



# SPRING CAMPUS

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y Desigualdades Sociales en la Región Andina

Freie Universität



Berlin



PONTIFICIA  
**UNIVERSIDAD  
CATÓLICA**  
DEL PERÚ



# Water and Environmental Management at PUCP





# Water and Environmental Management at PUCP

I. Contextualizing the Territory.

II. Instruments of Environmental Management at PUCP.

III. The Sustainable Management of Water in the Campus.



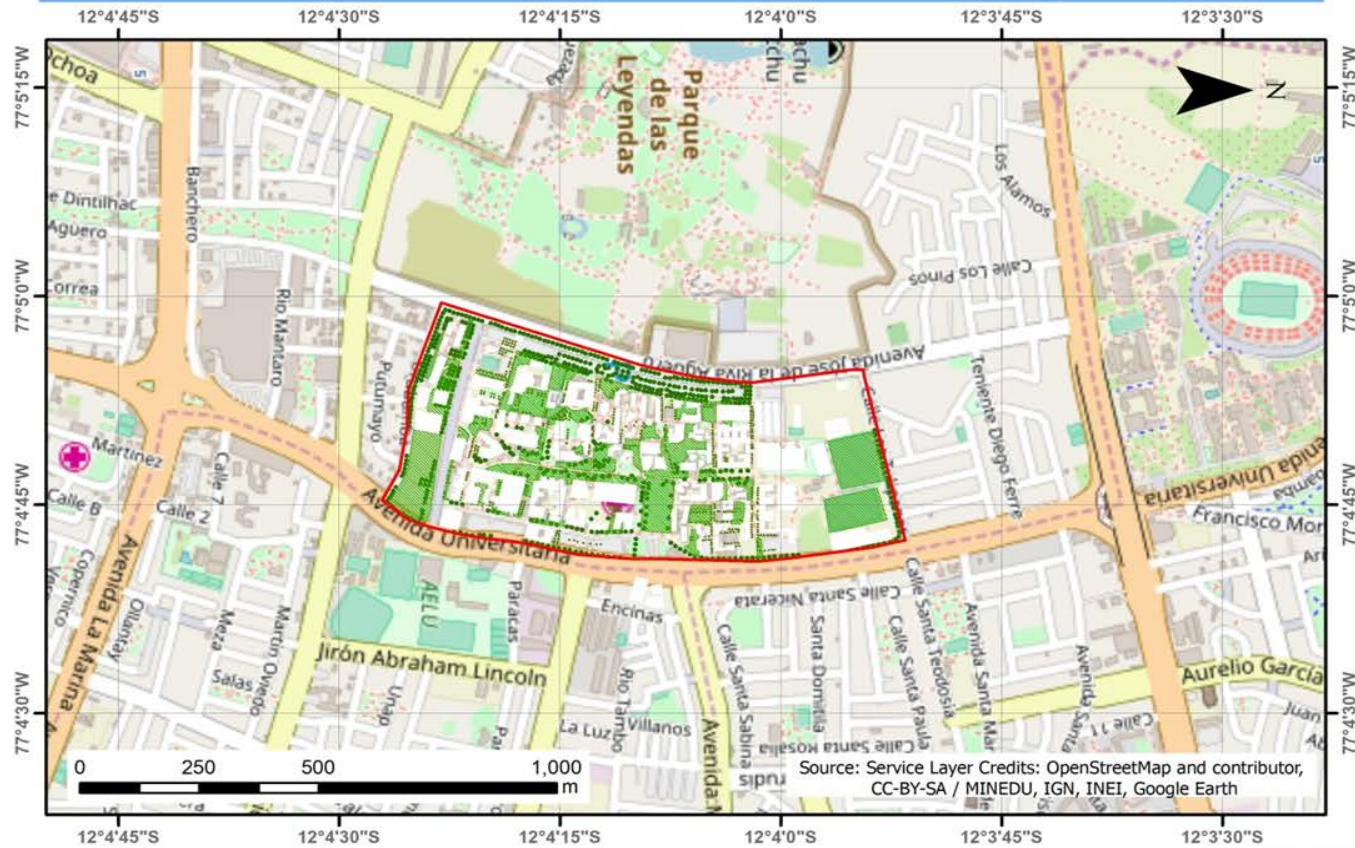
# I. Contextualizing the Territory.

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1. Lima from a territorial perspective.
2. Water at Lima.
3. PUCP an urban ecosystem.



# Map 1. Location of PUCP Campus



## Relative national and local position





# Plan Maestro a 2030



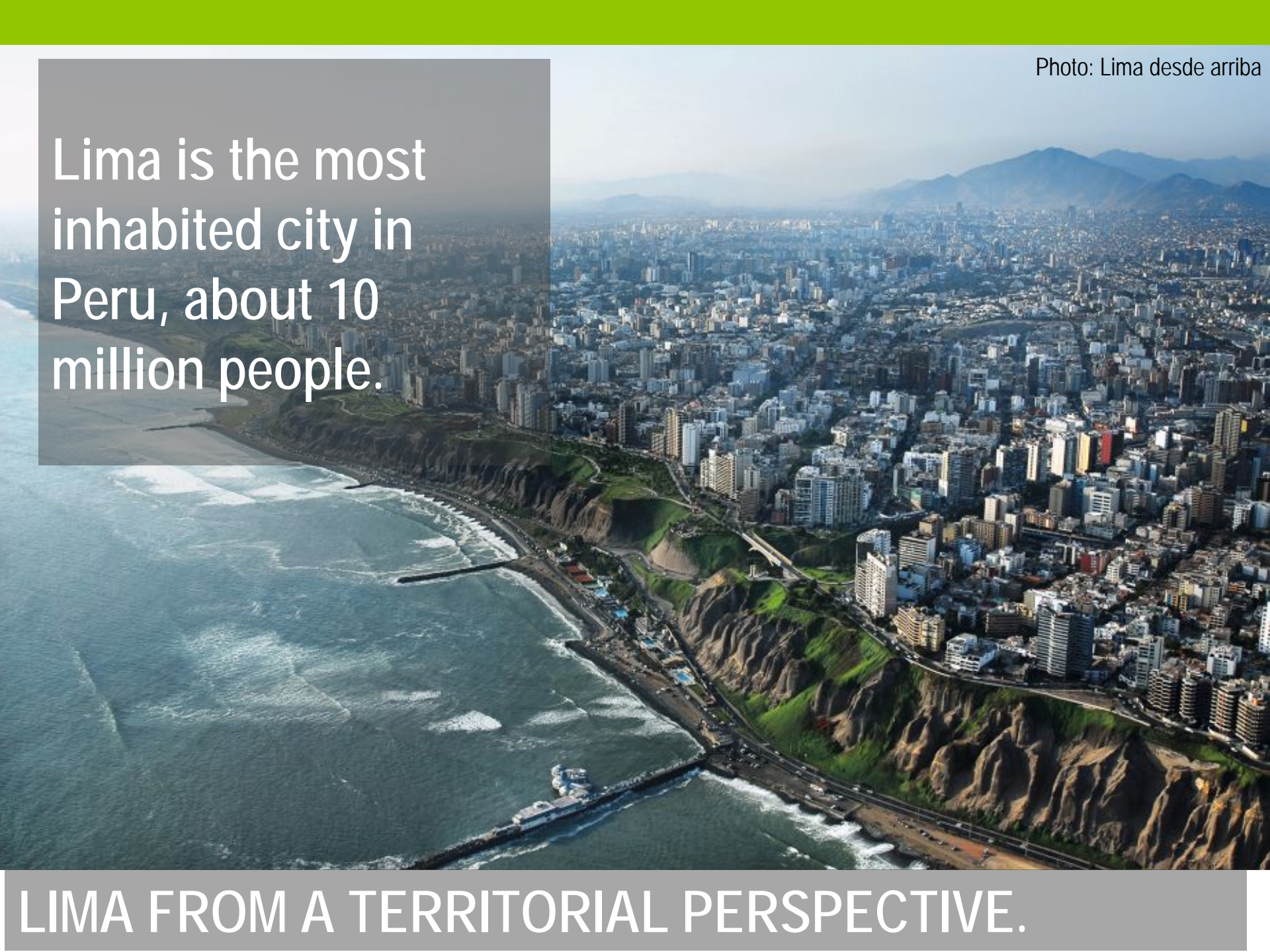




# 1. LIMA FROM A TERRITORIAL PERSPECTIVE.

Lima is the most  
inhabited city in  
Peru, about 10  
million people.

