



# ECOSYSTEM-BASED WATER MANAGEMENT FROM INNOVATION TO PRACTICE

Session 3: Ecosystem based water management:  
From policy to practice

## Payment for Ecosystem Services: Implementation in drinking water utilities, from policy to practice

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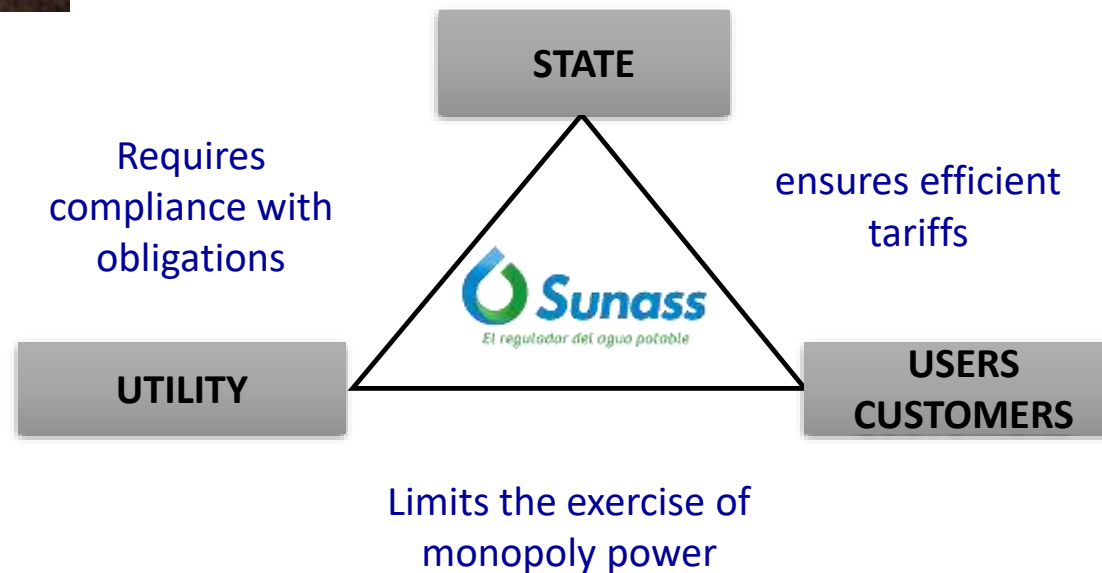
Thursday August 30th / 14:00 – 15:30



# National Superintendence of Sanitation Services – SUNASS

## The Water Utility Regulator

Economic regulator that balance the interest of:



