The Interactive Planning and Communication Software

nofdp IDSS

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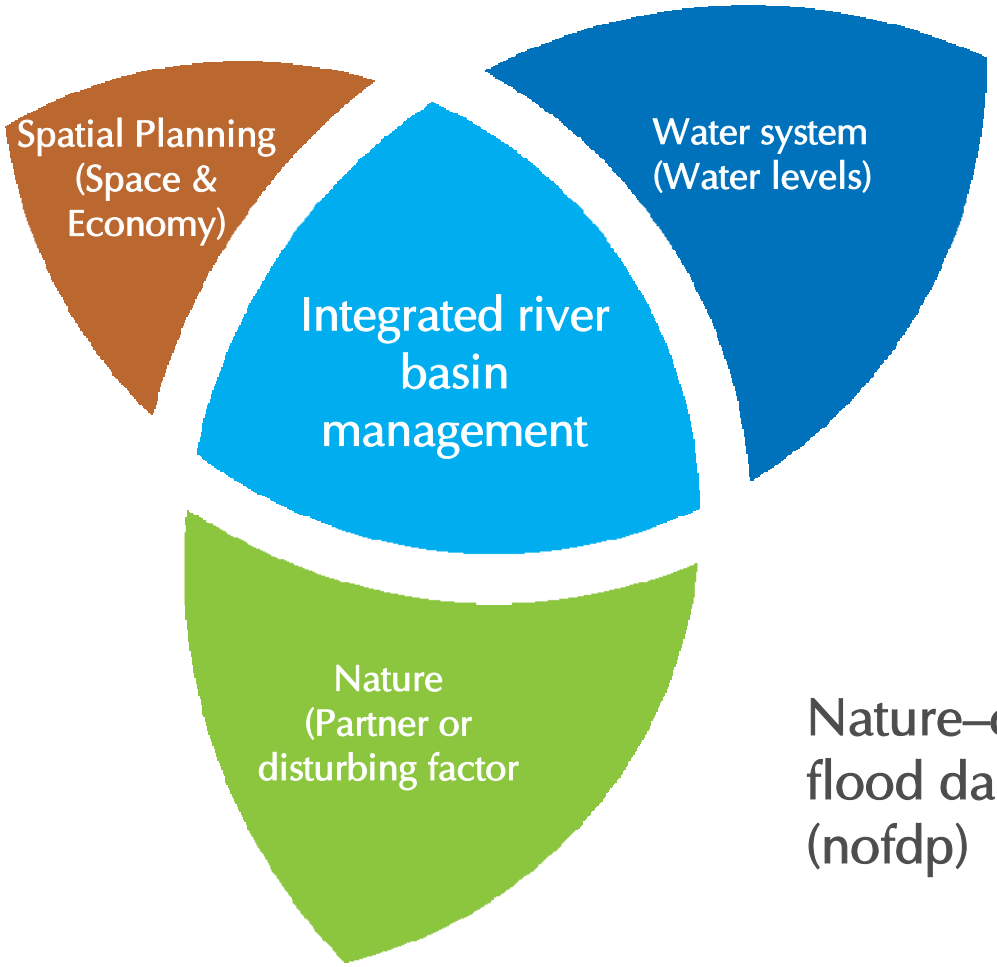
Introduction

Nature – is it a partner or a disturbing factor in flood risk management?

A few examples:

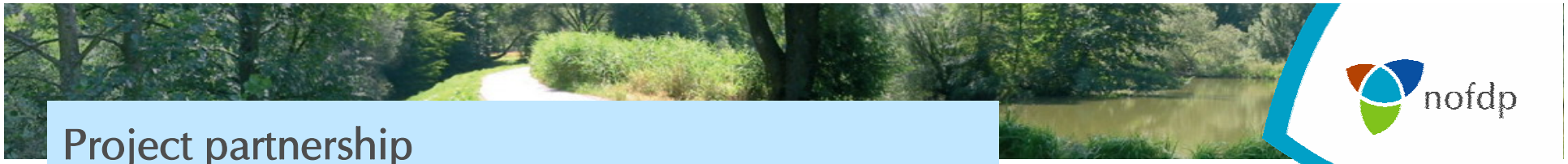
- Technical measures: e.g. Retention basins
- Spatial measures: e.g. Developing or restoring a natural environment on floodplains
- The economic dimension: e.g. removing dikes and use of farmland as retention area

Introduction



Managing a river in a nature-oriented way!

