

Development of linked frameworks to represent and manage catchment-scale contaminant transport for improved water quality outcomes

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Achieving water quality values

Requires managing multiple contaminants

Few existing models contain all 4 major contaminants

- N, P, Sediment, *E. coli*

Recognise and provide for cultural interests

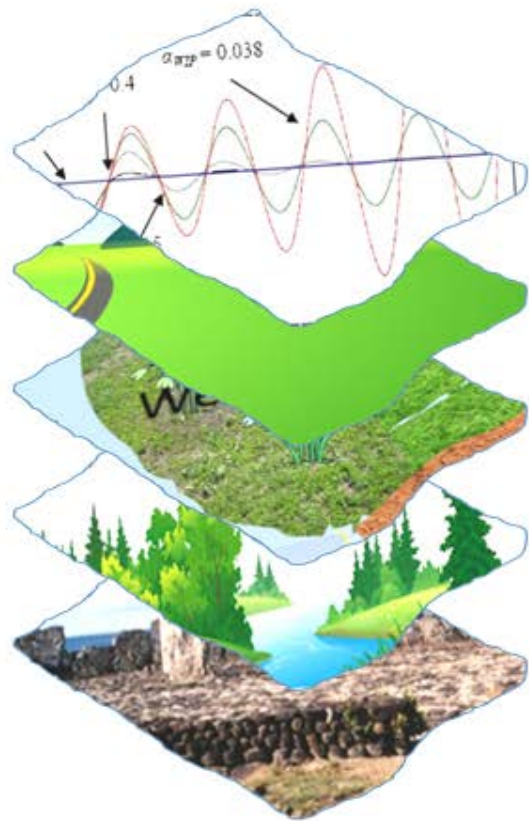
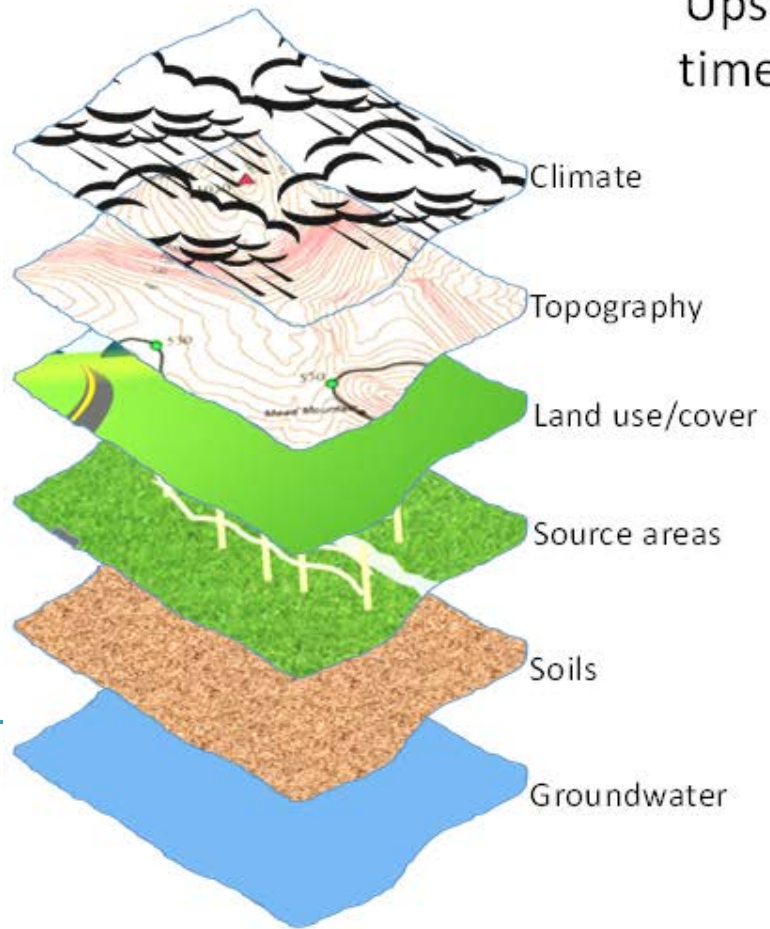
a huge amount of work done