**Sets tariffs for retrieving the economic cost of providing sanitation services**



## Why is Peruvian WUR interested in GI?

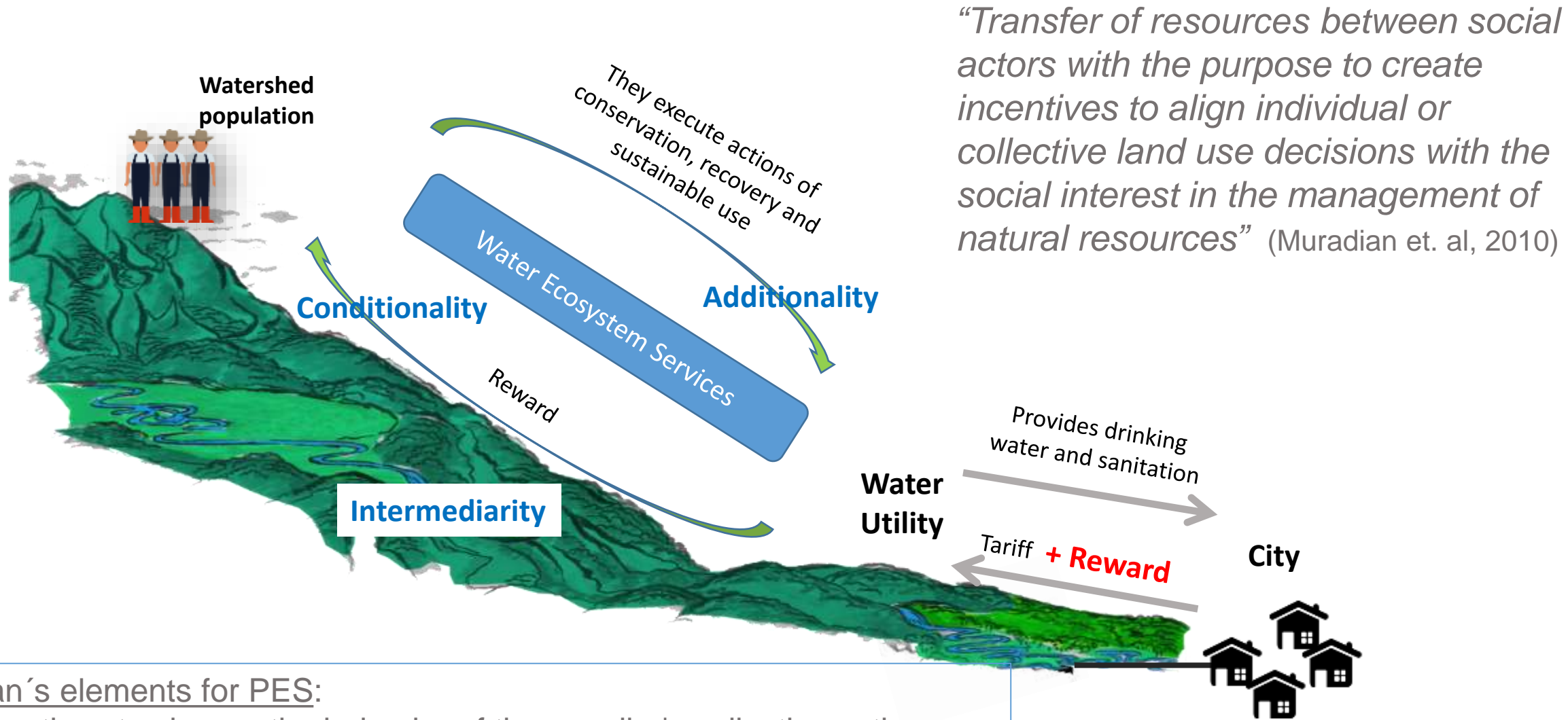


The watershed degradation increases the cost of drinking water service

The water utilities should have control of the raw water supply chain, in order to avoid....

- Additional use of chemical inputs.
- Interruption of DW distribution.
- Investment in pre-treatment units.
- Investment in new sources of water.
- Deterioration of the infrastructure.
- Social conflicts

