

Multi stakeholders interactions in resource allocation in arid and semi-arid areas

Dr Jaime M Amezaga
Newcastle University

The Challenge of Sustainable Water Futures

Newcastle 14-15 July 2011



Water Futures Questions

Is there enough water for everyone in the planet? Can we afford to recognize that access to essential water services is a public good or even a human right?

Should water be treated primarily as a commodity? What is the value of water? Is it possible to universalize the access to water and sanitation services in poor countries?

Do we have the technological means to reverse the current world water crisis? Is it possible to simultaneously achieve the goals of sustainability and social justice in relation to water?

Are we facing a real possibility of international water wars? Should we care?

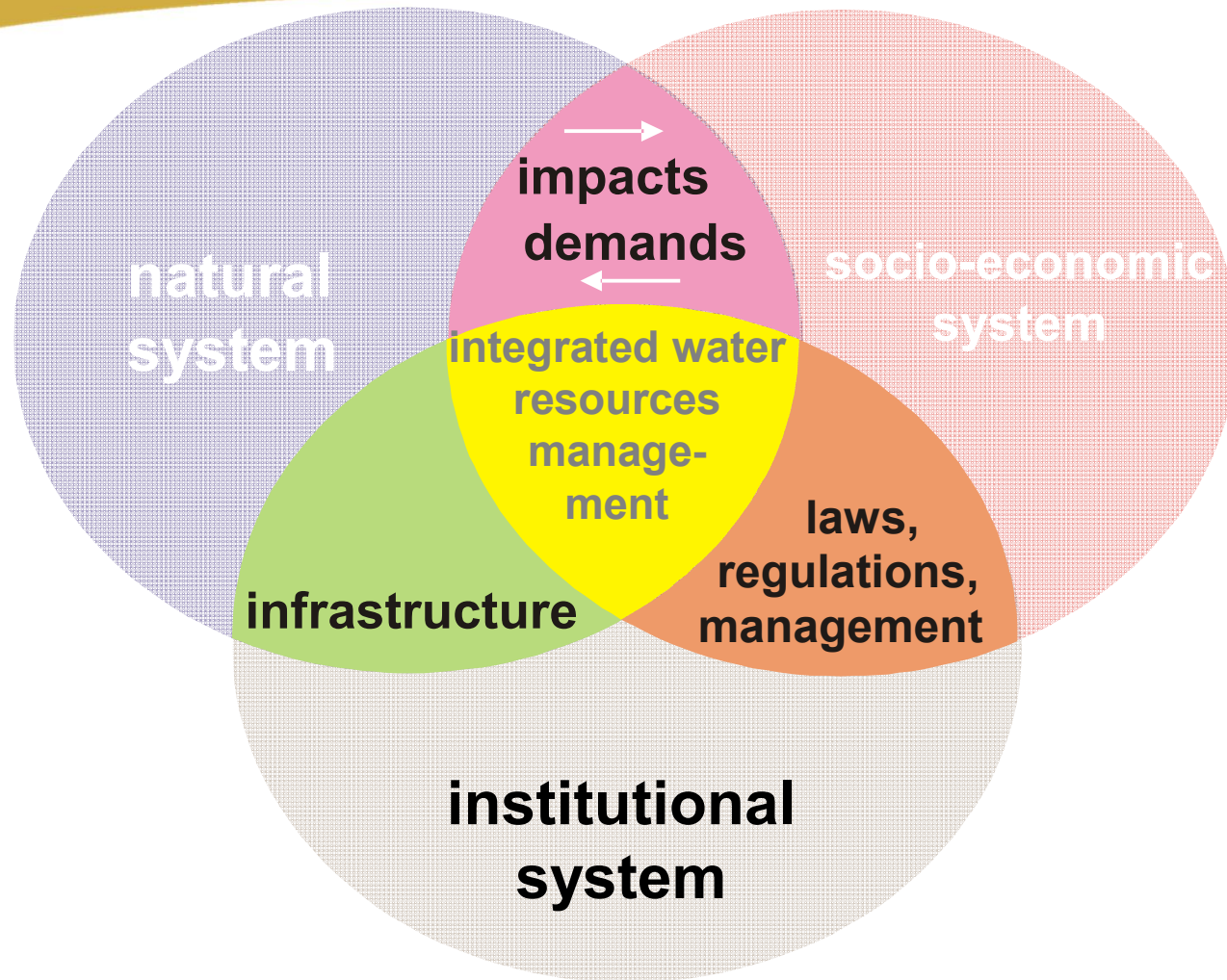


Content

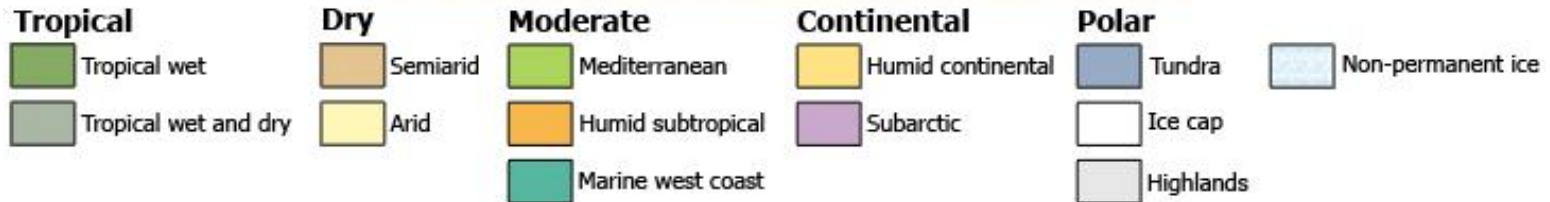
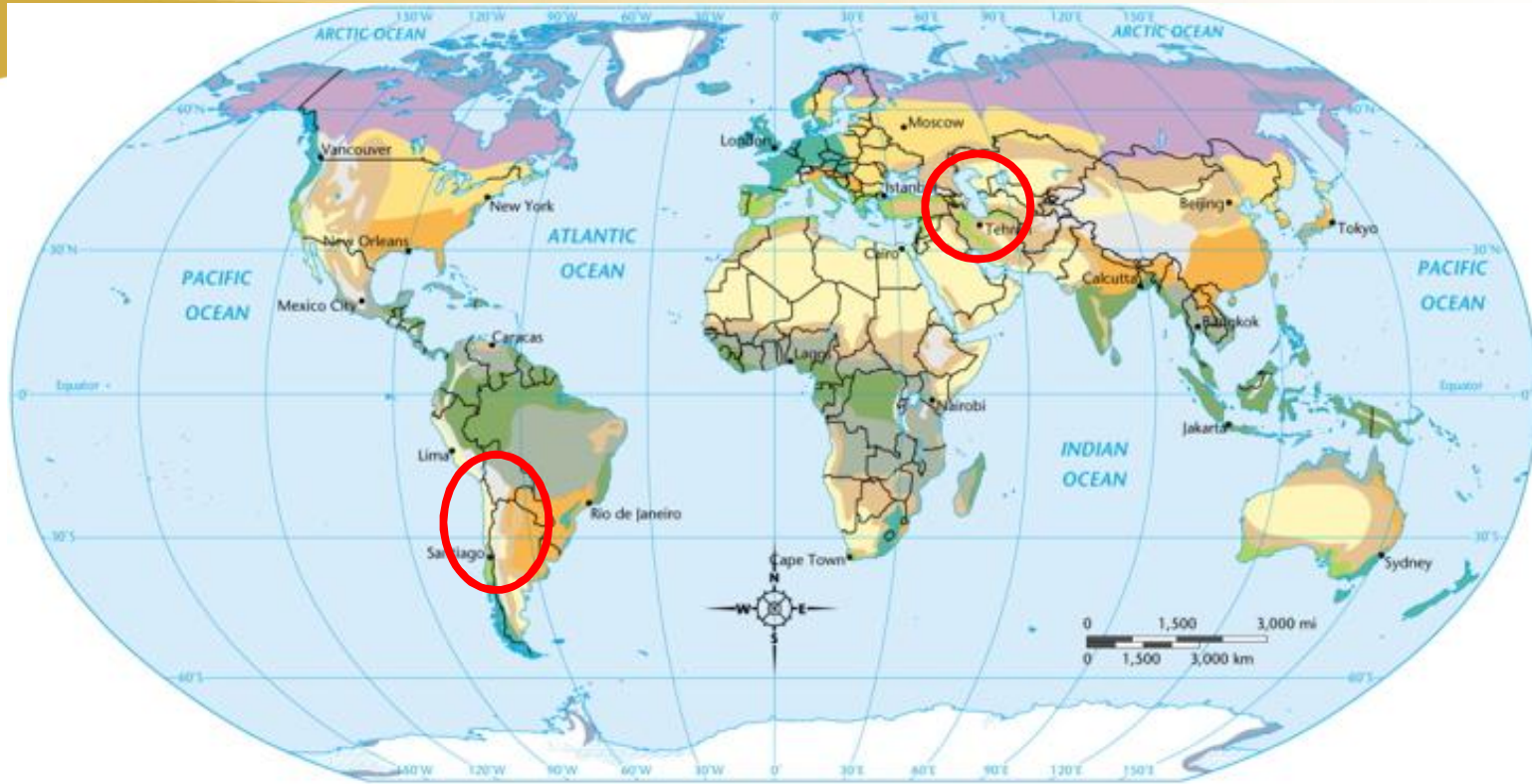
- Introduction
- Protected Areas
 - Lake Urmia- Iran
- Mining and Water
 - Arequipa- Peru
- Conclusions



Integrated Water Resources Management



Water Scarcity



A Socio-technical Framework for Implementing the Integrated Water Resources Management (IWRM) Plan in Lake Urmia Basin, Iran

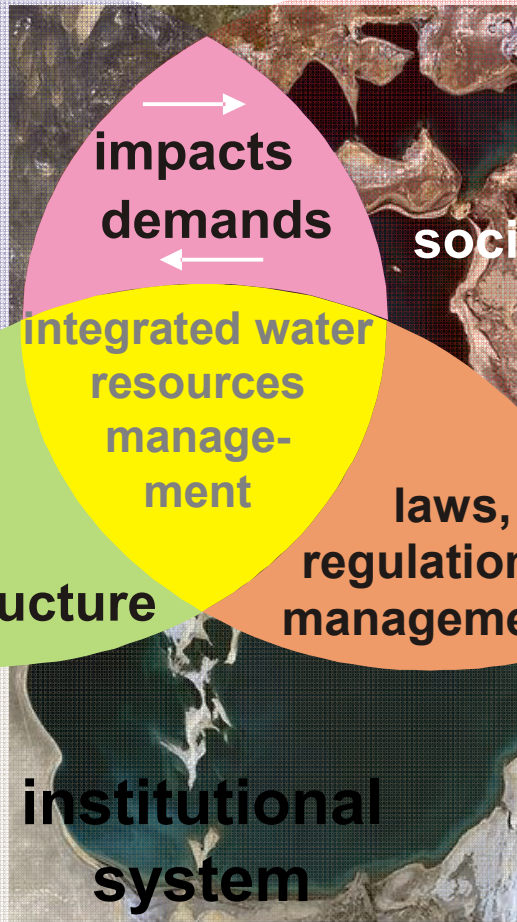
Mukhtar Hashemi, Jaime Amezaga, Enda O'Connell & Geoff Parkin
School of Civil Engineering and Geosciences, Newcastle University



