

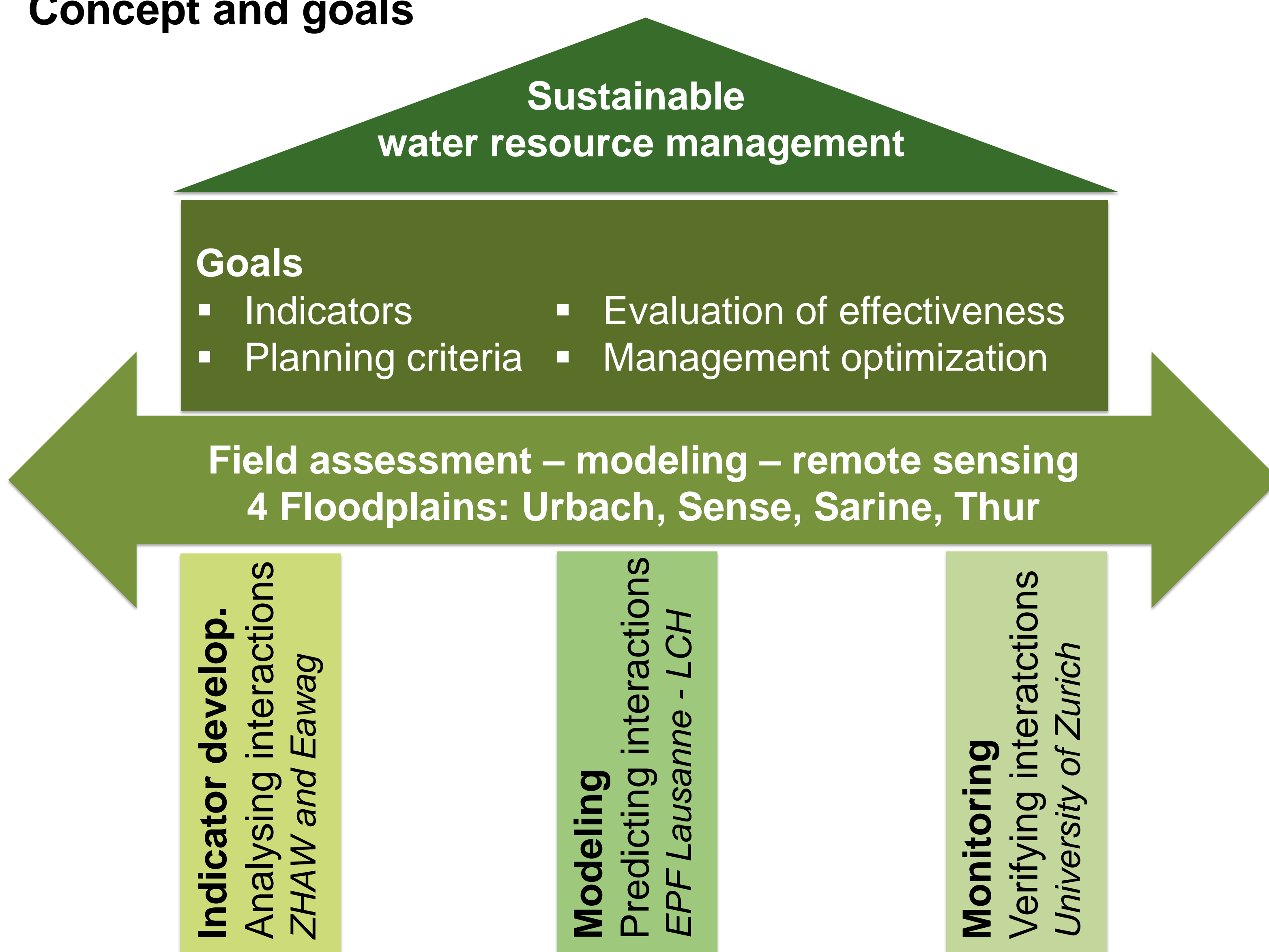
Overview

Introduction

In Switzerland, around 55% of the electricity is produced by hydropower. Hydropower facilities directly influence the natural flow regime, the main driver of environmental complexity in river floodplains (e.g. hydropeaking, water abstraction and sediment retention).

Floodplains cover only 0.26% of Switzerland's territory. However, 10% of the fauna species found in Switzerland live exclusively, 40% regularly and 80% occasionally in floodplains what reflects their importance for Switzerland's biodiversity.

