



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

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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?

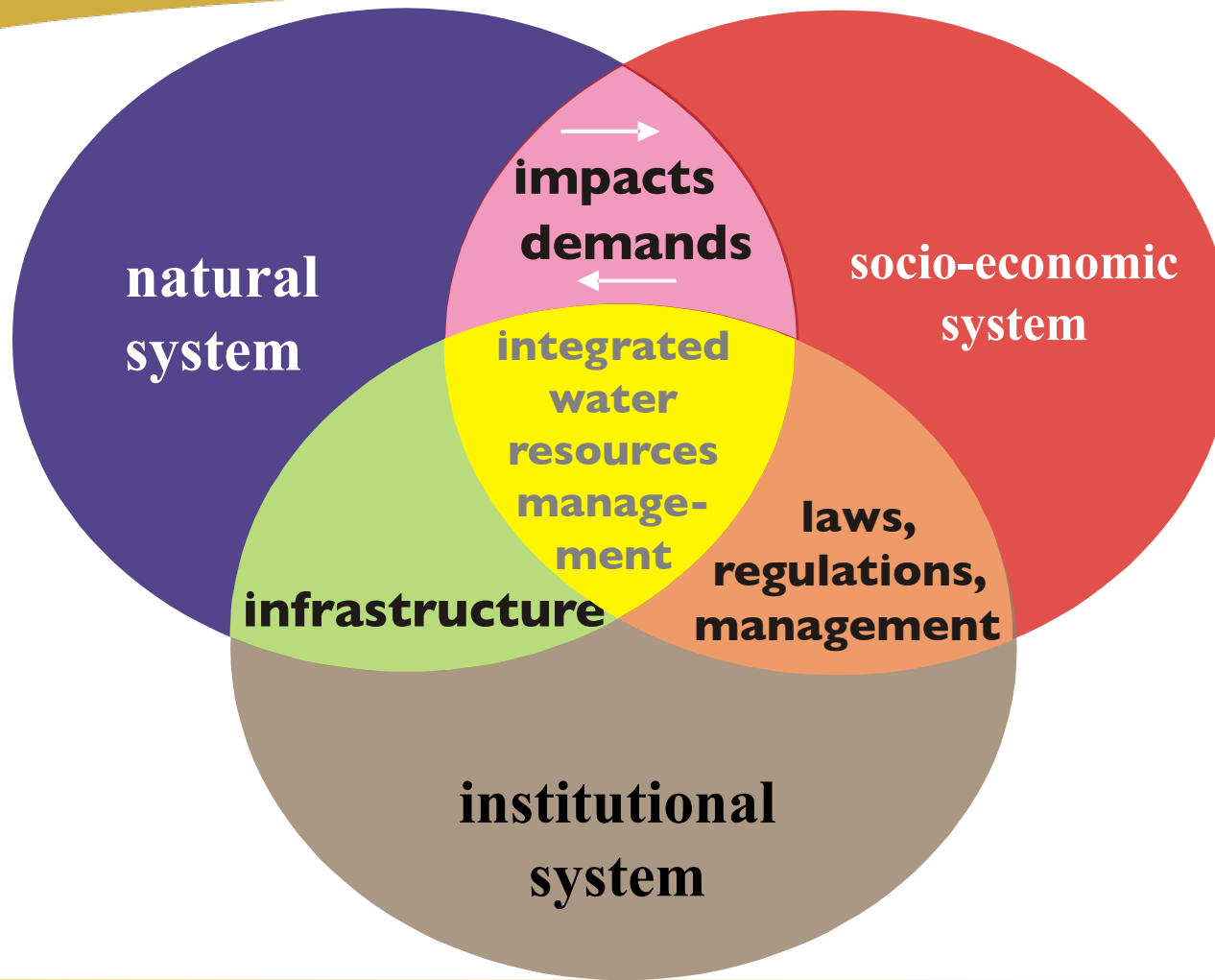
Are we facing a real possibility of international water wars? Should we care?