Aral Sea- Kazakhstan/Uzbekistan



natural
system



impacts
demands

socio-economic
system

integrated water
resources
manage-
ment

infrastructure

laws,
regulations,
management

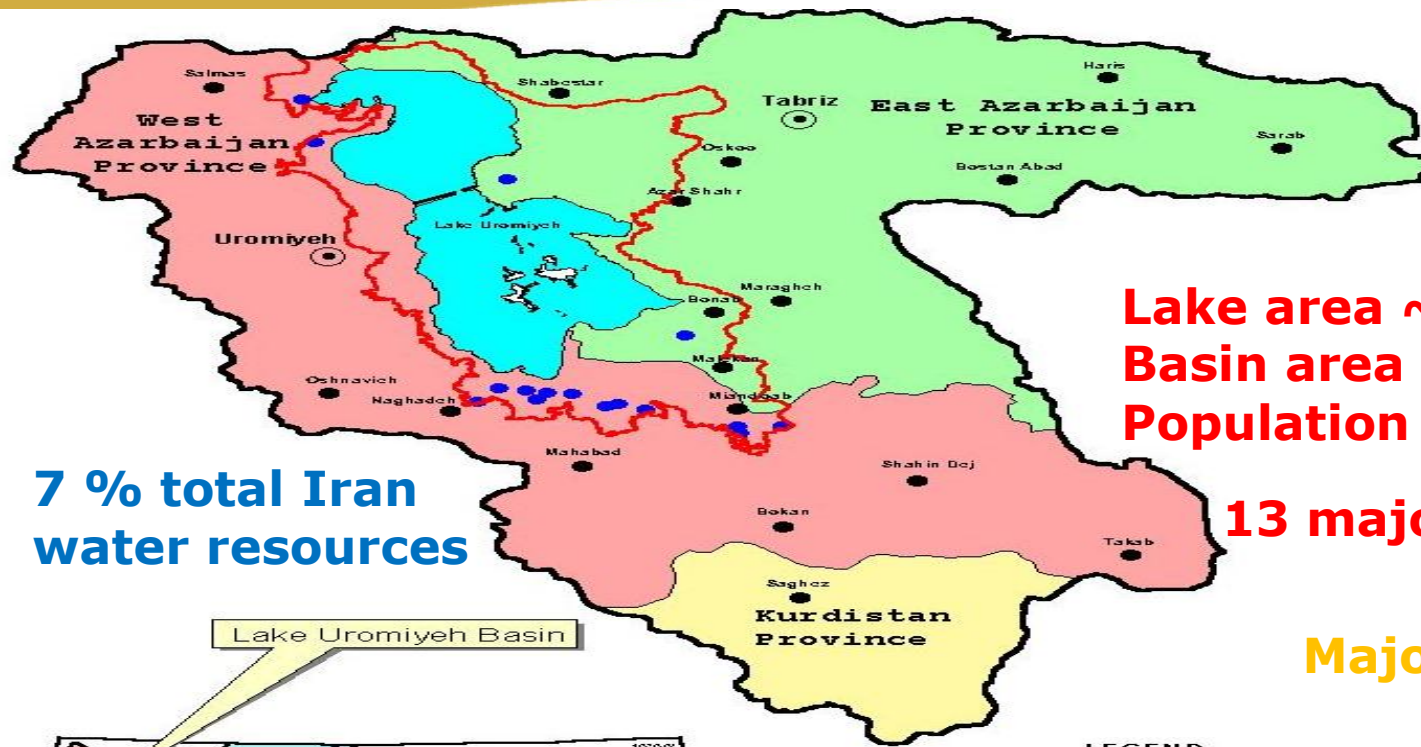
institutional
system



July - September, 1989

October 5, 2008

The setting: Lake Urmia Basin, Iran

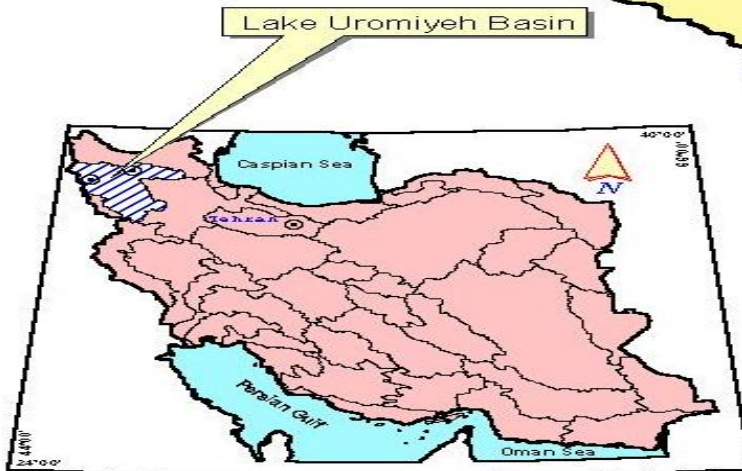


Lake area ~5000 km sq.
Basin area ~52,000
Population (2006): 5.9 M
13 major urban centers

7 % total Iran water resources

Major agro economy

Irrigated area 590,000 ha
Further planned 600,000 ha

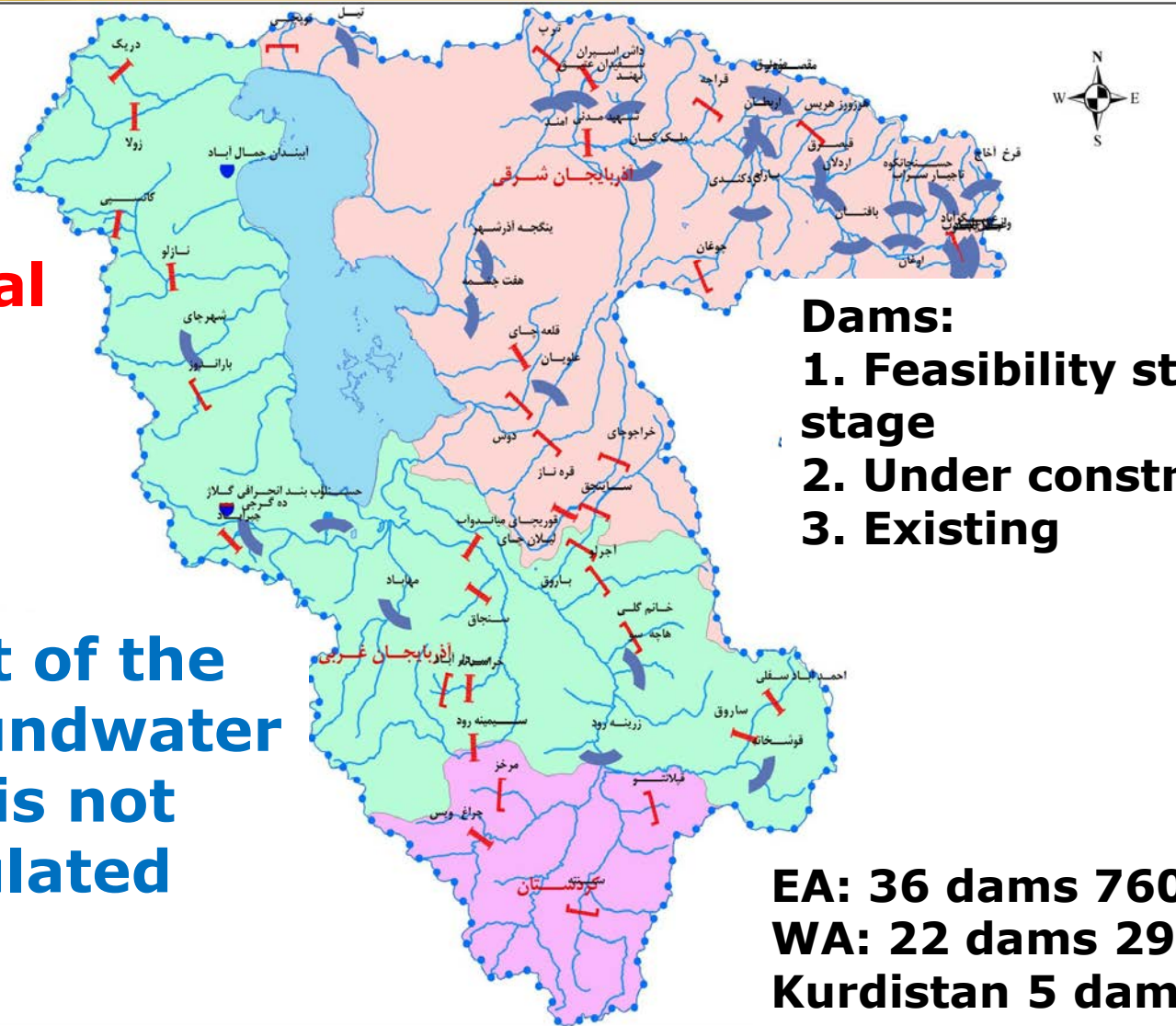


Dams, dams, dams ...



