

Integrated Design of Flood Areas in the Lys and Lawe River Catchments (France)



Financed by: Symsagel (Syndicat Mixte pour le Schéma d'Aménagement et de Gestion des Eaux de la Lys)

Client: Symsagel (Syndicat Mixte pour le Schéma d'Aménagement et de Gestion des Eaux de la Lys)

Date: 2004 – 2006

Budget: € 340 940

Location: Nord-pas-de-Calais, France

Partners: Sorange

Assignment:

Based on a further refinement of the existing numerical water management models for the mentioned river catchments, the practical and technical execution of the realisation of flood areas is developed in further detail in order to obtain a full design. Special attention is given to technical feasibility on the one hand and ecological, socio-economic or legal prior conditions on the other, in order to realize an integrated design.

Scope of Services:

- Integrated water management
- Numeric modelling (hydrology, hydraulics)
- Design scenarios of flood areas
- Technical (pre)design
- Impact analysis of the proposed layout

Technical Description:

Further to the previous, successfully executed, contracts on water management of the Lys, the Laquette and the Melde river catchments, Symsagel ((Syndicat Mixte pour le Schéma d'Aménagement et de Gestion des Eaux de la Lys) commissioned Soresma-haecon in 2004 to study the water management for the Lys and the Lawe. Both studies include the actual realization of flood controlling measures. In the Lys river catchment (i.e. the upstream part in the North of France) retention basins or flood areas (zones d'expansion des crues – ZEC) will be studied further and designed for the Lawe and the Lys river (i.e. the Lys upstream the city of Aire-sur-la-Lys).



Lys river catchment in France



Matringhem (Lys river catchment)



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During 8 months the following successive steps will be followed to achieve the final integrated design:

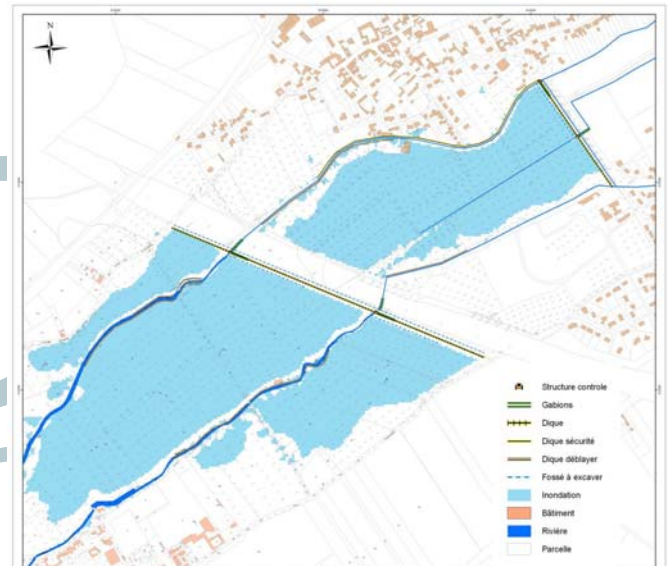
- Preparation for the study during which all available data from previous studies is collected and synthesized.
- Further development of the existing surface water model, with special attention to the detailed simulations of the actual flood areas in the present situation.
- Scenario calculations for the future (designed) situation of the flood zones.
- Synthesis of feasible layout of these flood areas.
- Collection and analysis of relevant geotechnical and hydrogeological data for the final construction of the flood zones.
- Preliminary and final design of all associated technical features in the flood zones (surrounding dike, in- and outlet constructions, excavation, nature and agriculture compensation, ...)
- Impact study and interviews, ...



Flooding in the Lawe catchment

The project is co-ordinated by the water team of our Gent office and induces an integrated approach throughout the Oranjewoud group: this included the civil engineering support from our Antwerp office and support from our French office Sorange for the impact analysis, in situ campaign and interviews with local stakeholders. After the development of a calibrated numeric hydrodynamic model of the existing situation of both river catchments a number of alternative settling measures are calculated and evaluated on their technical impact (protection against flooding) and on their socio-economic, ecological and legal feasibility in order to achieve an integrated water management proposal. The selected proposal is further developed in technical and legal detail in a final design.

It is clear that such large-scale and local projects cannot be executed on a technical basis of calculations only. Hence, an explicit campaign was set up to allow participation of local stakeholders (mayors, owners, other local authorities, ...). This included an extensive and interactive campaign of interviews and information meetings. This means that the project is not only founded on a technical and legal basis but also creates a broader social basis for the further realisation of the project.



Design of a controlled flood plain

This way this project demonstrates that a multidisciplinary approach within an open organisation guarantees success, not only for the staff working on the project but also for the client.



Possible flood plain