

**IECL**



**POLITÉCNICA**

THE 2ND INTERNATIONAL ELECTRONIC CONFERENCE ON LAND

# DIALOGUE BETWEEN PALACE AND LAND

– RAIN GARDEN AND HYDROLOGICAL RESTORATION STRATEGIES FOR  
SUSTAINABLE LANDSCAPE RENEWAL AT THE ALHAMBRA

LANDSCAPE ARCHITECTURE AND LAND RESTORATION

SUBJECTS: [ENGINEERING AND TECHNOLOGY] ENVIRONMENTAL ENGINEERING

JING ZHANG Ph.D.  
Architectural Aesthetics

A world map with a dark blue background. The map is overlaid with several bright yellow lightning bolt icons, indicating global impact or events. The text 'GLOBAL COMPACT' is centered over the map in a large, bold, white font.

# GLOBAL COMPACT

*Cultural landscapes as active agents in resilience*



## *Alhambra: What Endures? What's Mis?*



# Passive → Active

*Cultural landscapes as active agents in resilience*

*Alhambra is a living laboratory for hydrological and ecological restoration*

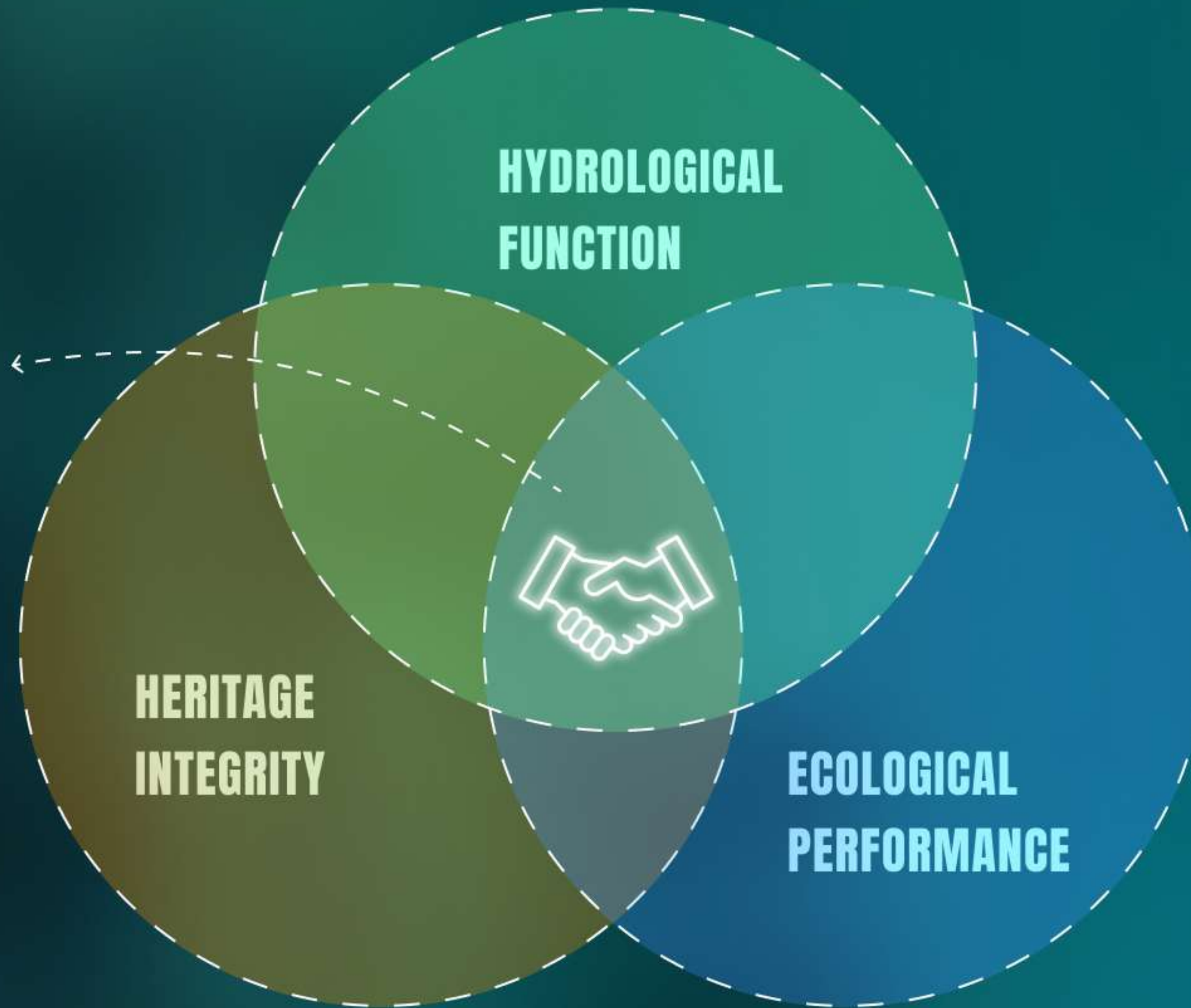
*“Water, Tree, Animals,  
Not Only The Resource — It Is The  
Medium That Binds Ecology, Heritage,  
And Experience.”*



