

# Stratégies d'appropriation de nouvelles formes de gestion des eaux de ruissellement et leur influence sur la durabilité des systèmes de drainage dans les zones de croissance urbaine de la ville de Tunja, Boyacá, Colombia.

## Strategies for the appropriation of novel forms of runoff water management and their influence on the sustainability of drainage systems in urban growth areas of the city of Tunja, Boyacá, Colombia.

### Case study description:

Tunja is a city located in the Colombian Andes; it has a population of 202,219 inhabitants. It has an annual rainfall of 644 mm, and an average temperature of 12.9 °C. Runoff from higher areas reaches the lower parts of the northern neighborhoods causing environmental problems. These neighborhoods do not have a drainage system that divides domestic water from rainwater, nor do they have control systems for runoff water.

### Methods

Interviews

Interview analysis

SCENARIO CONSTRUCTION

### Research Question

What are the shared meanings of urban planning determinants for SUDS implementation held by various stakeholders in cities?

### SCENARIO CONSTRUCTION

**Results:** Thirty professionals from a range of organisations in Tunja, were selected for interview, comprising the following professional remits: land/facilities owner/manager (2), investments and development (2), flood risk and water management (2), project management (2), planning (2), communities and households (17), policy and communications (1), environmental consultancy (1), and urban traffic management (1).

#### Pessimistic Scenario

Using this scenario, radical changes are incorporated and feared changes are imagined. This is a problematic scenario that will be governed by a territorial planning system. This system is not concerned with the construction of shared meanings around the sustainable management of runoff water, and, therefore, ignorant of its effects on communities. The lack of knowledge of concepts for the implementation of Sustainable Urban Drainage Systems brings with it the non-collaboration of the community to avoid flooding around "Barrio las Quintas", and the inadequate management of rainwater.

#### Current scenario

Is based on current environmental conditions. No positive or negative change is expected, i.e. it is a scenario that has a high probability of occurrence. This scheme proposes a territorial planning approach that incorporates regulatory strategies for improving flood scenarios, with the participation of actors in the proper management of wastes and graywater, in order to recognize possible solutions and to avoid the rejection of Sustainable Urban Drainage Systems (SUDS), given the lack of knowledge about sustainable alternatives.

The problem to be solved is not defined in a single way. Instead, different visions of the actors involved are considered. The visions of each of the actors are considered. Solutions rely on these same visions, which are diverse and complex over time.

The design of SuDS is carried out through several stages including

### CONCLUSIONS

To identify priority aspects for the key stakeholders in the territory in relation to the urban drainage system, meetings, surveys, etc. Typically, studies are conducted based on concepts previously acquired about the study variables from the stakeholders involved in planning the territories. In order to define the objectives and their relative weight, different methodologies can be used, including the soft systems methodology (SSM). Stakeholders include planning authorities, the community and its representatives, non-governmental organizations, and the public. This interaction allows for community engagement, awareness, education, and interaction, as well as the generation of opportunities

### References

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