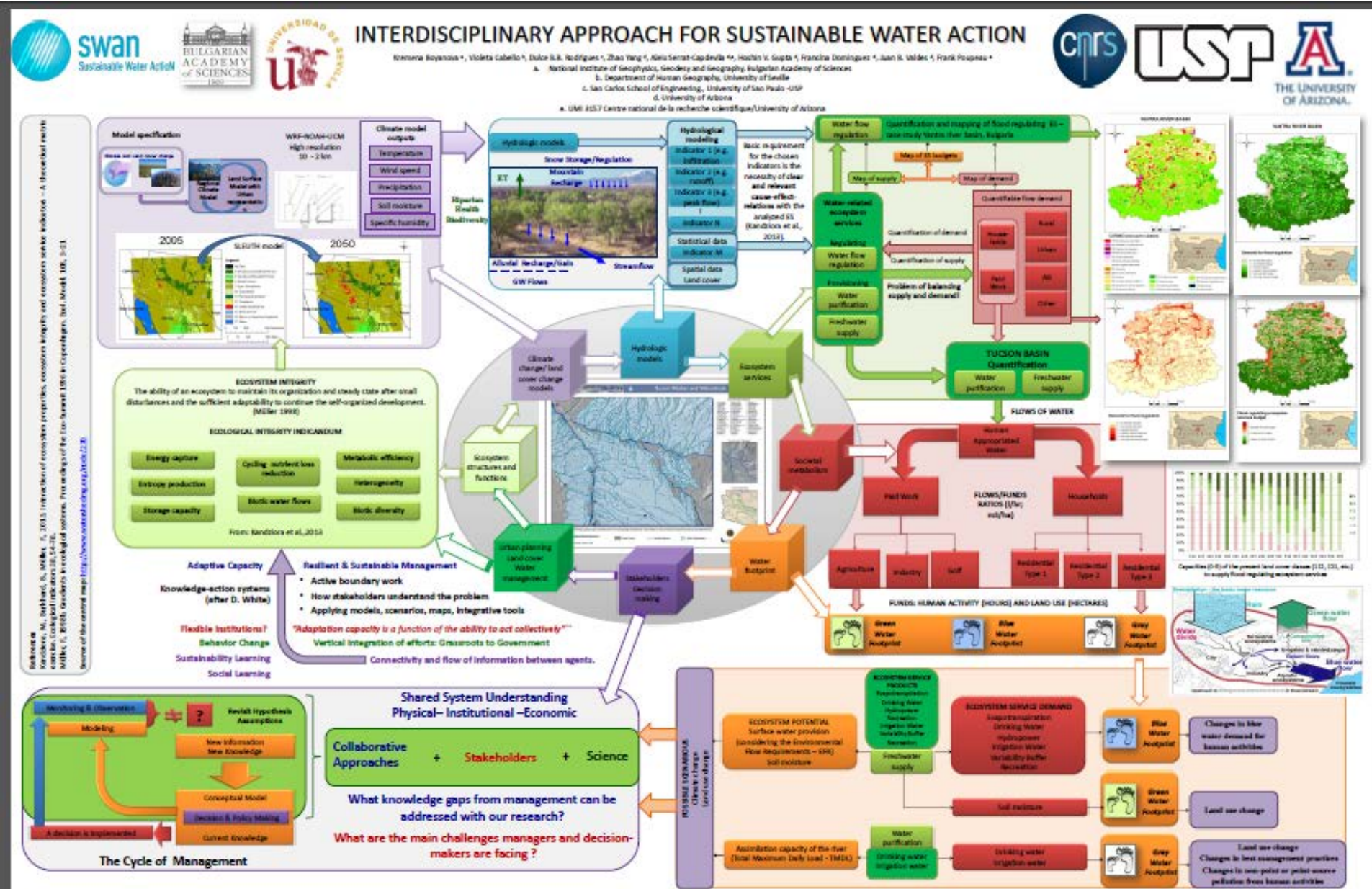
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from the abstract to the concrete



SWAN working group – Integration Poster



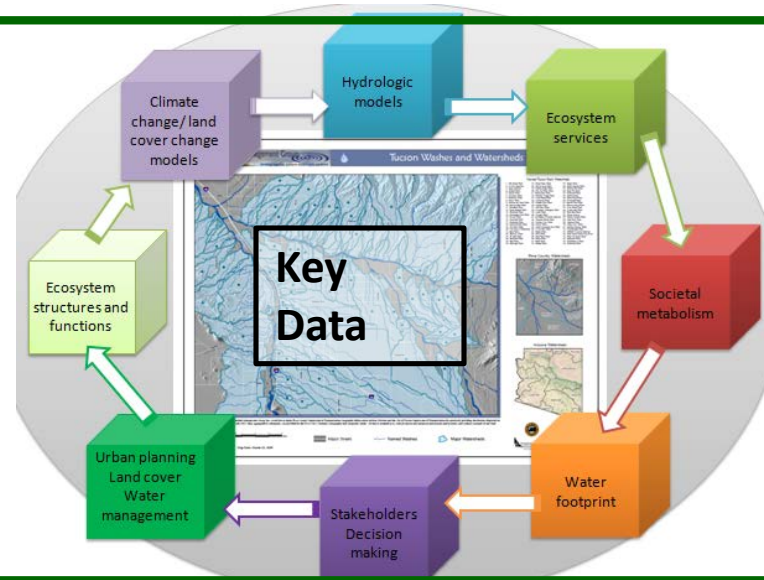
Post-Normal Science
Epistemology of how we 'operationalize knowledge'
(Theoretical Foundation)

IWRM – Water Security – Resilience – Other Approaches
Prescriptive – Practical Recipes to Achieve Goals

Governance
Institutional Analysis
European Framework Directive
...