17 rivers
14 seasonal rivers
39 flood routes

Most of the groundwater use is not regulated



Dams:
1. Feasibility study stage
2. Under construction
3. Existing

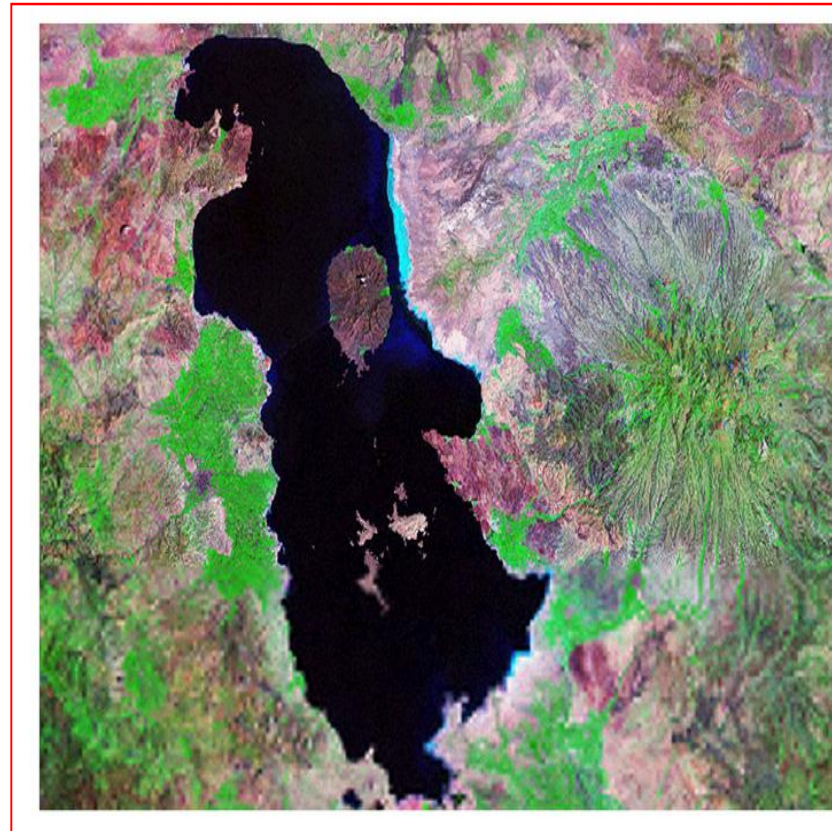
EA: 36 dams 760 MCM
WA: 22 dams 2960 MCM
Kurdistan 5 dams 148 MC

Not enough water to the Lake: up to 7 km retreat



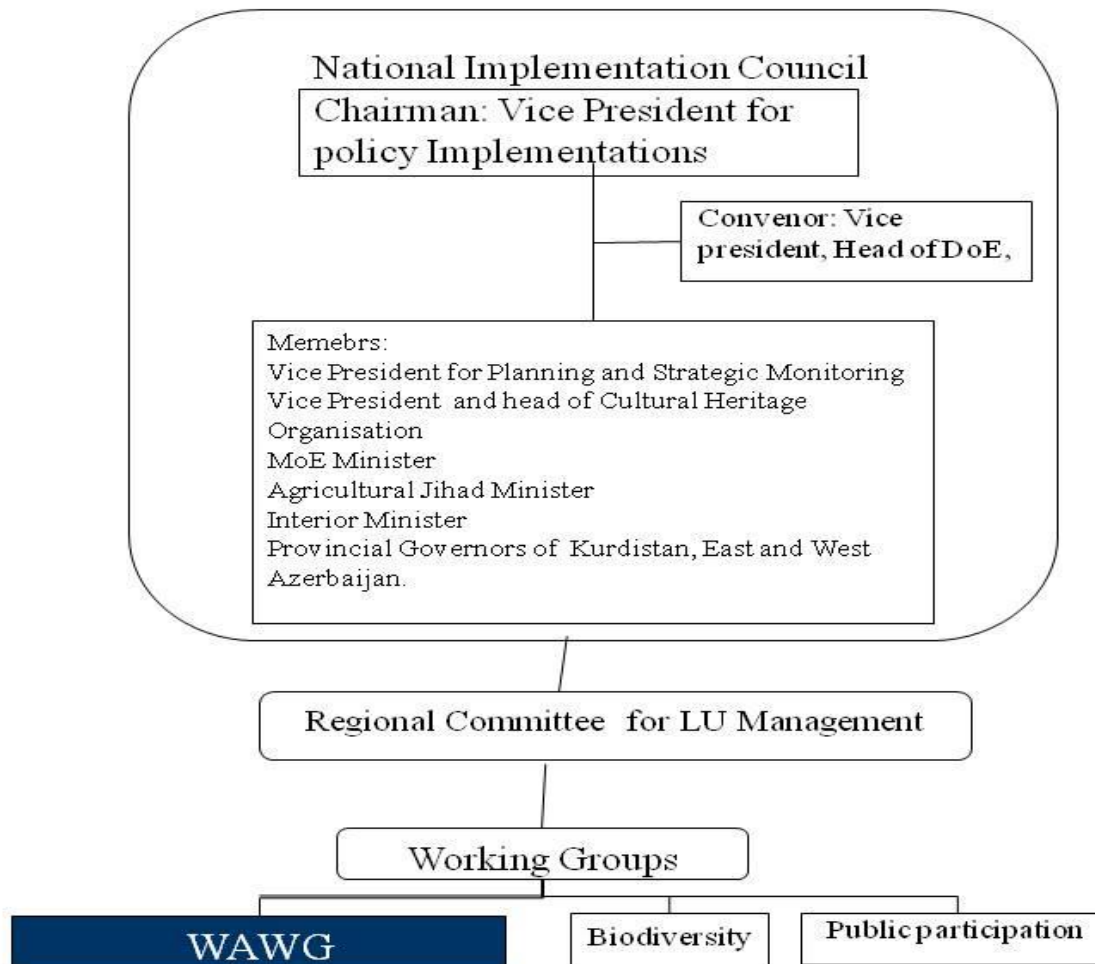
ISS021E006031

2009



1995

UNDP/GEF/DoE Conservation of Iranian Wetlands Project (CIWP)



Water and Agriculture Working Group (WAWG):
Sept 08-July 10



“Water allocation strategy

“Drought risk management plan

“Demand management

“Inter-basin transfer



Constitution, Water Vision, Council of Expediency and Supreme Leader's Water Directive ,

Rules

water resources development policies / water pricing. Bulk water allocation,

1982 Fair water Distribution Act

Water Pricing Bill/ water prices Development Bill/ statutory allocation priorities