Nature–oriented flood damage prevention (nofdp)



Project partnership

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Hessisches Ministerium
für Umwelt, ländlichen Raum
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Project Coordination

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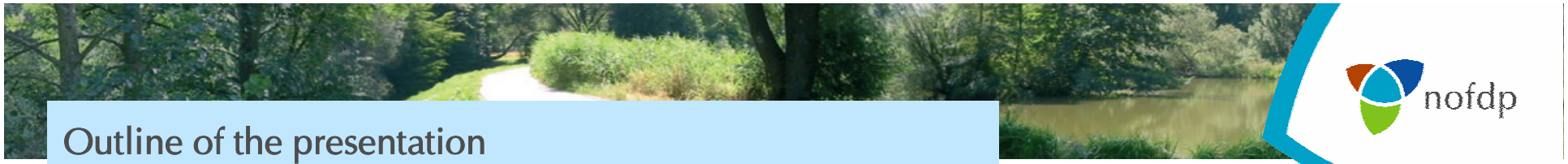
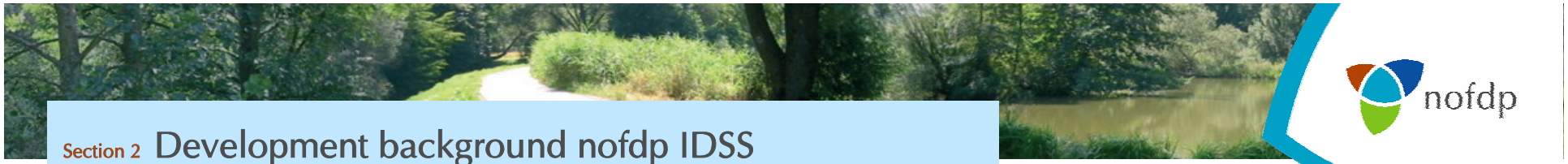


Outline of the presentation

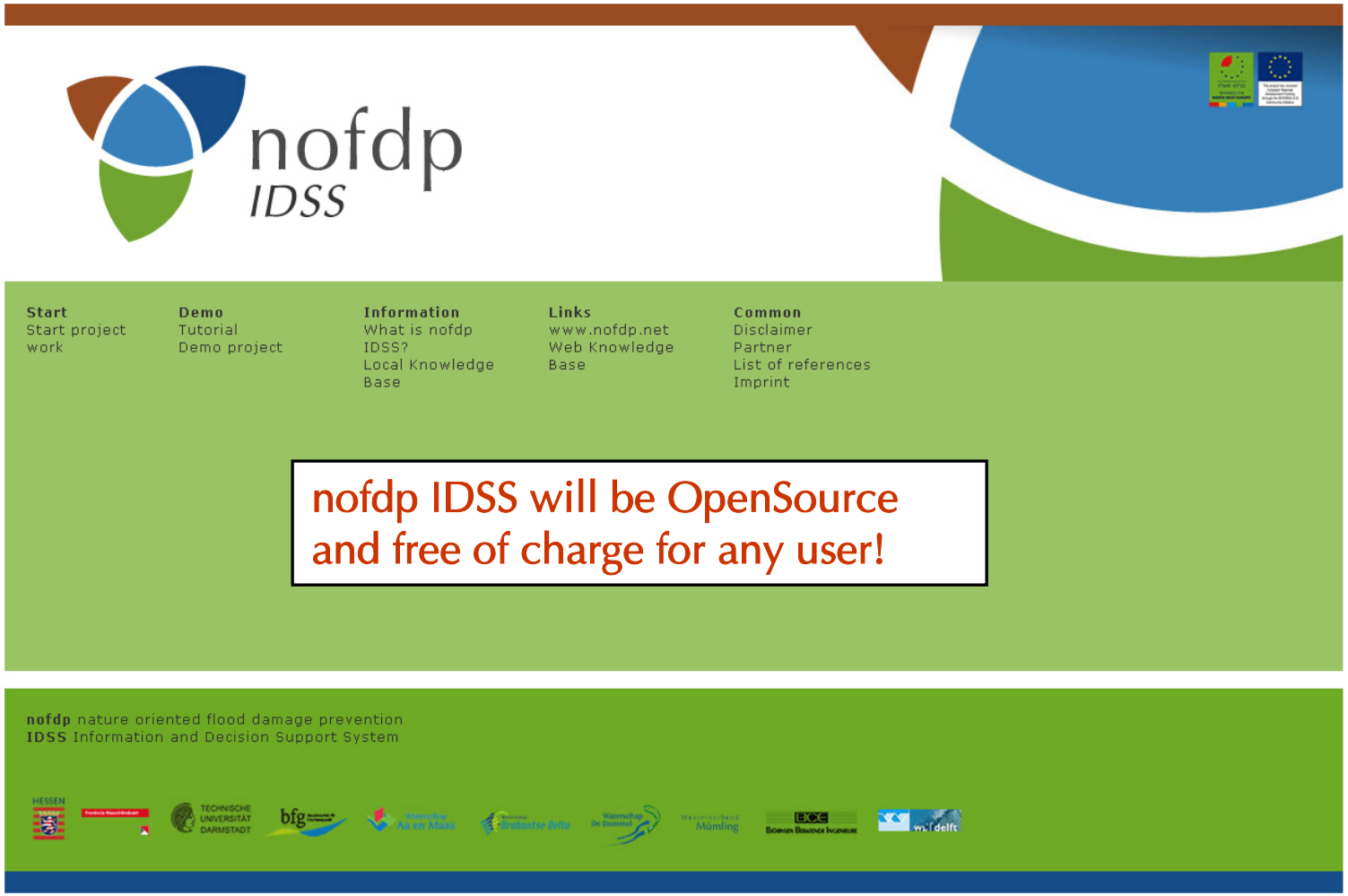
Section 1	Introduction
Section 2	Development background nofdp IDSS
Section 3	Introduction of the nofdp IDSS
	- Section „Interactive Planning“
	- Section „Evaluation“
	- Section „Communication“
Section 4	Conclusions and outlook



