

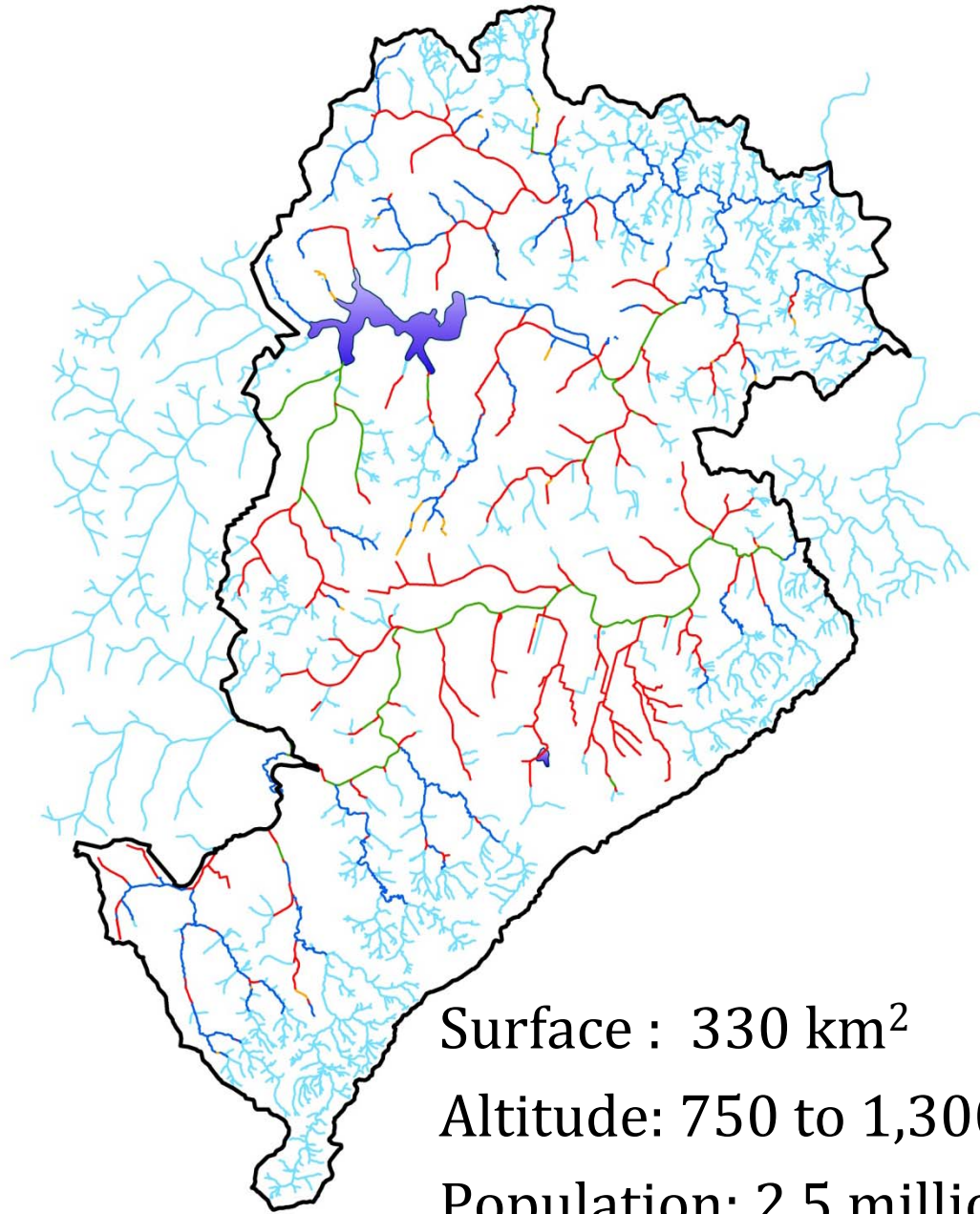


Sustainable Water Management in Cities: engaging stakeholders for effective change and action

