LOSS
Living on Soft Soils
Subsidence & Society

NWA LOSS

POSSIBLE FUTURES WHEN LIVING ON SOFT SOILS

WHAT FUTURES ARE PLAUSIBLE AND WHICH ONES ARE DESIRABLE?

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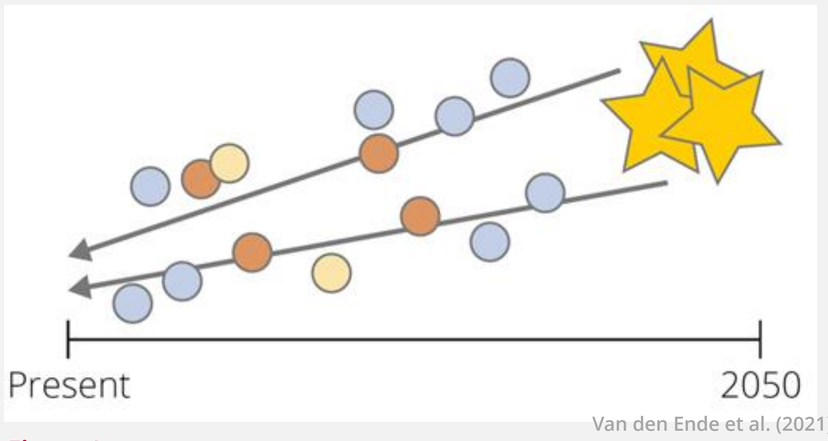
WHY LOSS USES FUTURES

The backcasting approach aims at describing a desirable future, and then looking back from that future to the present to develop a pathway of actions needed to realize this future (Höjer and Mattsson, 2000; Lovins, 1976; Quist and Vergragt, 2006).

BACKCASTING – WHY IN LOSS?

LOSS develops a broad spectrum of knowledge. All this knowledge needs to be integrated. Identifying pathways gives the bases to calculate the effects of choices in the pathways, with the knowledge developed in LOSS ((model) results of the effects of different measures). And by 'walking' the pathways governance possibilities and restrains are made visible.

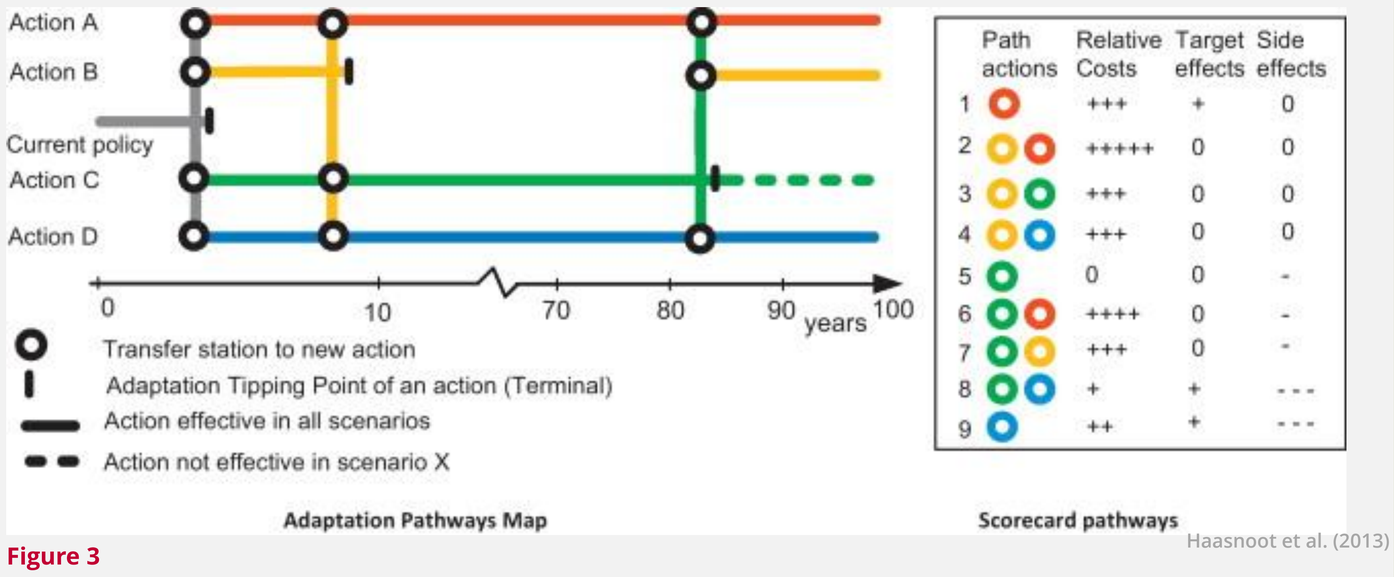
The pathways show what needs to be done (technical measures and governance decisions/ choices) to realize a desired future. LOSS wants to support informed decision making by making effects of choices insightful. Using this method, state of the art knowledge is presented in a clear and simple manner.