Content

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



Integrated Water Resources Management



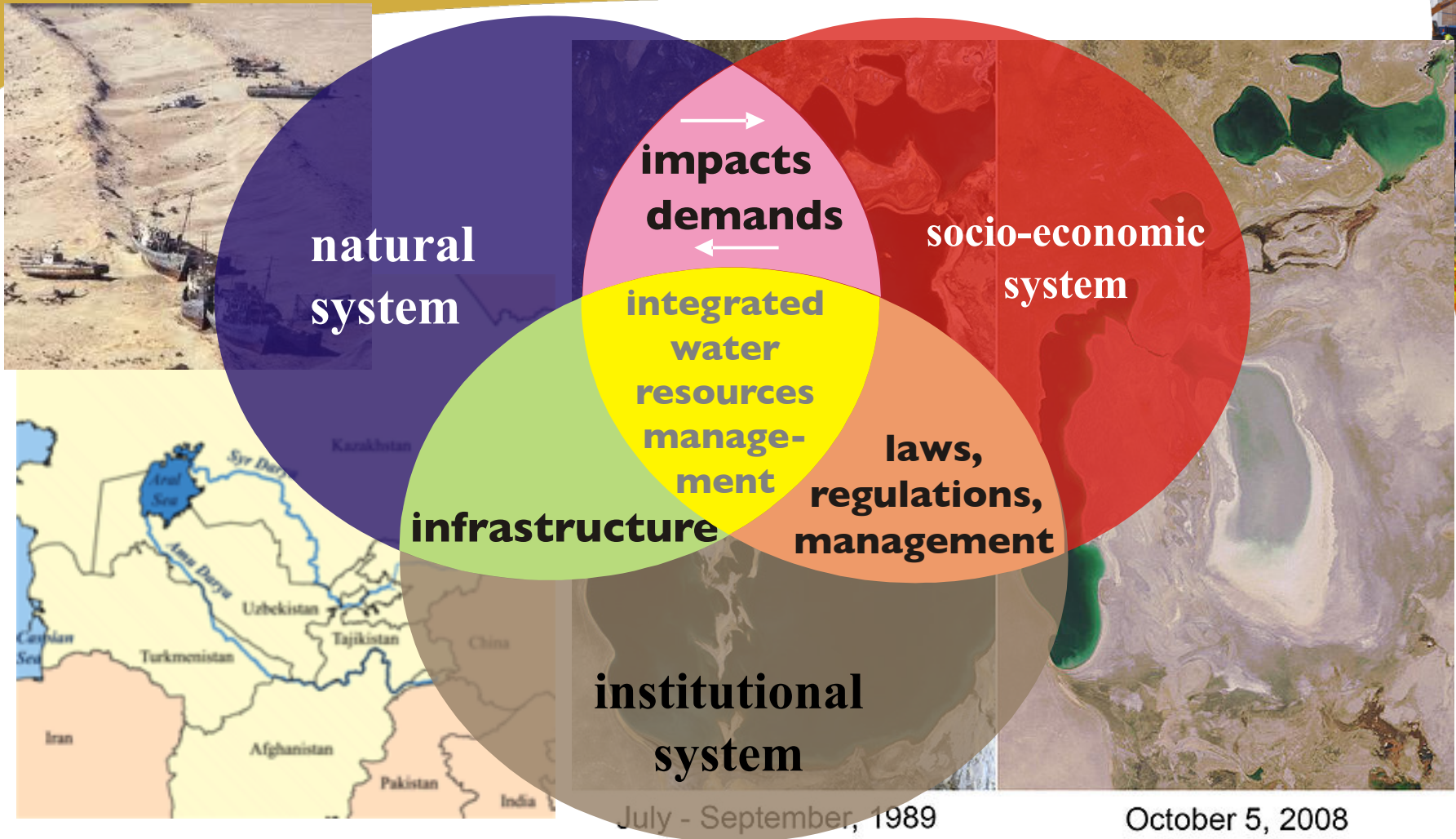
Water Scarcity