BELO HORIZONTE



Belo Horizonte



Surface : 330 km²

Altitude: 750 to 1,300 m

Population: 2.5 million

RMBH: 5.4 million

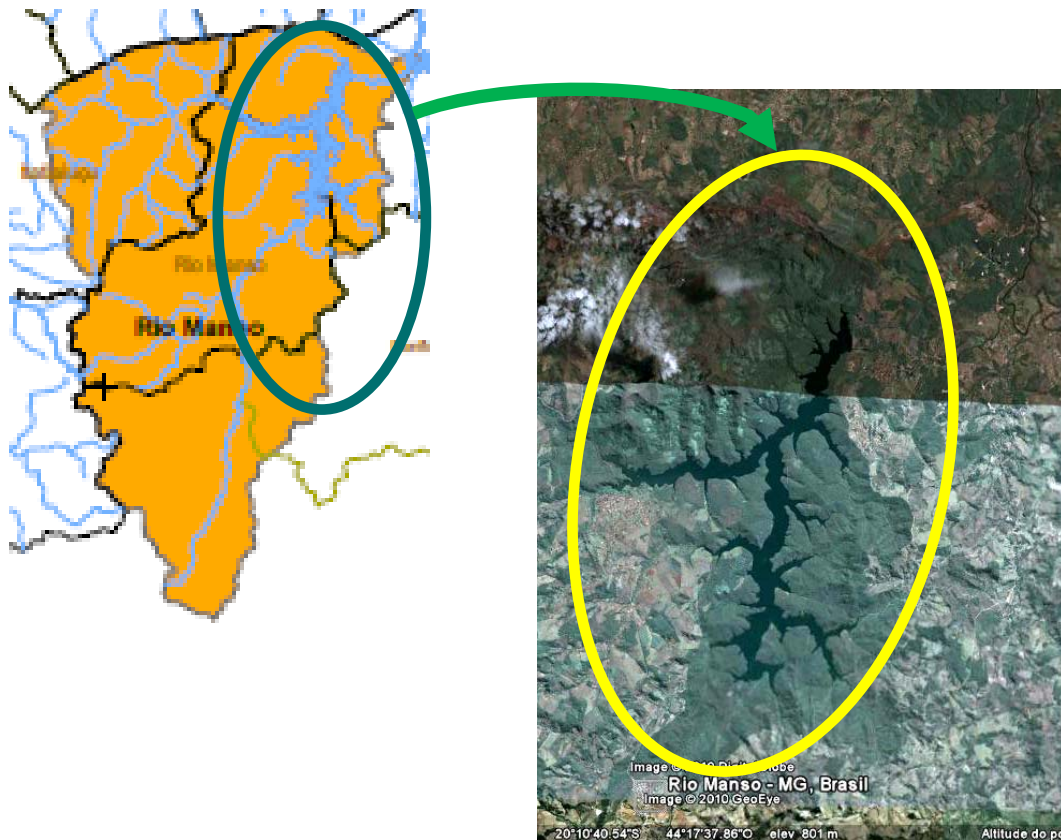
Historical references

Foundation as a planned city: 1886-1889

Dictatorship period: 1964-1986

Democratisation process: after 1986

Drinking water in Belo Horizonte



- 99.5% connected to the water supply system
- Sources relatively well protected

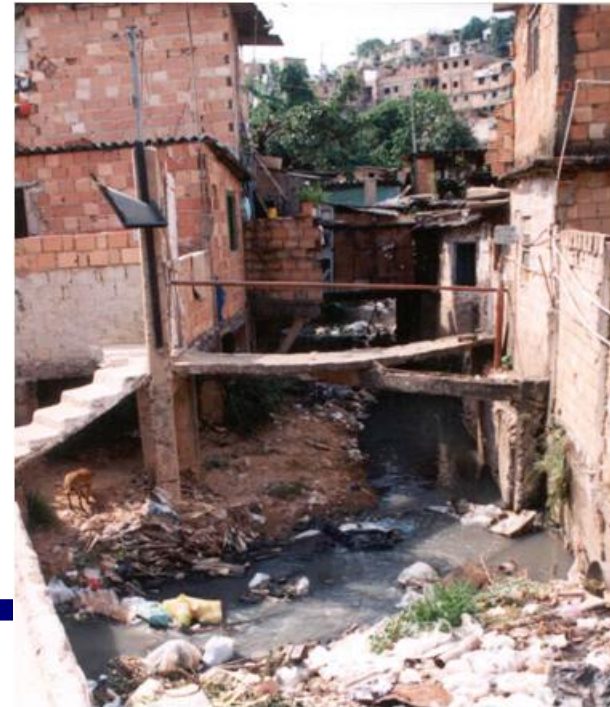


Sanitation and Stormwater in Belo Horizonte

- 91.7% connected to the sewer system
- Treated wastewater: 45% vol.
- **Lack of 39% of interceptor pipelines**