2003 Water Allocation By-Law

other relevant Acts e.g. 1905 Civil Code revised 1989; 1974 Environmental Act

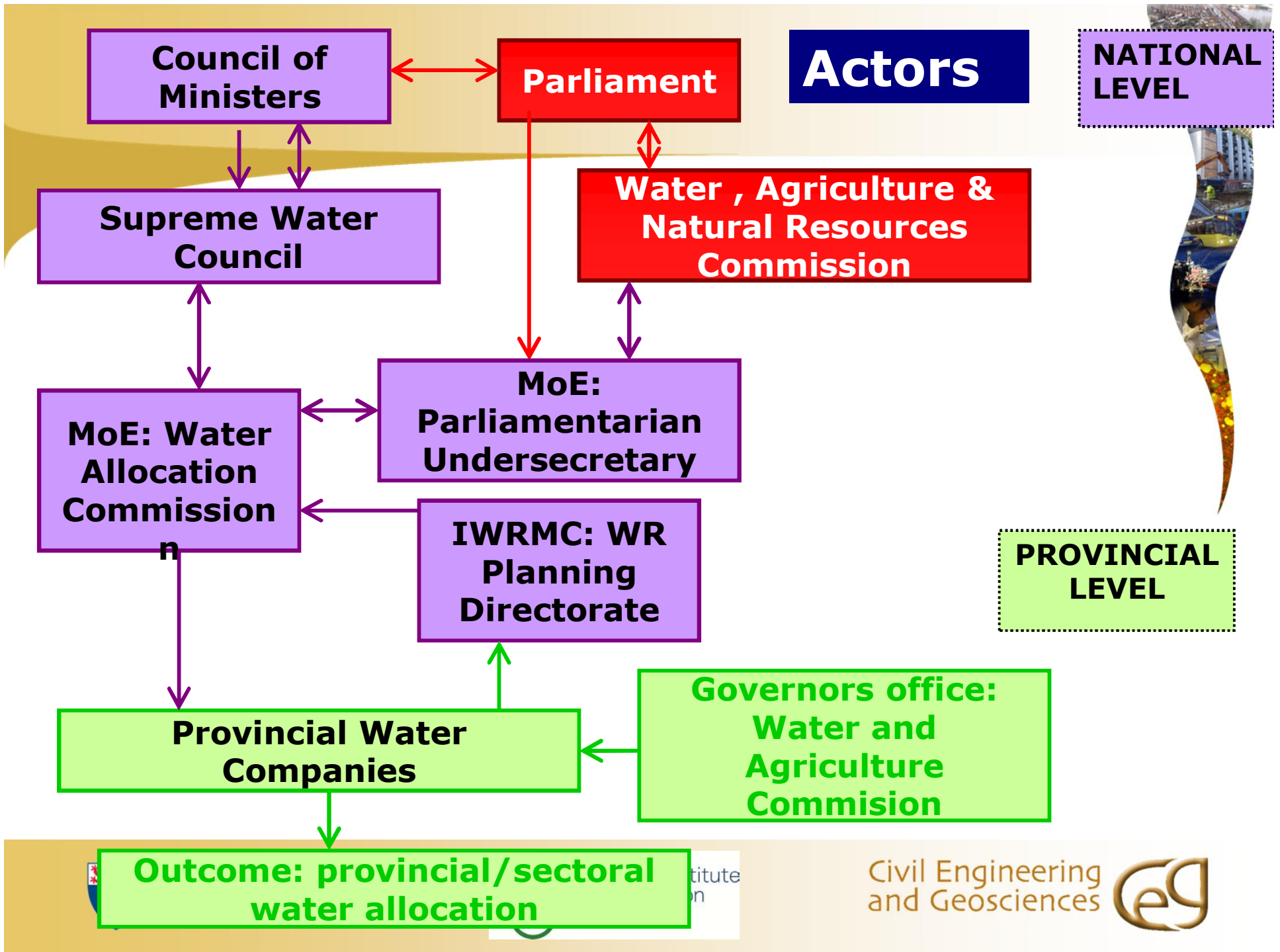
NATIONAL LEVEL

Provincial water allocation priorities

outcome: Provincial sectoral water allocations

PROVINCIAL LEVEL





UNDP/GEF/DoE Conservation of Iranian Wetlands Project (CIWP)



On 3rd of July 2010

LU water rights approved by Council of Ministers – legal statutory – min ecological 3.1 BCM

Provincial allocations were made

First time ever in Iran to make a decision based on stakeholder involvement and in a transparent way

