

## DESCRIPTION

The Consortium Grensmaas is a participation between gravel companies, contractors and a nature organization. The Consortium Grensmaas has a contract with the authorities on different levels.

The Grensmaas projects aims at an fivefold increase in flood protection, 1000 ha new habitat, mostly nature connected with the river system riparian vegetation and the extraction of grave (approx. 54m tons).

The work involves the removal of the clay layer from agricultural fields on floodplains followed by limited gravel extraction. Only in the section apart from the river all gravel will be dig and filled up with the unusable clay. The gravel extraction pays the widening of the floodplain.



## PLANNED RESTORATION STATE

- wide floodplain, riparian vegetation, limited public access

### ECOSYSTEM SERVICES PROVIDED:

- flood protection
- recreation
- habitat provision

## ALTERNATIVE RESTORATION STATES

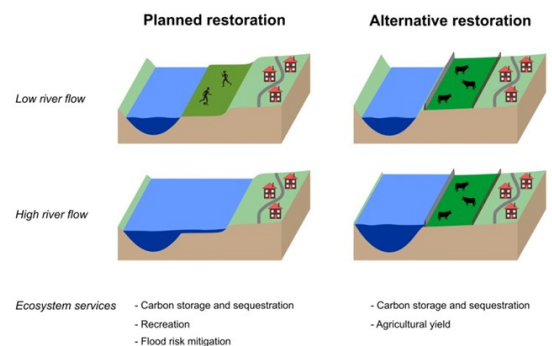
- A) narrow floodplain with hard engineering. Agricultural fields. No public access

### ECOSYSTEM SERVICES PROVIDED:

- cultivated crops
- B) status quo/ do nothing

### ECOSYSTEM SERVICES PROVIDED:

- none



RELEVANT ESS CICES Class	ASSESSMENT METHODS	DATA REQUIREMENTS
<b>Flood protection</b>	<ul style="list-style-type: none"> <li>▪ reduction in flood risk (probability) ;</li> <li>▪ reduction in area flooded for 1/50 and 1/250 year events (ha);</li> <li>▪ reduction of peak flow (<math>m^3 s^{-1}</math>).</li> <li>▪ valuation methods: reduction in flood damage (£ <math>yr^{-1}</math>) → benefit transfer</li> </ul>	<ul style="list-style-type: none"> <li>▪ statistics from Royal Haskoning (are these for NL or also BE?)</li> <li>▪ reduction in mean peak flow attributable to project</li> <li>▪ reduction in overall flood risk attributable to project</li> <li>▪ maps showing flooded areas for 1/50 and 1/250 year events before and after project</li> <li>▪ reduction in flood damage for 1/50 and 1/250 year events</li> <li>▪ number of households affected by potential flooding events</li> </ul>
<b>Physical use of landscapes (recreation)</b>	<ul style="list-style-type: none"> <li>▪ benefit transfer</li> <li>▪ recreation value difference between agriculture and wetland</li> </ul>	<ul style="list-style-type: none"> <li>▪ studies on WTP for nature-based recreation along rivers</li> <li>▪ indirect effects on tourism due to paths in the surrounding?</li> <li>▪ number of visitors/ tourists and population distribution of the area → no access → no value of recreation</li> </ul>
<b>Maintaining nursery populations and habitats (habitat provision)</b>	<ul style="list-style-type: none"> <li>▪ benefit transfer</li> </ul>	<ul style="list-style-type: none"> <li>▪ by amount and source</li> <li>▪ Grensmaas will not be too specific for rare species</li> <li>▪ studies on WTP for nature-based recreation along rivers</li> </ul>
<b>Cultivated crops</b>	<ul style="list-style-type: none"> <li>▪ farm reports (£ <math>yr^{-1}</math>)</li> </ul>	<ul style="list-style-type: none"> <li>▪ farm reports with statistics of mean crop yield per ha</li> <li>▪ land cover data showing crop type</li> </ul>
<b>Global climate regulation (carbon storage and sequestration)</b>	<ul style="list-style-type: none"> <li>▪ field surveys combined with InVEST modelling. (Mg and <math>Mg yr^{-1}</math>)</li> </ul>	<ul style="list-style-type: none"> <li>▪ soil samples/depths and vegetation measurements from restored quarry areas</li> <li>▪ soil samples/depths and vegetation measurements from naturally-colonised site nearby</li> </ul>
<b>General</b>		<ul style="list-style-type: none"> <li>▪ detailed GIS map and/or aerial photo of project area</li> </ul>