- **Stormwater management adopting conventional creek lining approach up to the 90's**

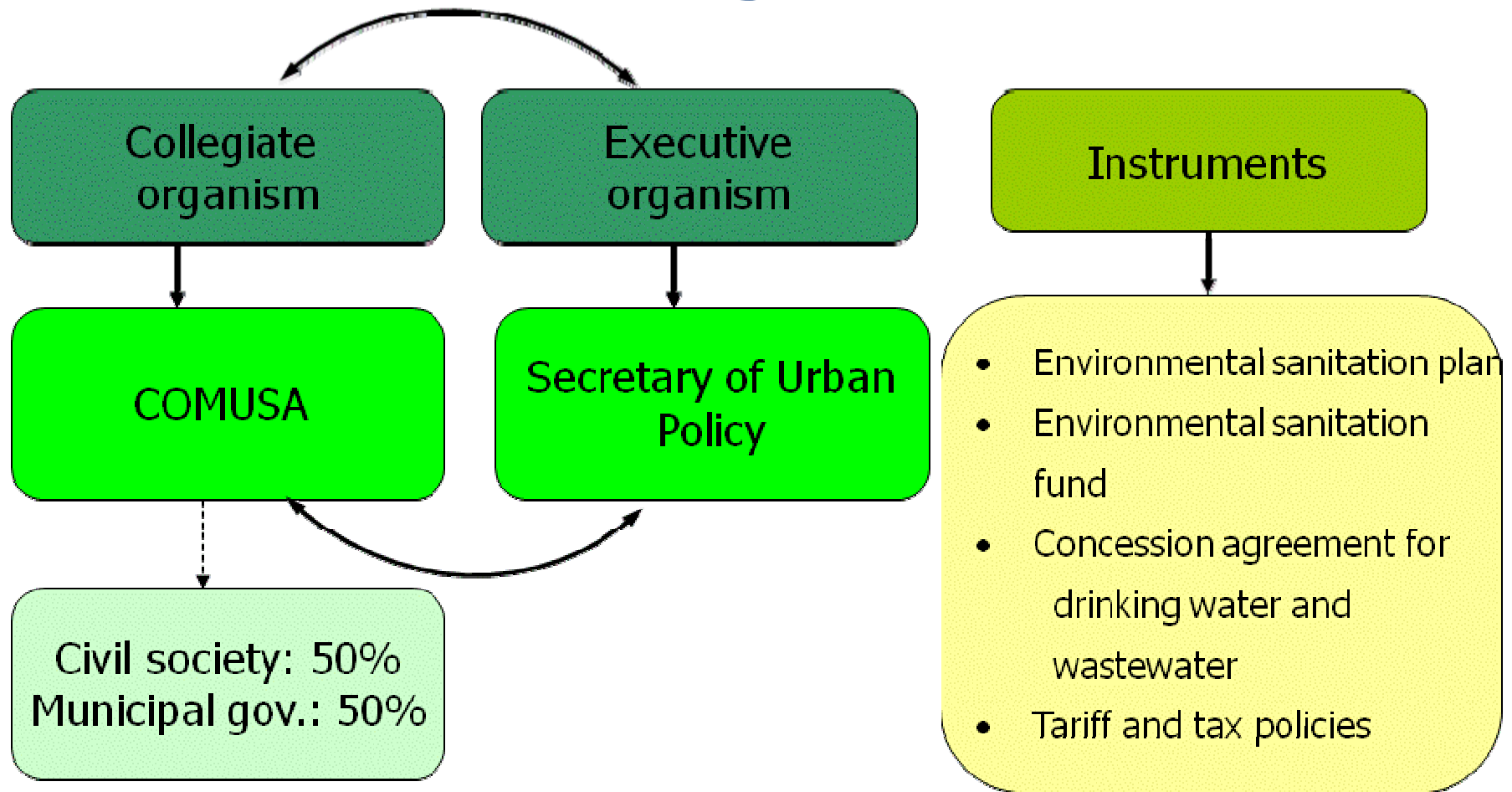




The democratisation process

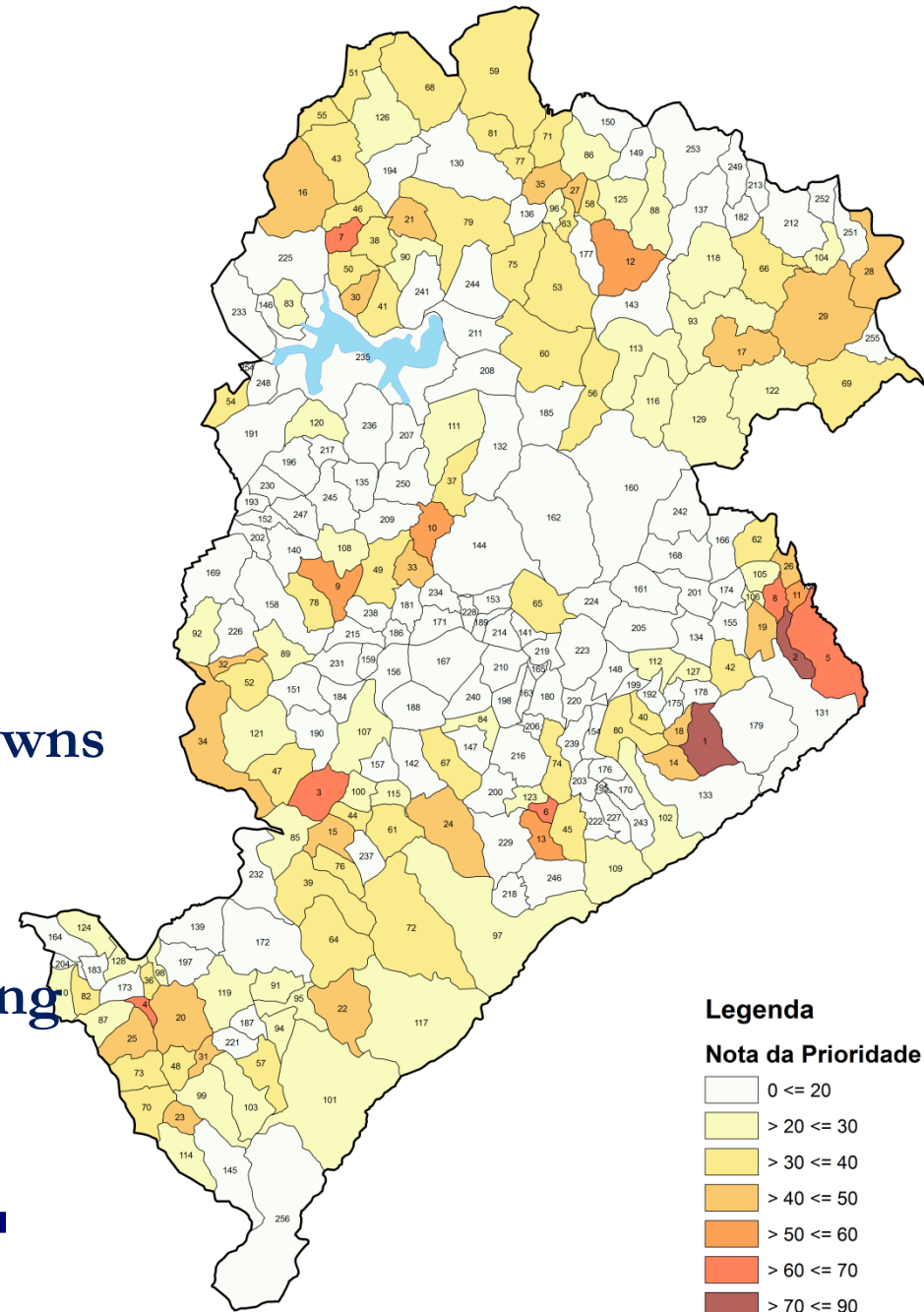
- Emphasis on the decentralisation of public policy formulation and public services management
- Different innovative initiatives at the municipal sphere:
 - Participatory planning
 - **Participatory budgeting**
 - City conferences
 - **City councils: urban sectors, territorial scale**

Belo Horizonte: urban water management



Priorities

- ISA indicator
- Population density at the catchment
- Population living in shantytowns (% at the catchment)
- Epidemiologic criterion: occurrence of diarrhoea among children under 5 years old.