A major achievement in the environmental history of modern Iran



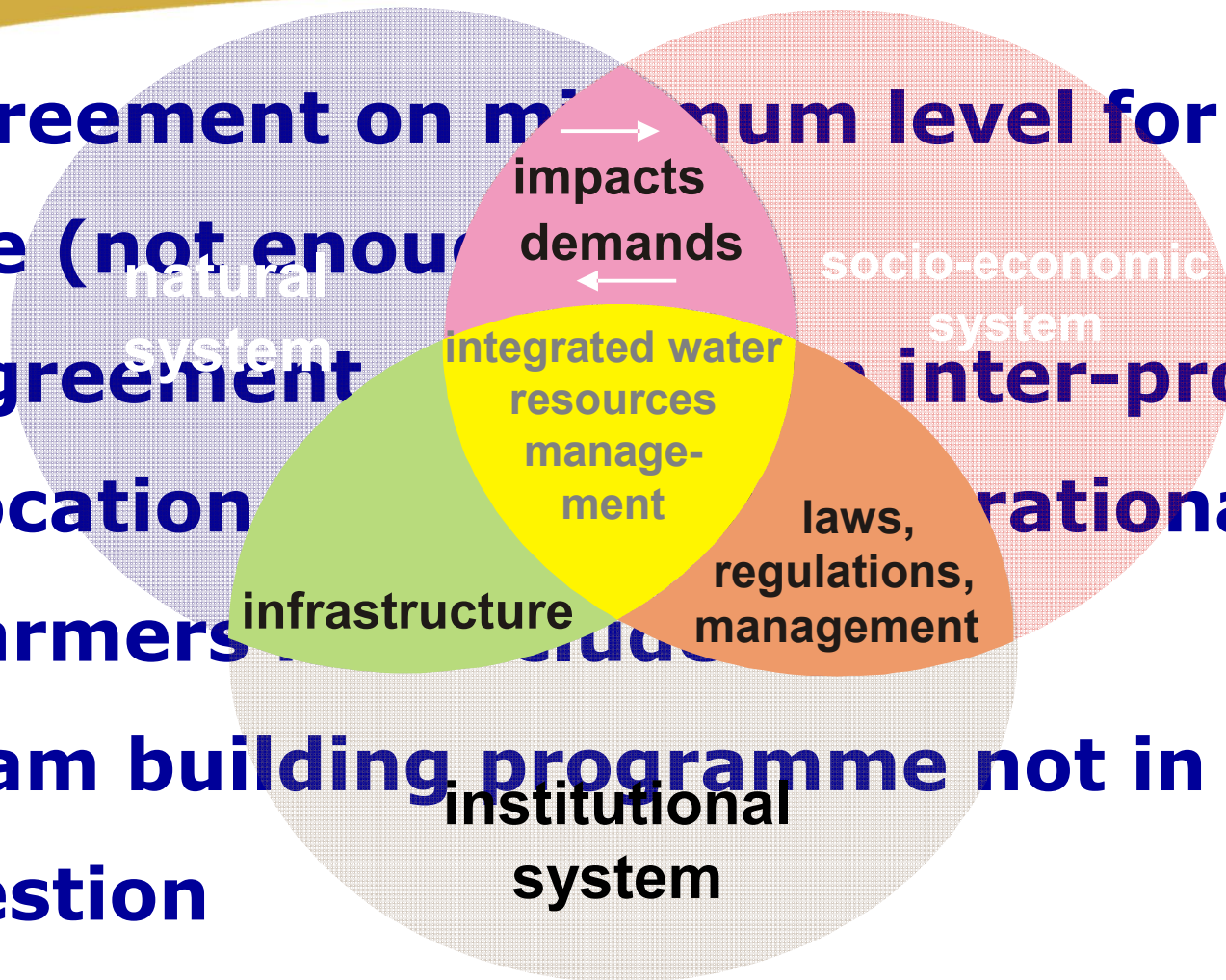
Provisional Outcome

“Agreement on minimum level for the lake (not enough)

▪ Agreement on allocation (inter-provincial)

▪ Farmers include

▪ Dam building programme not in question





Study Areas:

**Chili River
Arequipa, Perú**

**Poopó Lake
Oruro, Bolivia**

**Elqui River
La Serena, Chile**

Civil Engineering
and Geosciences





project methodology:



- “ perform **river-basin case studies**
- “ establish **forums for dialogue**
- “ develop **decision support tools**
- “ develop **river basin management plans**
- “ develop **guidelines** for integrated water resources and ecosystem management
- “ inform **policy options**

CAMINAR CONSORTIUM

Newcastle University, United Kingdom (Co-ordinator)

Asociación Civil Labor, Lima y Arequipa, Perú

Universidad Nacional de San Agustín de Arequipa, **Perú**

Universidad Mayor de San Andrés, La Paz, **Bolivia**

Centro de Estudios Ecológicos y Desarrollo Integral, La Paz, Bolivia

Centro del Agua para Zonas Áridas y Semi-Áridas de América Latina y el Caribe (CAZALAC . UNESCO), La Serena, **Chile**