need to model this knowledge

Recognise and provide for cultural interests

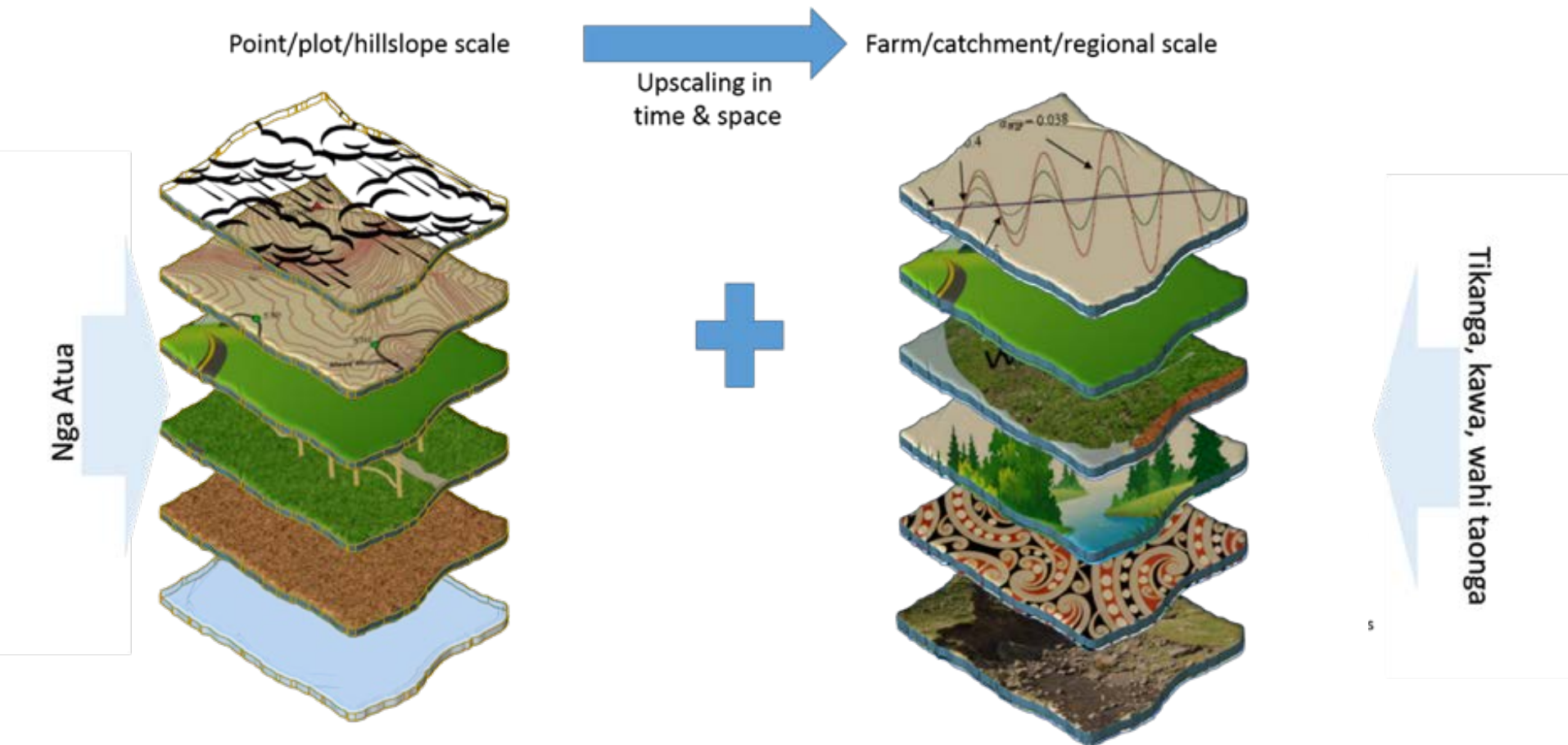
Point/plot/hillslope scale  Farm/catchment/regional scale