Drenurbs: a river restoration project



Project development and assessment



Project supervision by the DRENURBS local commission

Baleares Creek

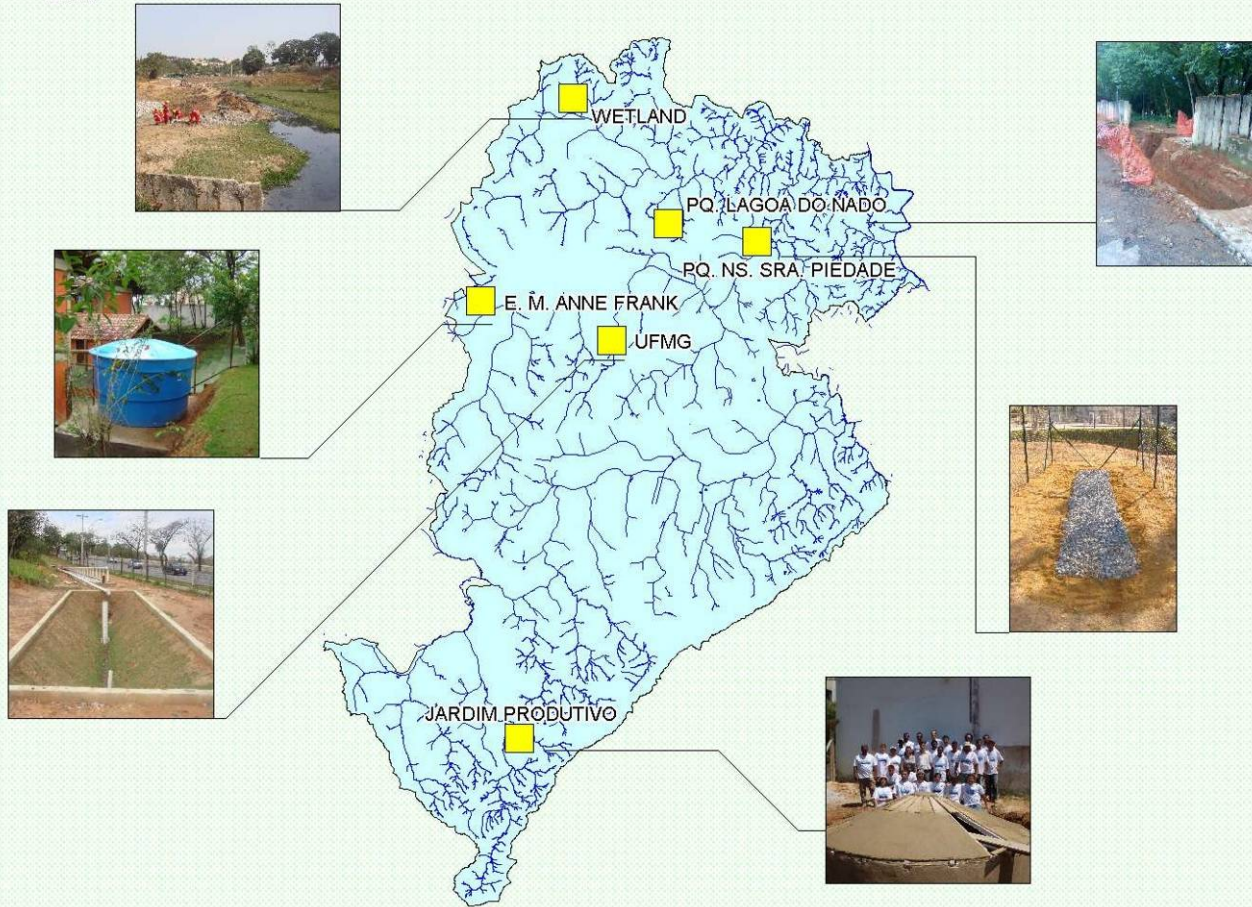
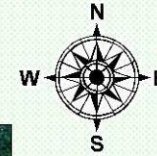