*Cultural landscapes as active agents in resilience*

*Alhambra is a living laboratory for hydrological and ecological restoration*

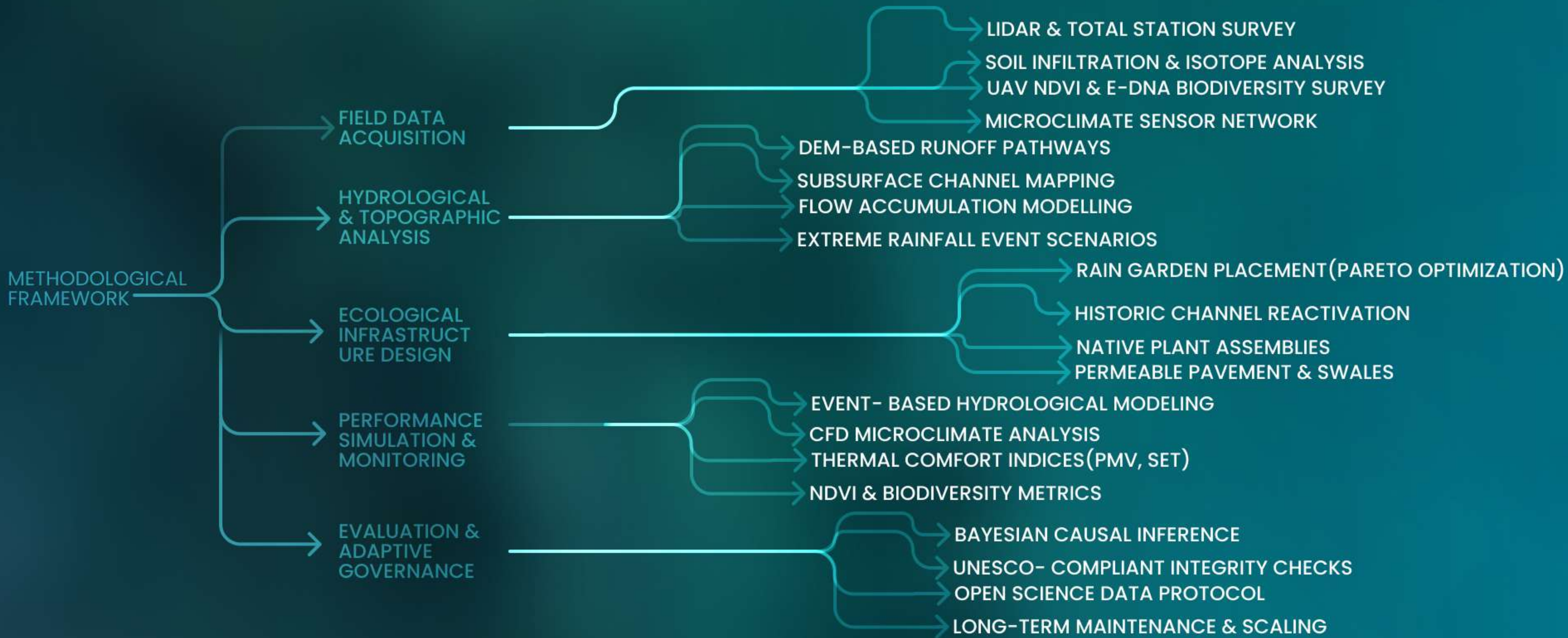
*Dialogue Zone* ←



*Where the palace speaks with the land?*

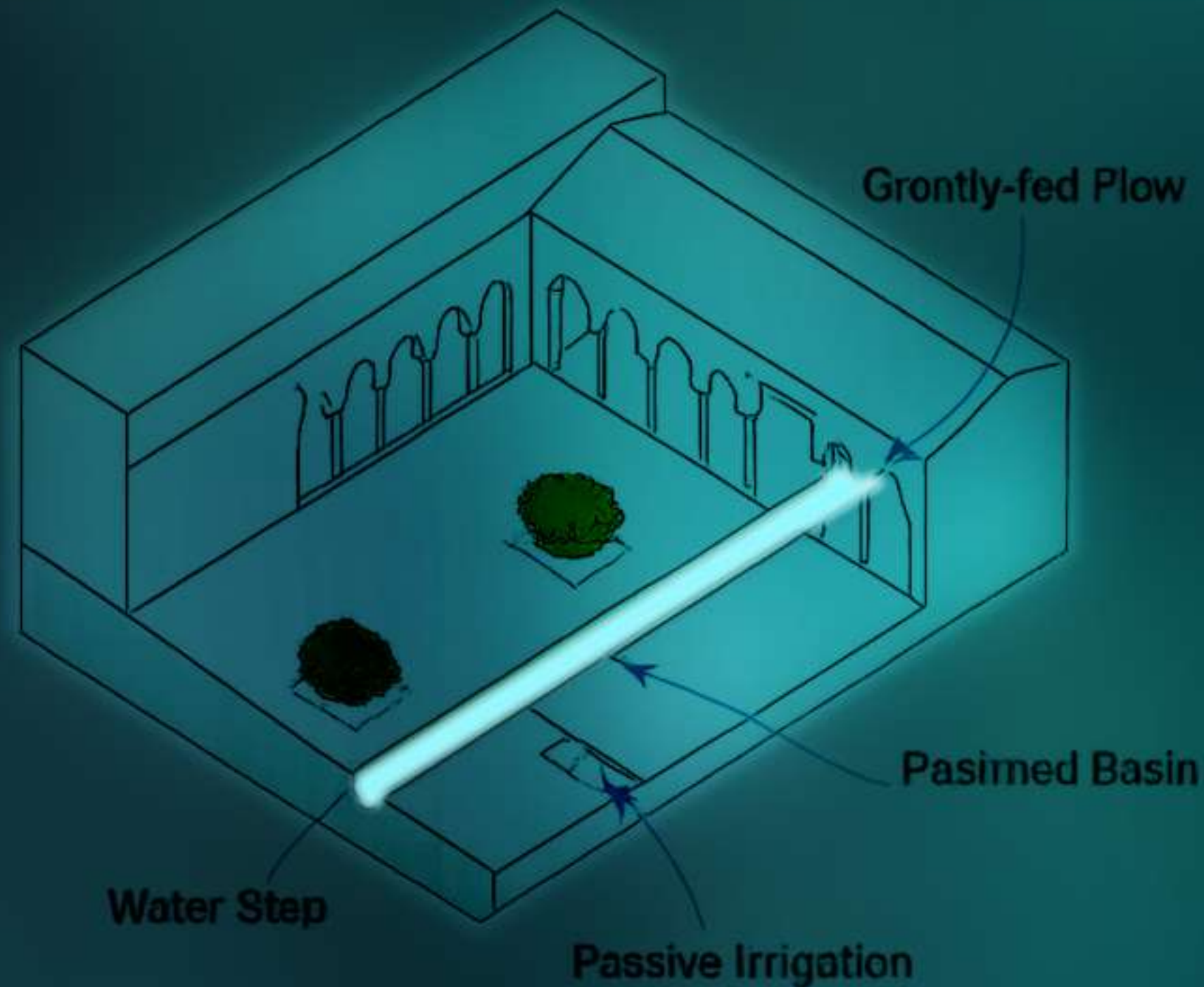
***“In The Alhambra,  
The Dialogue Between Palace And Land  
Emerges Where Heritage Integrity, Ecological  
Performance, And Hydrological Function  
Converge.”***

*Where the palace speaks with the land?  
The value of Alhambra’s regenerative potential.*

