



MIRROR LAKE, OREGON, USA

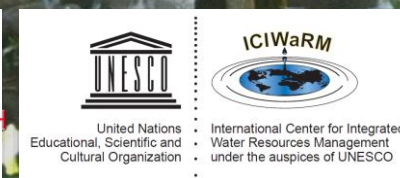


# AGWA: ALLIANCE FOR GLOBAL WATER ADAPTATION

- 2000 global water and climate professionals, 10 years old
- Co-chaired by World Bank, SIWI
- Strong emphasis on best practices + global policy program

[alliance4water.org](http://alliance4water.org)

*ClimateReady podcast*



“WE BUILD THINGS THAT LAST 300  
YEARS. WHY DON'T WE THINK ABOUT  
SUSTAINABILITY FOR THAT LONG?”

Senior manager, World Bank, February 2017



# TOP-DOWN WATER MANAGEMENT

many factors are now non-stationary:

*climate*  
*demography*  
*urbanization*  
*political systems*

Decision  
maker

PROBLEM / NEED

Technical  
analyst

CLIMATE  
VULNERABILITY

SOLUTION

Users,  
stakeholders

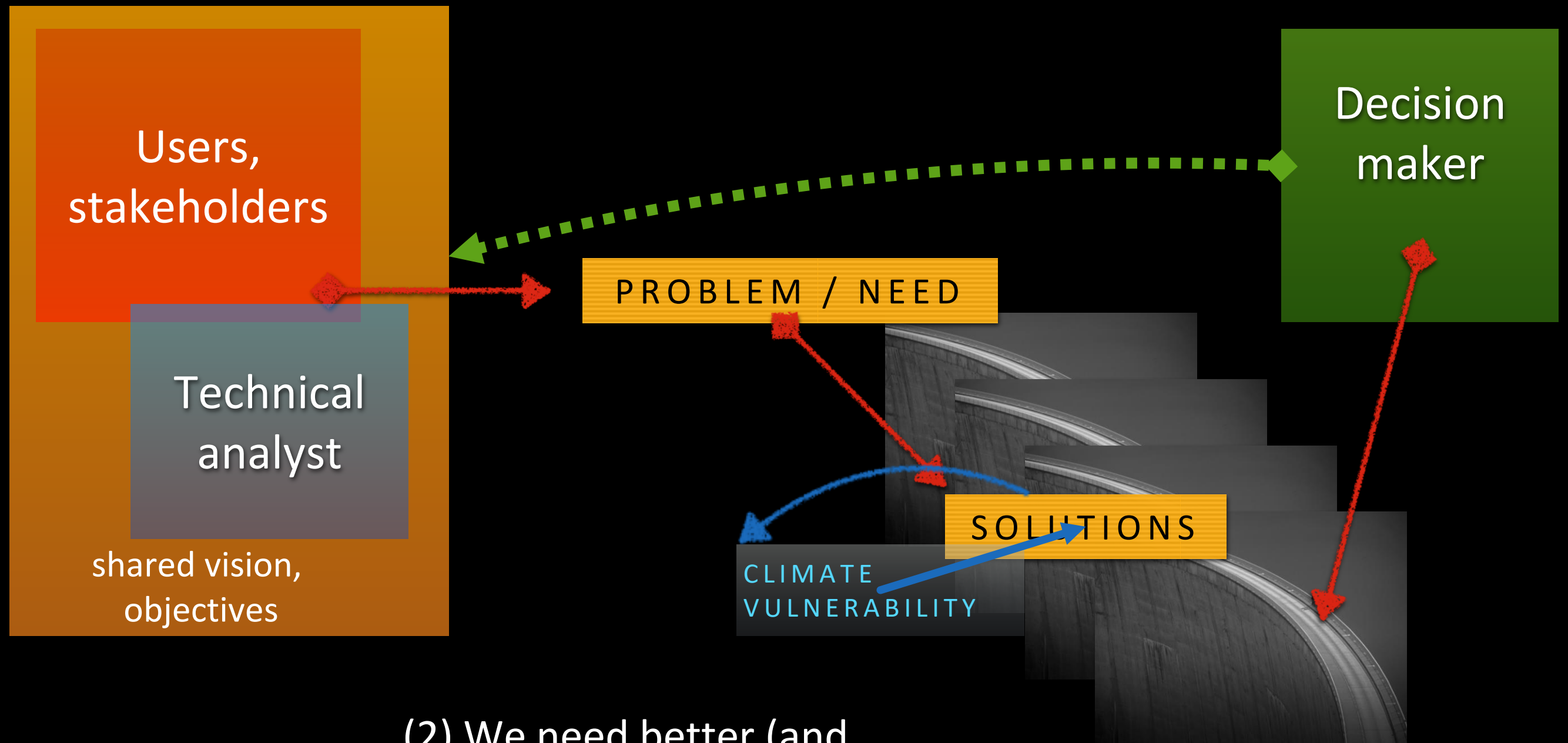
(1) users & stakeholders need to  
be involved earlier.