Schlumberger Water Services, Santiago, **Chile**

Universidad de Oviedo, España

Instituto Superior Técnico, Lisboa, Portugal



UNIVERSIDAD DE OVIEDO

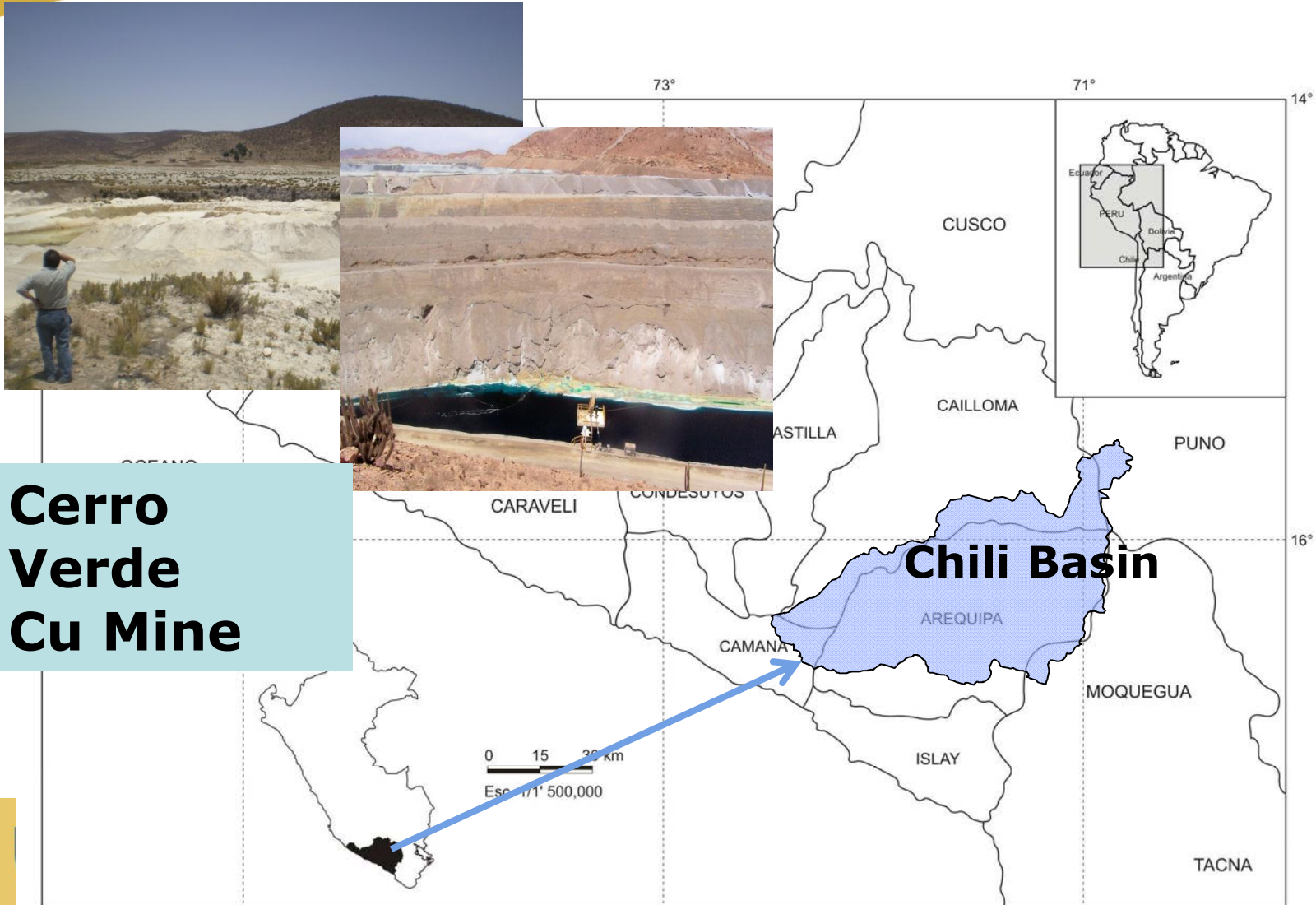


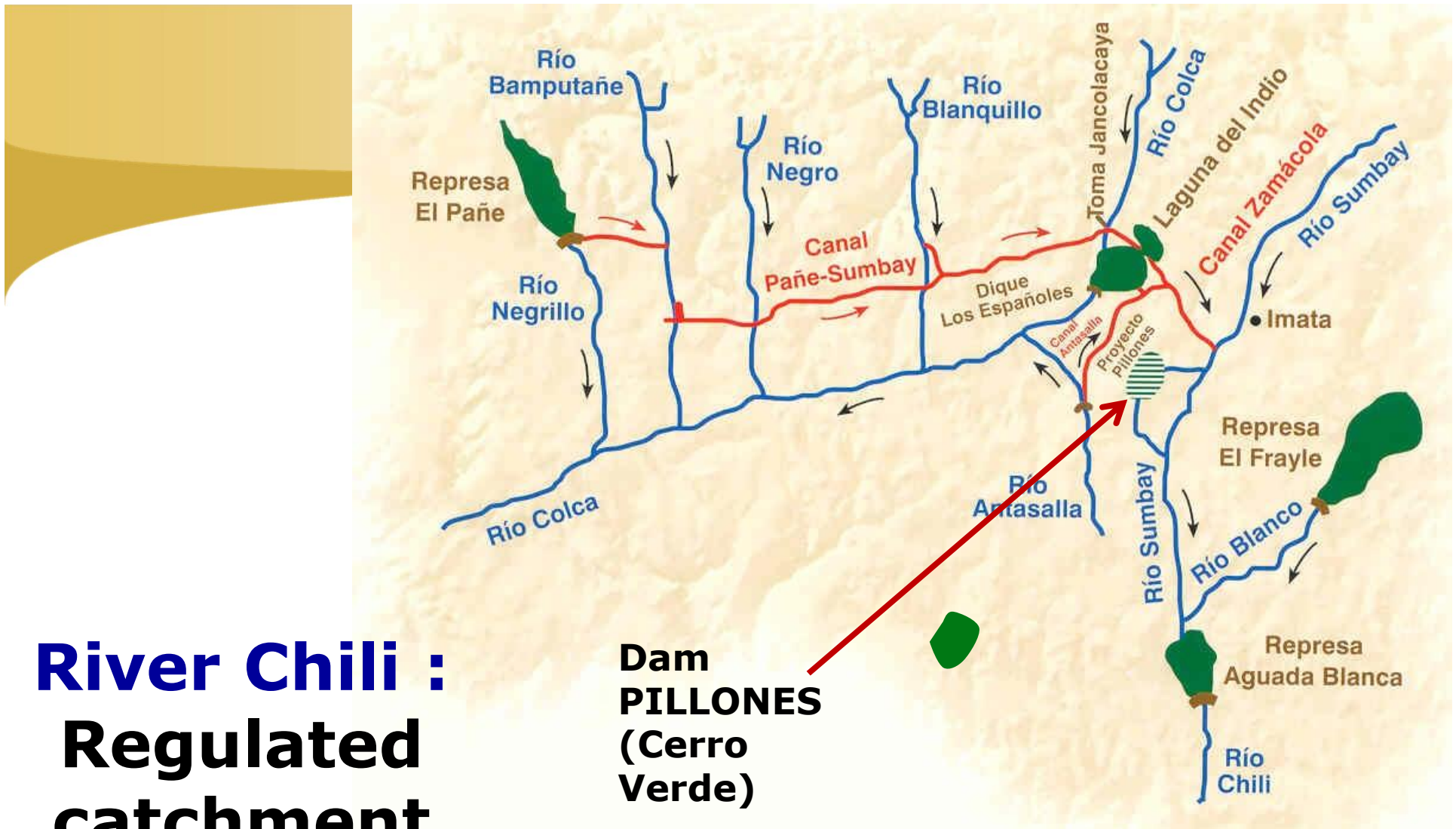
INSTITUTO SUPERIOR TÉCNICO

3 modos de CAMINAR