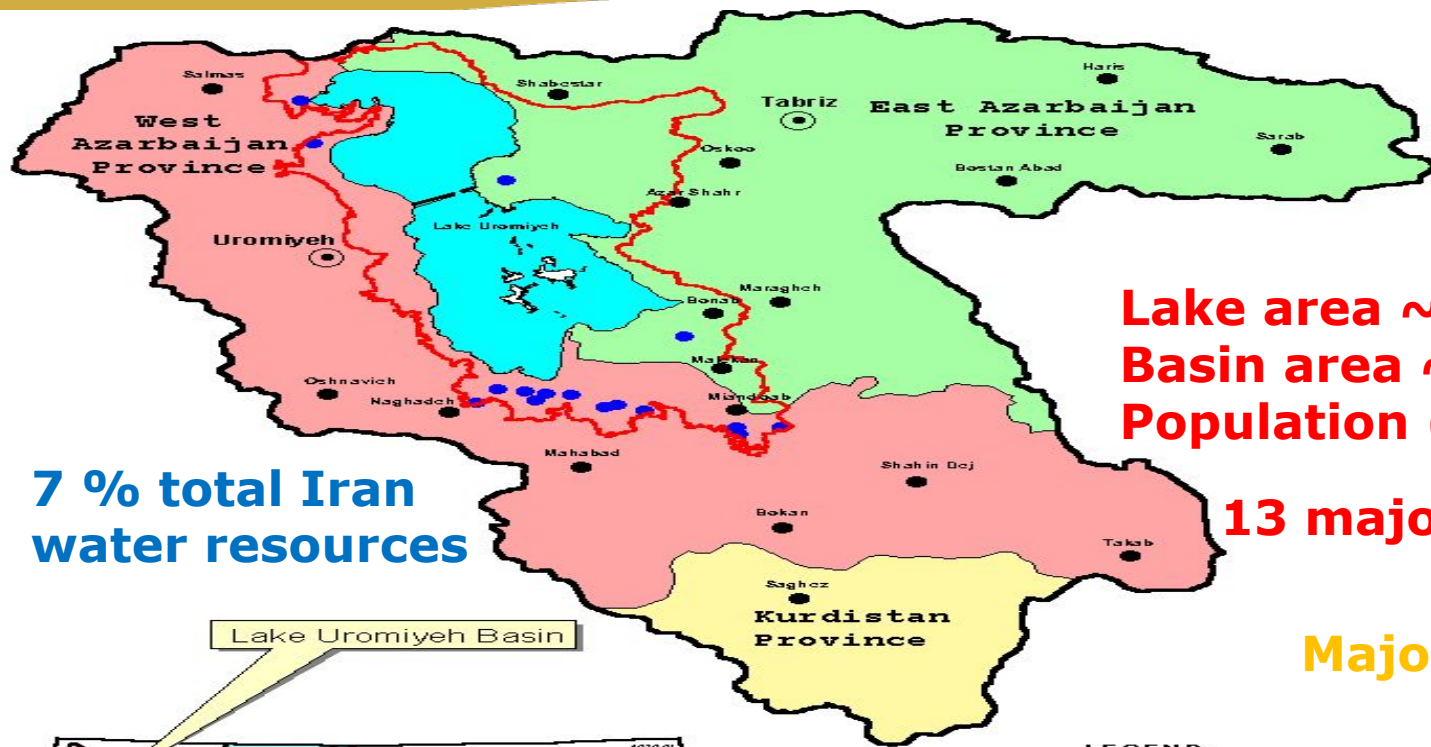
A Socio-technical Framework for Implementing the Integrated Water Resources Management (IWRM) Plan in Lake Urmia Basin, Iran