LIMA FROM A TERRITORIAL PERSPECTIVE.



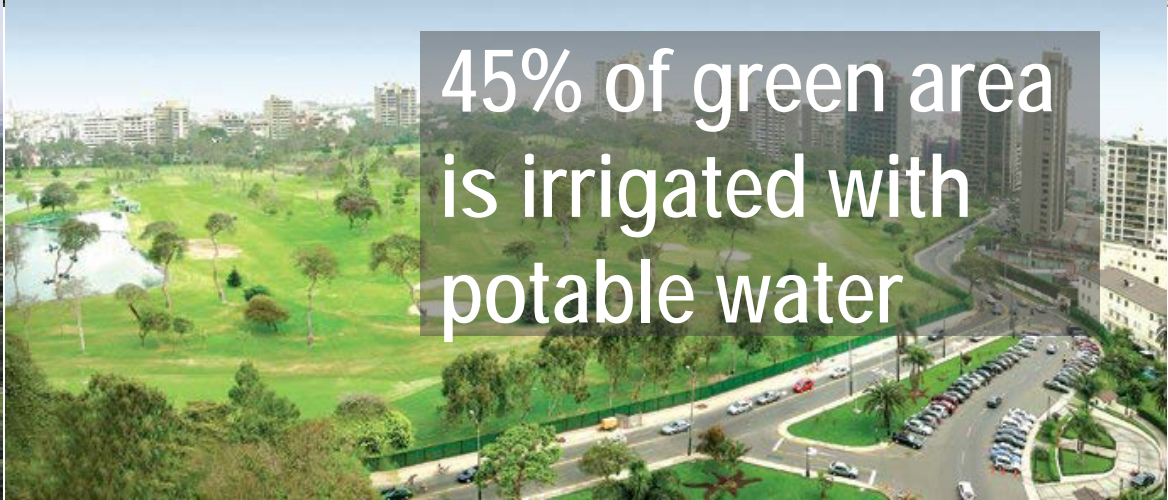


Lima is the second largest city in the World settled in a desert.





Lima is the one of the cities in Latin America with the smallest Green área per inhabitant 2.06 m<sup>2</sup> (2016.MINAM)



45% of green area  
is irrigated with  
potable water





## 2. WATER AT LIMA






Photo: Renato Chinchón

Source: SEDAPAL





A photograph showing a person from behind, walking on a rocky, reddish-brown hillside. The person is wearing a grey t-shirt and dark pants, and is carrying two large white plastic buckets, one in each hand. In the background, a sprawling city is visible, nestled in a valley with mountains in the distance under a clear blue sky.

PUCP located in a urban ecosystem, assumes its social responsibility in the efficient and coherent management of water use.

Resource: Water, helps us to problematize sustainability and urban inequality in cities like Lima.





PUCP is not distant to this problema and must asume its social responsibility. From its four strategic axes.





### 3. PUCP AN URBAN ECOSYSTEM



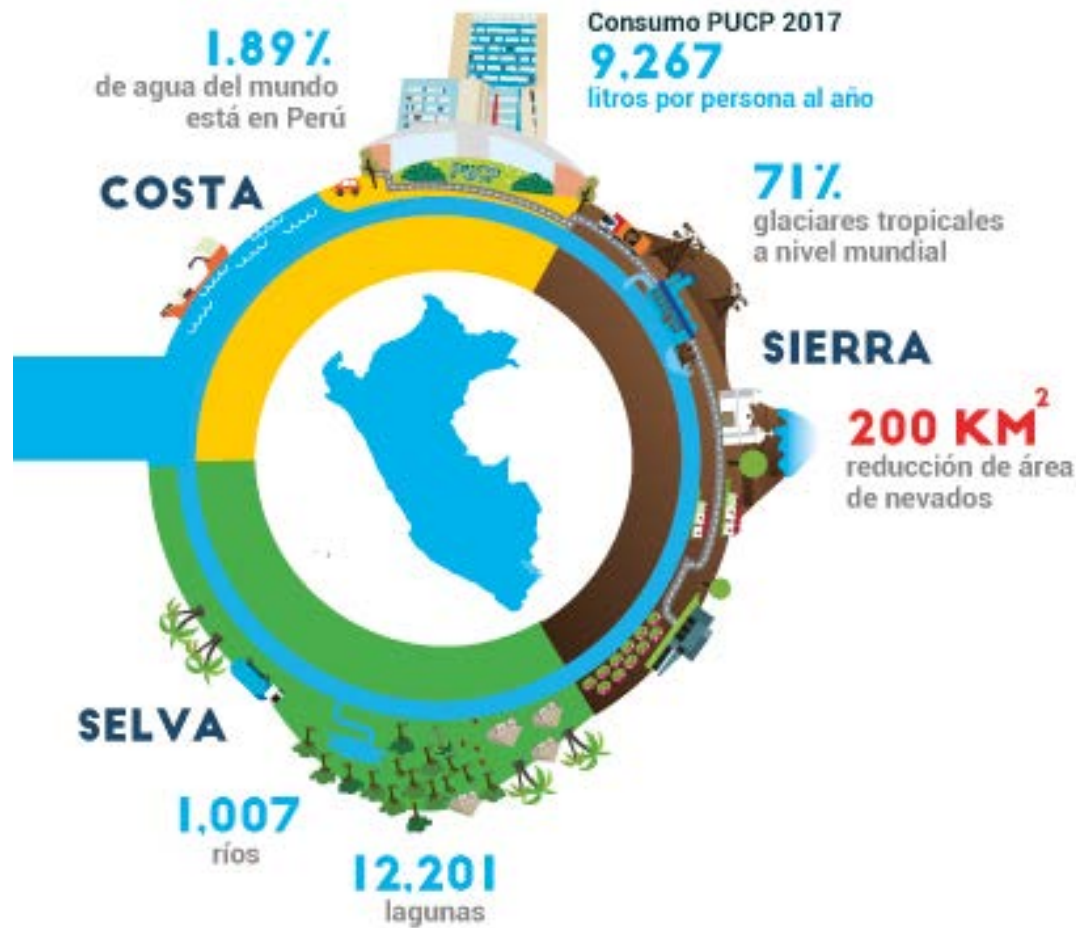
Principal Campus: 45 Ha Green area: 16 Ha