hacia la gestión sostenible de cuencas con actividad minera en zonas áridas y semiáridas de Sudamérica

Peru case study: Location of the Chili River Basin





River Chili : Regulated catchment

**Dam
PILLONES
(Cerro
Verde)**

**Arequipa
city**



Newcastle University
(not to scale)

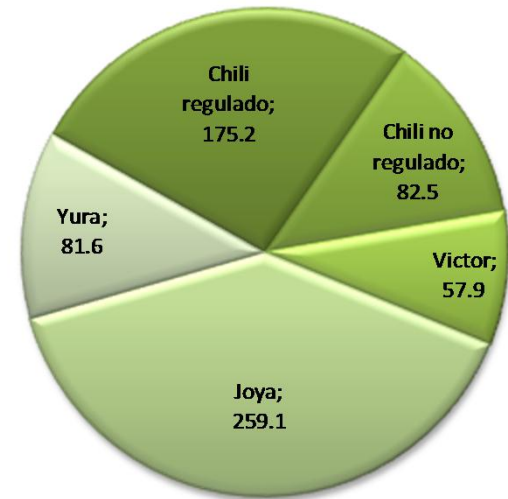
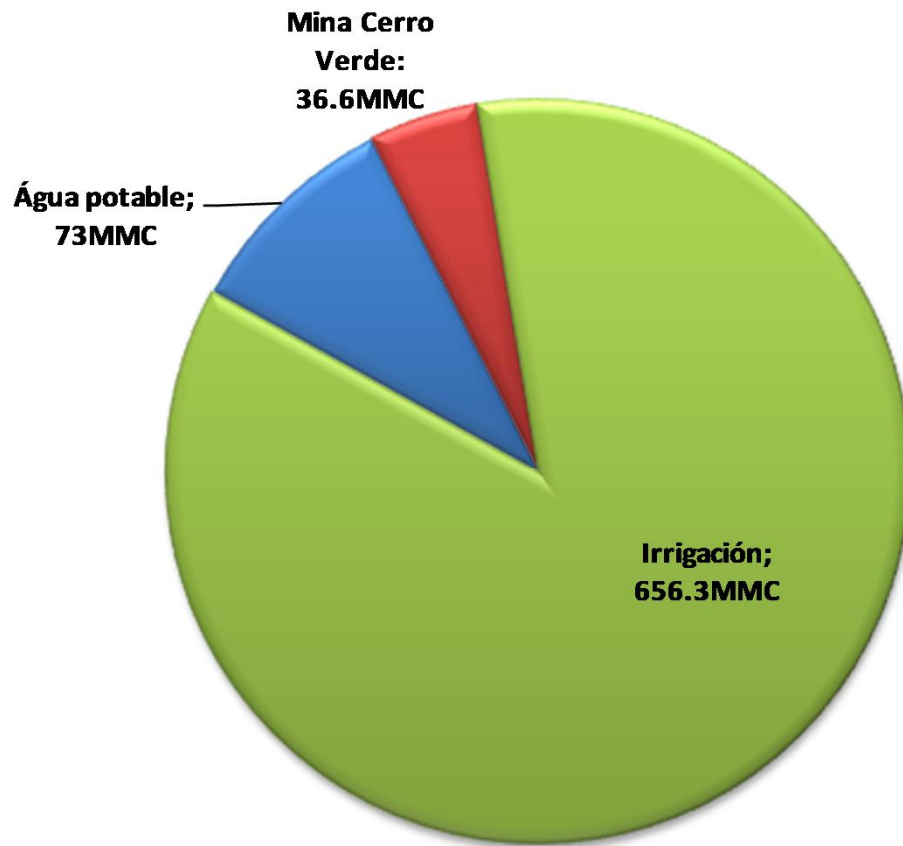