Upscaling in time & space

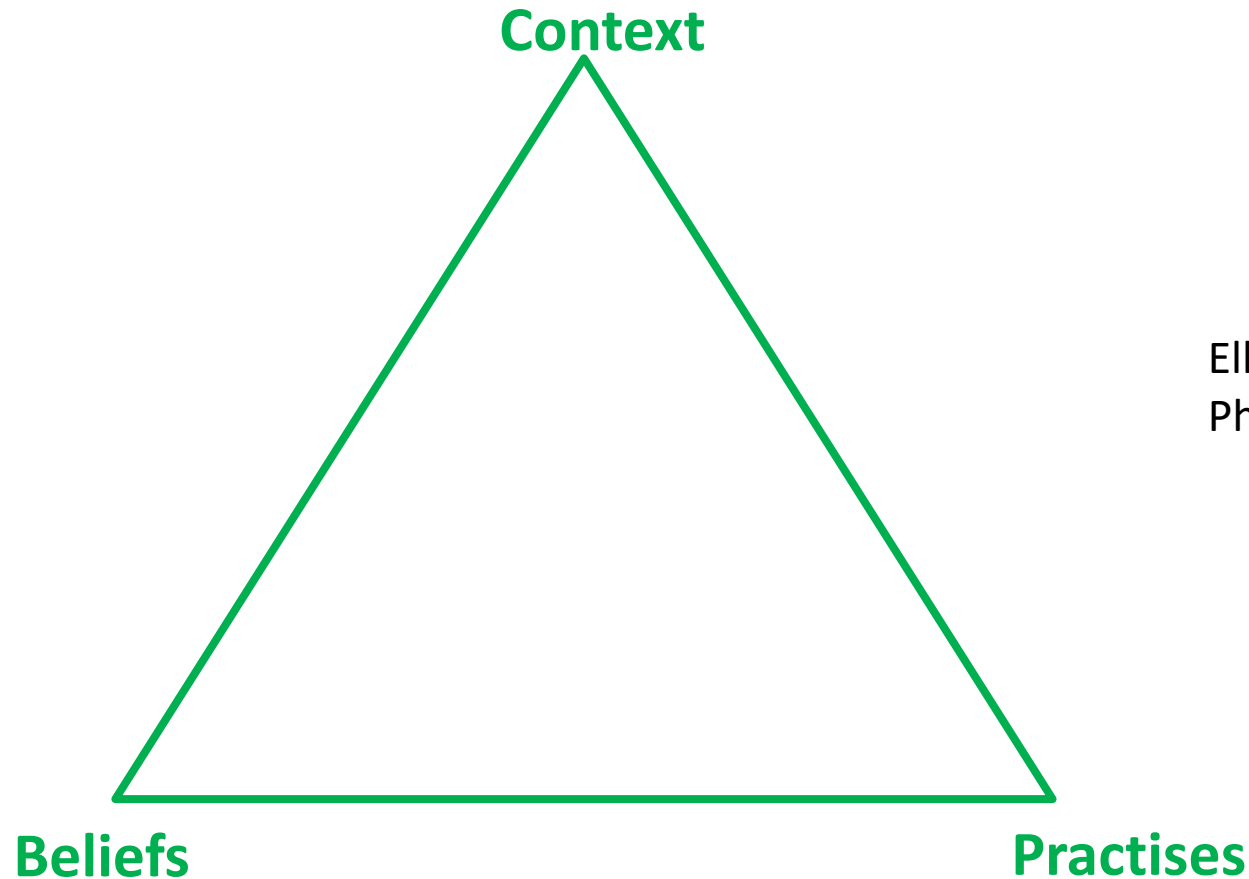


Time lag & attenuation
Topography & topology
Land management
In-stream processes
Culturally-sensitive areas
Transport areas

