

Design of a decision tool for hydromorphological restoration of water bodies in Walloon Region

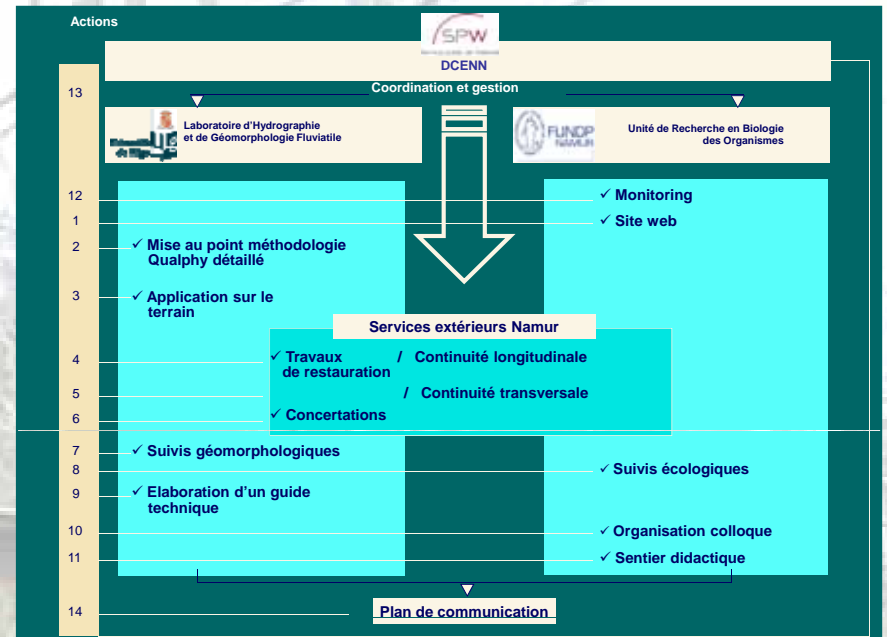


WALPHY - LIFE07 ENV/B/000038

The **specific objectives** of the project are the following :

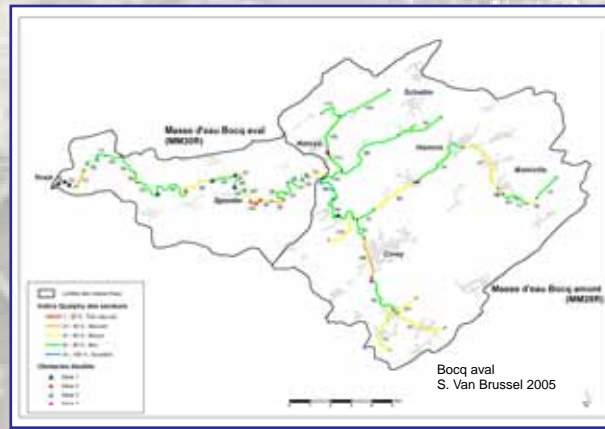
- development of a unique, useful and suitable methodology in Walloon Region to determine and schedule river physical quality restoration works.
- realisation of experimental and demonstrative river restoration works on some risk water bodies in the studied basin based on two axes : longitudinal continuity and transverse continuity (area of freedom) ;
- monitoring of the restored river system and its ecological status evolution with a geomorphological and an ecological monitoring

Bocq upstream and Bocq downstream = non natural and risk water bodies Seemed to be convenient for the restoration works which concern the longitudinal continuity due to the presence of obstacles and also for transversal continuity



In order to determine intervention sectors for actions 4 and 5 in the pilot water bodies, we applied a physical quality evaluation, called Qualphy. This French method has been improved through the incorporation of sediment parameters and ripisylve quality assessment.

Physical quality assesment



According to this physical quality evaluation, every sector of the river has a global physical quality score, which is calculated from 40 parameters. Each score can be decomposed in 3 compartments: flood plain, stream channel and banks.

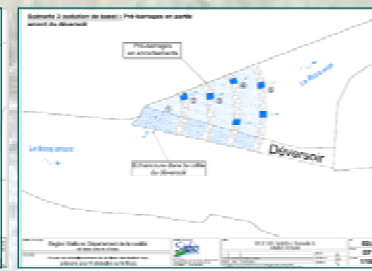
First restoration study about the eight most important obstacles of Bocq downstream

- Phase 1 : inventory + 3 scenarios / obstacle
- Phase 2 : multicriteria comparative scenarios analysis (cost of the work, socio-economic aspect, microhabitat, sediment transport and flooding impacts...)
- Phase 3 : detailed preliminary draft (5 obstacles)



Example for obstacle 1451 in Aminthe

3 different scenarios



3 stations

Senenne
reference station

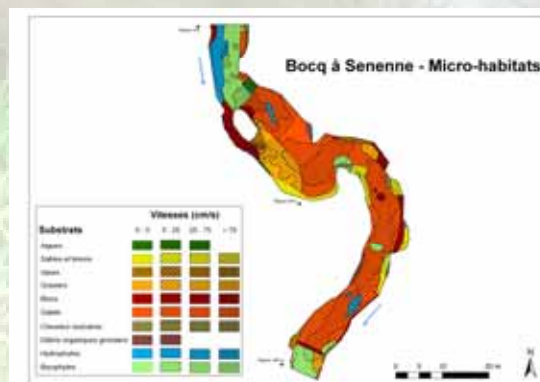
Spontin
removal of a weir

Spontin
rehabilitation

Scientific monitoring

Topography + stream channel DEM
Cartography velocity
substrate

Cartography of microhabitats



3 biological indicators

- Macrophytes : index IBMR based on re-covering, ecological amplitude and trophic level from the different species
 - Macroinvertebrates : index RCS, robustness, diversity, biogene capacity and habitat quality + study of biological features
 - Fish populations : index IBIP and morphodynamic attractivity
- 4 components : heterogeneity, attractivity, connectivity et stability.