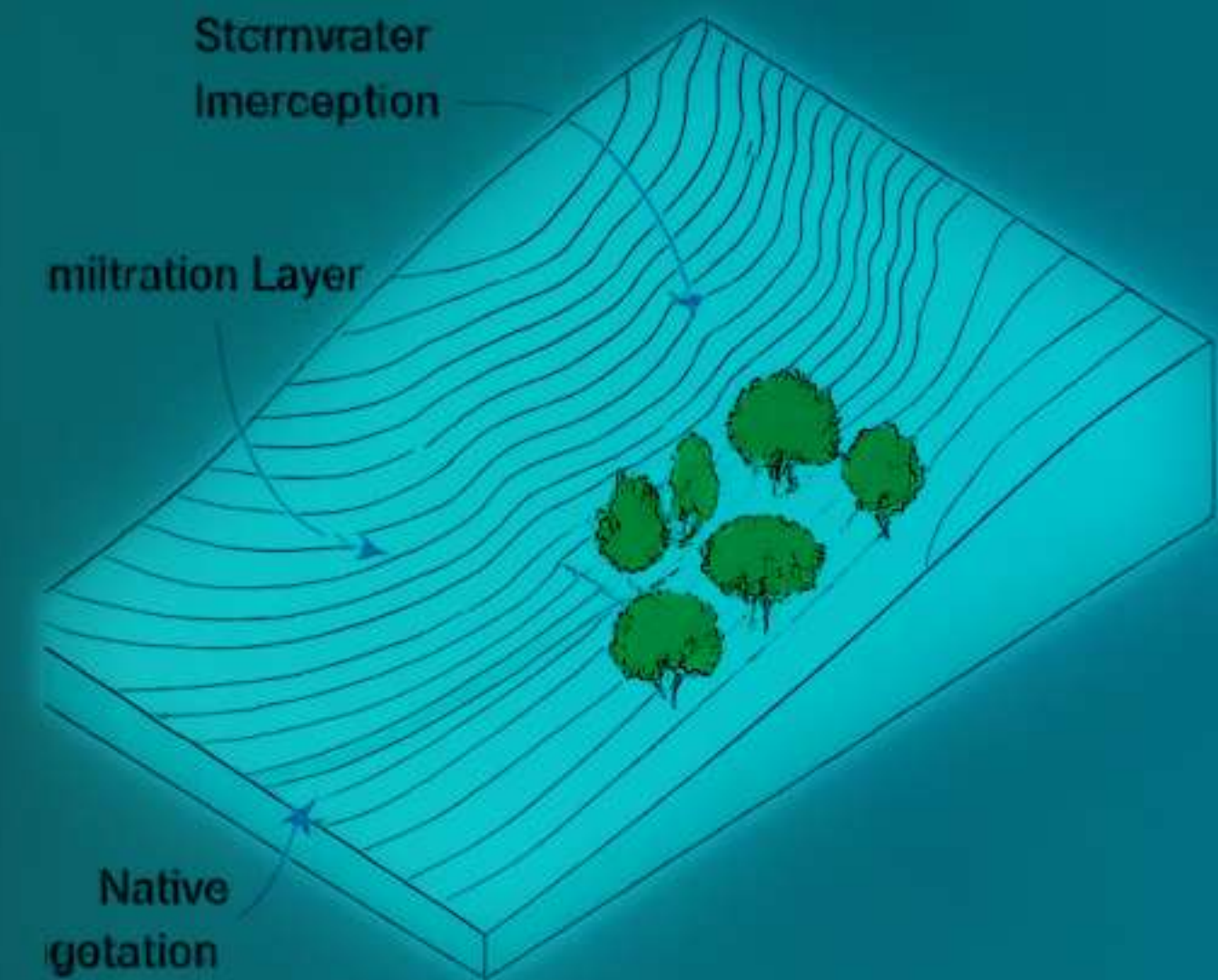


*How to use technology to achieve dialogue between palaces and land?  
The value of Alhambra's regenerative potential.*