Concept and goals



Overall objective

Providing tools for a sustainable development of hydropower production while optimizing and evaluating ecological floodplain goods and services, and sustaining effective decision-making processes. Four floodplains showing different hydropower and morphological impacts like hydropeaking, residual flow, damming, bedload deficit are subject of this study.

Indicator development

Integrating structural (e.g. hydromorphology, fauna) and functional (e.g. respiration) floodplain properties

Main goals

- Extend existing sets of mainly structural indicators
- Ecological evaluation of (managed) floodplain

Modeling

Predicting changes in structural and functional floodplain properties

Main goals

- Extending ecological significance of structural hydraulic indicators and models
- Evaluation of the ecological potential and impacts of (managed) floodplains at the landscape scale

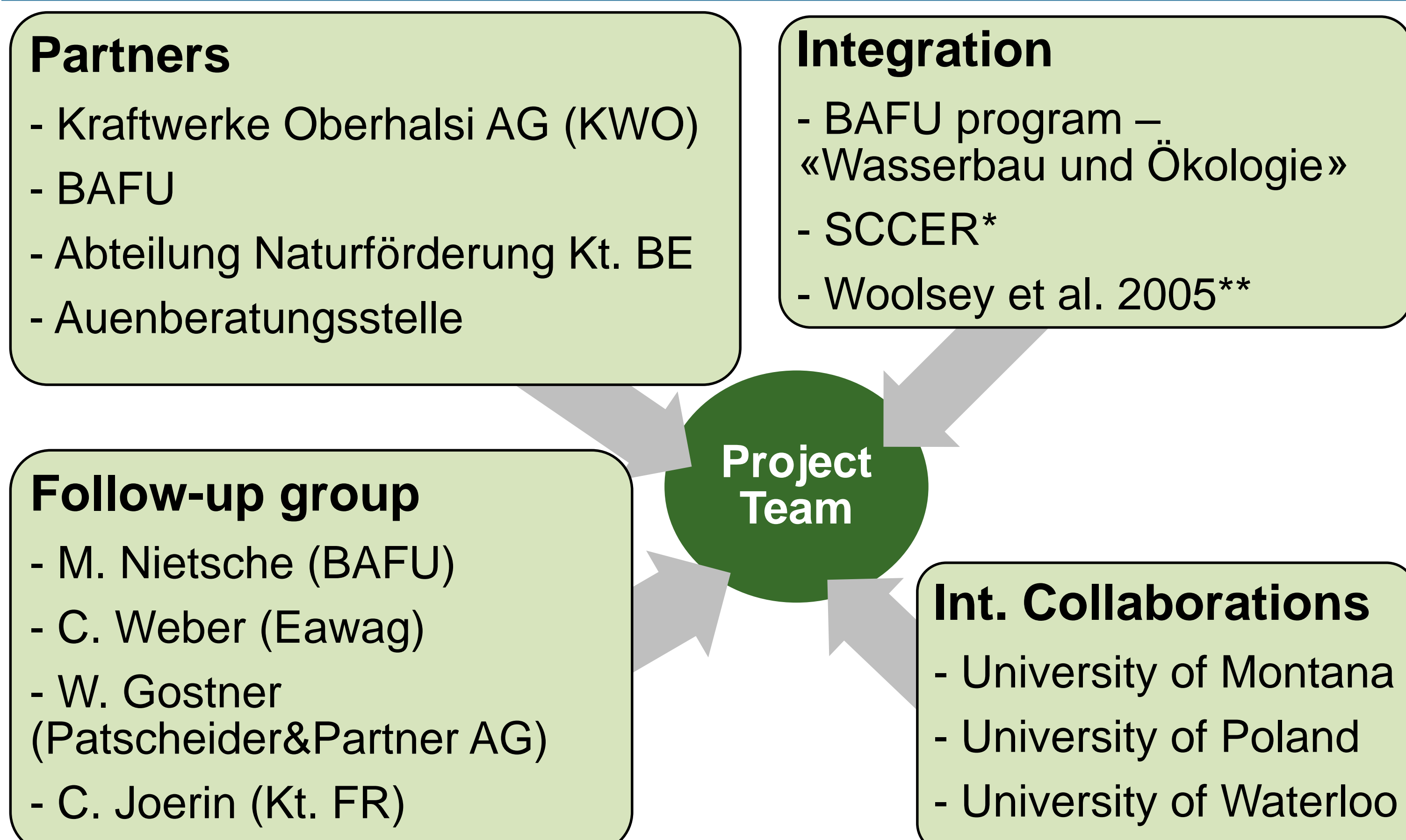
Monitoring

Verifying changes in structural and functional floodplain properties

Main goals

- Effective assessment at the landscape scale
- Model calibration and spatial explicit quantification of indicators