Recognise and provide for Māori interests

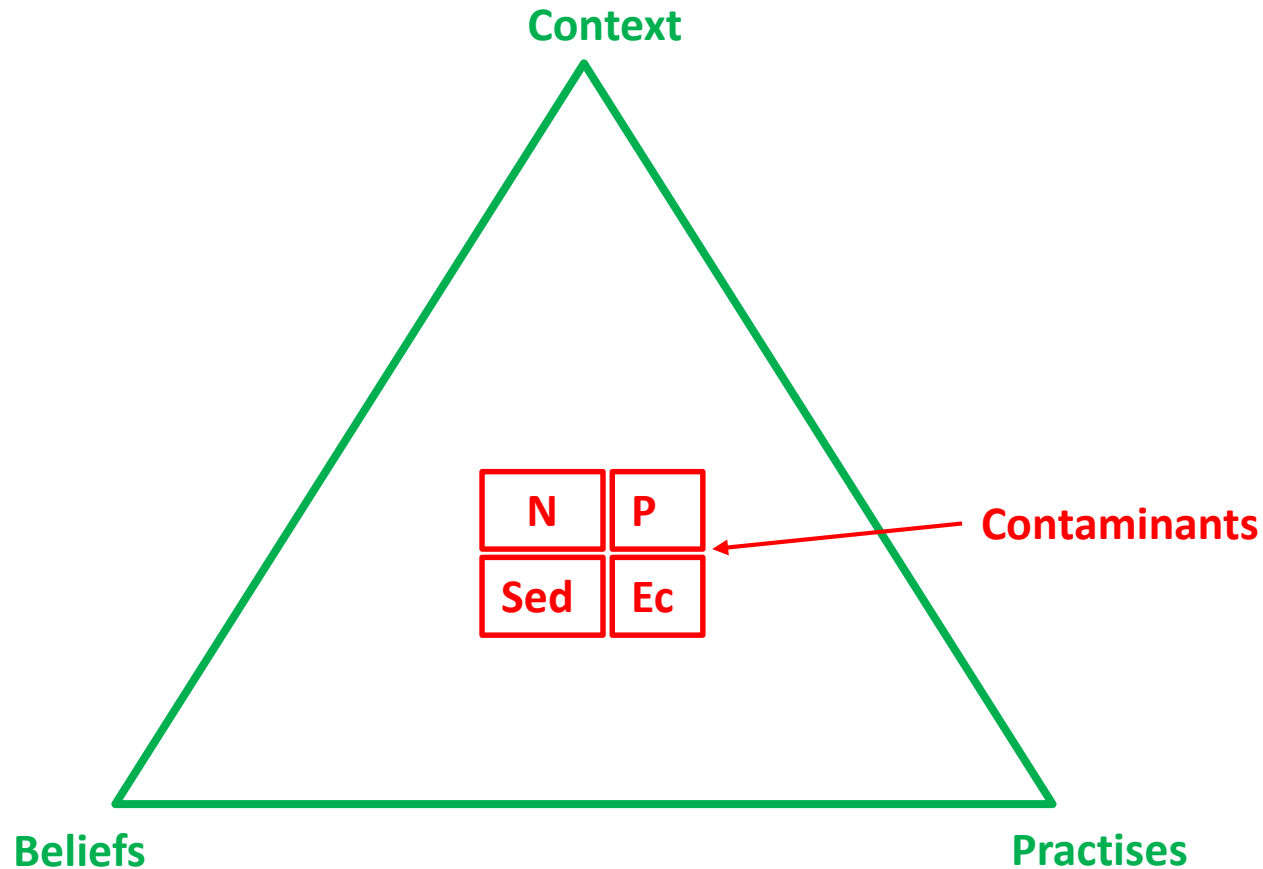


Everything has a cultural context