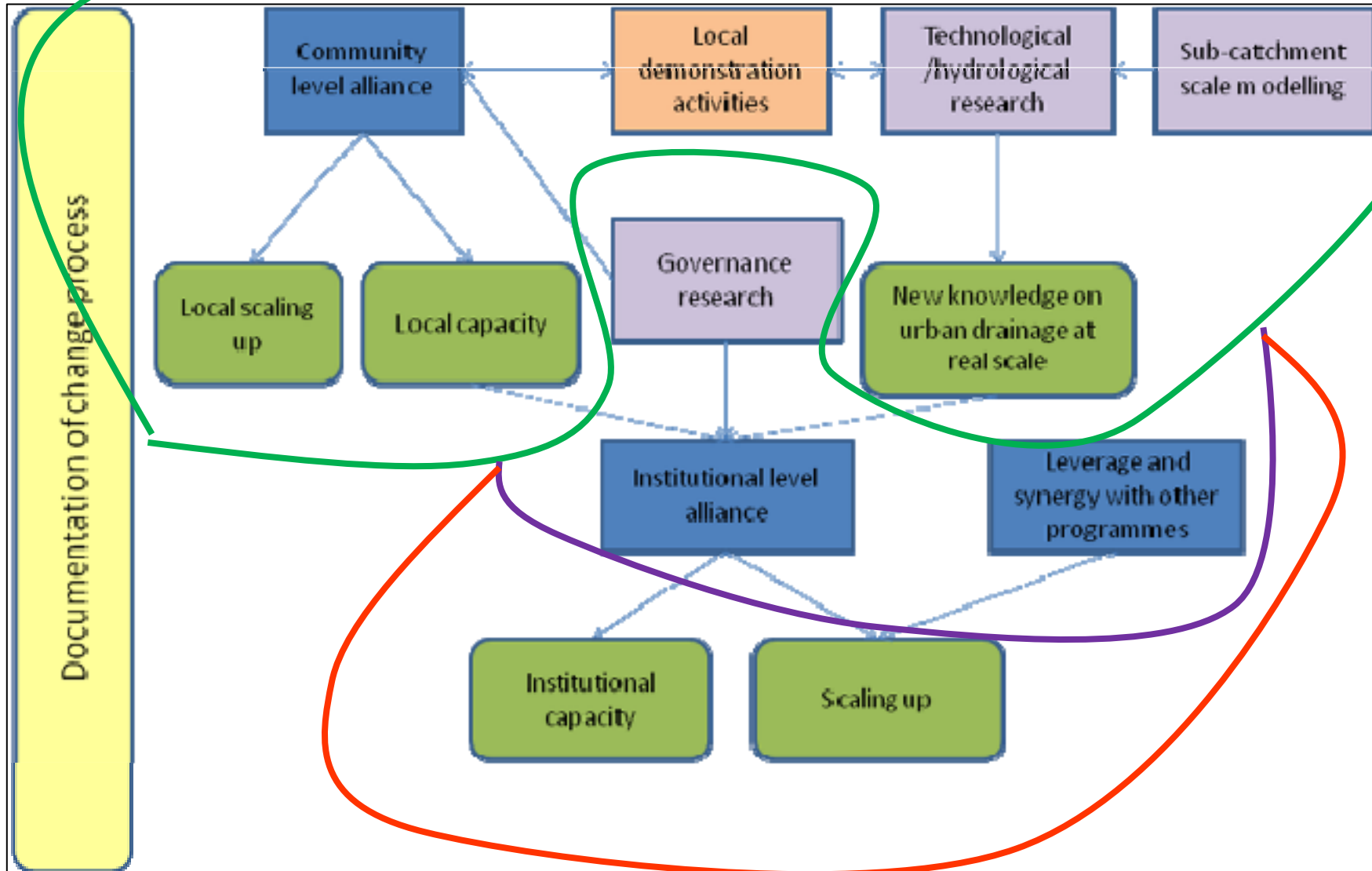
The SWITCH project in Belo Horizonte

The main focus of SWITCH in Belo Horizonte:

- Experiments and demonstrations on SUDS:
 - Detention and infiltration trenches
 - Artificial wetland
 - Rainwater harvesting
- Flood studies: emphasizing non-structural approaches
 - Flood damage assessment and vulnerability analysis
 - People perception of flood risk
 - Emergency planning, traffic management

