

## **Part A: Formal information**

Programme: Rivercare

Project: *[E]Ecosystem services of floodplain rehabilitation*

Project leader: *Rob Leuven*

Subproject: *[E2] Ecosystem services: assessing ecological assets and liabilities of river systems*

Supervisors: *Rob Leuven, Denie Augustijn, Rob Lenders & Ton Breure*

Participant: *Remon Koopman MSc (position PhD)*

Duration: *September 2014 – September 2018*

## **Part B: Research description**

1. What are the focus and added value of this research from both an academic and practical perspective?
    - Quantification of spatial and temporal development of ecosystem services in river-floodplain systems in relation to natural processes and management measures.
    - Delivery of novel and sound indicators, valuation approaches and model tools in BIO-SAFE for quantification of ecosystem services in river-floodplain systems (stand-alone version, including users guide and training programme for potential users).
  
  2. What are the research questions and aim of this research?
    - What are sound indicators to assess ecosystem services of river-floodplain systems at various spatial and temporal scales?
    - How can these indicators be linked to river landscape processes (e.g., vegetation succession) and pattern (e.g. landscape ecological units at various levels of scale)?
    - What are sound approaches to quantify and value these indicators in relation to natural processes, rehabilitation measures and management strategies of river-floodplain systems?
- Aim
- Development of an assessment module in BIO-SAFE to quantify and value the succession of ecosystem services of river-floodplain systems in relation to floodplain rehabilitation and management measures.

3. What is the methodological approach of this research?

- Review of landscape ecological classification systems used worldwide. Identify suitable riverscape classification systems for linking and quantifying spatiotemporal development of ecosystem services in relation to river management .
- Development of an approach to link indicators for ecosystem services, landscape units and rehabilitation measures at various levels of scale.
- Development of an approach to value various types of ecosystem services.
- Quantification of spatial variability and temporal succession of ecosystem services for river-floodplain systems under natural conditions and various management strategies.
- Implementation of indicators and valuation criteria for ecosystem services tools in BIO-SAFE.
- Performing a case study (back casting) to test the ecosystem services tool in BIO-SAFE and optimize it.
- Performing several national and international case studies on quantification and valuation of spatial and temporal succession of ecosystem services in relation to river management measures.

4. What are possible links with other RiverCare projects and research? Is this research depending on results from or cooperation with other projects?

- Mutual attuning of landscape ecological classification system and river landscape succession with project E1 and D3.
- Joint selection case study sites with projects D3, E1, F3 and H (including exchange of data and expertise).
- Attuning indicators and valuation approaches for biomass and exchange of relevant knowledge on governance of ecosystem services with project H2
- Development of longitudinal training dams along the river Waal is a challenging case study for quantification of ecosystem services (exchange of data with projects A1, A2 and F2).