49 Undergraduate degree programs 20,750 undergraduate students

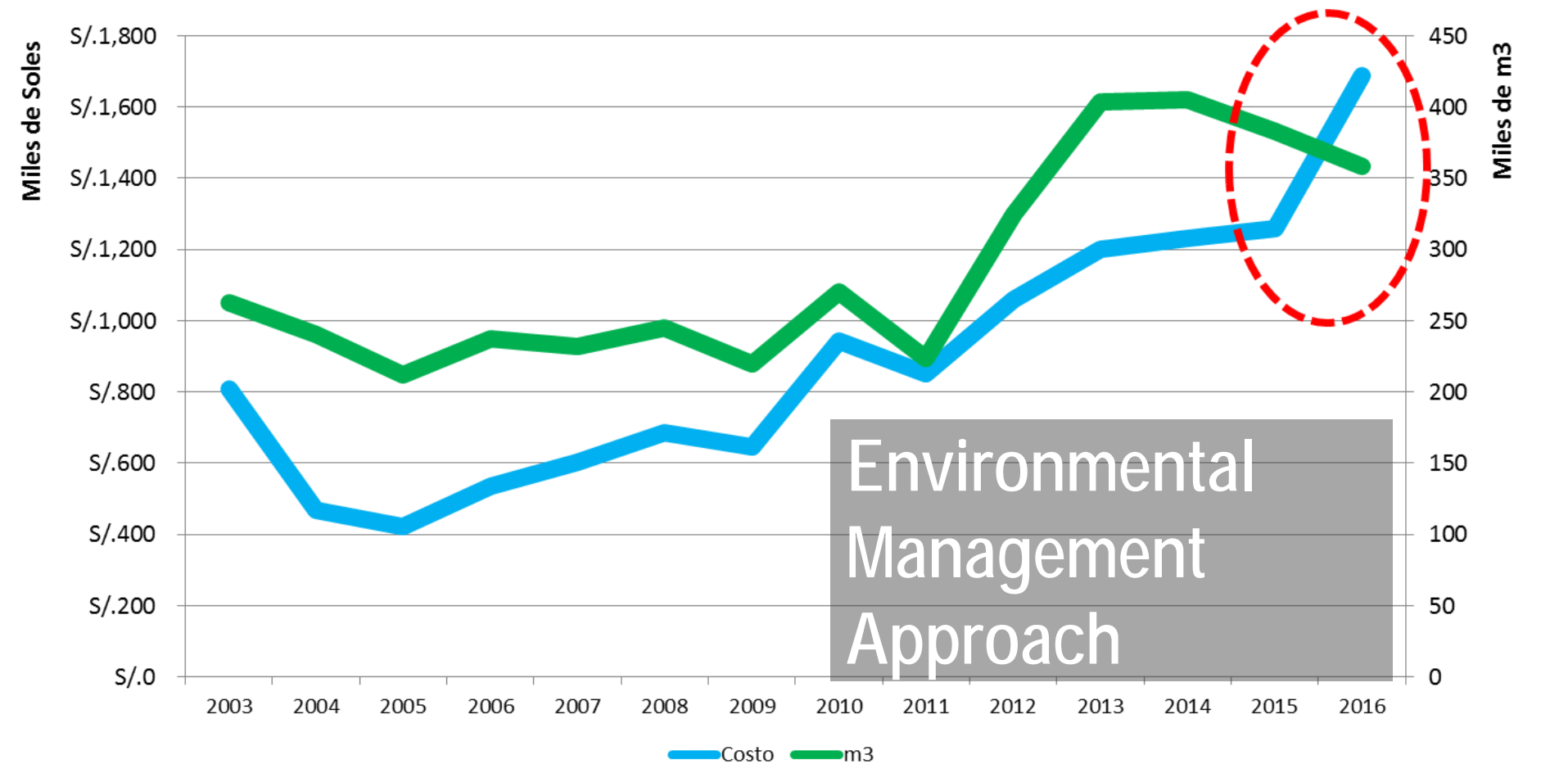
76 Master's degrees 13 Doctoral graduate degree program 6,400 graduate students

### 3. PUCP AN URBAN ECOSYSTEM





### 3. PUCP AN URBAN ECOSYSTEM







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## II. Instruments of Environmental Management

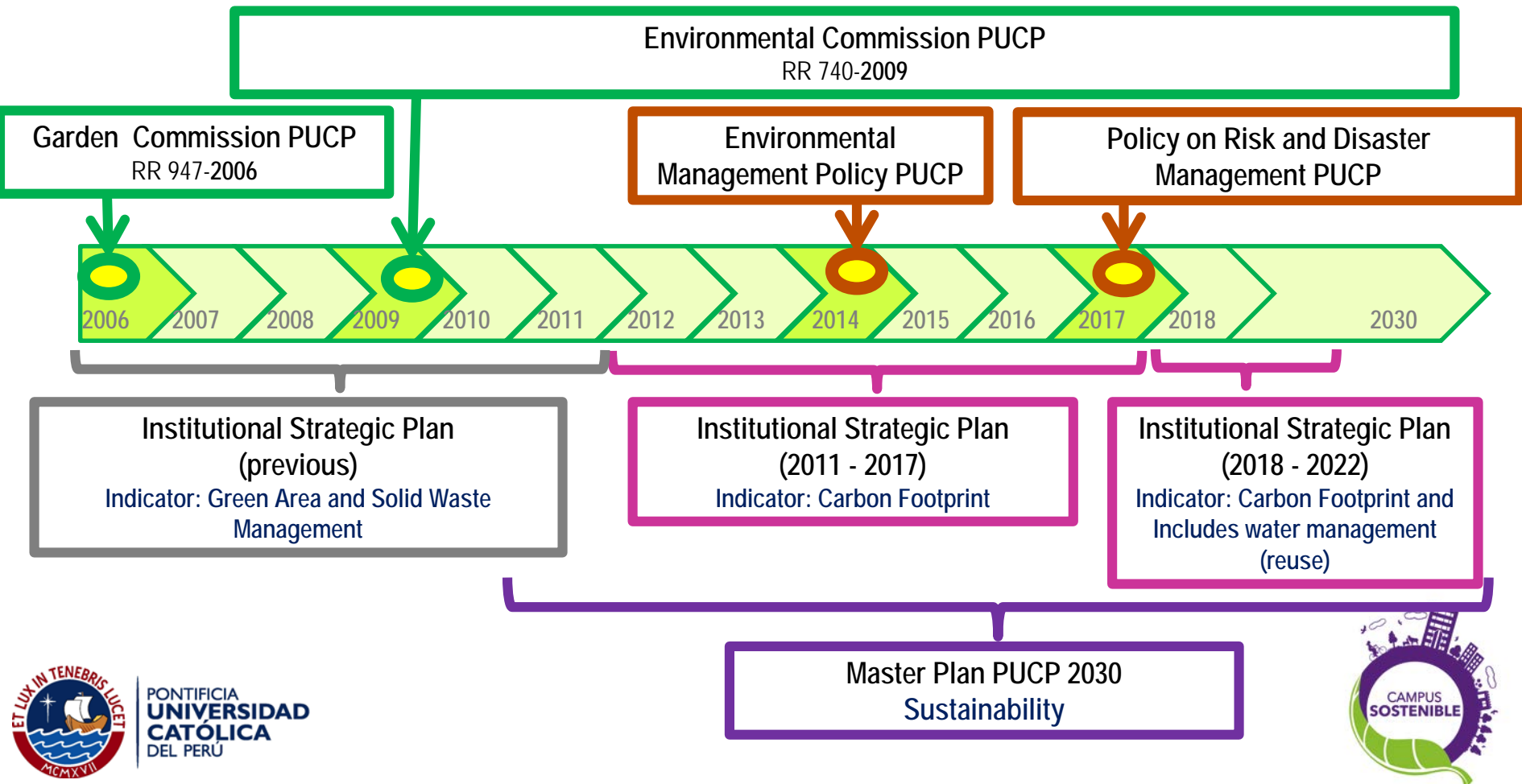
1. Environmental Management Time Line.
2. Master Plan PUCP 2030.
3. Institutional Strategic Plan.
4. Environmental Management Policy.
5. Environmental Management Organization.
6. Policy on Risk and Disaster Management.







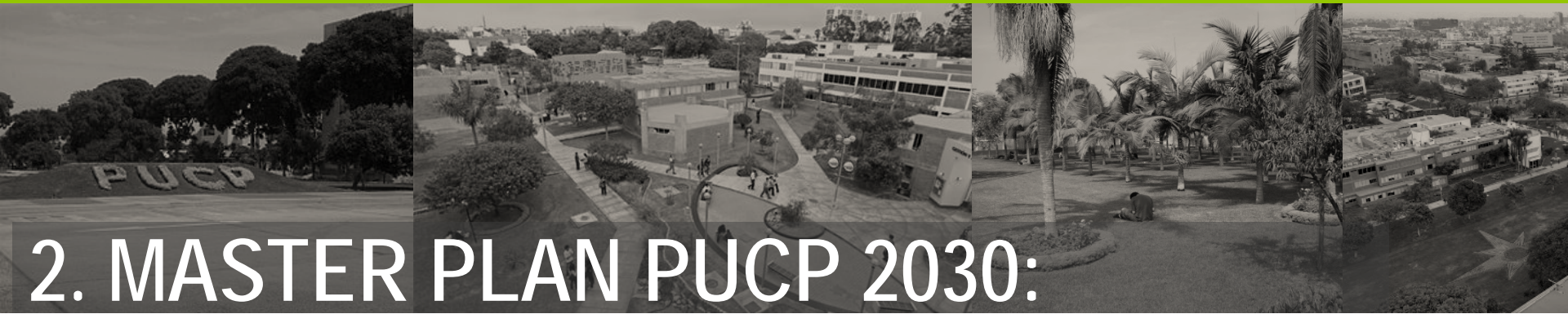
# 1. ENVIRONMENTAL MANAGEMENT TIME LINE.