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

Aral Sea- Kazakhstan/Uzbekistan



The setting: Lake Urmia Basin, Iran



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

7 % total Iran
water resources

13 major urban centers

Major agro economy

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

Lake Uromiyeh Basin



LEGEND



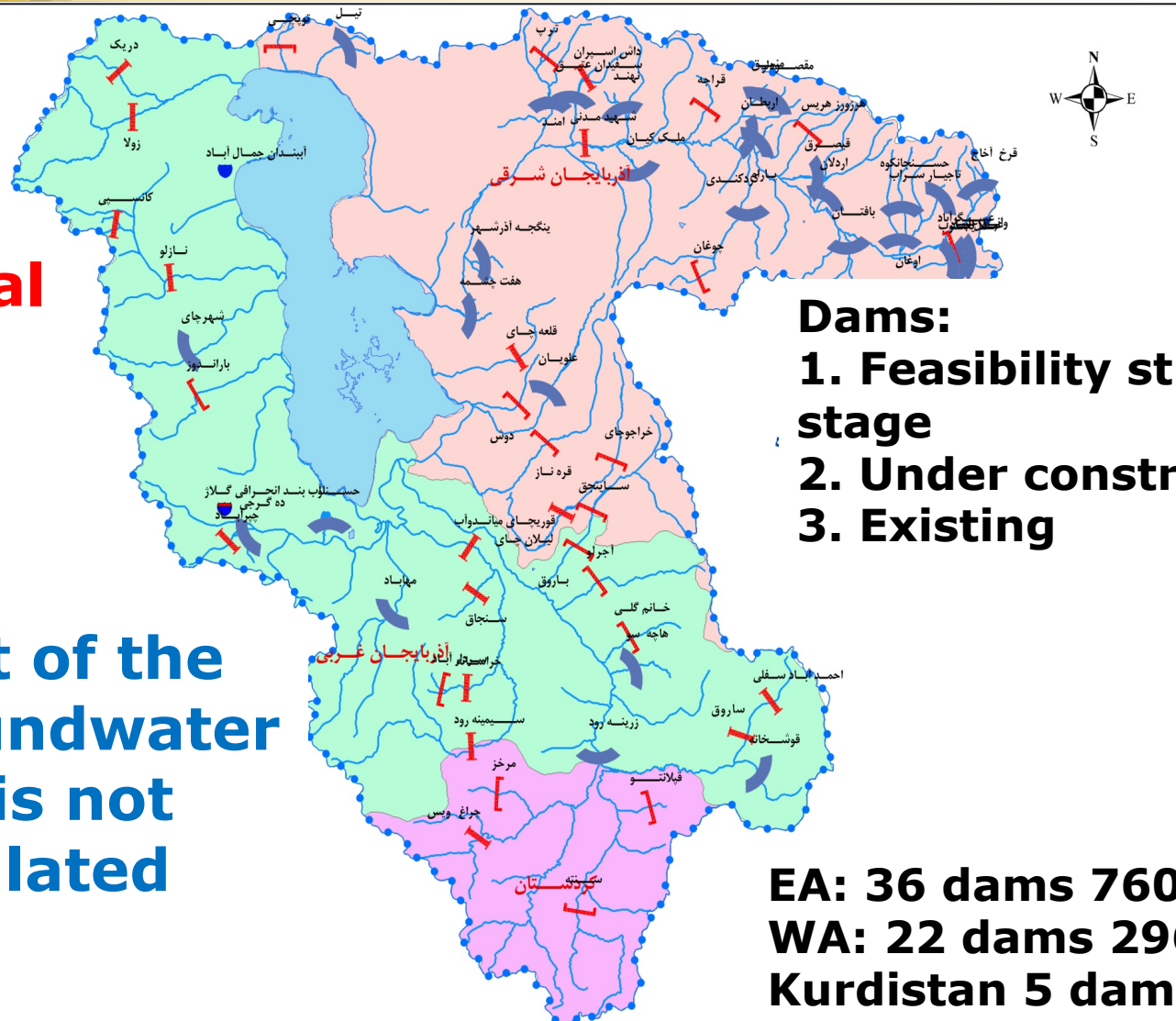
YEKOM Consulting Engineers
GIS Section

Dams, dams, dams ...



17 rivers
14 seasonal
rivers
39 flood
routes

Most of the
groundwater
use is not
regulated



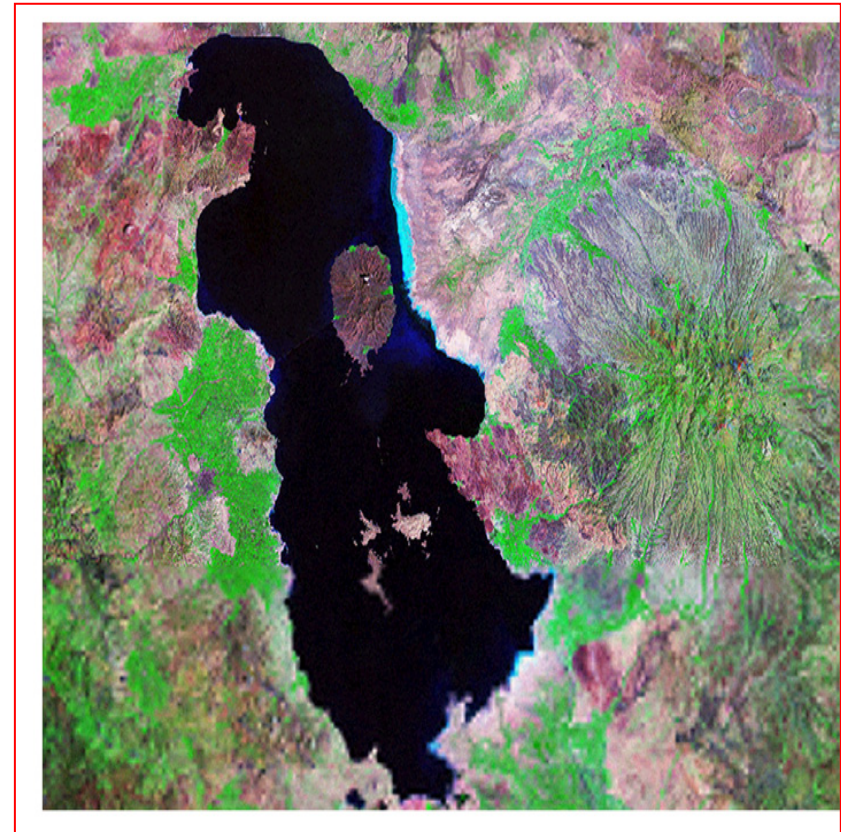
Dams:
1. Feasibility study
stage
2. Under construction
3. Existing