## HISTORIC WATER CHANNEL REACTIVATION

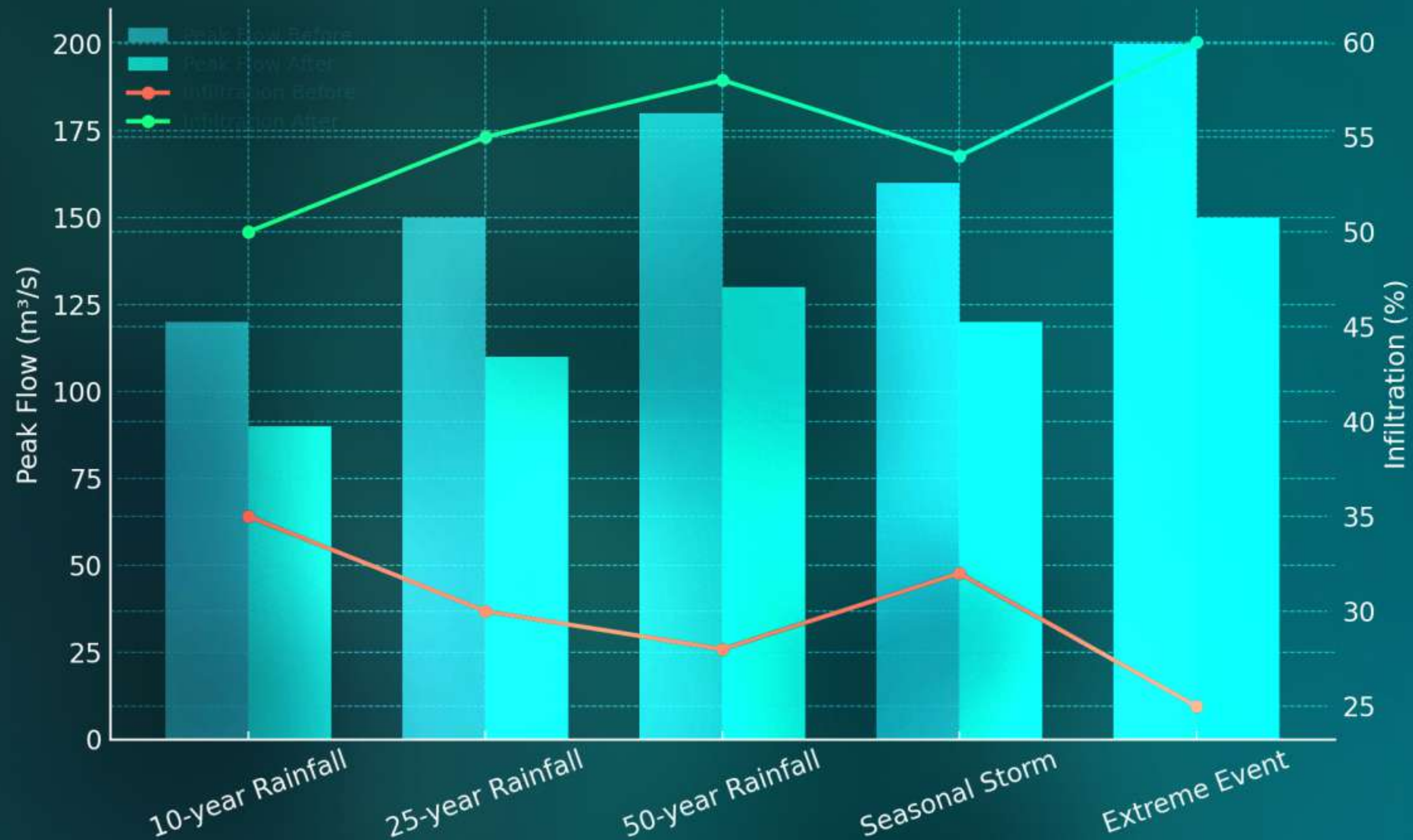


## RAIN GARDEN SYSTEM

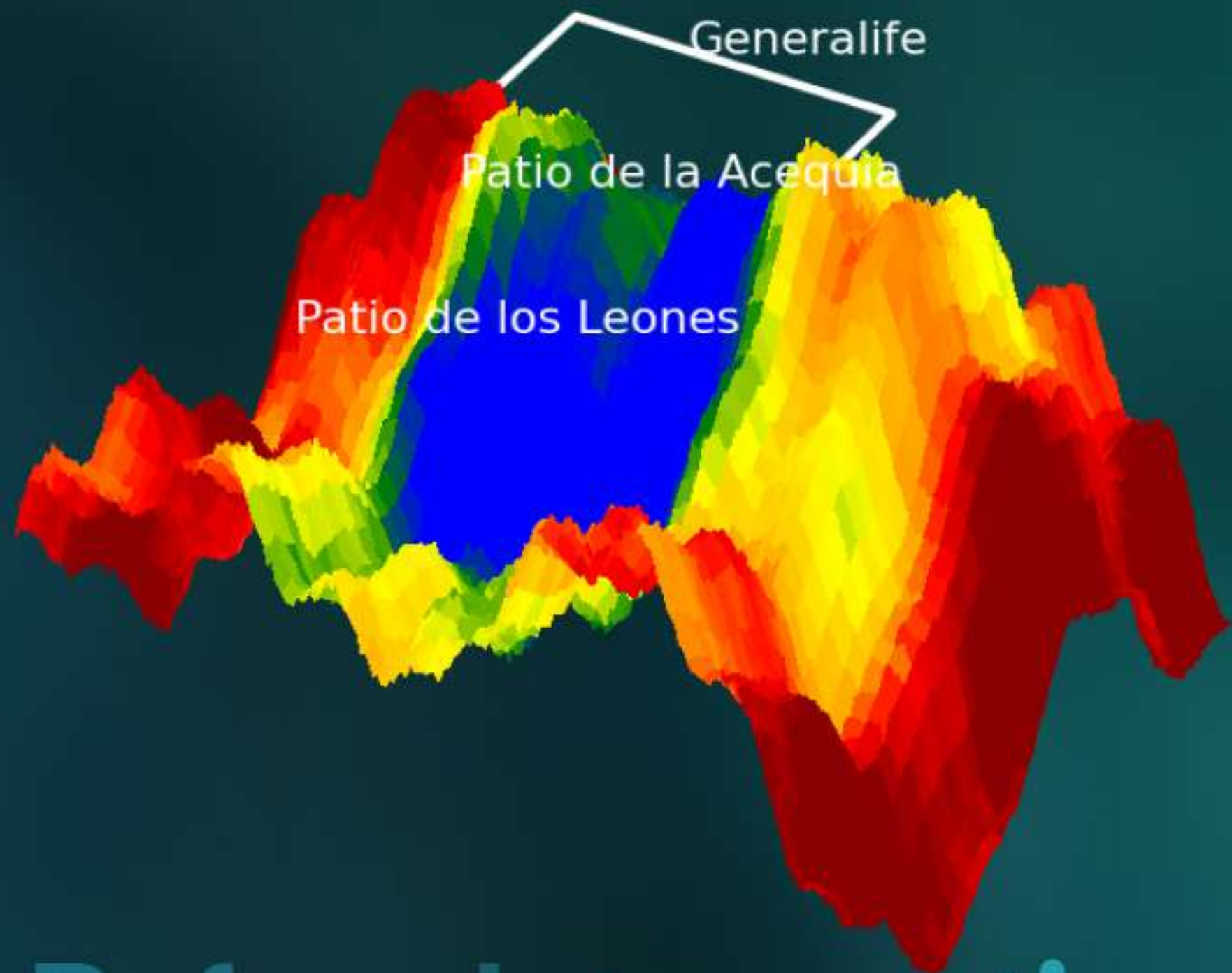


### *Integrated Design Strategies: Rain Gardens + Historic Waterways*

*"This dual strategy not only mitigates hydrological stress but also enhances ecological resilience, without compromising the Alhambra's historic character."*



*Hydrological Performance Improvement:  
Peak Flow Reduction & Infiltration Enhancement*