# The Peruvian PES: Mechanisms of Rewards for Ecosystem Services - MRSE

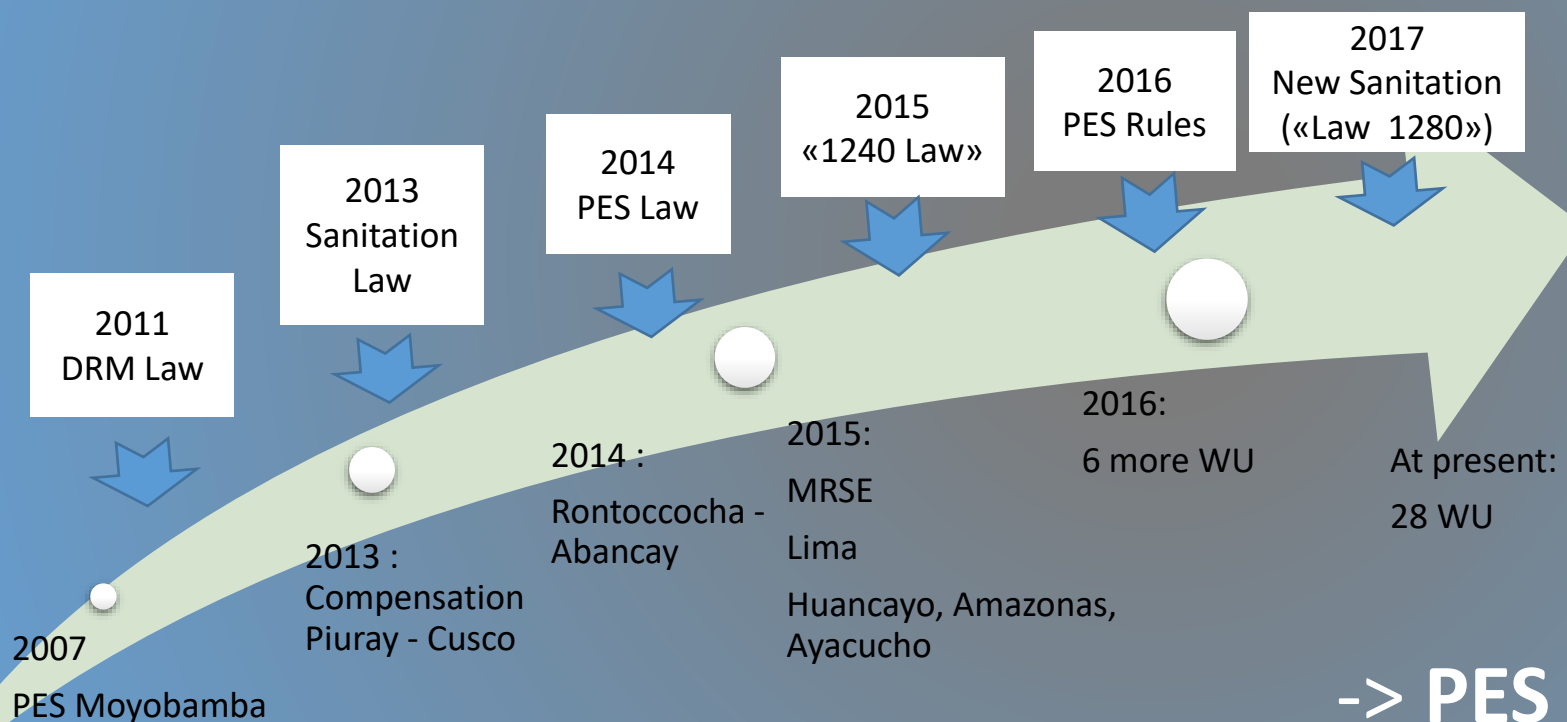


## Muradian's elements for PES:

1. Incentives to change the behavior of the supplier's collective action.
2. Intermediaries to reduce the transaction cost: Managing Committee.
3. Acceptance of the additionality by DW users and WU. Accountability.

# The Tariff Reform

SUNASS decided to promote the inclusion of PES in the WU tariff through the Sanitation Law