Van den Ende et al. (2021)

Figure 1

The first step is to vision the desired future(s). For LOSS we use 2050 as the target year. The following step is to identify pathways in order to realize the futures. There are multiple possible pathways per future.



Haasnoot et al. (2013)

Figure 3

This figure shows an example of a possible Pathways and how to adapt from one to another.

THE 5 FUTURES FOR NWA-LOSS

In collaboration with its stakeholders, LOSS worked out 5 different futures. The futures are based on extreme situations and current social developments.
The next step is to identify the possible pathways per future, by using (model) results of the effects of different measures. This results in the 'technical' pathways. The impact of and from policy, legislation, regulations and additional effects (e.g. nitrogen targets) are analysed based on the identified pathways and most probably will make certain pathways impossible or undesirable.
Urban and rural areas are differently managed, mainly because the causes of land subsidence differ.

FUTURE 'NO INTERVENTION'

- Policy and practices remain unchanged.
- The estimated land subsidence varies from 7 mm/year up to 25 mm/year, spatially differentiated due to differences in e.g. subsoil and water management.
- Climate agreement goals are not achieved.
- Adaptation still requires policy development and substantial resources and investments.

FUTURE 'AVOID AS MUCH DAMAGE AS POSSIBLE' (to buildings, infrastructure and public space)

- Prevent or quickly restore land subsidence induced damages.
- Government sets mm/year subsidence target to minimize damage.
- Because damages mainly occur to buildings, infrastructure and public space, this future focusses mainly on the urban area.
- Technically almost anything is possible, but for the plausibility extreme cost and willingness to bear these costs are a limiting factor.

FUTURE 'MAXIMUM LAND SUBSIDENCE OF 3 MM/YEAR' (RLI ADVISE 2020)

- Reduce land subsidence to maximum 3 mm/year. Targets are set on the average over several years: maximum 84 mm in 2050 (relative to 2022).
- In existing urban areas maintenance and construction of public spaces and infrastructure must be adjusted.
- In new urban areas the site preparation and construction choices will prevent land subsidence in general.
- In rural areas subsidence must halved at least in most areas, land use must change accordingly ('niet alles kan overal').

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HOW DO WE GET THERE?

FUTURE 'CLIMATE NEUTRAL' (CLIMATE AGREEMENT GOALS)

- Climate agreement goals (klimaatakkoord): 1 mton CO2-eq. reduction in 2030, climate neutral in 2050.
- This future only applies to rural areas.
- This may mean: 3-4 mm/year in Friesland, 1 mm/year in Overijssel and 2-3 mm/year in West Netherlands.
- Other social issues, such as nitrogen and biodiversity, will most probably benefit from the measures taken in this future and vice versa.

FUTURE 'NO HUMAN INDUCED LAND SUBSIDENCE'

- No human induced land subsidence is allowed (0 mm/year).
- In rural areas the change in land use will be absolute, current agricultural practice is no longer possible.
- Existing urban areas cause soil compression, all actions are taken to approach 0 mm/year.
- New urban areas will be developed land subsidence proof.

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References

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