(2) We need better (and  
probably multiple) solutions.



# BOTTOM-UP DECISION MAKING

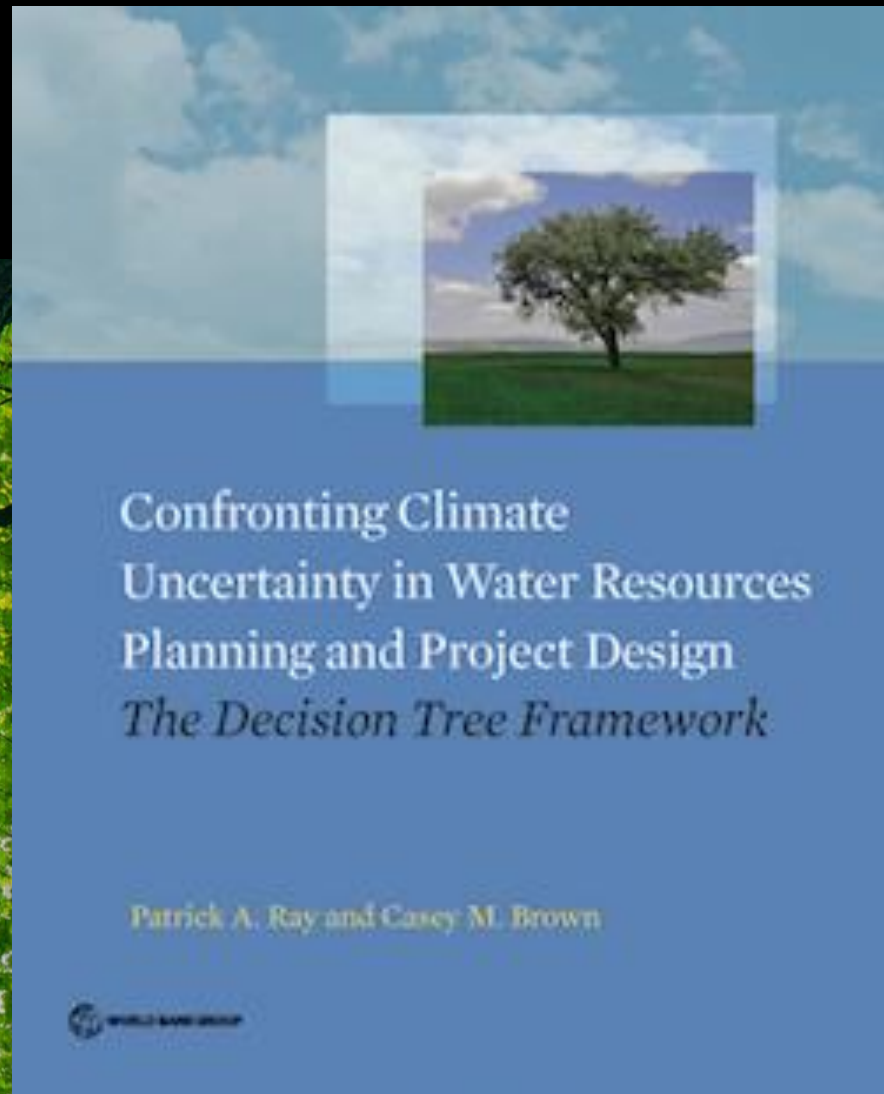
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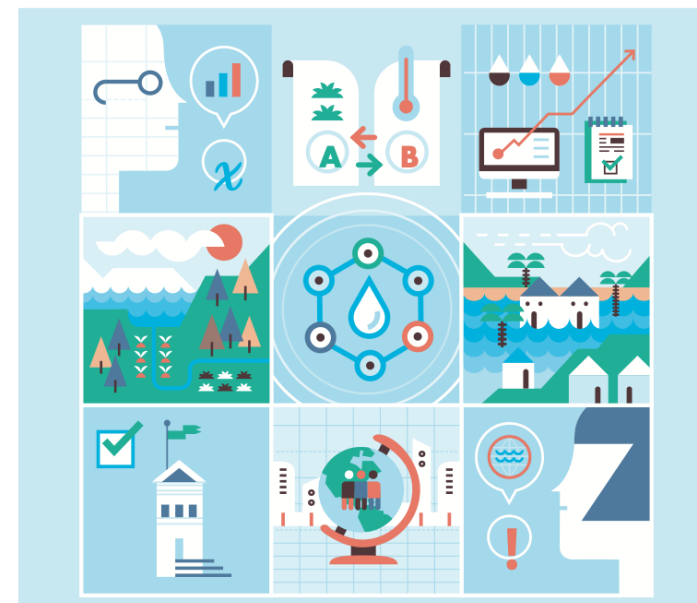