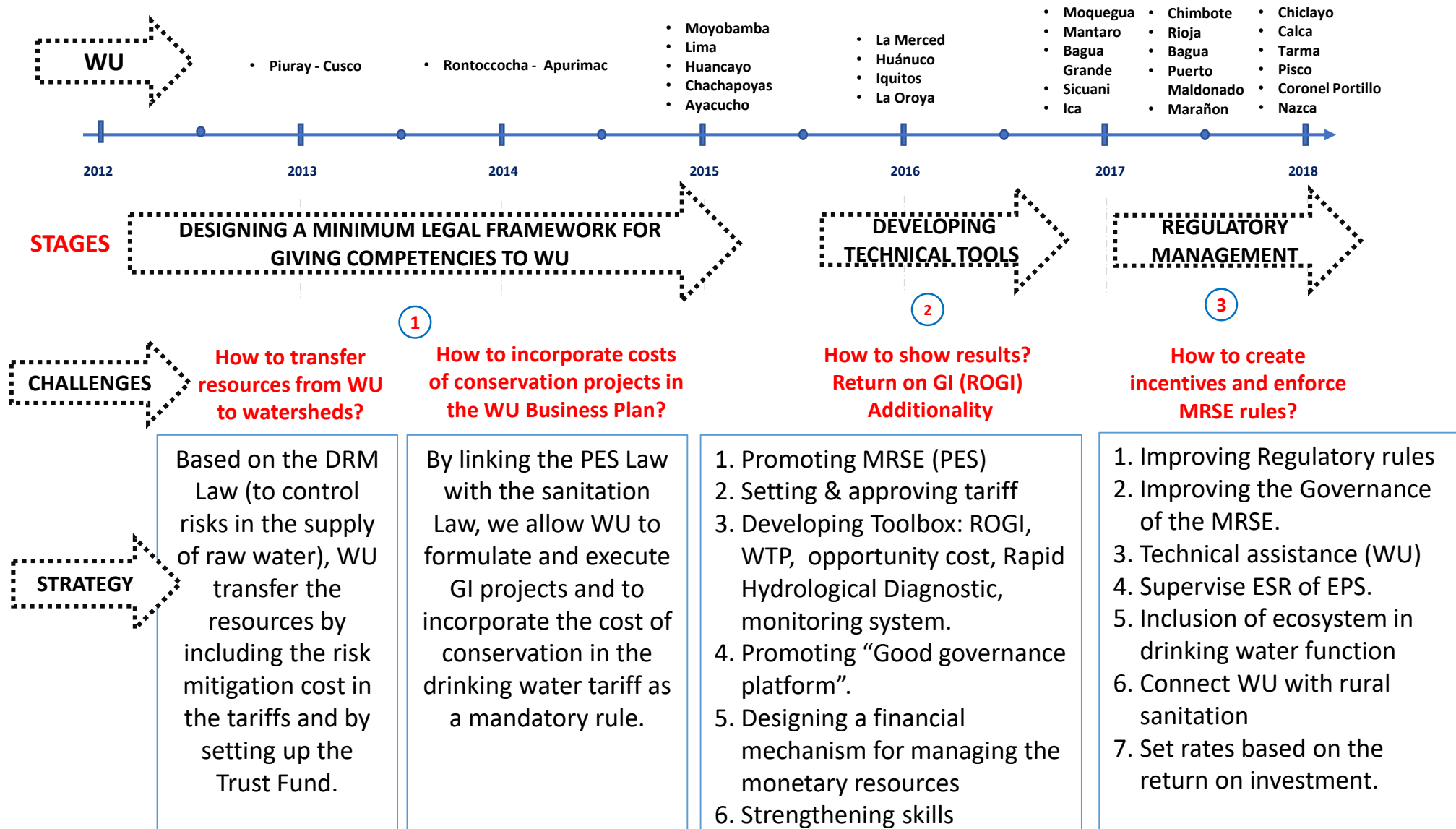


A large process.....

- ✓ Moyobamba 2007
- ✓ DRM Law
- ✓ Sanitation Law
- ✓ PES Law
- ✓ New Sanitation Law

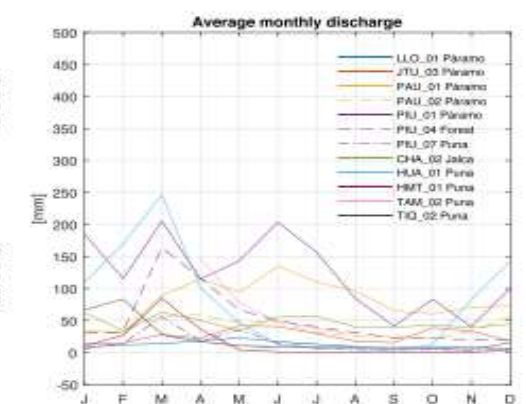
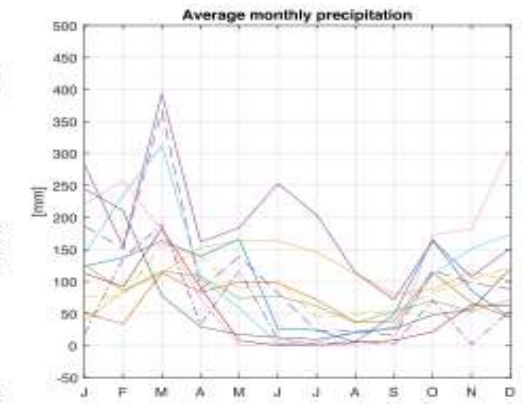
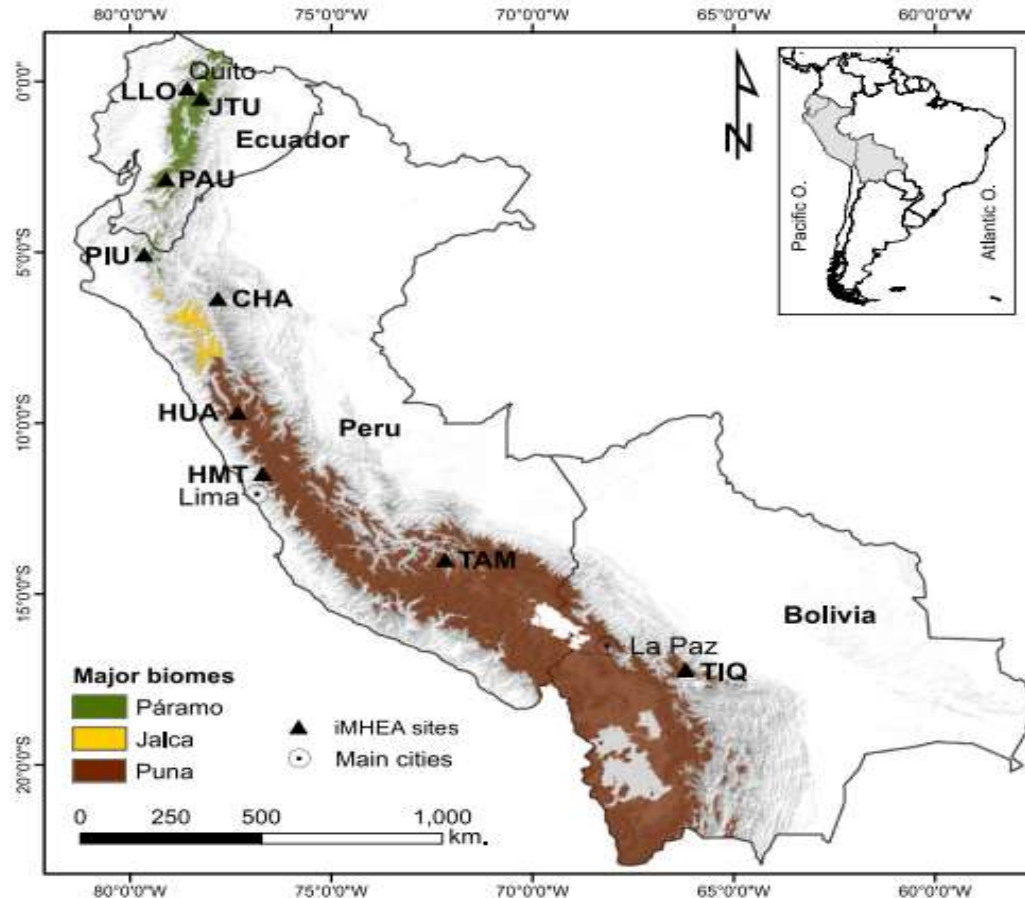
-> PES as a Public Policy