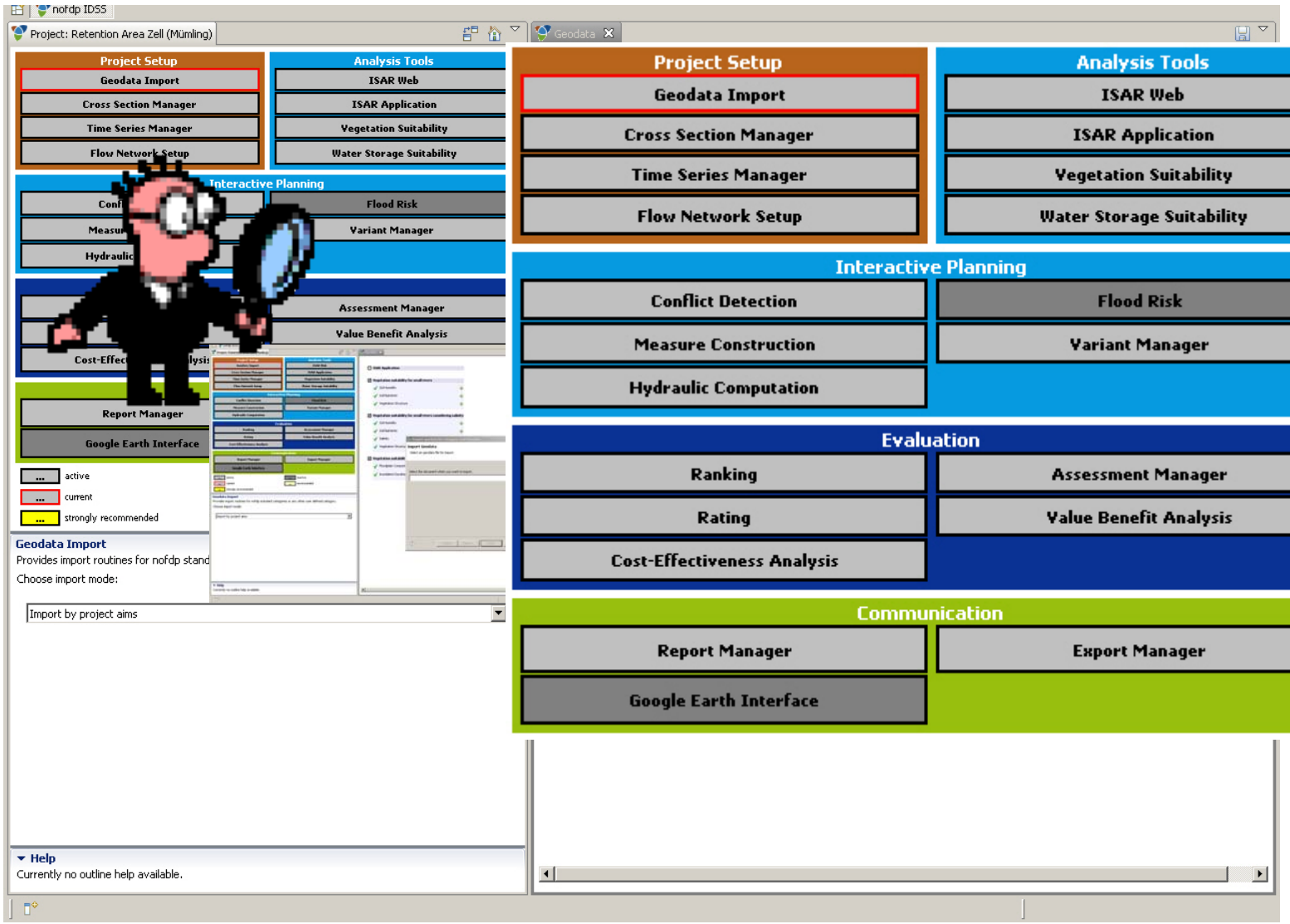
Section 2 Development background nofdp IDSS