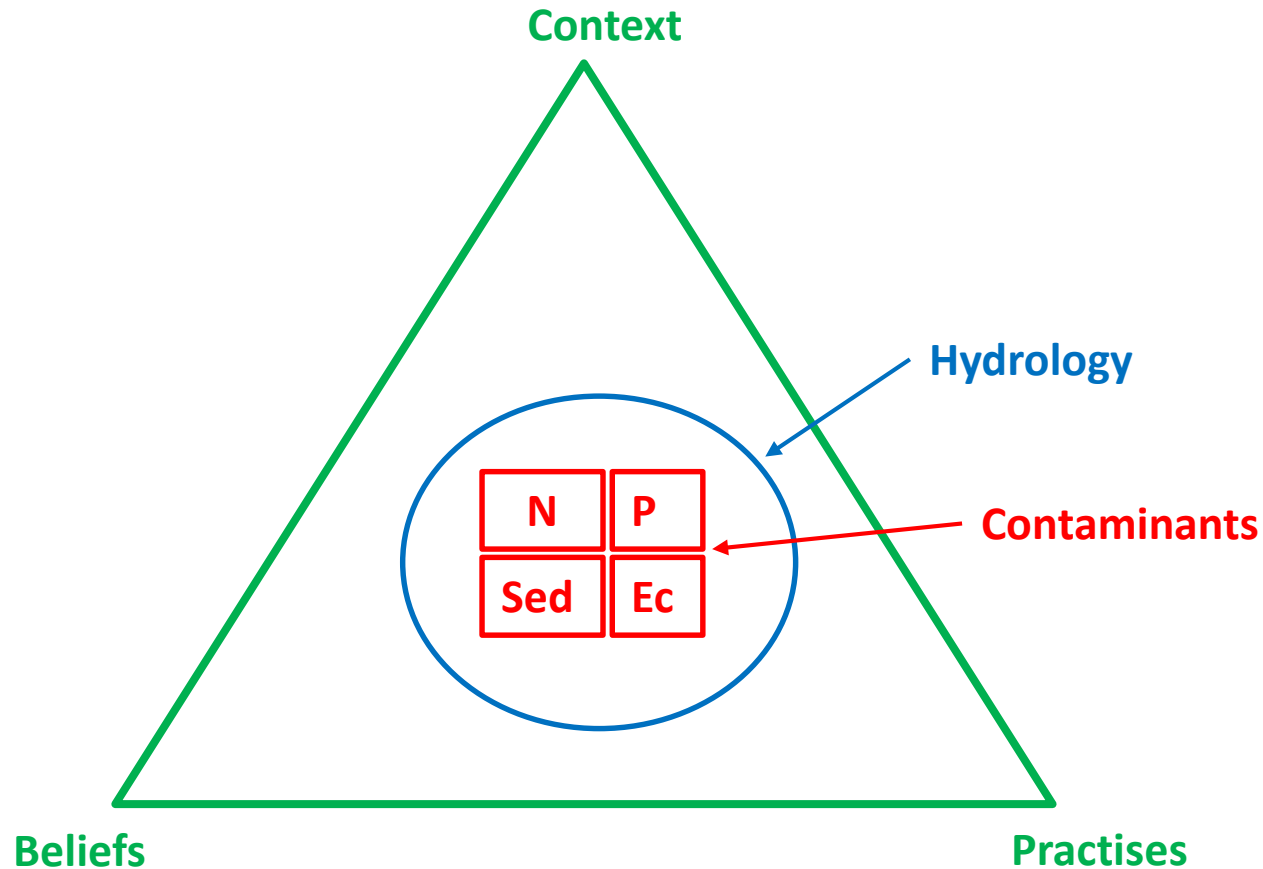


Ellen Woodley
PhD Thesis 2002

Everything has a cultural context



Everything has a cultural context