# Stages in the Tariff Reform for the PES implementation



Do we have the right instruments and are we applying our knowledge on ecosystem for drinking water service?

SUNASS is a iMHEA partner along the Andean Region with monitoring system in more than 24 watersheds

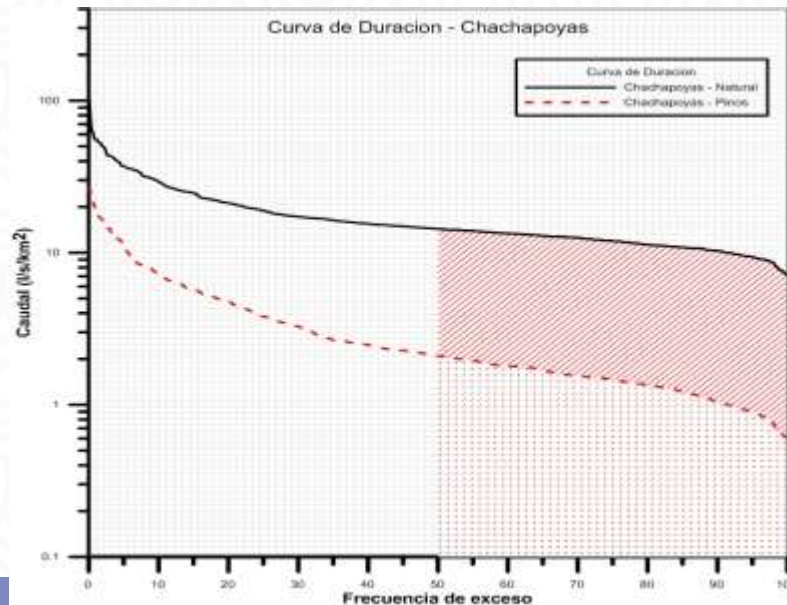


Example: By setting up fences and allowing ecosystem to work, wetlands have been recovered and these have contributed to water regulation.