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

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

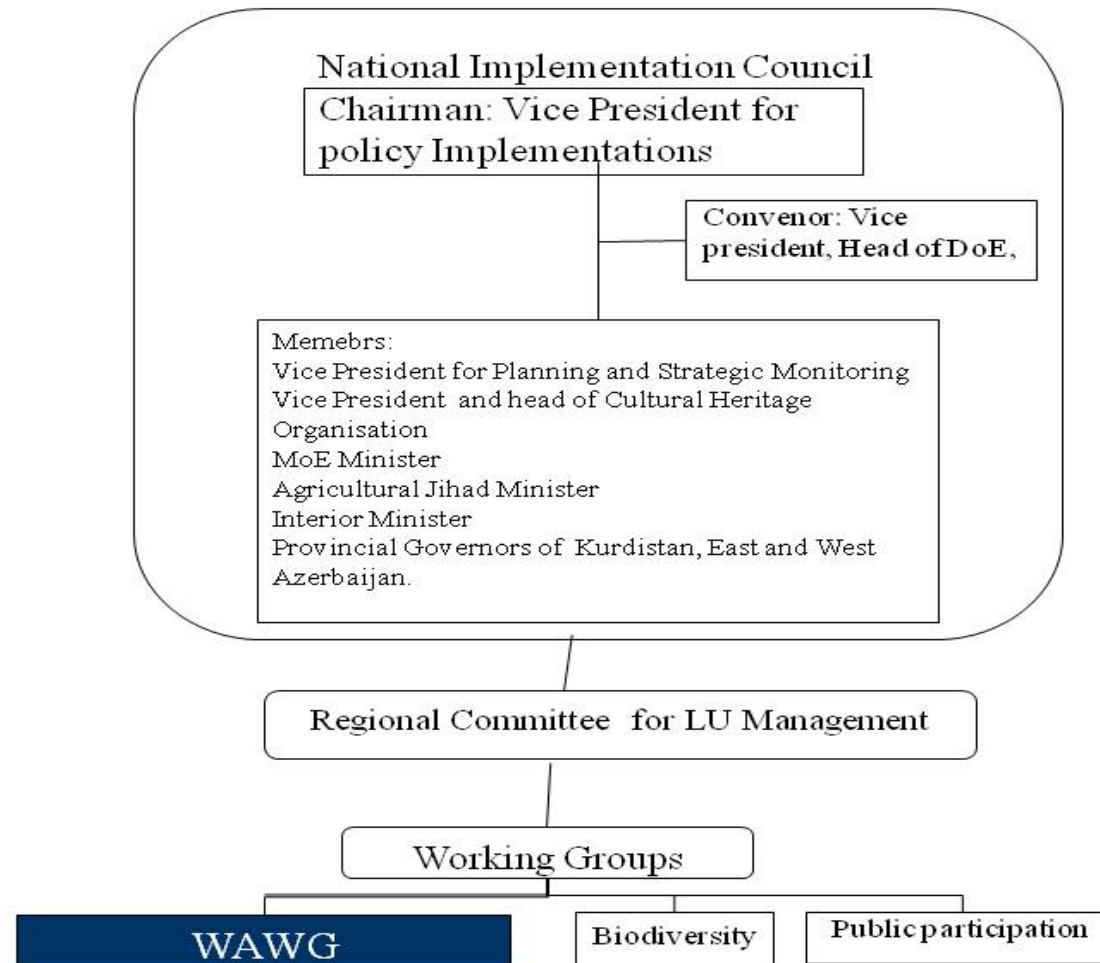


2009



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

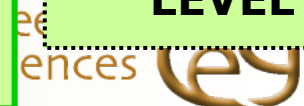
other relevant Acts e.g. 1905 Civil Code revised 1989; 1974 Environmental Act