Partners and Collaboration



*SCCER = Swiss Competence Centre of Energy Research

**Handbook for evaluating rehabilitation projects in rivers and streams

Energy Turnaround

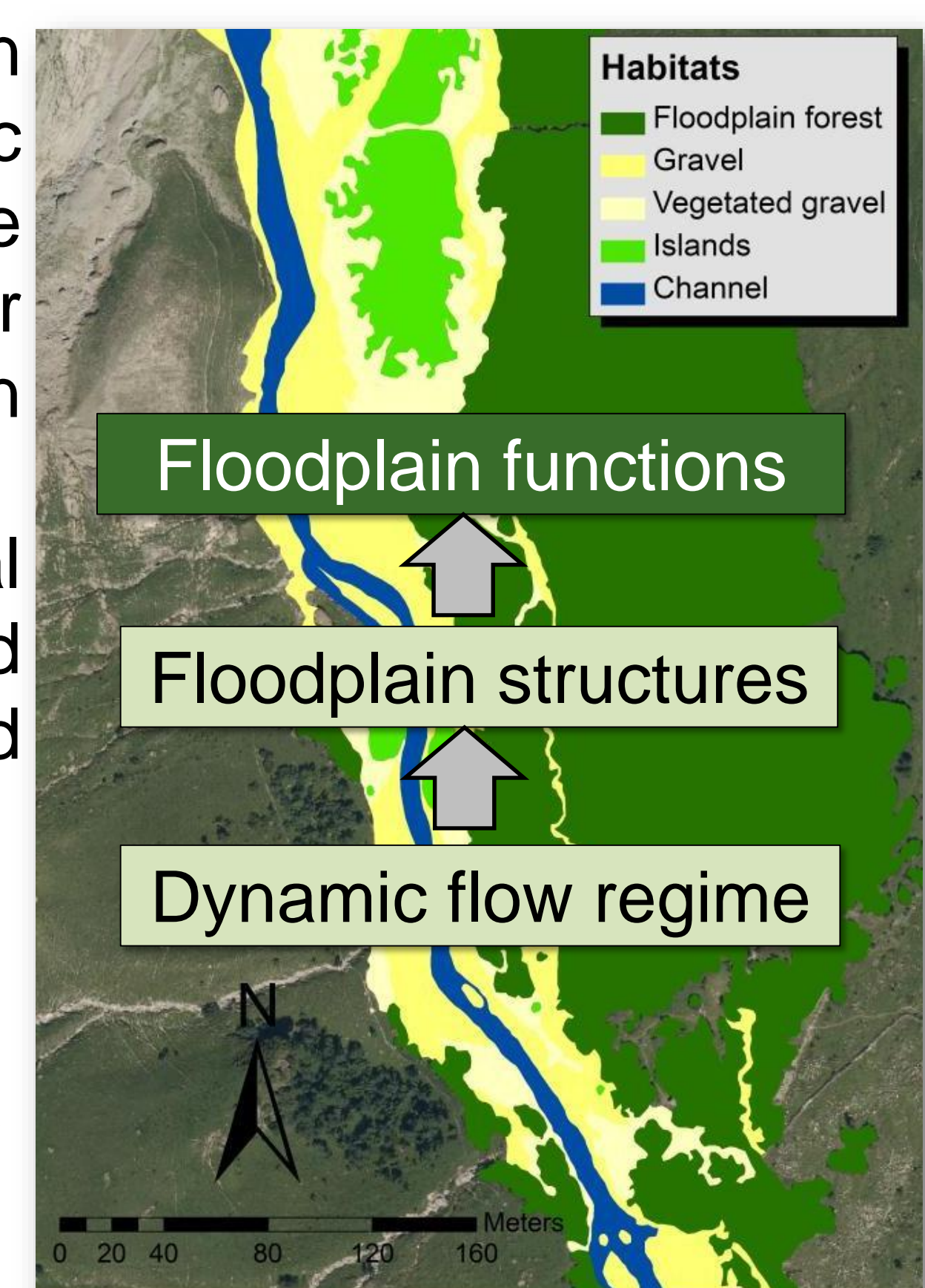
Hydropower management

With increased knowledge of floodplain ecosystem needs and stressor specific indicators, economically feasible managing possibilities of hydropower plants to minimize negative impacts on floodplain shall be developed.

This will improve the environmental sustainability of hydropower plants and increase the acceptance of existing and planned plants within society and politics.

Hydropower
Hydropeaking, water abstraction, sediment retention

Stressors



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