GI impact:  
Pasture  
recuperation



Hydrological  
regulation



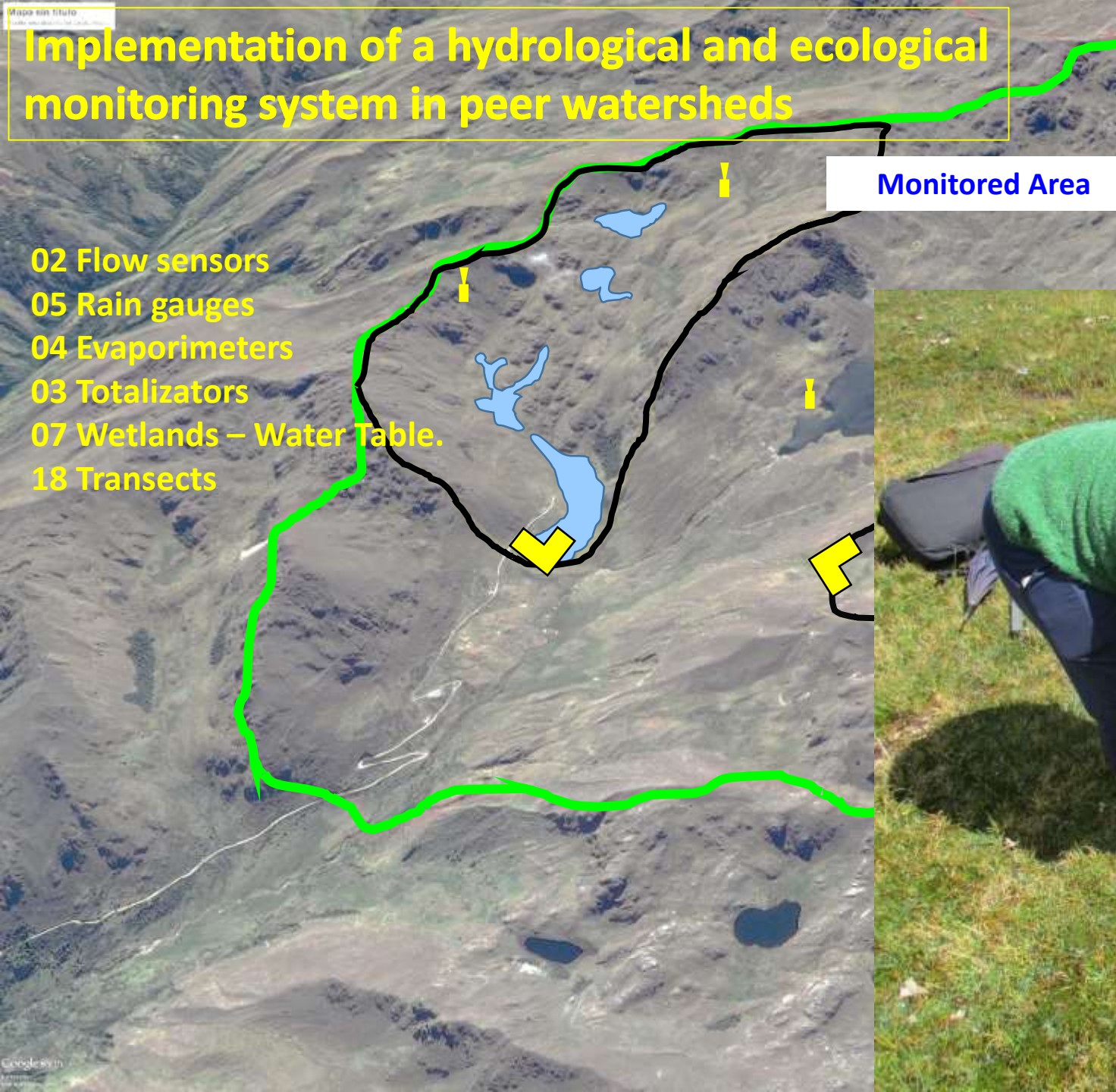
- Avoid stockouts.
- Increase operating hours (hours of supply).
- Avoid construction of new infrastructure.
- Reduce water users conflicts.