# BOTTOM-UP PATHWAYS



## Climate Risk Informed Decision Analysis (CRIDA)

Collaborative Water Resources  
Planning in an Uncertain Future





# STRUCTURED, UNCERTAINTY-TOLERANT DECISION MAKING

DECISION SCALING

SHARED VISION

stakeholder,  
decision  
maker needs

performance  
indicators

stress  
tests

nature-  
based  
solutions

robust  
solutions

flexible  
solutions

ECOSYSTEMS

ADAPTATION PATHWAYS

Climate Risk Informed  
Decision Analysis (CRIDA)

Collaborative Water Resources  
Planning in an Uncertain Future



# ZAMBIA / LUSAKA

- Lead: Millennium Challenge Corporation  
[www.mcc.gov/blog/entry/blog-031419-planning-in-uncertainty](http://www.mcc.gov/blog/entry/blog-031419-planning-in-uncertainty)
- Risk analysis showed limiting factor: insufficient, irregular, diminishing energy for water treatment — not water supply
- Developed a modular, distributed, low cost alternative electrical supply system



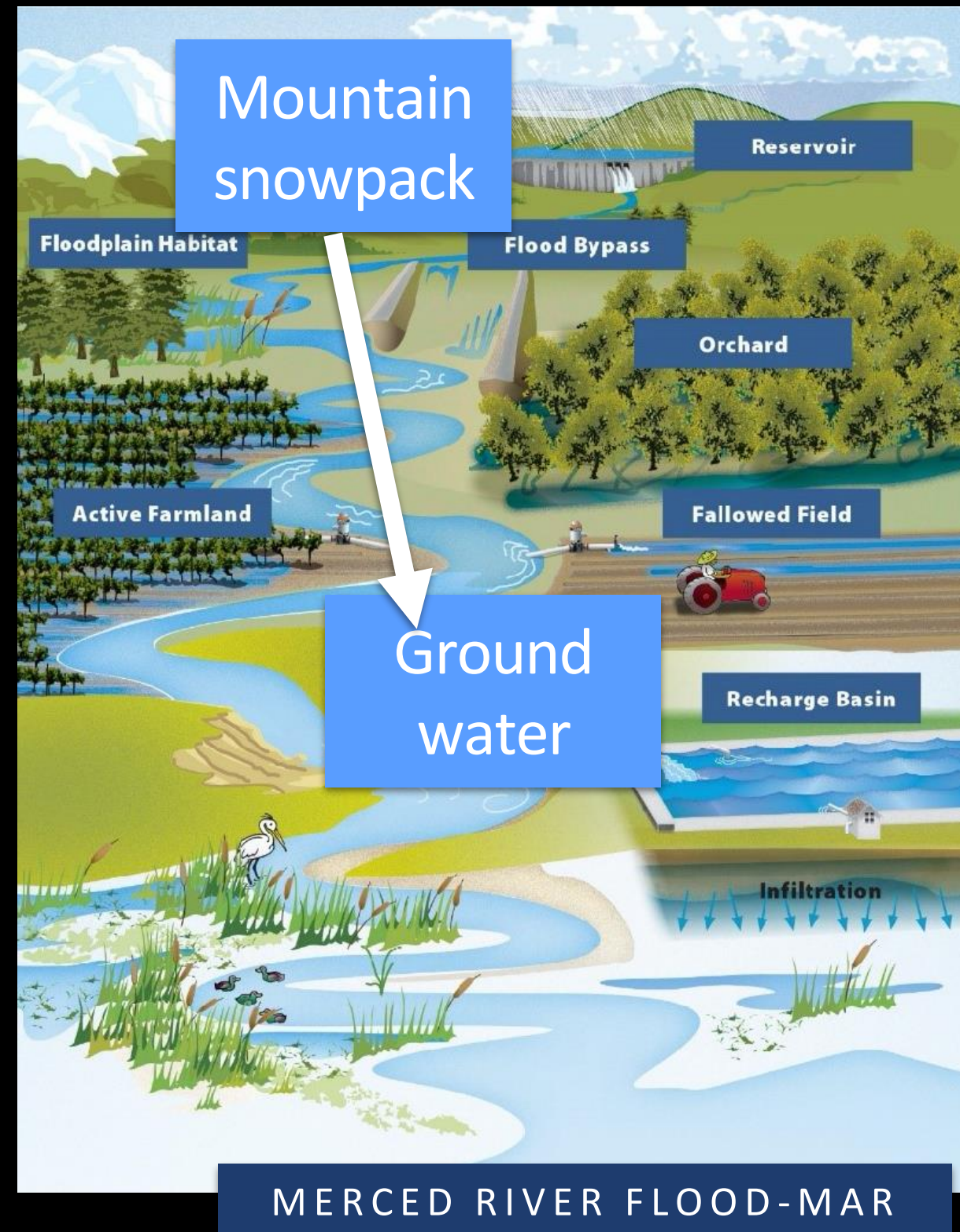
IOLANDA WATER TREATMENT FACILITY



# COMBINING RESILIENCE FOR FLOODS & DROUGHTS

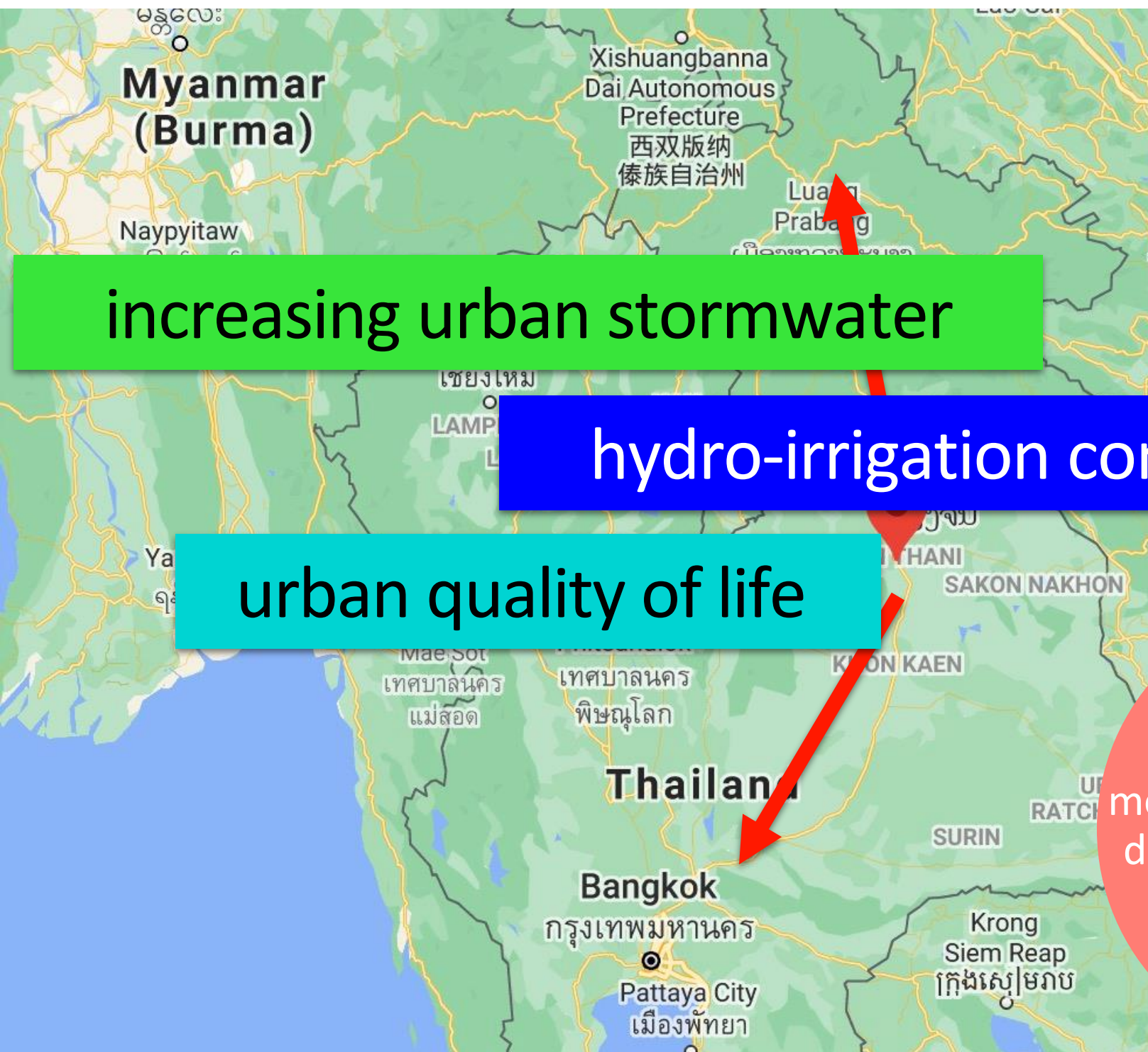
- Lead: California DWR
- “Flashy,” highly seasonal system, with extreme droughts and high floods, runoff
- Voluntary system to capture flood and manage aquifer recharge (MAR)