- A good plan requires technical information to be embedded into a human context.
- nofdp IDSS is operating in the interface between environmental models and the human dimension.
- nofdp IDSS is not comparable to integrated modelling toolboxes. The nofdp IDSS does not generate technical information, it interacts with relevant data and information.
- A contra-indication of a DSS is a purely technical background of the software based on quantitative models only and solely designed for computing numerical equations and optimisation algorithms.
- Soft functionalities are an important element of the nofdp IDSS. They support interaction, evaluation and communication.
- Added value of using the nofdp IDSS: Arriving at better informed decisions through interaction with relevant data and information.

Introduction to the nofdp IDSS



Introduction to the nofdp IDSS



	Sub-category	Measure
Category 1 Constructive measures	1.1. Flood retention	1.1.1. Polder
		1.1.2. Retarding basin (controlled and uncontrolled)
		1.1.3. Excavation works within floodplains
		1.1.4. Lowering floodplains
	1.2. Hydraulic conveyance capacity	1.2.1. Bank recession and –fill up
		1.2.2. Change of bottom slope or level
		1.2.3. Obstacles and line-structures on floodplains
		1.2.4. Diversion of flood discharge
		1.2.5. Weirs
	1.3. Activation of retention area	1.3.1. Relocation of dykes
		1.3.2. Earth walls in the valley
	1.4. Flood protection	1.4.1. Construction of dykes, increasing dyke height
		1.4.2. Mobile walls for local flood protection
Category 2 Measures of nature conservancy and spatial planning	2.1. Flood retention	2.1.1. Ecological flooding of floodplains and polders
	2.2. Hydraulic conveyance capacity	2.2.1. Establishment of buffer strips with free vegetation succession on river banks
		2.2.2. Meandering of the river course (controlled and uncontrolled)
	2.3. Activation of retention area	2.3.1. Adapted forest management
		2.3.2. Forest development on floodplains (controlled and uncontrolled)
		2.3.3. Adapted cultivation on floodplains
		2.3.4. Zoning plan modifications
	2.4. Flood protection	2.4.1. Urban land use planning -precautionary measures against flood damage

22 typical measures aiming at flood protection, spatial planning and nature development included in the nofdp IDSS

