

## Demosite description

### Lithology / Geochemistry

Igneous and sedimentary rocks of the Mesozoic, covered by thick sequences of sedimentary rocks (sandstone, shale) and from the Cenozoic until now, volcanic igneous under intense tectonic and erosional evolution



Reventazon dam (a): 10° 3' N, 83° 34' W  
San Gerardo de Dota (b) : 9°33' N, 84°11' W  
Palmar Sur (c): 8° 58' N, 83° 28' W

### Runoff Map (mm/day)



### Main description:

- ▶ The area is divided into three basins: Reventazon River (a), Savegre River (b) and Térraba River Basins (c).
- ▶ The Térraba River Basin corresponds to 10% of the total area of Costa Rica. All are important for consumptive and non-consumptive uses, especially for transport, cattle and fishing (fig 1).
- ▶ There are many conservation areas like **La Amistad Conservation Area** and **National Wetland Terraba - Sierpe**.

Conserve Ecohydrological processes in natural ecosystems  
✓ YES

Enhance Ecohydrological processes in novel ecosystems  
✓ YES

Apply complementary Ecohydrological processes in high impacted systems  
✓ YES

## Ecohydrology Principles and Solutions

### EH IMPLEMENTATION PRINCIPLES

\* Quantification of the hydrological processes at catchment scale and mapping the impacts

### EH SOLUTIONS

Consider *life cycles* of the selected indicator species and their demand of habitats as an *input* for evaluative adaptive flow



Interdisciplinary methodology for the determination of the compensatory runoff at a site-specific level (RANA-ICE study)

## Lifetzones

Due to the area of this demosite, in the three basins together 16 from the 19 ecological life zones and transitions existing in the country are represented, high biodiversity is associated with the demonstration site.(Tosi, J. 1969.)



Fig.1- Fishing in the Terraba River (from Krasovskaia I. and Gottschalk L., 2014)

## Major Issues

- \* Water management during low flow periods
- \* Poor management of river banks
- \* Presence of irrigation channels (fig.2)
- \* Maintaining and resetting floods

## Social-Ecohydrological System

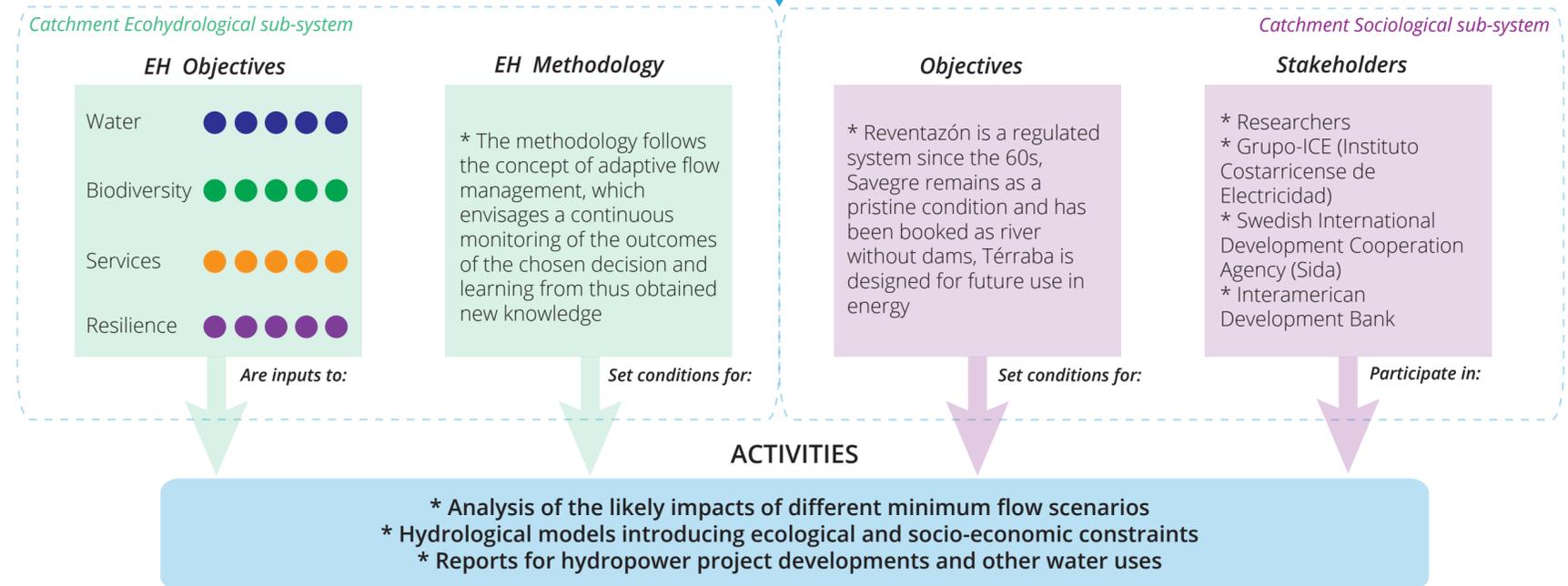


Fig.2- Irrigation channel, the Térraba River (from Krasovskaia I. and Gottschalk L., 2014)

## Results

### MAIN EXPECTED OUTCOME

Improvement of water resources management and water allocation especially during low flow periods

### LATEST RESULTS

- ▶ The study presents a complete approach for testing impacts of different flow regulation alternatives on aquatic life and socio-economic activities of the riparian population throughout the year to facilitate a choice of the regulation scheme at a certain risk level. The methodology follows the concept of *adaptive flow management*. (Krasovskaia I. and Gottschalk L., 2014).

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