# Implementation of a hydrological and ecological monitoring system in peer watersheds

- 02 Flow sensors
- 05 Rain gauges
- 04 Evaporimeters
- 03 Totalizers
- 07 Wetlands – Water Table.
- 18 Transects

Monitored Area



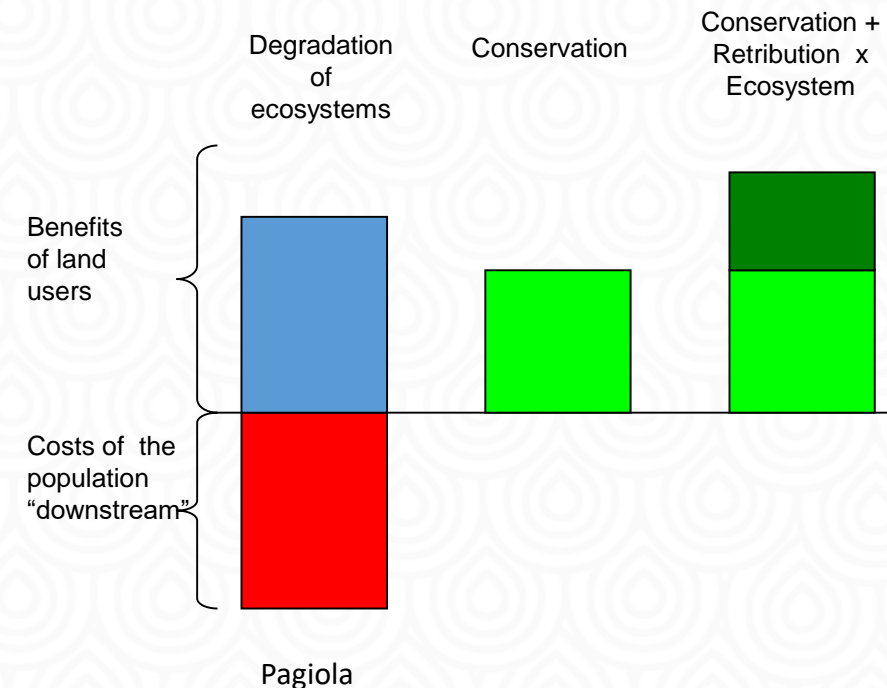
# SUNASS uses “choice experiment” method for measuring the WTP and opportunity cost of interventions

## WTP

### Disponibilidad Marginal a Pagar

Variables	S/.	Intervalo de Confianza al 95%		% Tarifa Actual
		L.I.	L.S.	
COLA30M	0.1	-0.23	0.69	0.2%
COLA5M	0.6**	0.06	1.77	2.2%
CORTE5H	0.6**	0.01	1.90	2.2%
CORTE2H	1.0***	0.39	2.50	3.9%
AHORRO	1.3**	0.06	4.17	5.0%
OTRAF	1.7**	0.05	5.48	6.5%
PIURAY	2.5***	0.85	6.16	9.4%
SEXX	-1.4**	-1.97	-0.23	-5.4%
EDAD <sup>A</sup>	-0.4**	-0.60	-0.05	-1.6%
EDUX	0.3**	0.05	0.91	1.2%
GMENSX <sup>B</sup>	0.1**	0.02	4.49	0.4%