Newcastle Institute
for Research on
Sustainability

Civil Engineering
and Geosciences



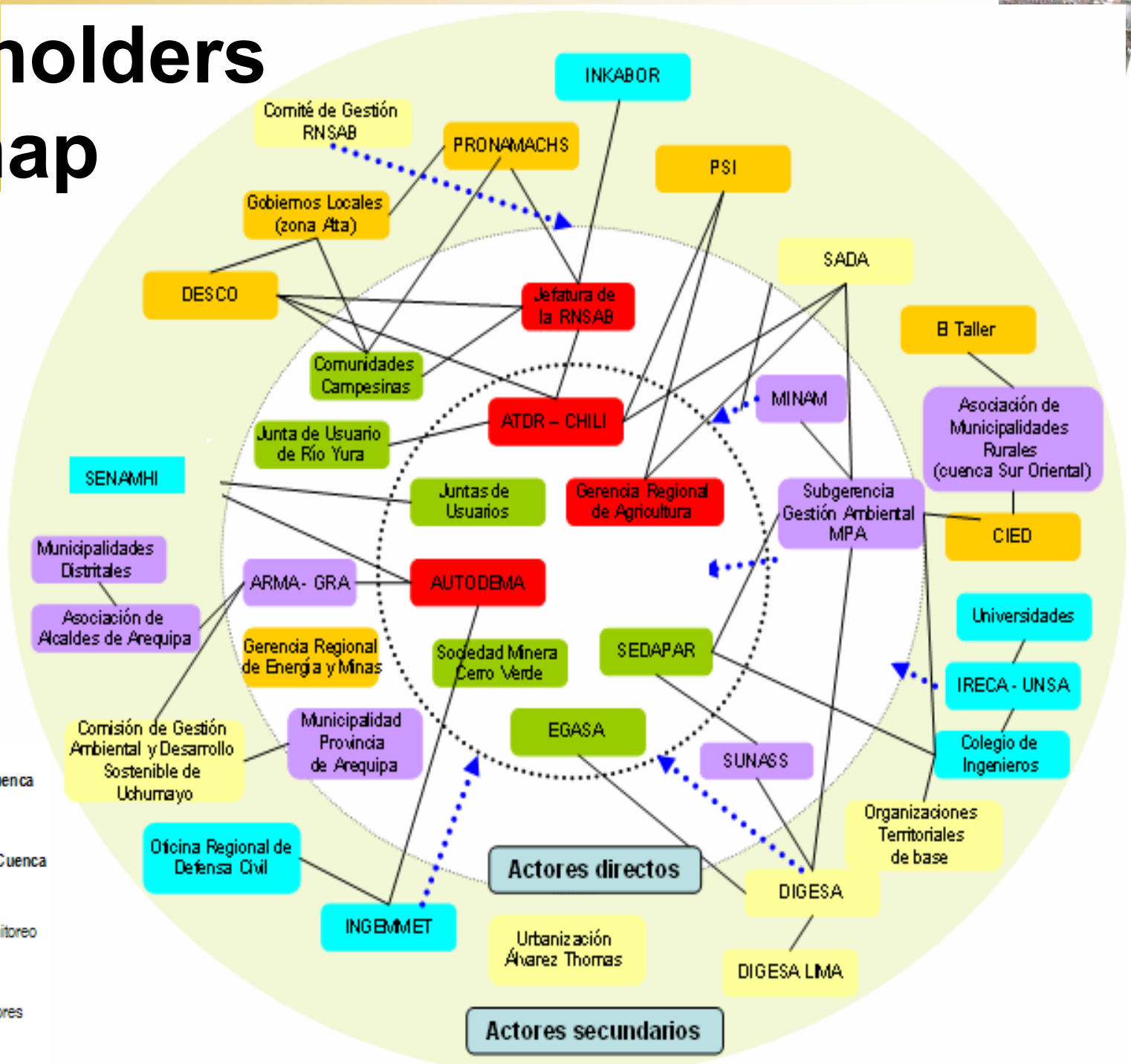
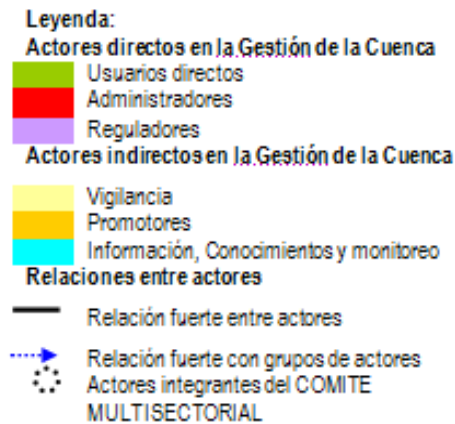
Data about users



Main water-related problem: Untreated sewage from Arequipa city



Stakeholders map





Regional Environmental Management Arequipa

Regulation 011-2004-CR/AREQUIPA



**Regional President
Regional Council**

**Comisión Ambiental Regional
Arequipa**

**Órgano de Línea Ambiental del
Gobierno Regional Arequipa
ARMA**

**Comisión de Ecología, Medio
Ambiente y Defensa Civil del
Consejo Regional**

Regional Technical Groups

**Technical Group
for Management of
Chili River**

**Entidades
pública**

**Sector
privado**

**Sociedad
Civil**

Gobiernos Locales

**Órganos
del GR**



and Geosciences



Themes for Catchment Policies



1. Institutions
2. Water culture
3. Water decontamination
4. Efficient water management
5. Recovery of traditional technologies of water use and conservation.
6. Positive relation between mining and water



Provisional Outcome

- **Dialogue-based process**
- **Inclusive of ALL stakeholders**
- **Agreement on principles for water management**
- **Joint identification of issues**
- **Process supported from outside**
- **Possible for absence of direct conflicts**



Water Futures Questions

Is there enough water for everyone in the planet?
Not for everybody, everywhere

Can we afford to recognize that access to essential water services is a public good or even a human right?
Strict definition of *essential water services* is de facto challenged by real water use

Do we have the technological means to reverse the current world water crisis?
Technology alone is not enough

Is it possible to simultaneously achieve the goals of sustainability and social justice in relation to water?
Deeply connected goals



Thanks