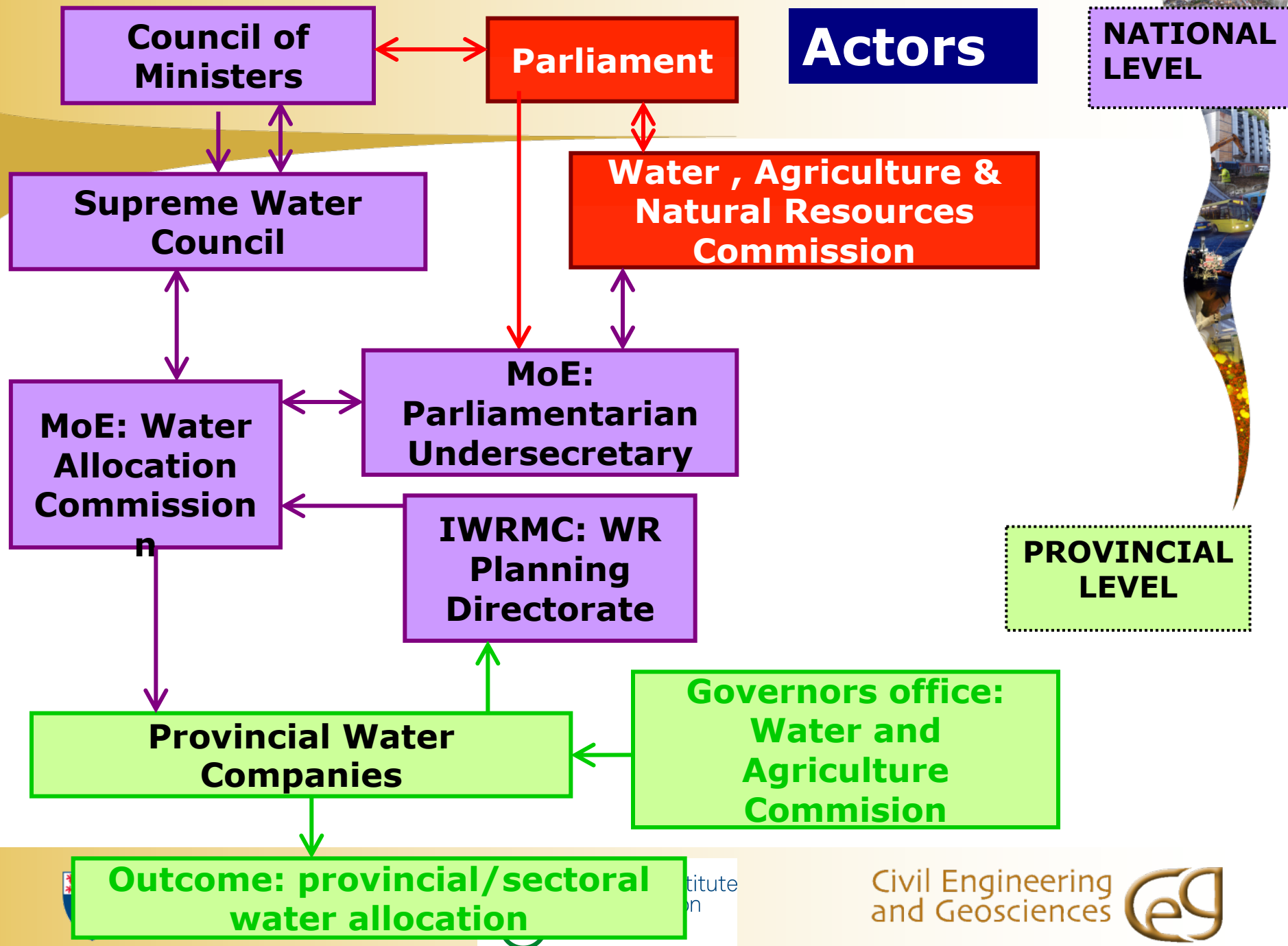
NATIONAL LEVEL

Provincial water allocation priorities

PROVINCIAL LEVEL

outcome: Provincial sectoral water allocations





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
 - Farmers
 - Dam building programme not in question
-
- The diagram consists of four overlapping circles representing different systems:
- natural system** (purple circle)
 - socio-economic system** (red circle)
 - infrastructure** (green circle)
 - institutional system** (brown circle)
- The intersections are labeled as follows:
- Intersection of natural and socio-economic systems: **impacts demands** (with arrows pointing in opposite directions)
 - Intersection of infrastructure and institutional systems: **laws, regulations, management**
 - Intersection of natural and infrastructure systems: **integrated water resources management**
 - Intersection of socio-economic and institutional systems: **integrated water resources management**
 - Intersection of all four systems: **integrated water resources management**

Study Areas:

**Chili River
Arequipa, Perú**

**Poopó Lake
Oruro, Bolivia**

**Elqui River
La Serena, Chile**





CAMINAR

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

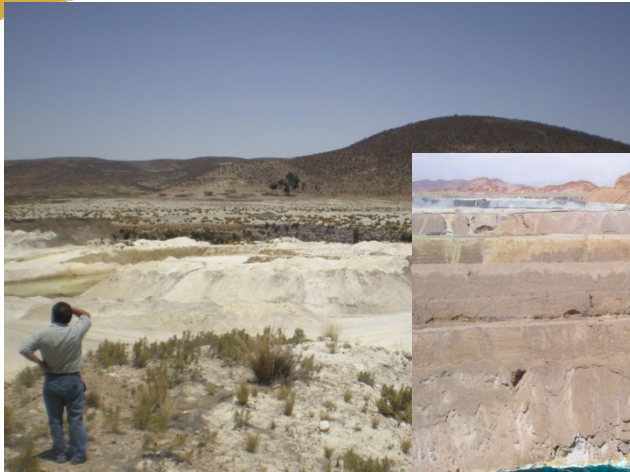


3 modos de CAMINAR

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

Peru case study:

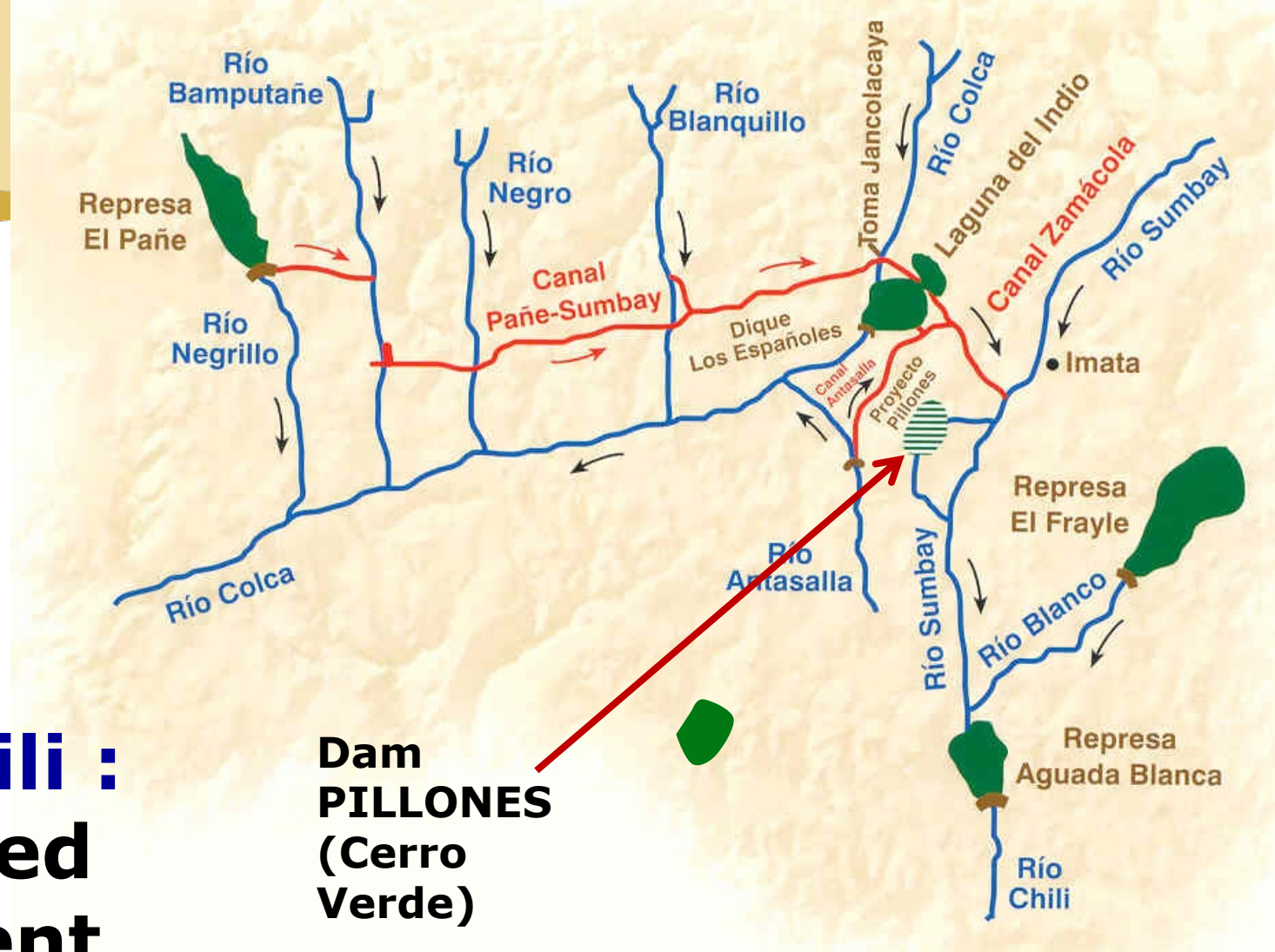
Location of the Chili River Basin



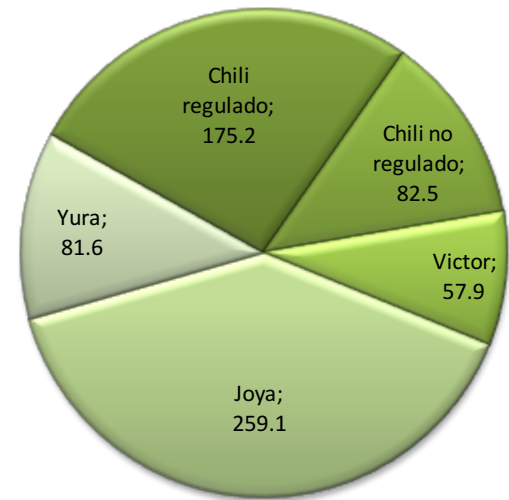
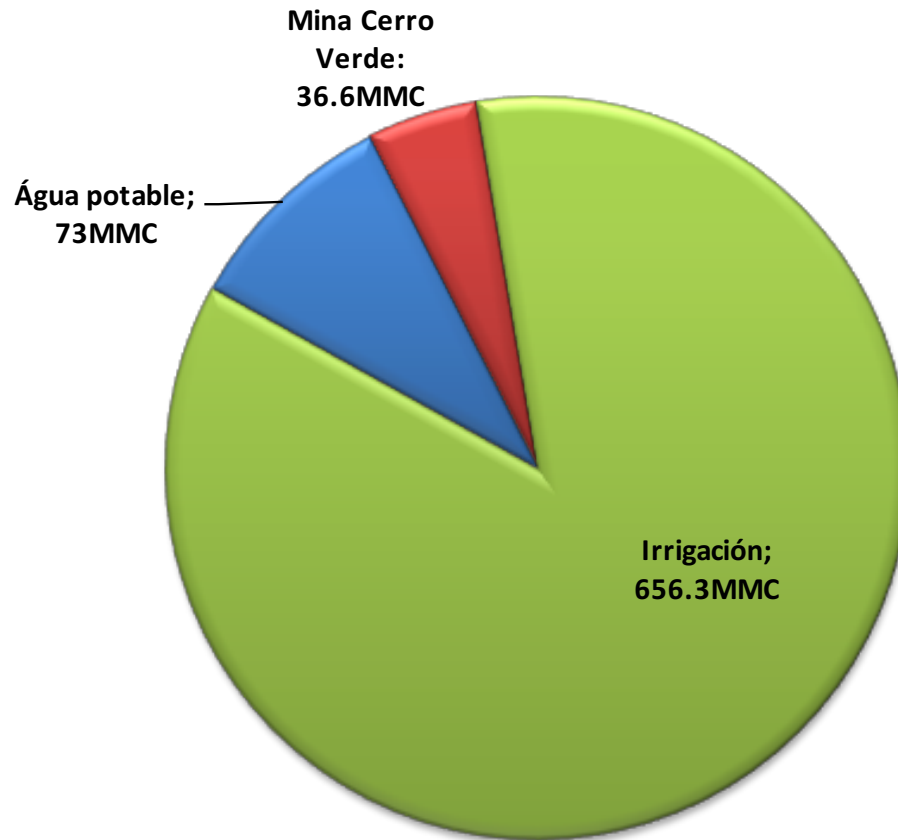
Cerro Verde Cu Mine