## Shifting Storage





# CONVERGENT RESILIENCE: UDON THANI



increasing urban stormwater

hydro-irrigation competition

urban quality of life

more open stakeholder  
definition of problem

more comprehensive  
solutions





# HOW DO WE BRING THESE ISSUES TOGETHER?

- Rapid growth has led to increased concerns about water supply and flood impacts
- Variation in rainfall — dry years followed by unusually wet rainy seasons
- City relies on single source of water — Huay Luang Reservoir

Mapping in Udon Thani

Photo: Richard Friend, ISET-International

- Prior analyses used single-stressor vulnerability approaches
- CRIDA looked at growth and climate stressors
- Outcome: Linking functions of recreation, urban lakes, and flood risk reduction via NBS for increased flexibility for stormwater management



FROM THE AMERICAN PEOPLE





# UDON THANI'S "DEEP RESILIENCE"



extensive new lakes across the city

greenspace for flood storage,  
irrigation, livelihoods

a city residents hope can  
stay resilient, livable

stakeholder defined, shared  
vision for urban resilience




USACE, US AID

Reduced competition for  
hydro water supplies



# UNESCO CRIDA COURSE

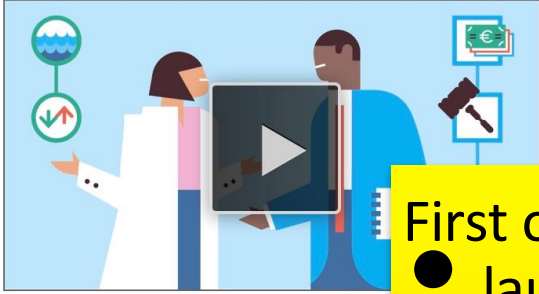
 **UNESCO** CRIDA: CRIDA0001  
Introduction to Climate Risk Informed Decision Analysis (CRIDA)

REGISTER SIGN IN ENGLISH ▾

## Introduction to Climate Risk Informed Decision Analysis (CRIDA)

CRIDA

Enroll in CRIDA0001






First online course

- launched 1 November
- >700 users
- >60 countries
- Mostly SSA, LAC

### About This Course

Welcome to this online course from UNESCO Open Learning. The lectures in this online course introduce the learner to the Climate Risk Informed Decision Analysis (CRIDA), a collaborative approach to address an uncertain future. The course is comprised of 12 modules of 1 hour each, which include readings, video lectures, knowledge checks and assignments. The video lectures include recorded presentations of scientists from global

Twitter Like Email

 Course Number	<b>CRIDA0001</b>
 Classes Start	<b>Nov 1, 2020</b>
 Classes End	<b>Dec 30, 2020</b>



# Join AGWA's *community* of practice

**policy:** [alliance4water.org](http://alliance4water.org)

**technical:** [AGWAGuide.org](http://AGWAGuide.org)

ClimateReady podcast

@Alliance4Water

#ClimateIsWater



## THANKS

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Rijkswaterstaat  
Ministry of Infrastructure and the  
Environment

BMZ



Federal Ministry  
for Economic Cooperation  
and Development

**giz**

Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit (GIZ) GmbH



United Nations  
Educational, Scientific and  
Cultural Organization



International Center for Integrated  
Water Resources Management  
under the auspices of UNESCO