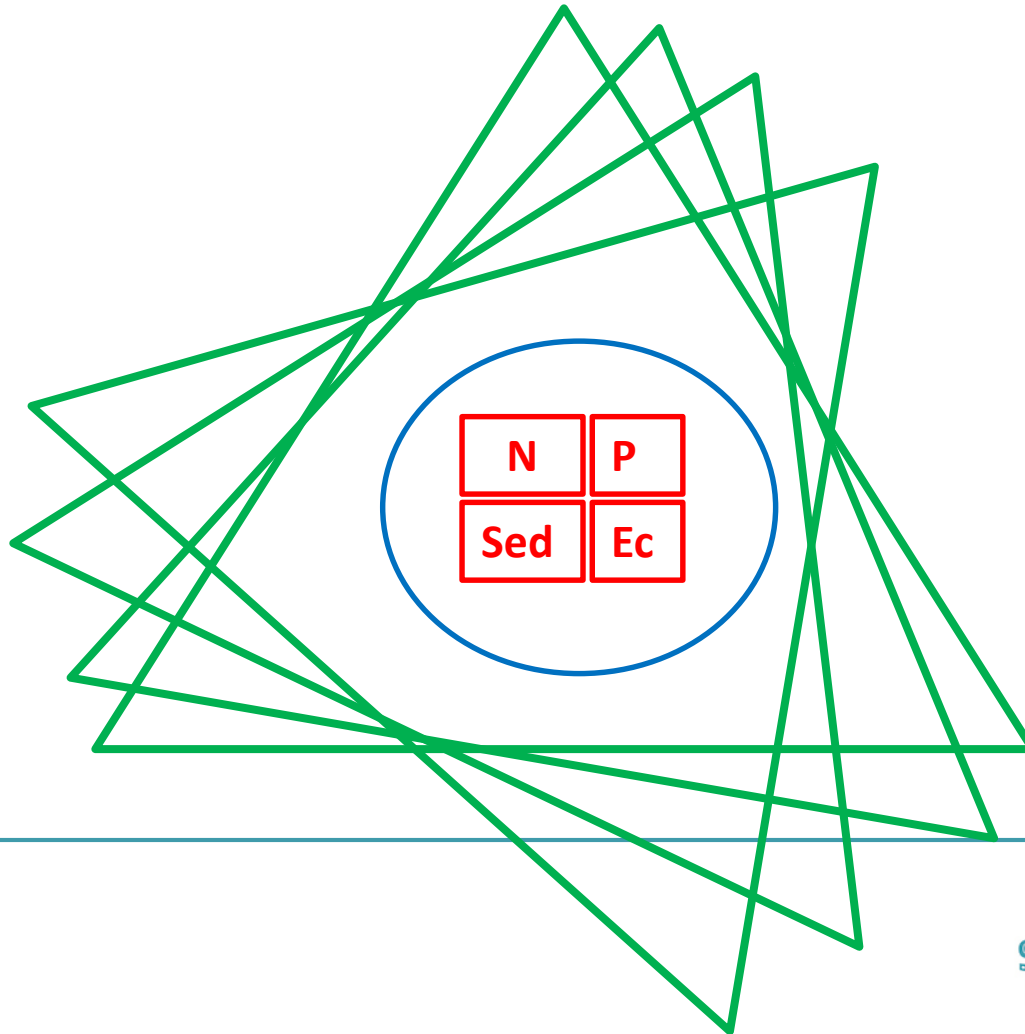


Hydrology is very important

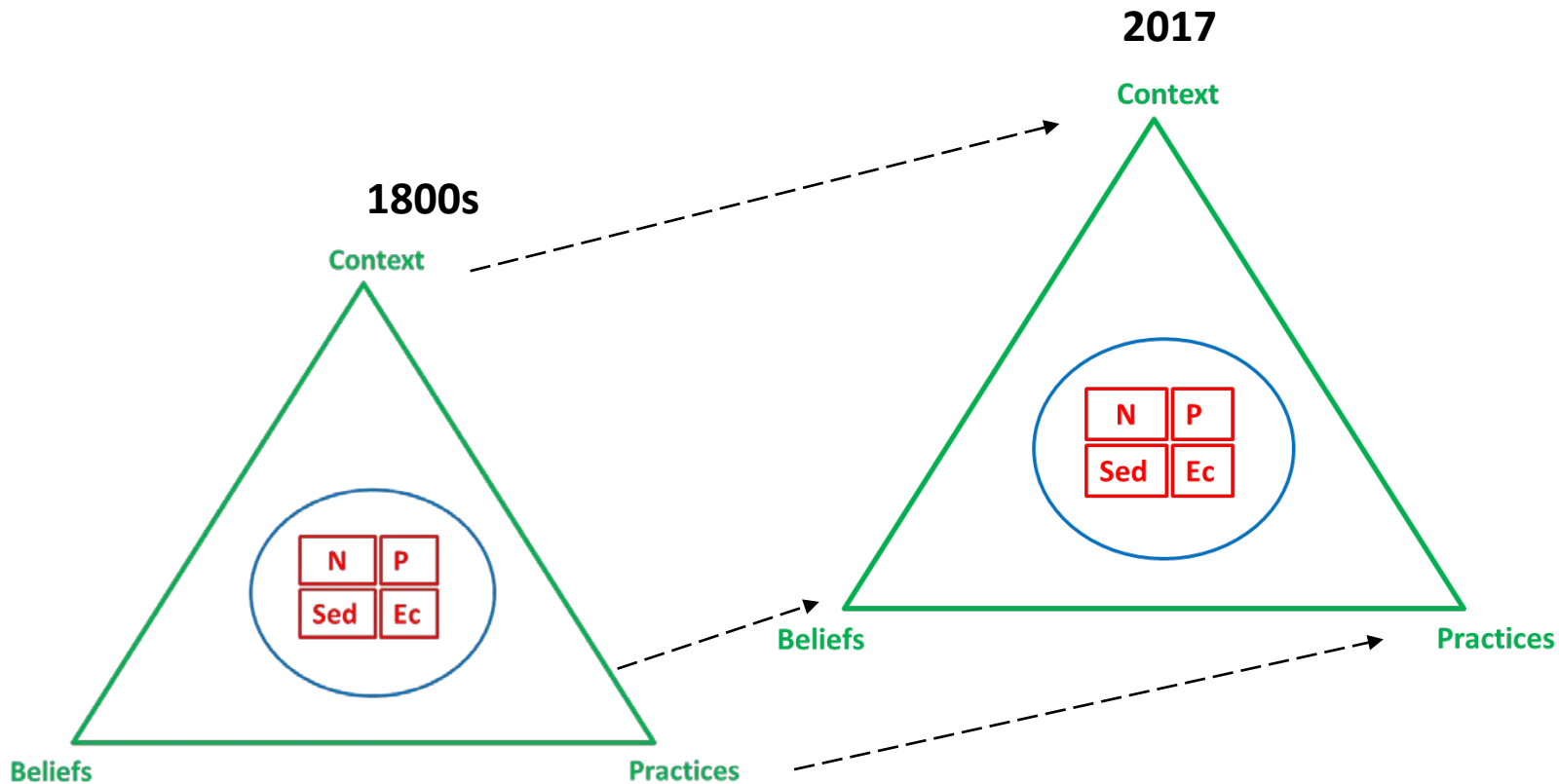
NZ Landscapes are highly modified

- Land cover
- Hydro-Electricity
- Irrigation
- Loss of Wetlands
- Soil drainage
- River straightening
 - Including flood control
- Habitat