Soft functionality „Conflict Detection“

Conflict Detection

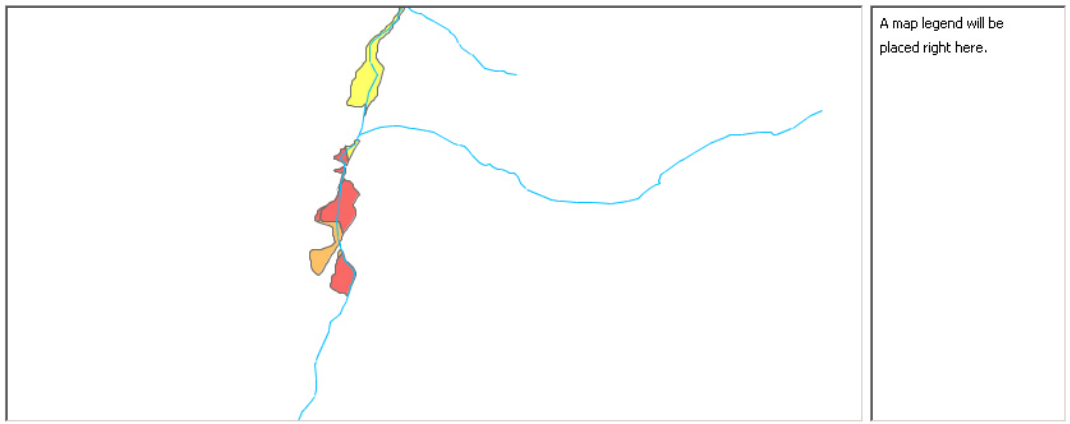
Conflict: CORINE vs. Inundation Area

Table of occuring conflicts:

Landuse (Corine)	Inundation Area	Conflict
Mixed forest	inundated	high
Industrial or commercial units	inundated	high
Coniferous forest	inundated	to be examined...
Land principally occupied by agriculture, wit...	inundated	low
Discontinuous urban fabric	inundated	high
Non-irrigated arable land	inundated	medium
Complex cultivation patterns	inundated	high
Pastures	inundated	to be examined...