## 2. MASTER PLAN PUCP 2030:



## 2. MASTER PLAN PUCP 2030:

### SUSTAINABILITY

EFFICIENCY IN MANAGEMENT  
OF MATERIAL RESOURCES  
AND ENERGY

CONSTRUCTION WITH  
ENVIRONMENTAL  
PARAMETERS

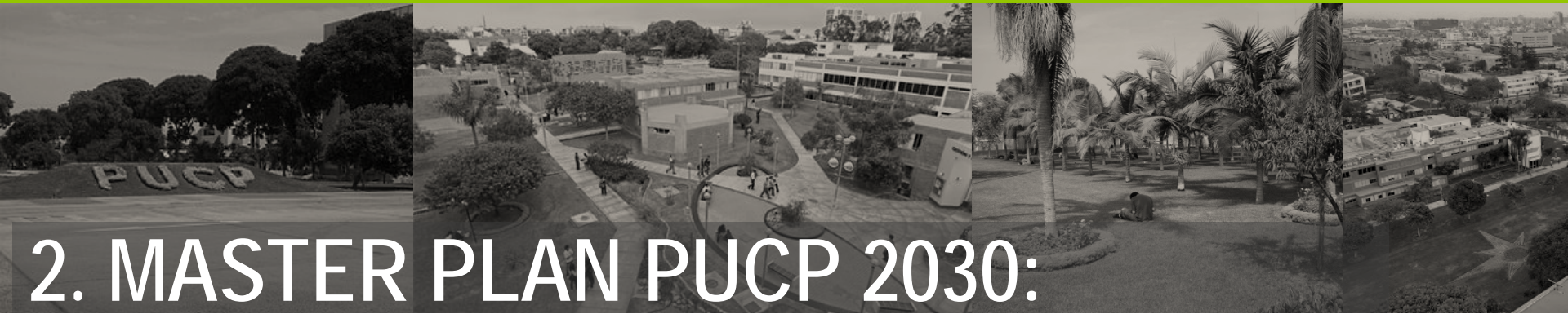
REDUCTION OF SURFACE  
PARKING

SUSTAINABLE MOBILITY

GREEN ROOFS / FREE SPACE /  
VEGETATION

WASTEWATER TREATMENT  
PLANT (WWTP)





## 2. MASTER PLAN PUCP 2030:

### SUSTAINABILITY

EFFICIENCY IN MANAGEMENT  
OF MATERIAL RESOURCES  
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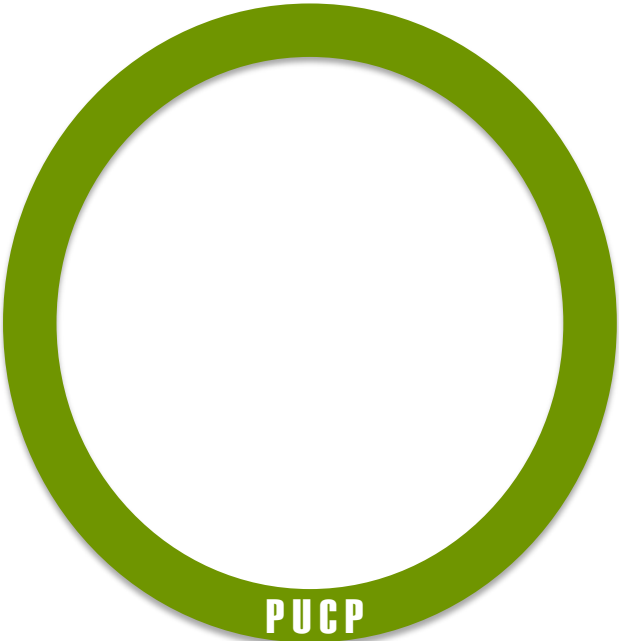
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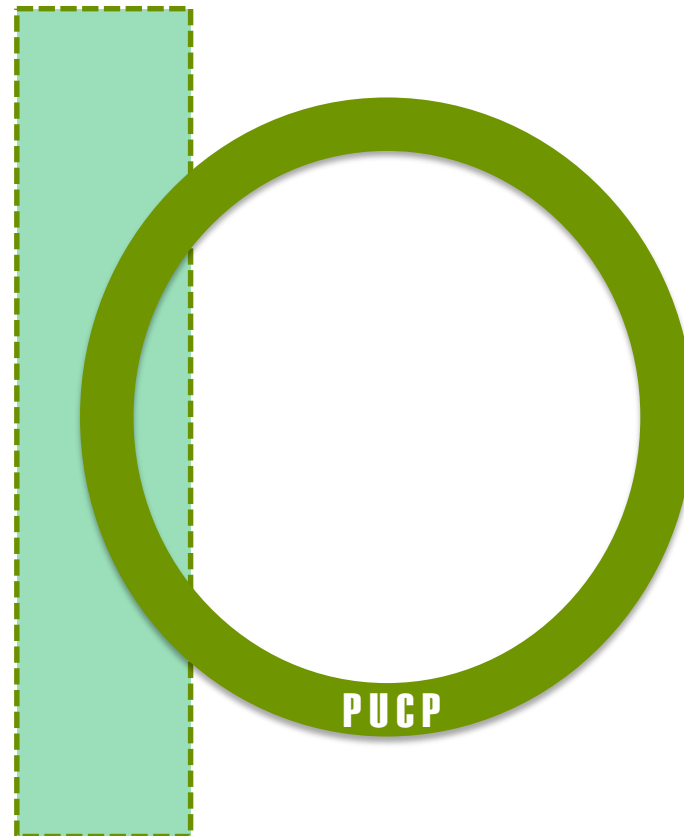


# 3. INSTITUTIONAL STRATEGIC PLAN.





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**FORMATION**



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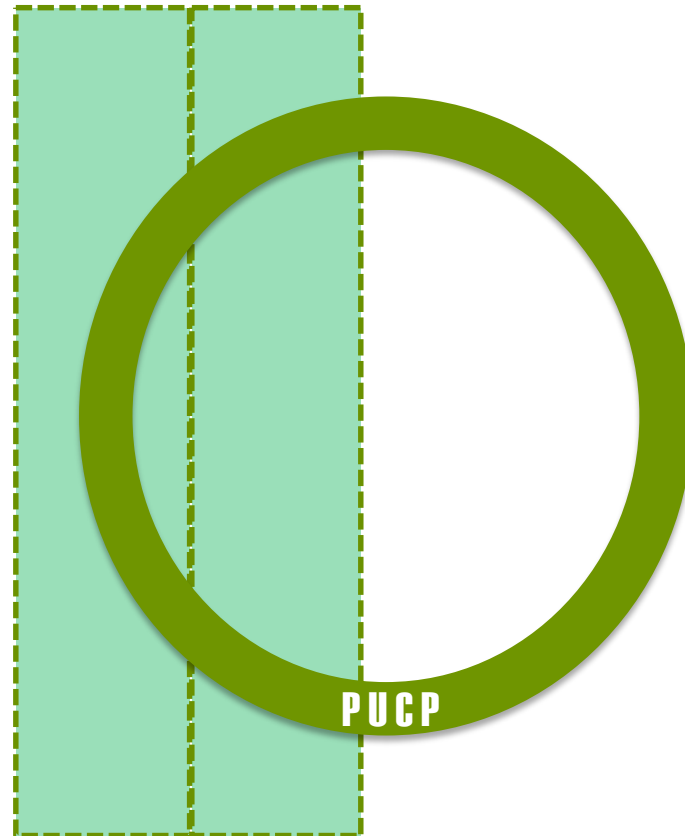