River Chili : Regulated catchment



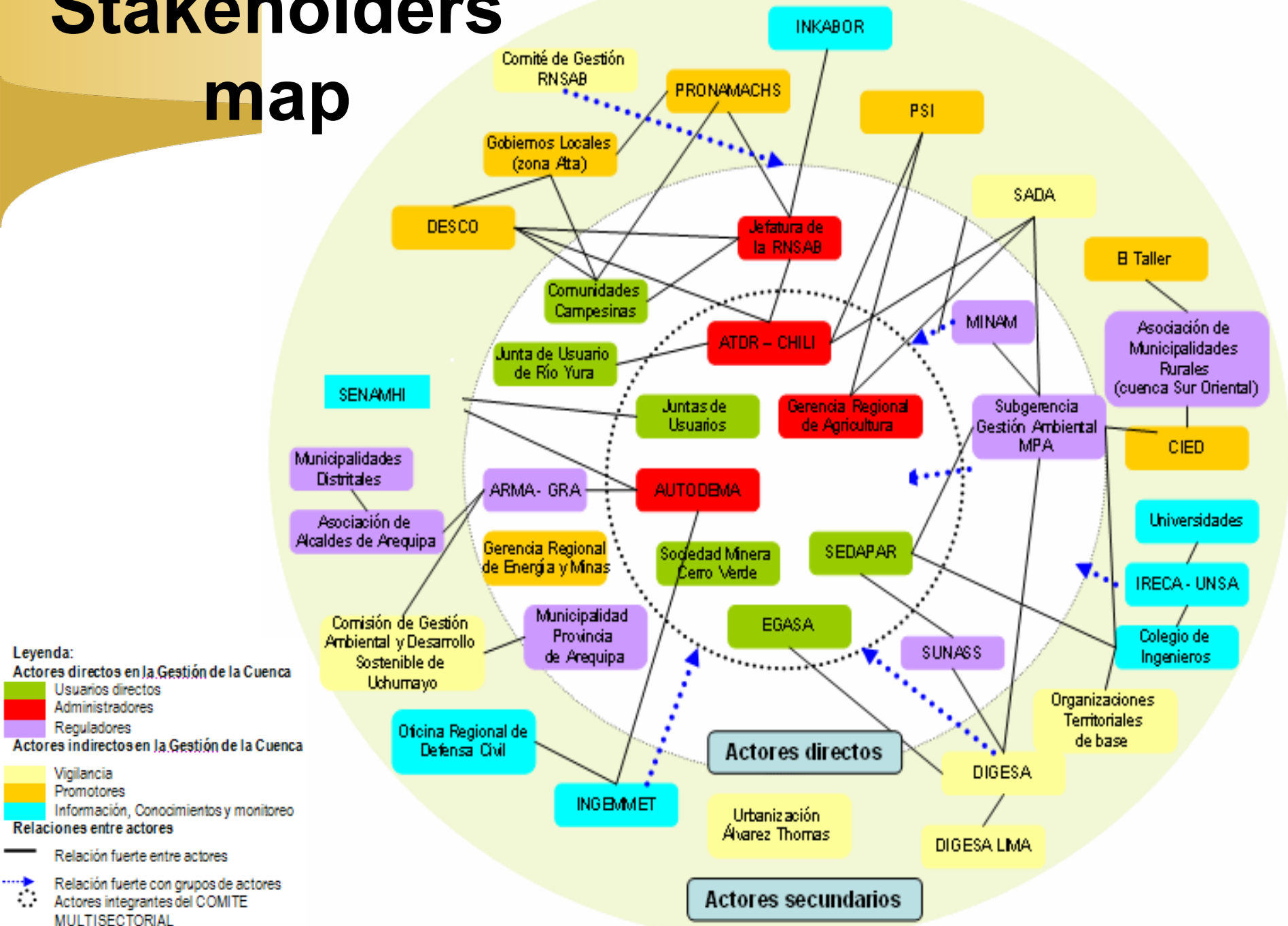
Data about users



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**

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