

Adding the resource dimension to the WULCA framework on assessing freshwater use in LCA

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Introduction

Freshwater is a **vital resource**, however its **quantity** and **quality** are under constant pressure.

Few methods have incorporated water resource impacts within impact pathways to the Area of Protection (AoP) natural resources, only addressing selected parts of the resource problem, and thus being insufficiently developed to provide meaningful results.

Existing frameworks on resources agree on the concept of long-term depletion.

Need to develop a freshwater resources framework, in order to:

(1) Define freshwater resources

as an asset to protect within the AoP natural resources

(2) Identify the impact pathways

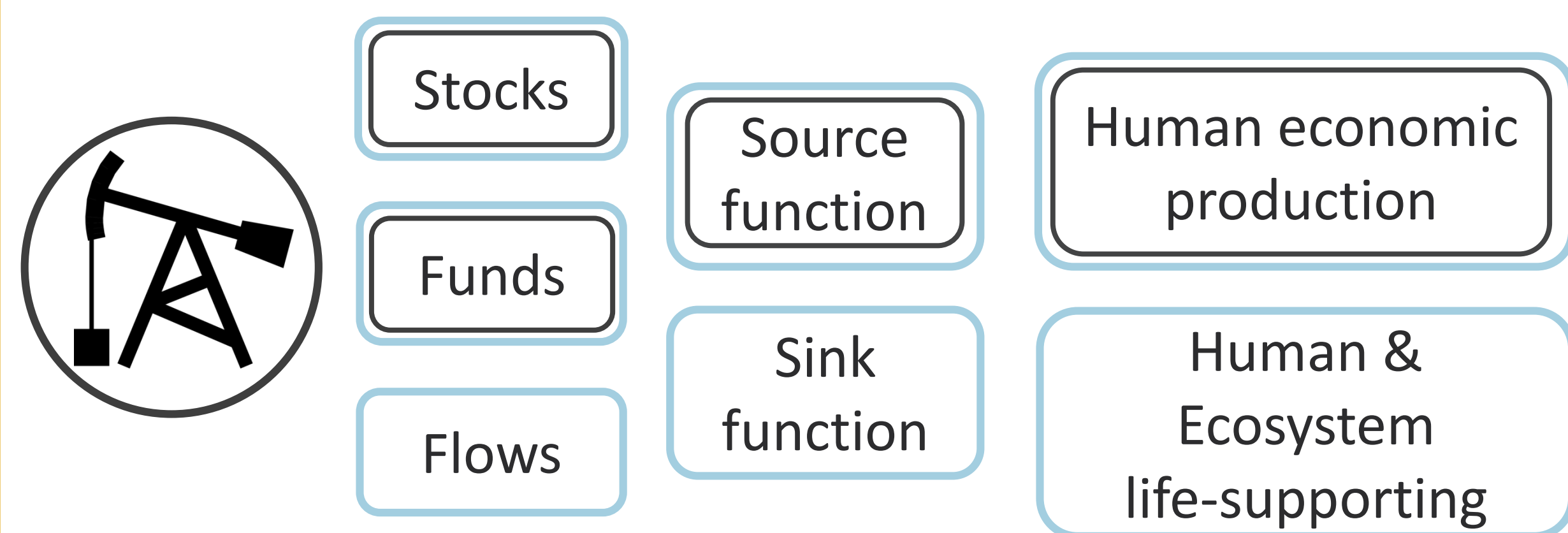
stressors affecting freshwater resources

(3) Define a characterization framework

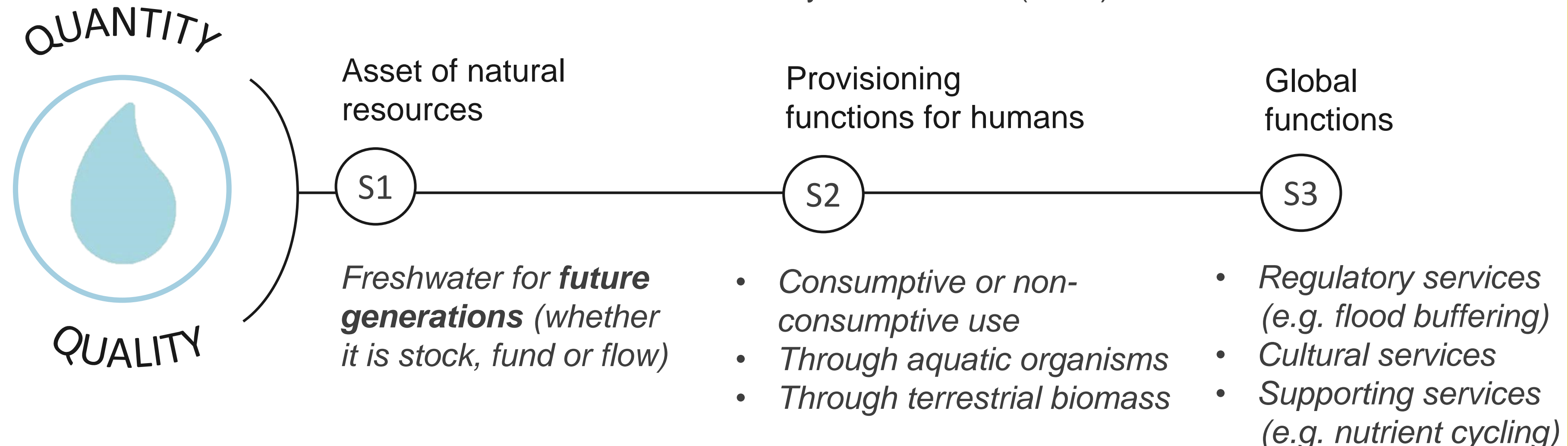
outlining methodological choices for impact characterization model development