# 3. INSTITUTIONAL STRATEGIC PLAN.

## INVESTIGATION



## FORMATION



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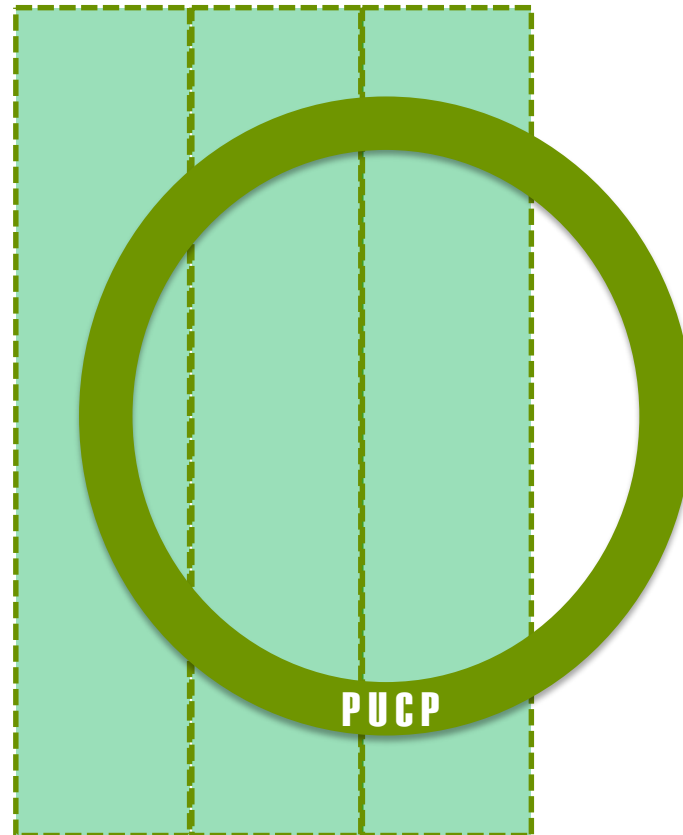




# 3. INSTITUTIONAL STRATEGIC PLAN.

**INVESTIGATION**

**RELATIONSHIP WITH THE ENVIRONMENT**



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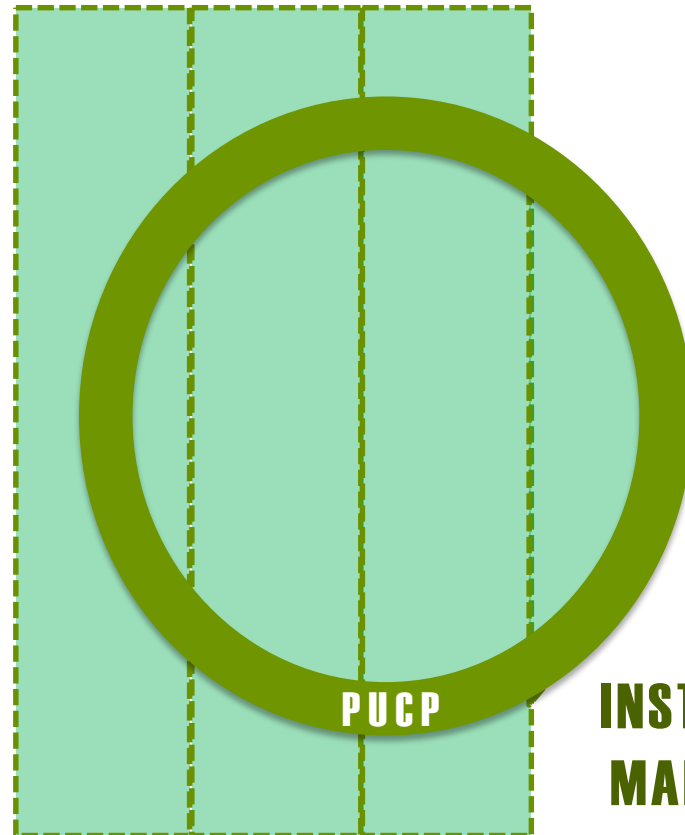




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**FORMATION**

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MANAGEMENT**



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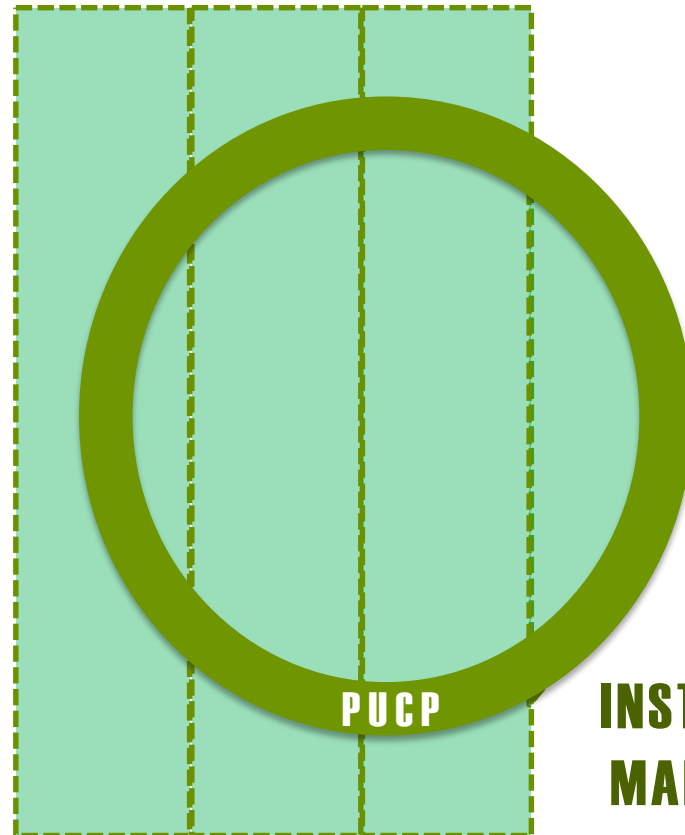




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Water and Environmental Management

**FORMATION**

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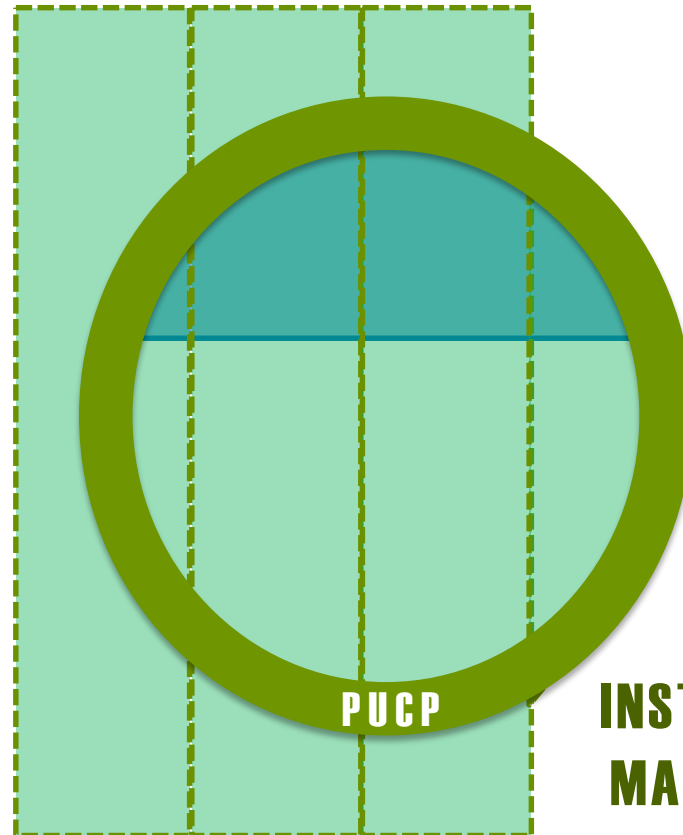