Water Use Trends: Supply & Demand
Regional GOALS & NEEDS

Stakeholder participation
Social Learning
...



Resources

Products

“Key Informants”

Trans-disciplinary Topics

Questions

Water Governance

*Institutional Mechanisms for Water Security
Spatial Fit, Connectivity, Fit for Purpose, Commoditization*

Political Meteorites

Urban Water Use

*Drivers & Trends, Relation to regulations,
Historic Context, Land-Use, Incentives*

Climate Feedbacks

Land Use - Hydrology

Ecosystem Services

Social Metabolism

Water Footprint

Socio-political perspectives

Constellation of
Questions

Places

**SEVILLA Basin
(Guadalquivir)**

TUCSON Basin

YANTRA Basin

?

OPERATIONALIZATION

Stakeholder-centric
Low-Regrets Approach
~Planning Cycles/Goals

Leandro, Nuria

eNewsletter
Workshops

M. Villarin, Leandro, Stuart,
Kyle, Graciela, Aleix

Zhao, Francina,
Hoshin, Aleix, Juan

Kremena, Stoyan,
Mariyana
Violeta

Dulce

Frank

YYYY
XXXX

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Stakeholder Workshop



Institutional Analysis

1) How are CAP and CAP water resources planning integrated? What are the challenges?

2) How has the politics of water management evolved in Arizona?

3) How have economic and social forces shaped water demand during the development of the city of Tucson?

4) How can runoff decrease trends affect the provision of CAP water to Tucson basin according to the existing priority allocation system?

5) What is the impact of the groundwater overdraft on the present and future dynamics of the water use budget in the Tucson basin?

6) How are management boundaries defined in Tucson basin? What factors determine selection of these boundaries (physical, administrative, political, etc.)? What implications do these boundaries have on action, investment, allocation priorities, power structures and resource distribution?

7) How are decisions regarding water resource management made in Tucson basin? How are these decisions legitimized? Who sits at the decision-making table? Who chooses them? How are the projects selected & who do they legitimize?

MAINTAINING ECOSYSTEM SERVICES IN AN URBAN ENVIRONMENT?

GROWTH (IE HUMAN DEMAND FOR H₂O AND PERCEPTING/ACCEPTABILITY OF "SUSTAINABLE" H₂O SOURCE AND QUALITY)

How to deal with the streamflow decrease of Colorado river basin + its impacts on CAP transfer?

Challenges on the M+I water supply due to climate + legal constraints on the CAP water

the discrepancy between land use urban development (private residential expansion) and water management.

Drawdown of the GW Table (drying up the rivers) caused by 1990's + 2000's

[Faint handwritten notes on a blue sticky note]

Under pressure of population growth, Balancing all water needs, in context of AMA rules, private wells, environmental needs, outdoor/indoor use, Reclaimed water, -raw return

Water availability in the face of growing population and likely decreasing supply.

Sustaining both human & natural systems with extremely variable water inputs (erotic rainfall, shifting human demand)



MINUTES OF THE FIRST SWAN TUCSON BASIN STAKEHOLDERS WORKSHOP

University of Arizona

Tucson, October 30th, 2013

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3.1 Evaluation and prioritization of research questions	4
3.2 Identification of knowledge gaps.....	5
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Report authors: ***Violeta Cabello, Aleix Serrat-Capdevila, Nuria Hernández-Mora***

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First set of papers.

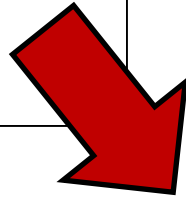
Sevilla – June 2014

Tucson Case Study Session

- (1) Rositsa Yaneva, NIGGG-BAS - ECOSYSTEM SERVICES QUANTIFICATION IN TAMA CASE STUDY
- (2) K. Boyanova, NIGGG-BAS- QUANTIFICATION AND MAPPING OF WATER-RELATED ECOSYSTEM SERVICES IN BULGARIA AND ARIZONA, USA (AND ITS IMPLEMENTATION IN POLICY AND DECISION MAKING)
- (3) Tanya Trenkova, NIGGG-BAS -WEB-BASED GIS APPLICATIONS SUPPORTING THE INTEGRATED WATER MANAGEMENT
- (4) Natalia Limones, USE -GROUNDWATER METABOLISM OF THE ROSEMONT COPPER MINE AND POTENTIAL IMPACTS OF THIS ACTIVITY ON TUCSON BASIN GROUNDWATER SERVICES.
- (5) Zhao Yang, UoA - CLIMATE CHANGE AND LAND USE
- (6) Graciela Schneier-Madanes et al. - WATER, URBAN DEVELOPMENT AND SPRAWL
- (7) Maria Villarin, USE - Explanatory factors of domestic water demand: City of Seville case-study.
- (8) Sergio Segura-Calero, USE - SPATIAL & WATER PLANNING IN TUCSON BASIN CASE STUDY
- (9) Violeta Cabello, USE - SOCIAL METABOLISM IN THE TUCSON WATER MANAGEMENT AREA
- (11) Dr. Murielle Coeurdray, *Sociology and Political Science*.- FROM STAKEHOLDERS MAPING TO THE ANALYSIS OF WATER POLICIES
- (12) Owen King, *Social Sciences* - CONTESTED WATERS: CONSENSUS AND ANTAGONISM IN HYDRO-SOCIAL SPACES

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- Tucson - November 2014
3-Days of Tucson Case Study
Book – Monograph – Article collection