Generate conflict map

Conflict map: CORINE vs. Inundation Area

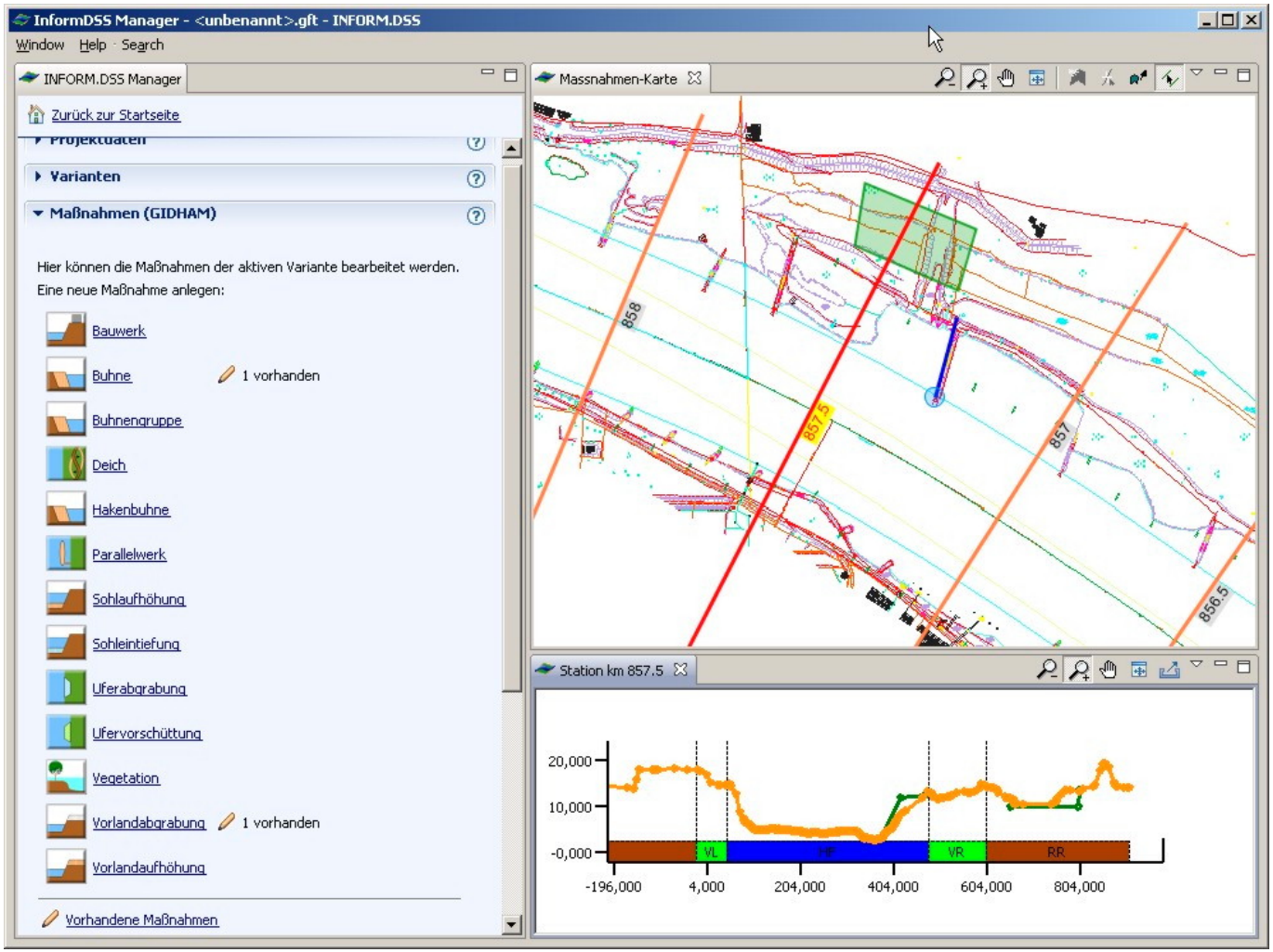


versus „Retention area“

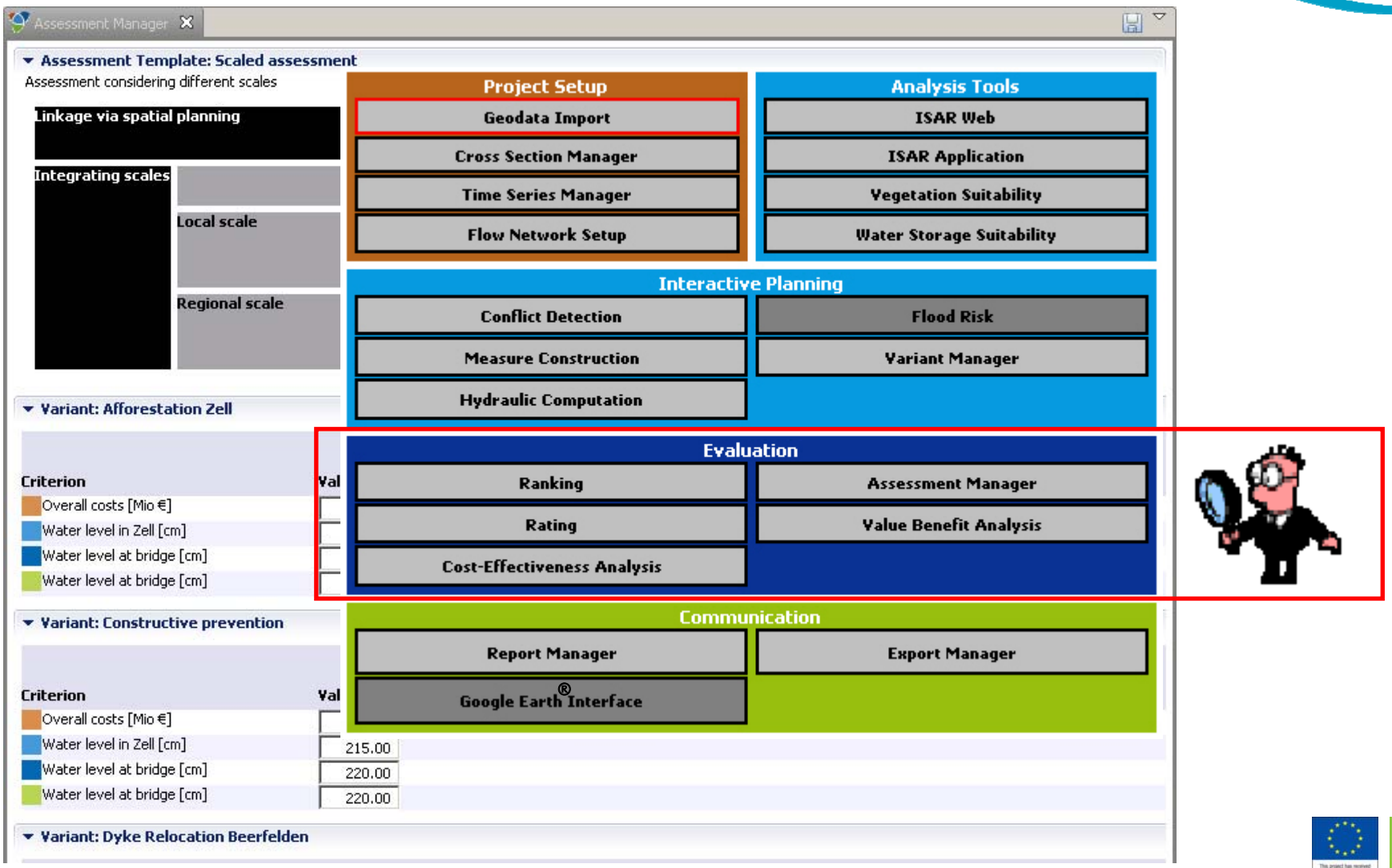
Or

„Buffer strip zone“
versus „Farmland“

Soft functionality „Measure Construction“



Soft functionality „Evaluation“



Soft functionality „Evaluation“ - Rating

Rating

Common rating weights

Water level in Zell 30.00

Reset weights

Variant: Afforestation Zell

Criterion
Water level at bridge [cm]
Overall costs [Mio €]