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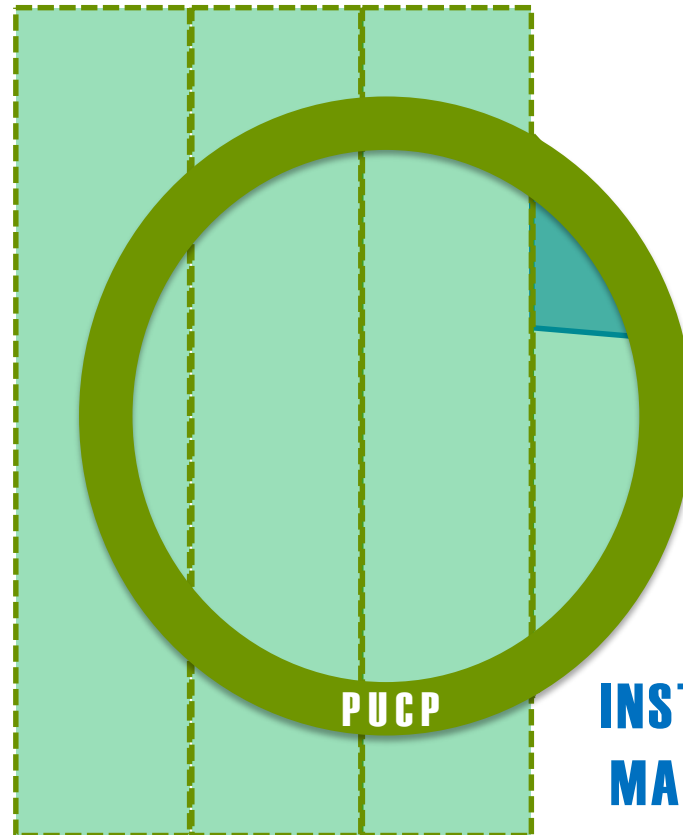




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**INVESTIGATION**

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Water and Environmental Management

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## 4. ENVIRONMENTAL MANAGEMENT POLICY.

Conservation and sustainable use of resources on campus

Integral and quality environmental management

**MAIN  
ITEMS**

Generation and promotion of environmental awareness





# 5. ENVIRONMENTAL MANAGEMENT ORGANIZATION.

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ENVIRONMENTAL  
COMMISSION

TECHNICAL COMMITTEE ON  
ENVIRONMENTAL MANAGEMENT

GARDENS COMMISSION

ENVIRONMENTAL  
COMMUNICATION COMMITTEE

INTER-UNITS

Dirección Académica de  
Responsabilidad Social

Dirección de  
Administración y Finanzas

Dirección de Comunicación  
Institucional

Dirección de  
Infraestructura

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# 5. ENVIRONMENTAL MANAGEMENT ORGANIZATION.

## ENVIRONMENTAL COMMISSION

Dirección de Asuntos Estudiantiles

Dirección Académica de Responsabilidad Social

Dirección de Infraestructura

Departamento Académico de Humanidades

Dirección de Administración y Finanzas

Departamento Académico de Arquitectura

Departamento Académico de Ingeniería

Dirección de Comunicación Institucional

Departamento Académico de Derecho

1 Representante Estudiantil Asamblea

INTER-UNITS



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# 6. POLICY ON RISK AND DISASTER MANAGEMENT.

# 6. POLICY ON RISK AND DISASTER MANAGEMENT (RDM)

Promote Research

Internal and external communication plan to generate support for the response

**MAIN  
ITEMS**

Incorporate into the curriculum or curricula, courses or programs in RDM

Prepare and train the University Community in RDM

Generation and promotion of an awareness in RDM among the members of the university community



# 6. POLICY ON RISK AND DISASTER MANAGEMENT (RDM)







# Territorial approach - Relationship with the environment Environmental management Risk and Disaster Management WATER

**CUENCA BAJA**  
Agua para el consumo humano: Los ecosistemas urbanos se abastecen del agua de la cuenca para la vida.

## 02 CUENCA MEDIA

Agua en movimiento: El flujo constante de agua es necesario para la producción de alimentos de origen animal y vegetal, y como hábitat para especies de río.

01

## CUENCA ALTA

Agua como riesgo de desastre: Las intensas lluvias generan riesgos de desastres para las comunidades humanas, como huaycos, inundaciones y deslizamientos en masa.

OCEANO PACIFICO

PLAYA ARICA

**HAZla**  
por tu playa  
PUCP 2017

## CAMPAÑA DE RECOJO DE RESIDUOS

Datos del 2017: 459 kilos de botellas, latas, envolturas, tecnopor y más residuos sólidos.



Contexto "El niño costero 2017"



**Clima de cambios**  
PUCP

**FUENTES:**  
Autoridad Nacional del Agua |  
Pontificia Universidad Católica del Perú

Conoce la Política de gestión de riesgo de desastres PUCP: <https://goo.gl/dzWTZJ>

Conoce la Política de gestión ambiental de la PUCP: <https://goo.gl/smCe6d>



Botadero de aguas residuales



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# III. The Sustainable Management of Water in the Campus.

1. Use of water at PUCP.
2. Wastewater Treatment Plant (PTAR)

# 1. USE OF WATER IN THE CAMPUS: CONSUMPTION







# 1. USE OF WATER IN THE CAMPUS: CONSUMPTION

- The average consumption per person per month is approximately 1.5 m<sup>3</sup>.
- The consumption of water has been reduced by the improvement in infrastructure and by implements that have logics of efficient water consumption.







## Map 2. PUCP Campus



North Zone



Center Zone



South Zone



### Legend

- Campus
- Green areas
- Small trees
- Big trees

Elaborated by: PUCP Team  
Ana Sabogal, María Alejandra Cuentas, Kely Alfaro  
Luis Enrique Rivera

Projection WGS 1984 Zone 18S  
Graphic Scale:

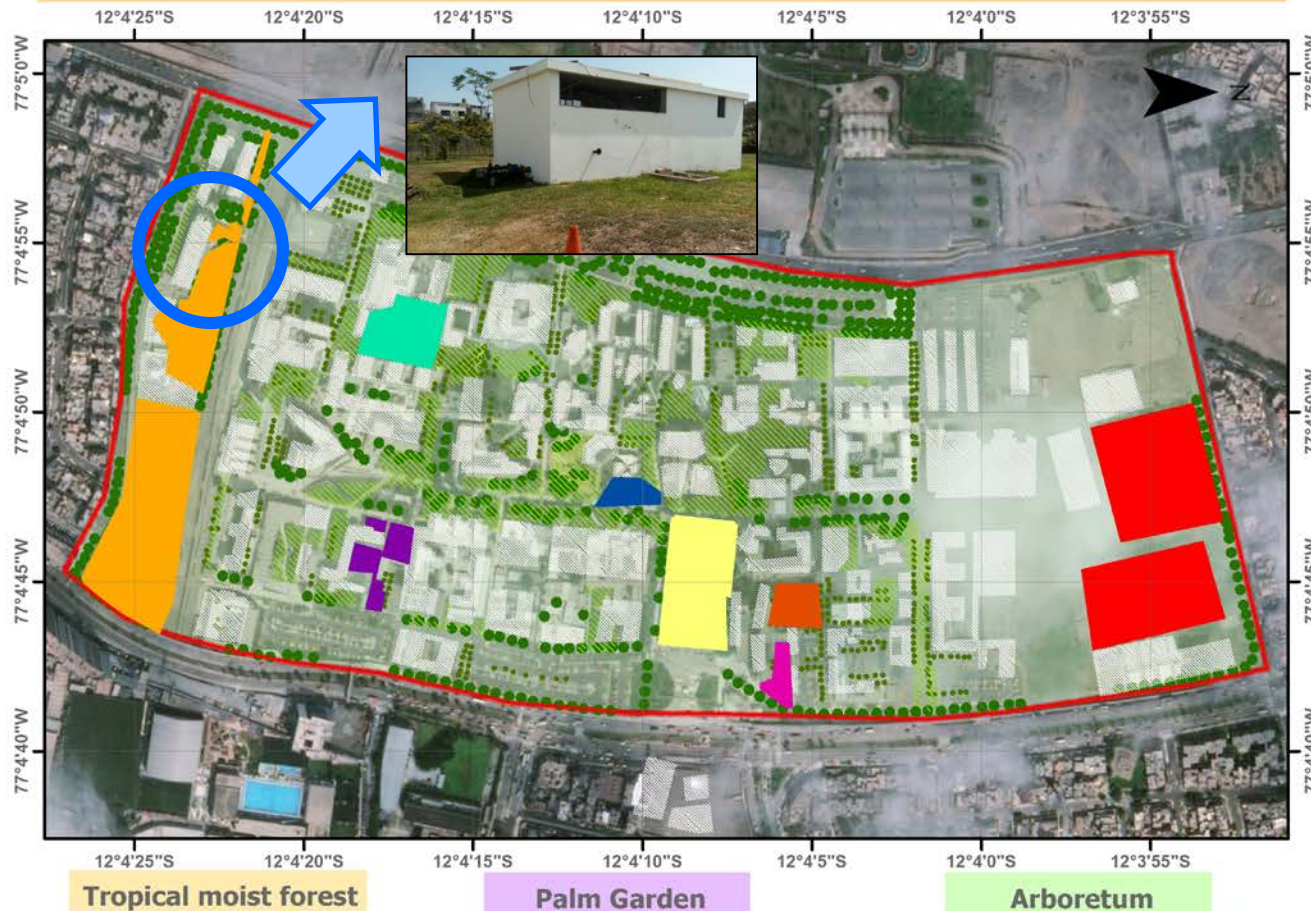


World Imagery, Minedu, Google Earth, Plan Maestro PUCP





# Map 3. Main green areas



PUCP Sport Fields



Baobabs Garden and Tropical Dry Forest



Central garden and area of cedars and tipas





## 2. USE OF WATER IN THE CAMPUS: IRRIGATION

- The Irrigation System is mixed: sprinkler and manual irrigation methodology is included, depending on the area to be intervened.
- The irrigation system is part of the Wastewater Treatment Plant project that will help us reuse 66% of the water consumed on campus. (240,000 m<sup>3</sup> of water per year)