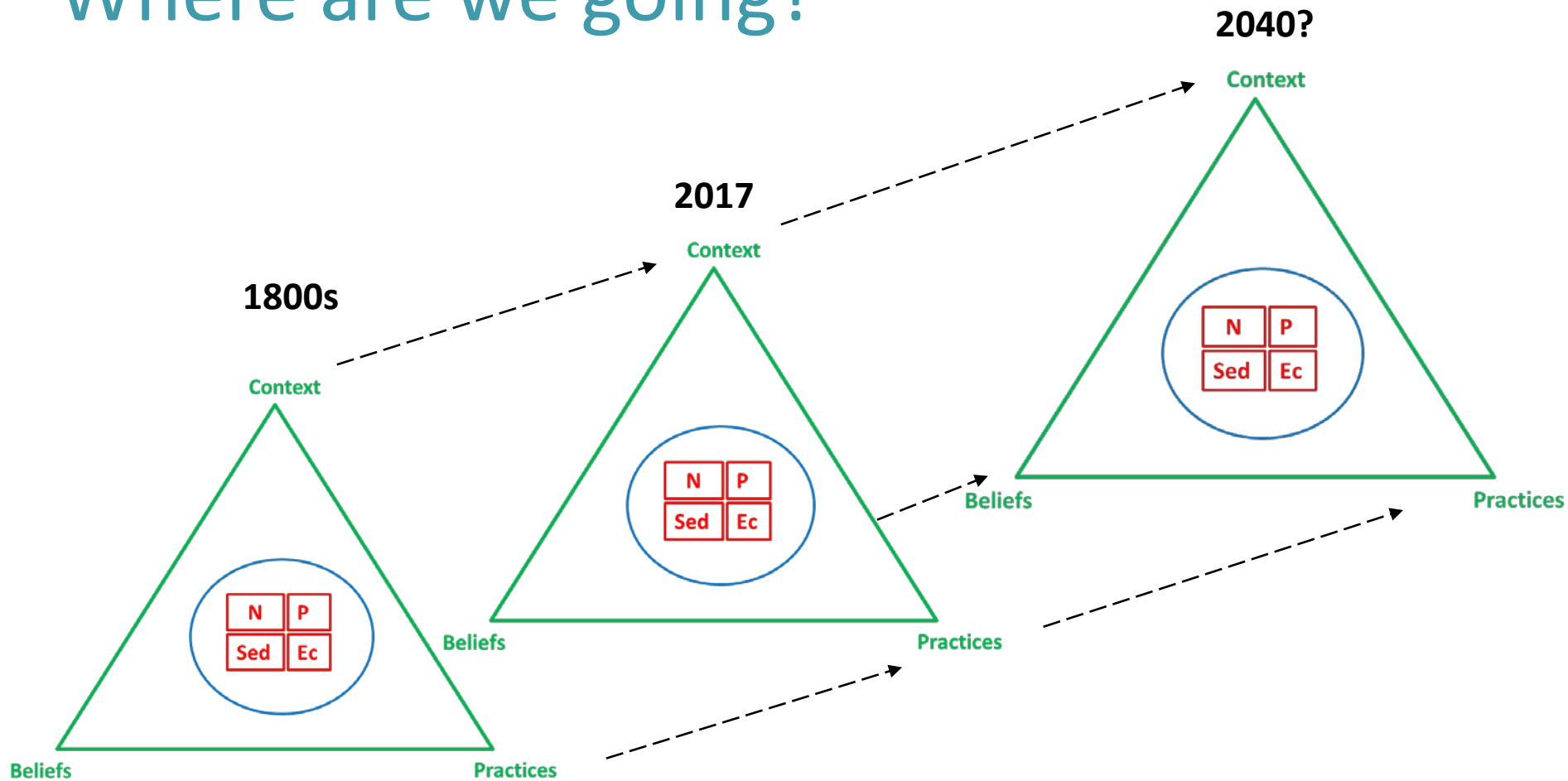
Multiple cultural contexts



Temporal effects on cultural context



Where are we going?



Framework Summary

We need to manage/understand multiple contaminants and hydrology to achieve desired values

- Reduce the complexity
- Brings communities together
- Share all cultural knowledge

Flexibility is important/needed to understand the future context

Co-development of framework is needed