Water level in Zell [cm]

Variant: Constructive prevention

Criterion
Water level at bridge [cm]
Overall costs [Mio €]
Water level in Zell [cm]

Variant rating list

Points	Variant name
6.30	Afforestation Zell
5.80	Dyke Relocation Beerfelden
4.70	Constructive prevention

Project Setup
- Geodata Import
- Cross Section Manager
- Time Series Manager
- Flow Network Setup

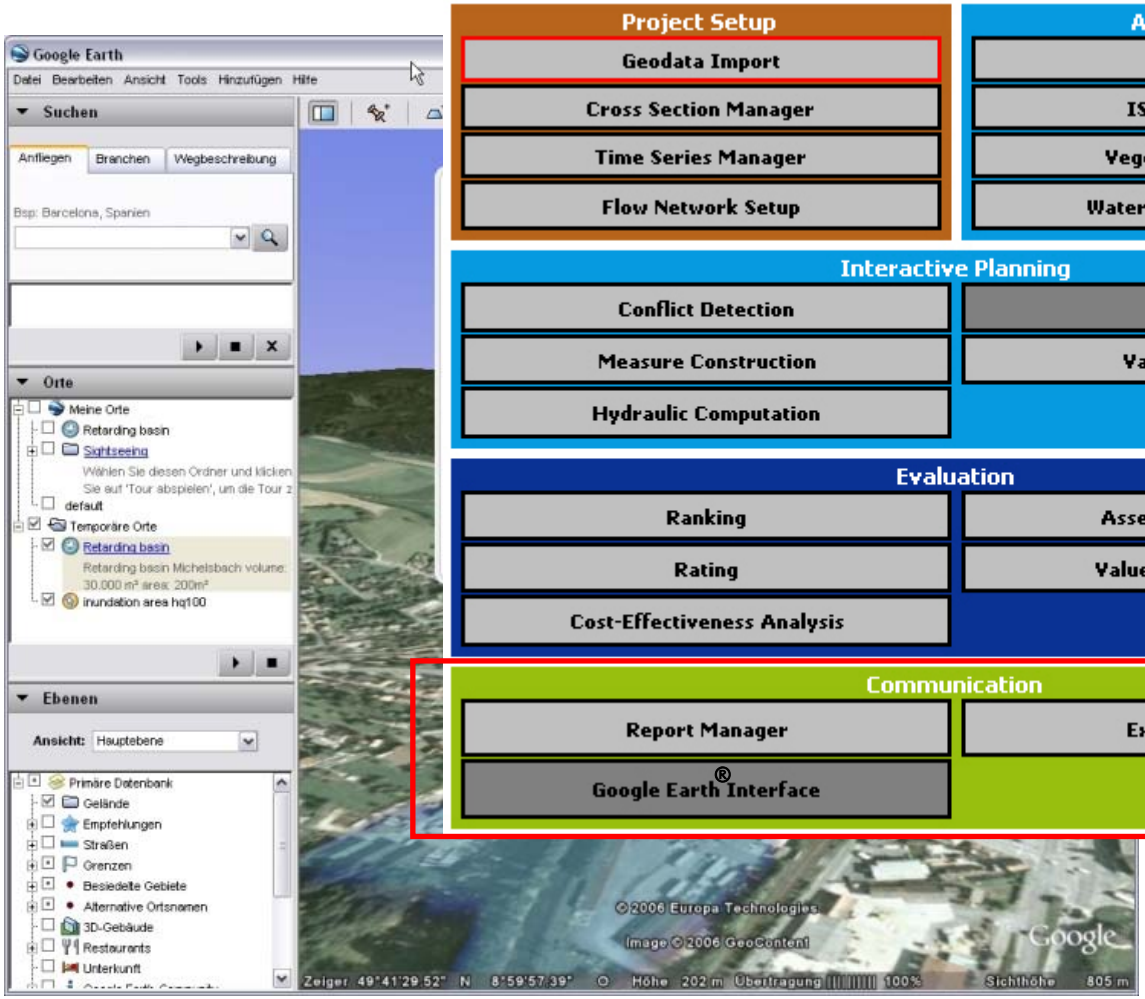
Analysis Tools
- ISAR Web
- ISAR Application
- Vegetation Suitability
- Water Storage Suitability

