**Report of group discussion floodplains**

**workshop March 22 2018 (by John Lenssen)**

To the question what presently constrains the conservation and development of ecologically valuable water-related habitats in the (former) floodplain of Niederrhein and Waal, various issues were raised:

* Governance: a number of German participants stressed that responsibility is fragmented. The Schiffahrtsamt presides over the main river channel, whereas the Deichverbände manage the floodplains at both sides of the dikes. In the Netherlands there is one authority (Rijkswaterstaat) responsible for both river and (outerdike) floodplain.
* Landownership: In Netherlands about 60% of the outerdike floodplain is owned by nature management organisations. This enables Rijkswaterstaat to realise ecology-oriented projects. In Germany the floodplain is divided over numerous private owners.
* Agriculture: Most of the land is under intensive agricultural use and is basically a monoculture of ryegrass (*Lolium perenne*). This type of land use provides little opportunities for species rich grasslands and meadow-land birds. Since most farmers have to compete on the world-market a less intensive agricultural use would only be possible with financial support from the government. This makes it a less sustainable form of agriculture.

In addition, both in Germany and Netherlands agricultural demands on water level management impose serious constraints on low-dynamic marshes, particularly in innerdike areas.

* Erosion of the river bed in the main channel of Niederrhein and Waal. This imposes a big constraint on nature development in the (former) floodplain: backwaters get drained and frequency and durations of floods decrease. Apart from nature, other functions in the river area may be hampered as well, e.g. the gradual decrease in mean water level may eventually require regular modification of anchorages and harbours.

Various causes have been mentioned:

* At low discharges the river hardly carries any sediment from upstream, due to weirs in the upstream parts of the Rhine (for instance at Iffezheim) which trap the sediment. As a consequence downstream stretches of the river are not saturated with sediment (the river is “hungry for sand”) causing stronger erosion.
* Channelization of the main river channel and fixation with groynes have also resulted in higher stream velocities in the main channel and therefore more erosive power.
* There is a self-reinforcing process going on. Due to sediment deposition at peak discharges the forelands gradually increase in elevation, whereas the river bed itself lowers. At an increasingly wider range of discharges, the water is more or less ‘trapped’ within a rather narrow flow channel. As a consequence, stream velocities increase, accompanied by a higher erosive power. It was also suggested that floodplain forest development enhance this process by trapping sediment and impairing discharge in the event of flooding.

Proposed strategies against the river bed erosion vary from fundamental, and therefore long-term, changes in ship trafficking to practical short term modifications of the river bed and floodplain.

* In the long run it might be better to head for another way of ship-trafficking (or transport of goods in general) , for instance hovercraft-like vessels that require less water depth and remain on the water surface. This requires a bit of “Umdenken”: instead of modifying the river to the demands of the vessels it is better to design ships that fit in the natural riverbed.
* larger meanders in the river would also help to decrease flow velocity and thus stop the river bed erosion. However, this requires a lot of space.
* short term solutions may be fixation of the sediment in the main channel (with e.g. gravel) or development of side-streams that, due to a higher flow profile, lower the flow velocity. Interestingly, sediment fixation has only been realised in Germany whereas examples of side stream channels are mainly found in Netherlands. This provides an excellent opportunity to learn from each other and formulate an optimal mix of measures to counteract erosion of the river bed.

**Interpretation of notes taken in working group Uwe Koenzen & Frank Zanderink**

**Constraints**

* Governance**:** different approach towards river restoration. In Germany the main question is usually: why do we need these measures, in the Netherlands: how are we going to do this? The why-question is hardly raised anymore because there were national long-term plans (“EHS” , ecological main network and “ Ruimte voor de Rivier” for high water protection) underlying the various measures. Such long term planning is virtually absent in Germany. At a smaller scale there is also more need for a plan that integrates all elements of the floodplain including the main channel.
* Too little time: In Germany governmental organisations are structurally understaffed, there is too much workload and therefore little time for interaction with local population. In addition, civil servants and politicians are reluctant to take responsability for ecological measures. There is also a fragmentation of governmental organisations: e.g. little interaction between Land und Bundesregierung
* Fear of excavation: Fear to excavate within the floodplain. In Germany, once polluted sediments are encountered, it has to be cleaned up, causing strong exceedance of the budget. In the Netherlands there is no obligation to remove polluted sediments.

Demands for ship trafficking constrain margins for side channels

**Opportunities**

* Near Salmorth: landesregierung NRW purchased land for nature development causes
* Deichvorland bei Grieth- opportunities for a side channel (presently under study)
* Bienener AltRhein- old riverbranch, at one side connected to the Niederrhein and accessible for fish because a passage was built here. Landesregierung has purchased considerable amount of land for nature development purposes. This may enable ecological flooding

**Interpretation of notes taken in working group Gerben van Geest & Mirrijn van Eik**

**Constraints:**

* Subsidence due to salt mining (up to 1 meter over time scale of several decades – century);
* Construction of breeding grounds for sturgeon (this section of the Rhine in Germany should be the optimal habitat for this species);
* Loss of high dynamic habitats for rheophylic species;
* Disconnection of back waters and main channel, due to river incision and continuous sedimentation of floodplains;
* Discussion about ‘nature conservation’ versus ‘nature development’. Should we fixate ‘transient states’ in nature? E.g. the development of reed beds in Rijnstrangen is a transient state, which will change during succession. Should we preserve this state? Or should succession succeed, and be sure that new reed beds will develop at other locations?
* In Germany ownership of floodplains is a major problem. Only a small proportion of floodplains is owned by nature conservation organisations. Owners are not convinced of measures that create nature;
* Better communication with politics and the community. They should be convinced that nature development is also beneficial for the community.

**Successful measures:**

* In Germany, different measures have been taken to preserve water in the floodplain (to counteract the process of river incision, and associated decline in groundwater table). This measures can only be successful at locations with clayey sediments. When the sediments are sandy or gravel, the porosity of the bottom is too high;
* Millingerwaard: due to differences in laws and regulation between Germany and The Netherlands, it is almost impossible to carry out a project such as in the Millingerwaard (viz. excavation in combination with nature development).
* The planning of projects should also include a learning process with stakeholders. To create a sense of urgency among stakeholders, a ‘general problem’ should be formulated.