**Before Intervention**

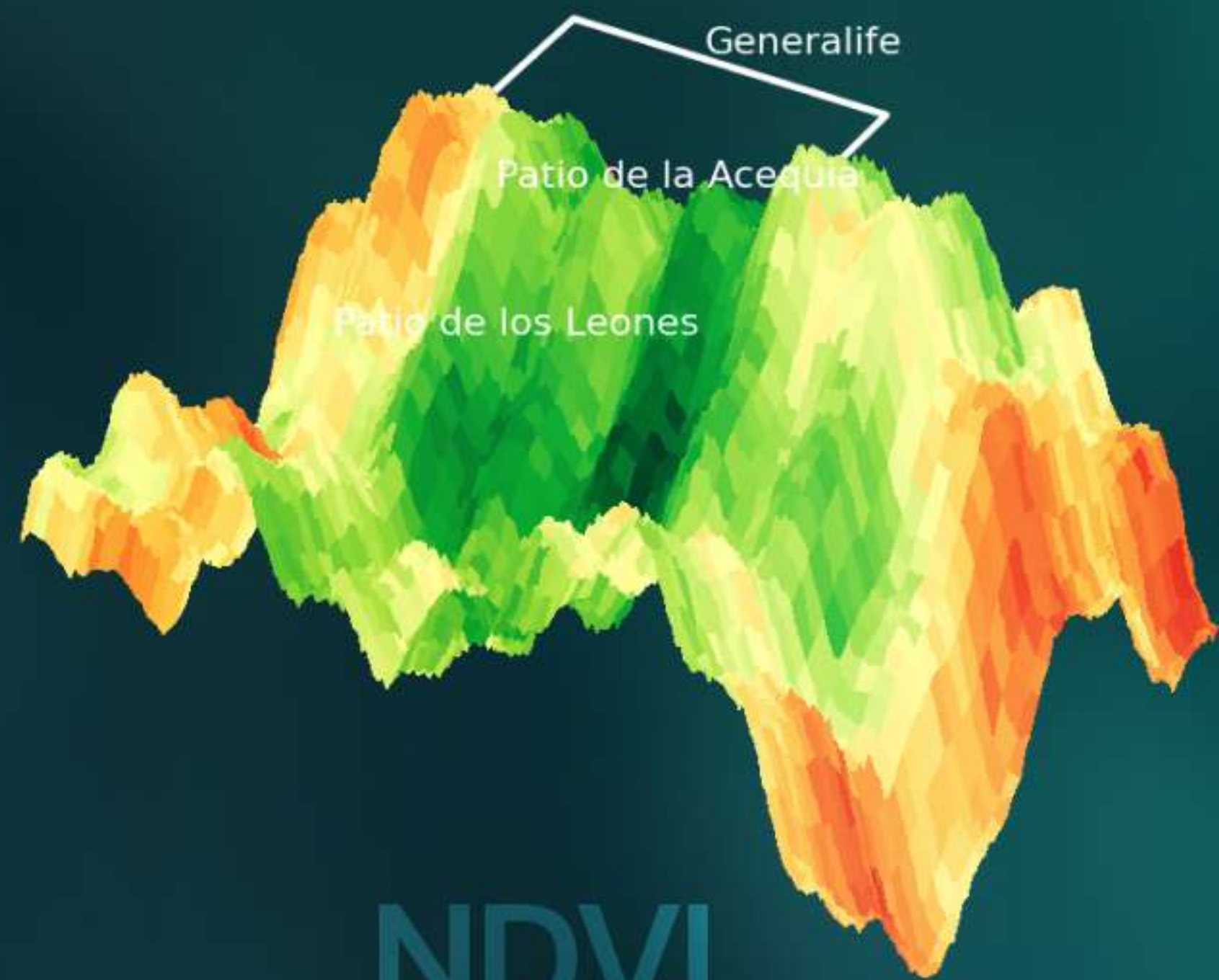
Problem Statement



**After Intervention**

Solution & Outcome

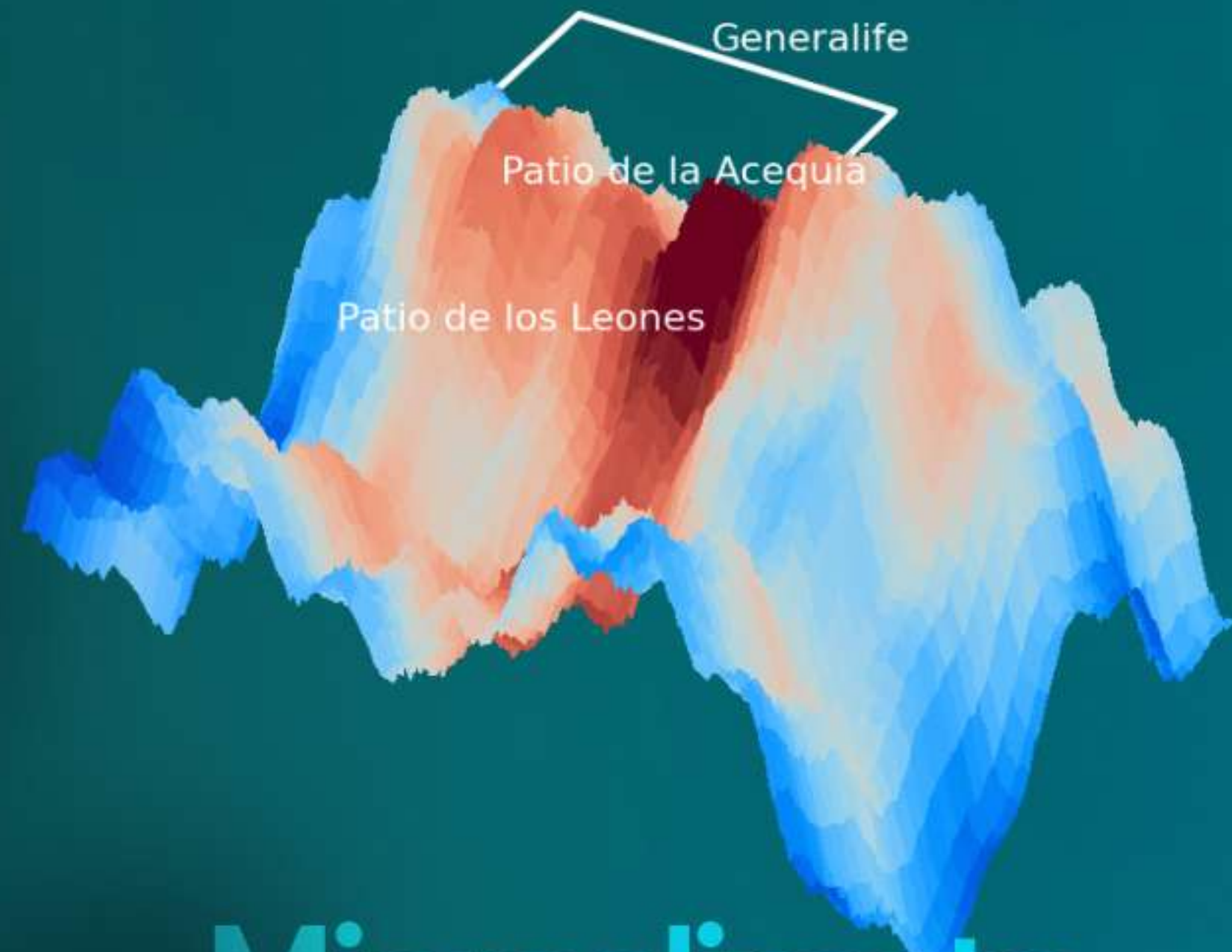
*Spatial Distribution Analysis Before and After Ecological Interventions  
Enhancing Runoff Management in the Alhambra*



**NDVI**

## **/ Biodiversity Index**

Vegetation Health & Biodiversity



**Microclimate**

## **Cooling Effect Map**

Microclimatic Cooling Effect

*Ecological and Microclimatic Impacts of Interventions*

***Synergistic Resilience***

*History × Modern*

***Retained/Enhanced***

***Sensory And Cultural Levels Are***

***New Methods***

***For Other Heritage Landscape Reproduction***

*Synergistic Resilience*

*— Preserving Sensory Heritage and Replicable Models for Landscape Renewal*

*Artificial Intelligence Prediction*

*Long-Term Monitoring*

*Mediterranean Heritage Network*

*Positive Ecological Regeneration*

**Preserve**

*The legacy of growth*

*From Cultural Memory to Enduring Ecological Systems*

A painting of a courtyard in the Alhambra. In the foreground, three young children are playing in a shallow fountain. One child is crouching on the left, splashing water. Two other children are crouching in the middle, reaching for the water. A fourth child, a girl in a brown dress, stands on the right side of the fountain. The background features a large, ornate building with a tiled roof and a series of arches. The scene is bathed in a warm, golden light, suggesting a sunset or sunrise. The overall mood is peaceful and nostalgic.

*“Golden Alhambra  
Golden Water”  
--By Jing Zhang*

*Water: The Living Geometry of the Alhambra  
In the Alhambra, Water Speaks the Language of Eternity*



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