## Conditionality: Power of the incentives

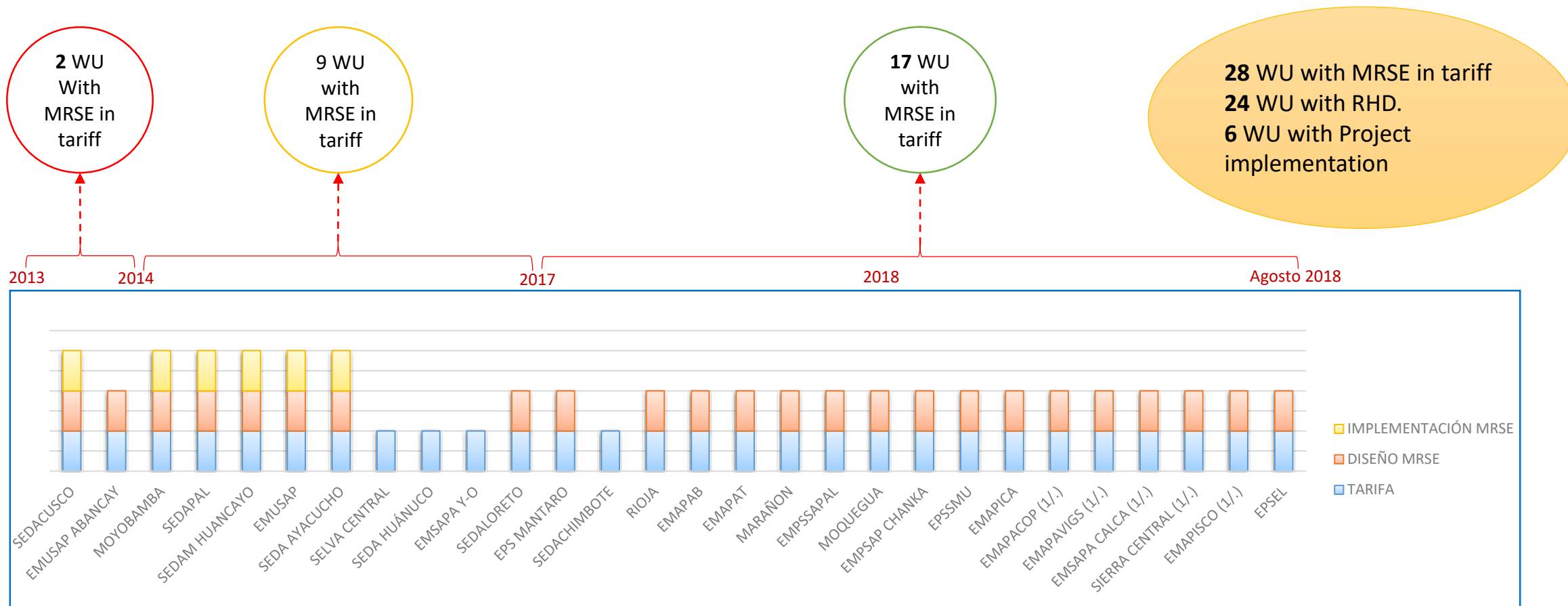


\*\*\* nivel de confianza de 99%; \*\* nivel de confianza de 95%; \* nivel de confianza de 90%.

A: el valor mostrado es por cada 10 años.

B: el valor mostrado es por cada 100 soles.

# MRSE in Progress.....



Source: Rate Regulation Management, SUNASS 2018.  
 Elaboration: Ivan Lucich, President of Board, SUNASS.  
 (1/.) WU with RHD and rate studies in approval process.

**All of the WU have a Rapid Hydrological Diagnosis - RHD**

<b>Tariff:</b> WU has a rate study that incorporates MRSE.	<b>MRSE Design:</b> WU has at least RHD	<b>MRSE implementation:</b> WU has a viable project.
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# Which are the risks?

Thievery or deterioration of the measuring instrument

Insufficient funds to operate and maintain

Poor management in operational maintenance

Inadequate use of generated information

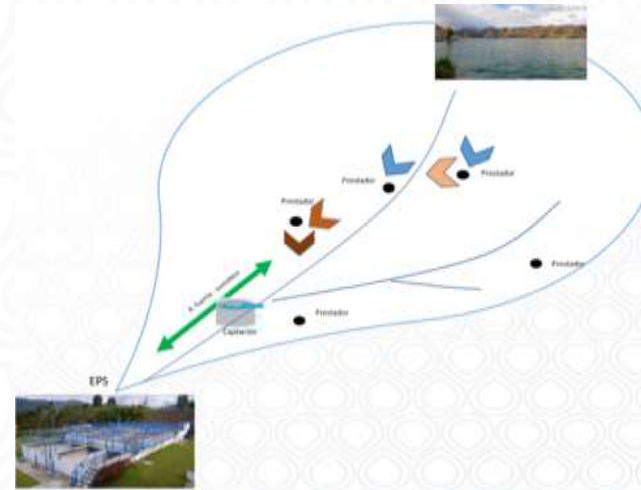
Conflicts with local communities when the purpose of this technology is not shared

Vulnerability of grey infrastructure of water regulation (DAM) due to environmental degradation and climate change

## Which are the challenges?

- Incorporate ecosystem in the production function of “water delivery system”
- Scaling up from micro-watershed to basin!
  - Designing and implementing indicators for monitoring and evaluating hydrological impacts generated by GI-Projects.
  - Linking the GI with the conventional distribution infrastructure system.
- Promote the participation of users and other sectors in watershed conservation and the governance of the MRSE.
- Articulate policies about IWRM, aligning user incentives, designing PES contracts, monitoring and evaluating hydrological impact indicators.
- Include the ecosystem in the DRM guidelines.
- Motivate the private participation through PPPs in water resources management.

# The future of sanitation services



● **Yesterday:**  
Sanitation focused on grey infrastructure

● **Today:**  
Sanitation and conservation of water sources...



**Tomorrow:**  
Sanitation and IWRM...  
Instrumentalized through the area of service provision



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