

# WP 3 Improved sediment model to aid decisionmaking

## Optimised sediment model

The sediment model was developed during the Interreg project Scaldwin. During the Triple C project a recalibration was performed using a more detailed DTM and data retrieved from the sediment monitoring in the Triple C project.

➔ Report Sediment model recalibration and Sediment model recalibration addendum

Additionally, efficiencies of different erosion control measures were evaluated during field trials. Also, erosion control measures adapted from the Triple C partners which are not applied on the Flemish fields, were tested. The grass buffer with a ditch is a measure adapted from the UK partners and will be considered being implemented on larger scale in Flanders as the field trials showed interesting potential for the Flemish erosion problem.

Also, different field trials and demonstrations were performed by the Triple C partners Inagro. These results were also be implemented in the model.

➔ Report Sediment model field trials

An important improvement of the model is the cost-benefit tool that was developed during the project. The module allows an estimation the economic impact of implementing erosion control measures. A report has been finalized which functions both as a manual for this tool and as a background document for the concepts and used data sources. Also, an example case study within the Maarkebeek catchment has been carried out.

➔ Report Costbenefit

The Triple C project does not only focus on erosion reduction (WP5), but also on water retention measures (WP4). During the project it became clear that these issues are often inextricably linked. Therefore, although it was not foreseen in the project application, efforts were taken to develop the runoff module of the model.

Within the sediment model there is a hydrologic runoff module available which is based on the curve number model, a widely used runoff model for simulating overland flow. For Flanders this module did not deliver reliable results yet. The attached presentation gives an overview of the work that has been carried out in order to improve the modelling results of overland flow.

➔ Report CN

## Co-evaluation and transnational validation of the optimized sediment model

The different catchment of the Triple C project have been calculated and evaluated with the model. The model results were evaluated and discussed with the different partners during the partner meetings and field visits.

### Sediment modelling in the catchment of the upper Scheldt

Our focus area within the upper Scheldt basin is the Maarkebeek catchment. In this preliminary report the application of the sediment model on this area is illustrated. First, a reference scenario is discussed. Also, potential erosion control scenarios making use of grass buffer strips are considered. The modelling of this region also resulted in a sink-source map which identified the main sediment generating areas within the catchment. This map has been used for an on-field validation of erosion hotspots and the identification of suited locations for implementing erosion control measures. In a last phase of this research there will be focused on the calculation of erosion control scenarios with the effectively installed erosion control measures.

➔ Report Bovenschelde

### Sediment modelling in the Rivierbeek

The catchment of the Rivierbeek is an area of interest for Triple-C partner INAGRO. In this report the application of the sediment model to this catchment is discussed. First, a reference scenario without erosion control measures is considered. Furthermore, the application of gras buffer strips and/or ditches as erosion control measures within the catchment is evaluated.

➔ Report Rivierbeek

### Sediment modelling in other Triple-C catchments

Besides simulations in our focus area (catchment of the Maarkebeek), the model has also been applied in catchments of interest for our Triple-C partners. The sediment model CN-WS has been developed in Flanders. This document mainly shows the progress that has been made to make the model applicable in the United Kingdom. First an exploratory modelling exercise has been performed in the catchment of the river Tone (South-West England). These results have been communicated to our partners in a dedicated meeting. Subsequently adequate input data has been provided by Triple-C partner FWAG South West in order to carry out a reference simulation (without erosion control measures) of the North Petherton catchment in Somerset. The results showed promising. An on-field validation of the erosion hotspots has been recommended. The question has also been asked to provide necessary input concerning erosion control scenario which could be calculated by the model. When this input will be provided, these simulations can be carried out.

➔ Report UK

An improved sediment model to demonstrate the effects of implementing erosion control measures

The final model outputs will show the impact of the investments of the Triple C project. The cost-benefit tool can be used as a monitoring tool to evaluate the effects. As the project has been extended, the final modelling has not been performed.