1 Freshwater as part of the AoP natural resources

Freshwater: a complex natural resource

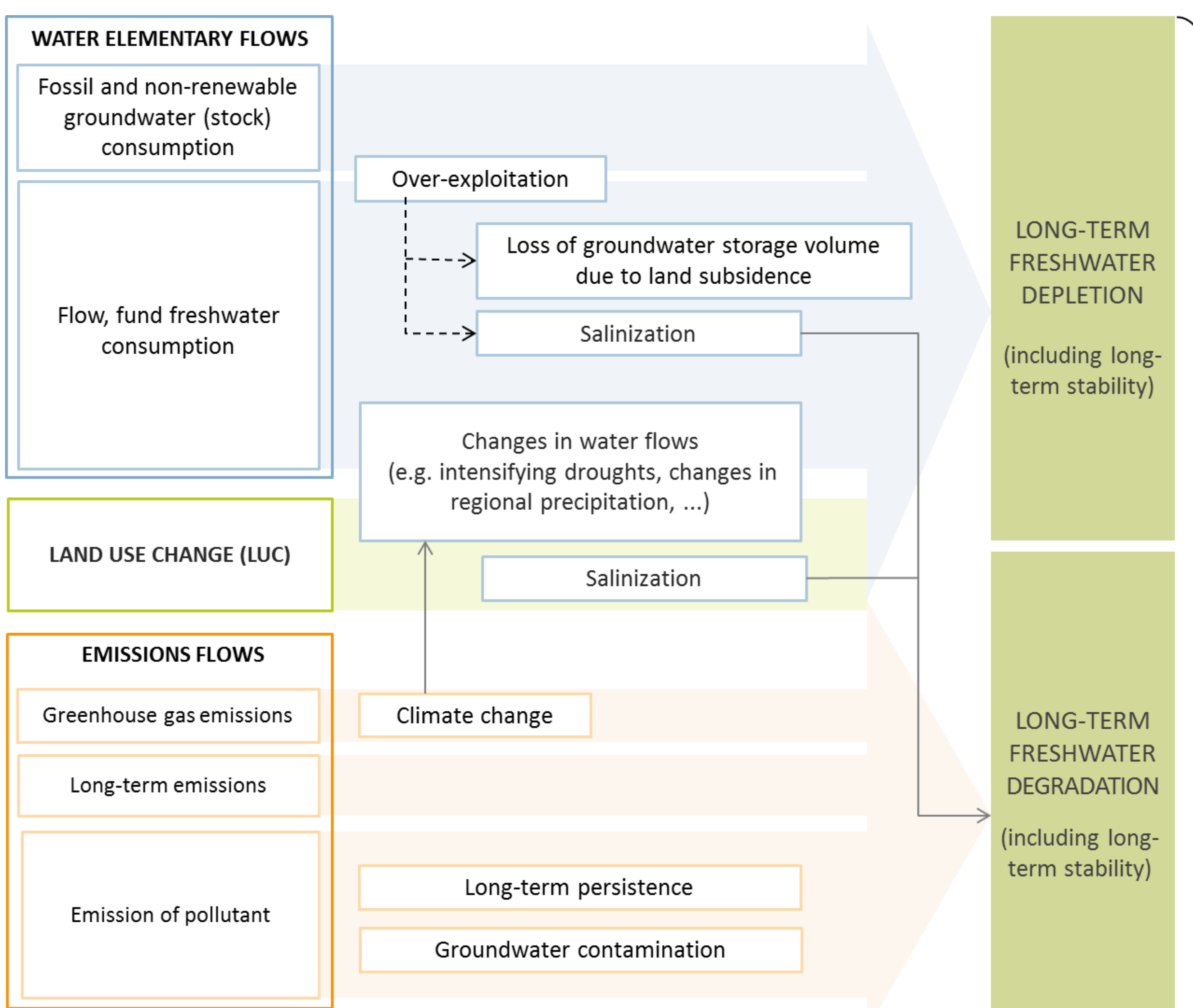


Freshwater resource through the lens of the 3 safeguard subjects (S) defined by Dewulf et al. (2015)



Freshwater is a reservoir (whether it is a **stock**, a **fund** or a **flow**), potentially useful to provisioning functions for **human** users, in the **future**. This may also be linked with other freshwater ecosystem services.

2 Impact pathways



3 Characterization framework

Any changes happening today that reduce freshwater availability or its degree of usability in the future should contribute to freshwater resources impacts.

As soon as the recovery period (duration of water absence or pollution presence) exceeds a given time horizon (to define), impacts fall into the AoP natural resources.

Long-term freshwater pollution and depletion should not contribute to the impacts assessed on the AoP human health; otherwise these environmental issues would be double counted.

Take home message

A framework for consistent development of future LCIA methods for freshwater resources, capturing potential long-term impacts that could transparently warn decision makers about potential safe water supply issues in the future.