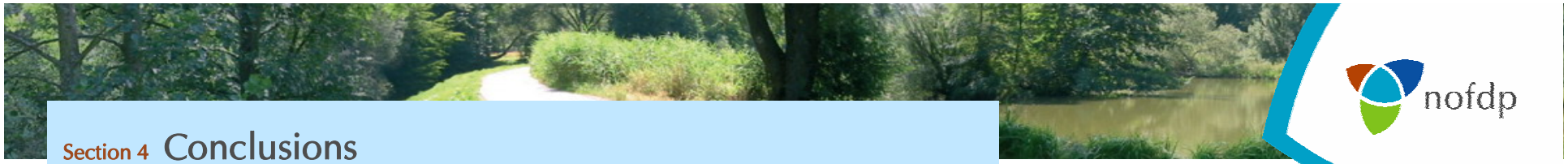
Interactive Planning
- Conflict Detection
- Flood Risk
- Measure Construction
- Variant Manager
- Hydraulic Computation

Evaluation
- Ranking
- Assessment Manager
- Rating
- Value Benefit Analysis
- Cost-Effectiveness Analysis

Communication
- Report Manager
- Export Manager
- Google Earth® Interface

Interface with Google Earth®





Section 4 Conclusions

- IRBM is an ill-defined and iterative process. Environmental models do not cope with the problem framework as a whole.

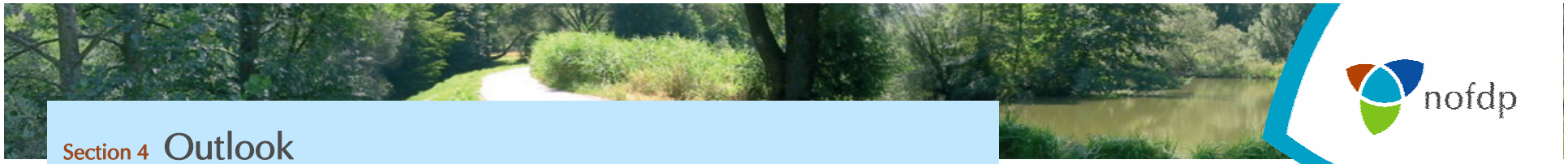
- The nofdp IDSS enables the project manager to bring the results obtained by environmental models into the people's context.

- Soft-functionalities are at the core of the nofdp IDSS. They enable interaction with quantitative data and information.

- Several modules are included in the nofdp IDSS which can feed back proposals and concerns into a software system.

- Spatial issues are the predominent pro and contra argument in FRM used by policy makers and interest groups (e.g. not on my backyard).

- Applying the nofdp IDSS will contribute to a harmonised approach in shaping riverscapes considering both riverine ecology and demands for safe human living conditions.



Section 4 Outlook

- This project has received European Development Funding through the INTERREG IIIB Community initiative. Additionally, the support of the Hessian Ministry of the Environment is gratefully acknowledged.

- The conceptual idea for the nofdp IDSS was developed by the authors of this presentation. The technical implementation of the concept is done by a German / Dutch consortium formed by Björnsen Consulting Engineers & WL | Delft Hydraulics.

- The nofdp IDSS version 1.0 will be released in December 2007. The nofdp IDSS is an OpenSource product and will be free of charge for any user.

- To receive the latest news and a copy of the software you can subscribe to the nofdp IDSS User Community under www.nofdp.net.

- We have a new European project under preparation. Project aim is to disseminate OpenSource Software in the field of IRBM.

Nature-oriented flood damage prevention

planning, evaluation and communication

16 – 18 April 2008,
Darmstadt (near Frankfurt),
Germany

- Presentation of all key deliverables of nofdp
- Key notes by policy makers and experts
- interactive sessions and networking with project managers and policy makers
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