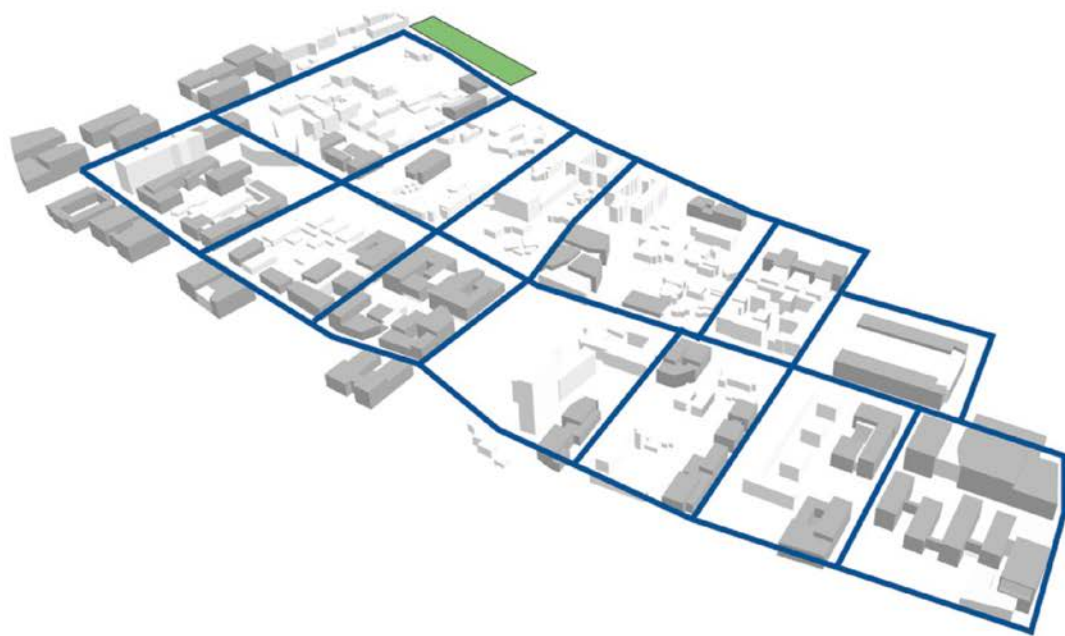




## 2. PLANTA DE TRATAMIENTO DE AGUAS RESIDUALES (PTAR)

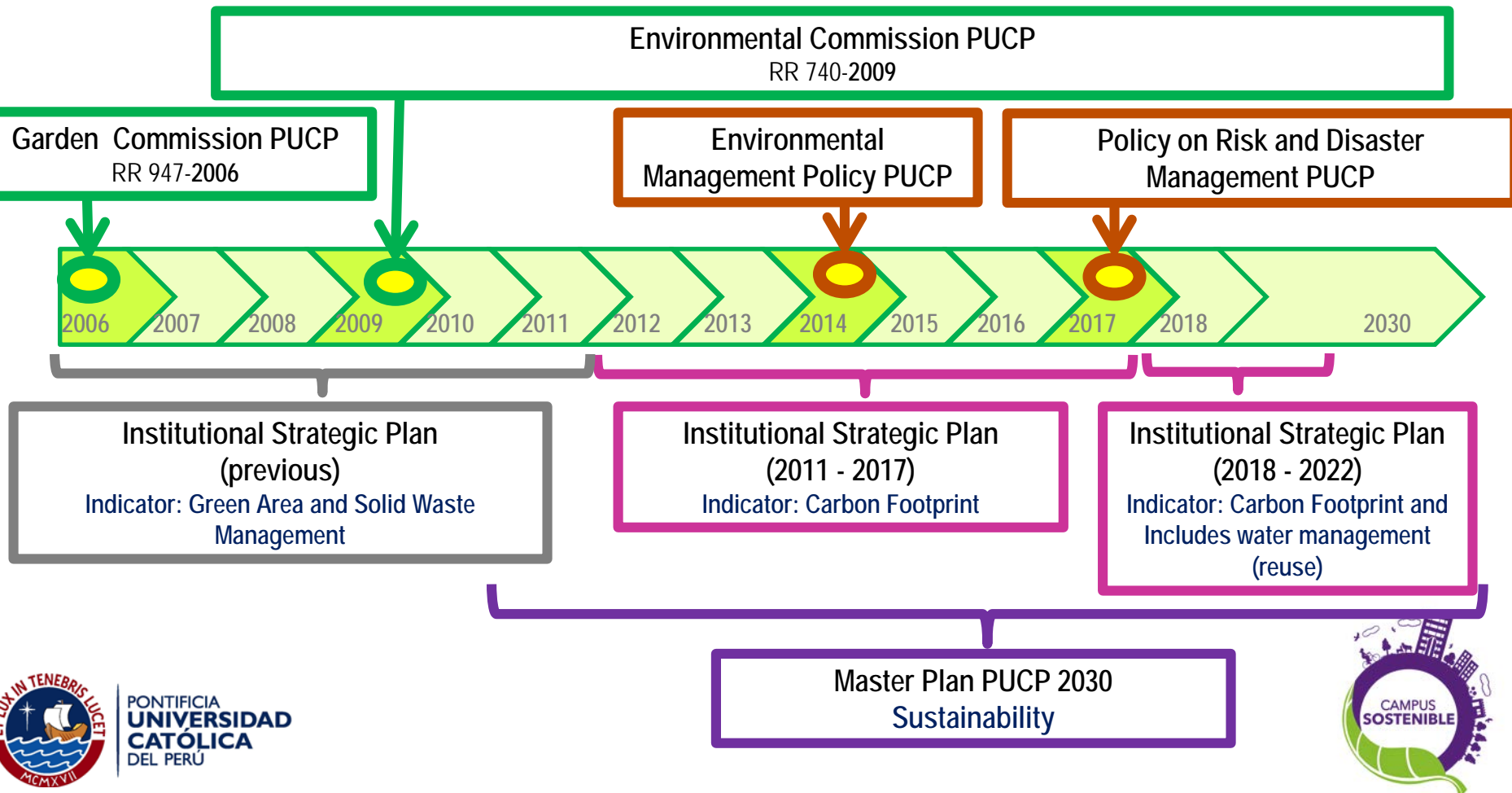


# 2. WASTEWATER TREATMENT PLANT (PTAR)

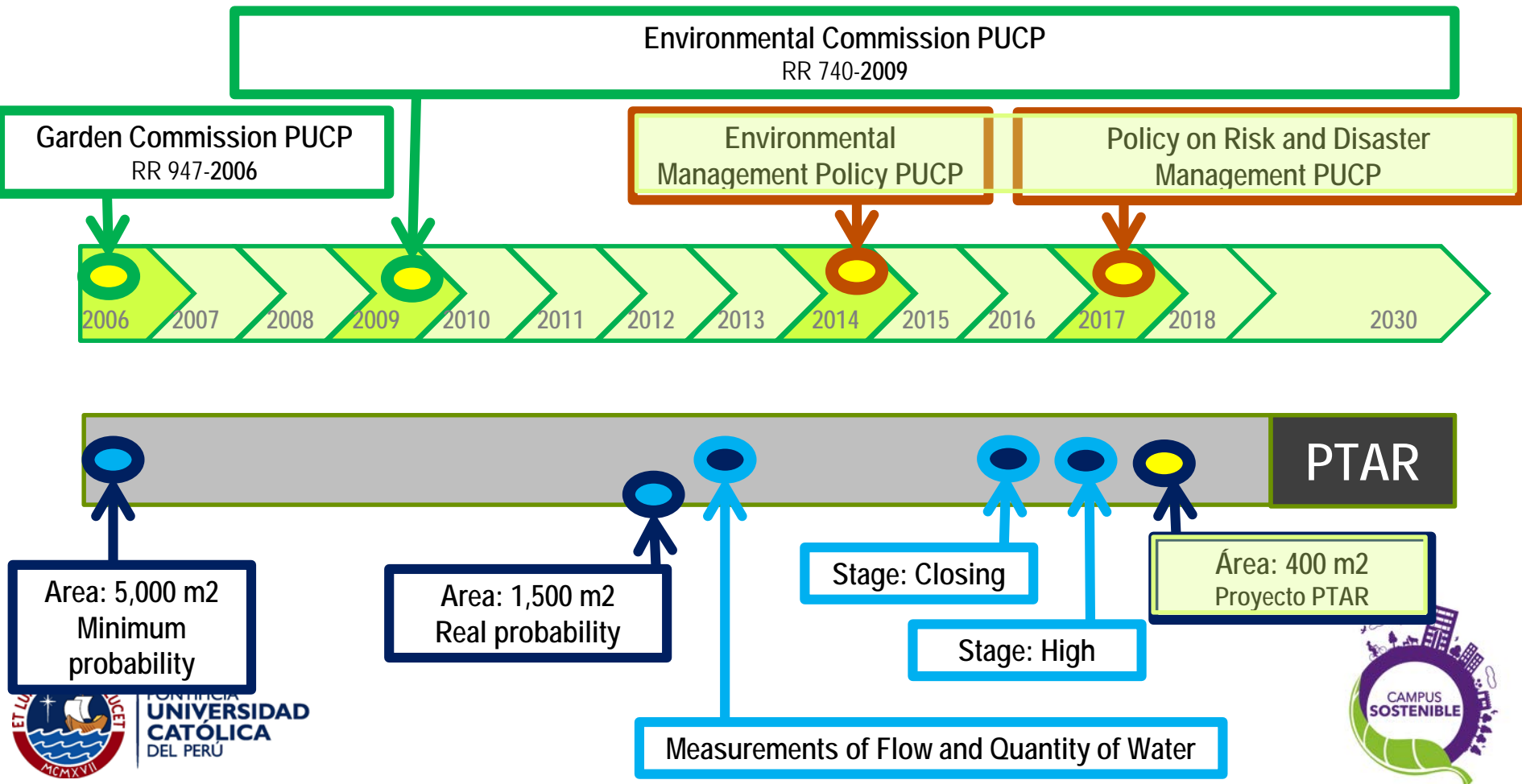


- Planta de tratamiento central
- Las aguas negras de los edificios se envían a la planta de tratamiento donde se tratan para su reutilización en el riego.

# 1. ENVIRONMENTAL MANAGEMENT TIME LINE.

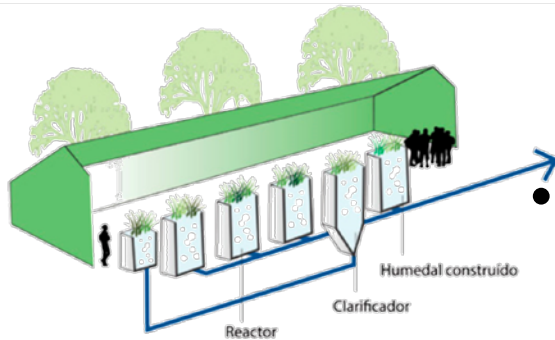
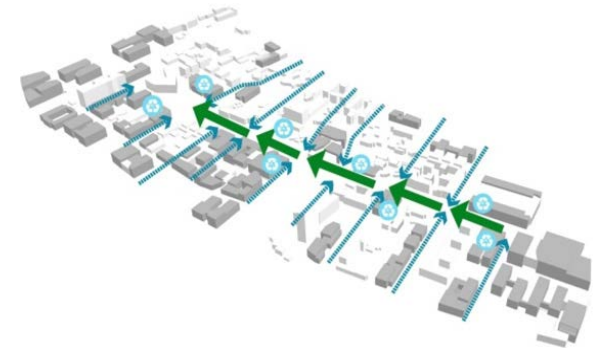






## 2. WASTEWATER TREATMENT PLANT (PTAR)

- Design of redistribution of drainage networks, including reduction of water consumption.

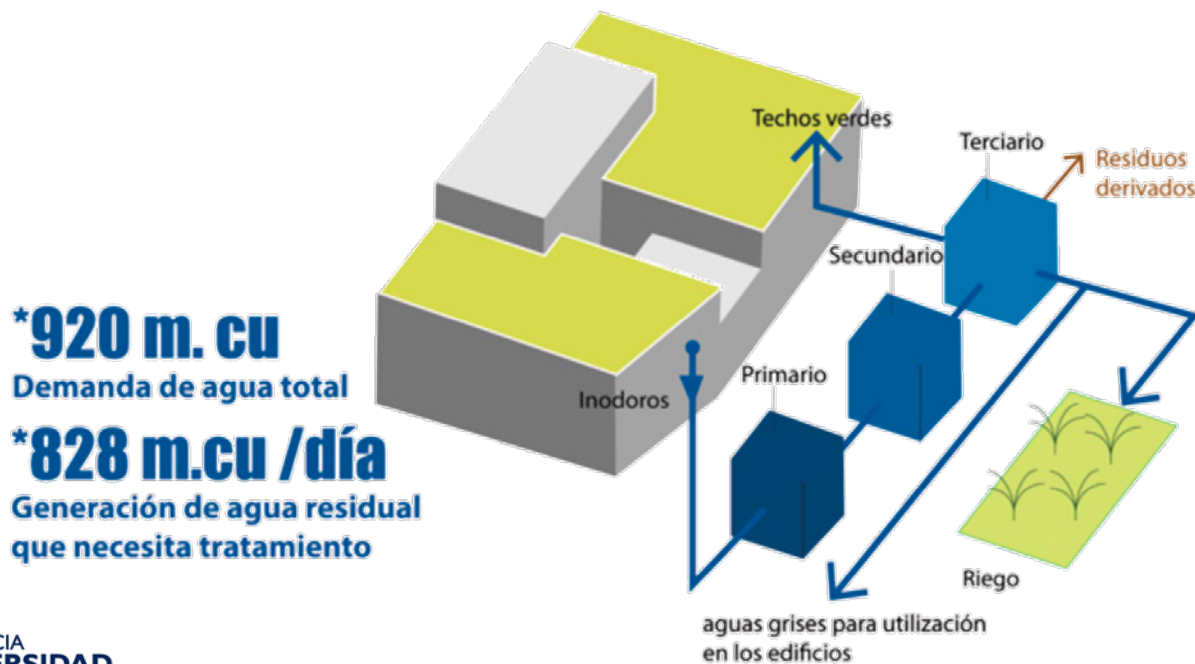


- Design of treatment plant, including educational module, research, laboratories and sustainable management and with social responsibility.



## 2. WASTEWATER TREATMENT PLANT (PTAR)

- Water reuse by 66% initially and for irrigation





# Our reflections...





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