PROJETO SWITCH
- BELO HORIZONTE, MG, BR -
2010





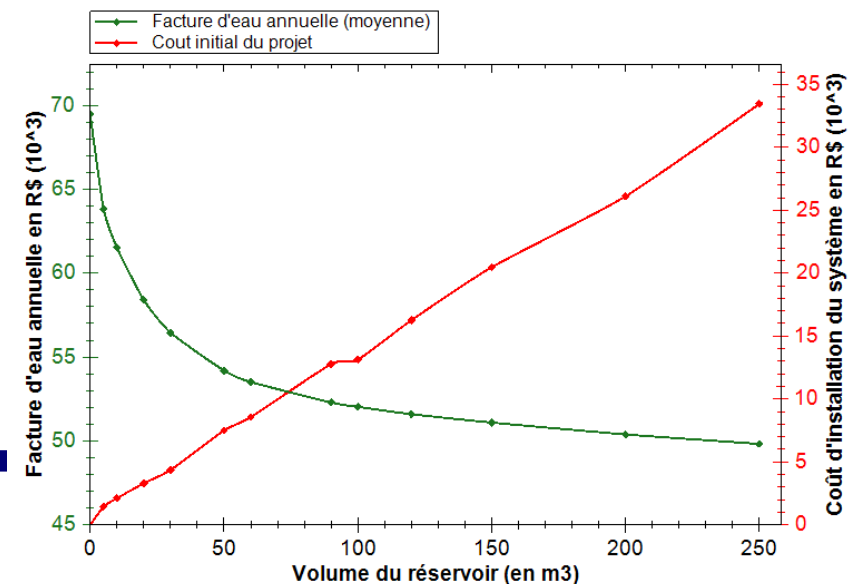
LAs members:

- . People around the demos
- . Companies caring out works
- . Pedro Guerra Municipal School
- . Anne Frank Municipal School
- . Lagoa do Nado Park
- . Productive Garden
- . Municipal Committee on Climate Change
- . Participatory Budget groups
- . River Basin Agency
- . IGAM

Rainwater harvesting

Municipal schools:

- Rainwater supplies 30% of water
- Water used for cleaning, irrigation and in toilets
- Other benefits:
 - Educational
 - Family and community involvement



Anne Frank Municipal School: rainfall harvesting

The project was discussed with the school community since the beginning and trainings have been done with teachers, workers and students.

SWITCH Project participated in three annual seminars of the school – 2008, 2009, 2010.

This is a great work that has reached all objectives.

Delivery of the certificates for participants of the course about water



Rainwater harvesting

Urban agriculture experiment:

- Rainwater irrigation:
 - Supplies 50% of water
 - Overflows are infiltrated
 - Reduction on runoff and WWDP
- Other benefits:
 - Recycling organic wastes
 - Food security and income
 - Cultural memory and solidarity



Productive Garden

Urban agriculture experiment

SWITCH Project organized a course for 33 people – gardeners and woodworkers. This course had theoretical and practical classes during 5 days, from September 14 to 18, 2009.



Experiments with infiltration and detention devices in Belo Horizonte: the UFMG campus experiment



Contributing area



Inlet structure

Experiments with infiltration and detention devices in Belo Horizonte: the UFMG campus experiment



Infiltration trench



Detention trench

Retrofitting SUDS: Nado infiltration trench





SWITCH Team wearing the t-shirt of the Project



Delivery of certificates



Danielle Mitterrand and Osmando Pereira (Pampulha Region Secretary) with SWITCH Coordinator and Facilitator



LESSONS LEARNED

1. Learning Alliances have performed very well at the local levels: demo experiments
2. At the city level (institutional LA), stakeholder involvement is more complex:
 - Keeping motivation to participate (other forums)
 - Time availability
 - Conflicts are more frequent, although not always explicit (other forums or ways of influencing)

LESSONS LEARNED

3. Perspectives of scaling up depend on both LA scales:
 - Adoption of SUDS as a municipal general policy
 - Focus on non-structural approaches on floods
 - Metropolitan sphere: PDDI

4. Procedures for investing in demos proved to be time consuming for the Municipality and the University

LESSONS LEARNED

5. Some demos required long and detailed negotiations with key stakeholders – artificial wetland:
 - UFMG: conception and monitoring, research issues
 - Municipality: detailed project, building, equipments, maintenance, performance assessment
 - Water utility: monitoring, part of maintenance, performance assessment

6. Local LA at the wetland area: environmental perception and “one day in the catchment”

LESSONS LEARNED: LA facilitation

7. **LA is a team work**
8. **A full time well trained staff** for facilitation and documentation is required
9. The **website is a great tool** for communication and documentation
10. **It is necessary to work hard**, day-by-day, including the strengthening of the alliances with colleagues from different areas
11. Efforts on **training engineers** of the own Municipality is a key point
12. **The schools are a never ending resource of good work**
13. **We have to review the planning** all the time
14. **More money** were required that we first budgeted



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