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Climate-proof Groningen: A combinatory of mapping

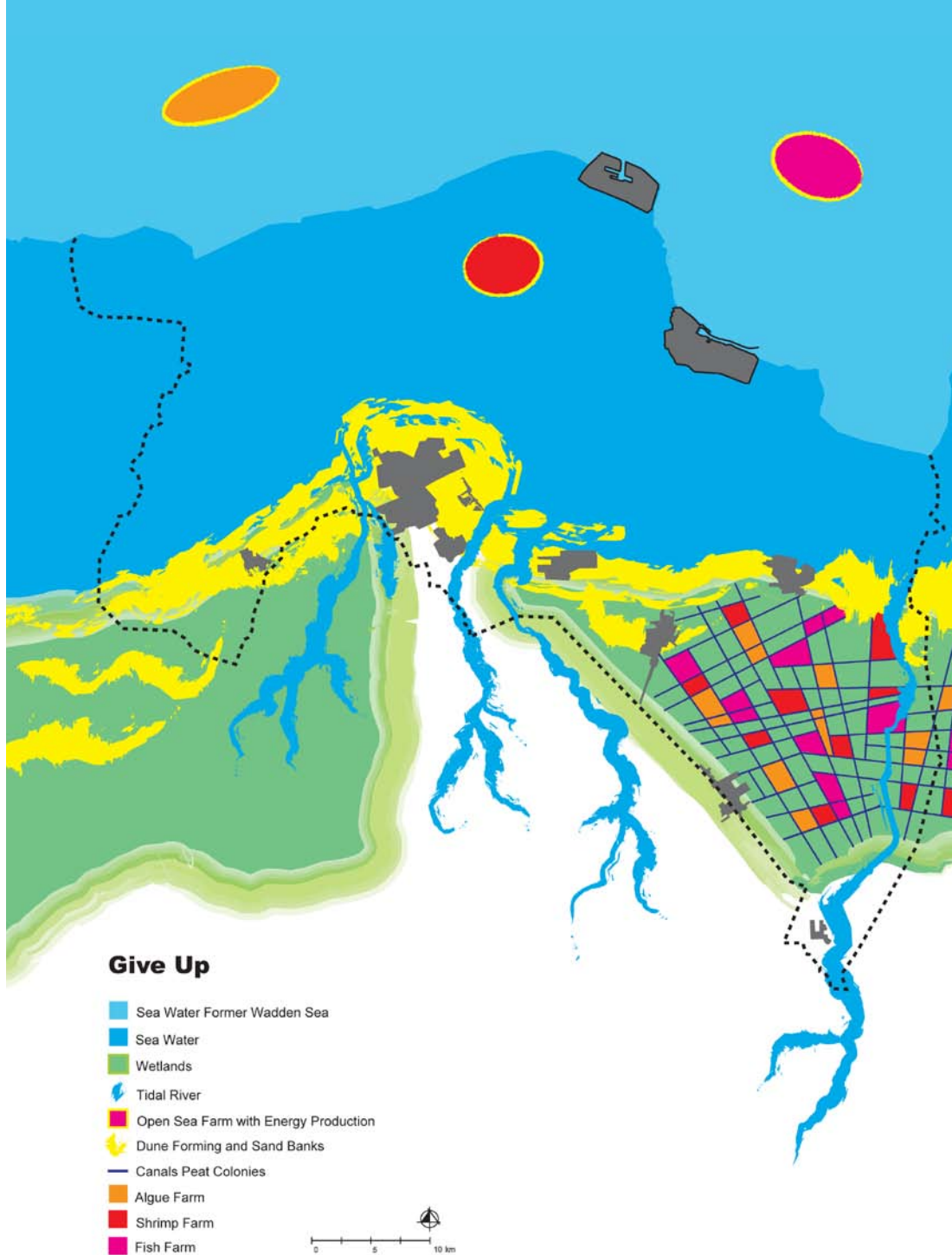
THE PROVINCE OF GRONINGEN wants to get a sense of the direction of adaptation measures and strategies for the future. Therefore the hotspot approach has been applied. Several relevant themes (agriculture, nature and water, the coast, energy and fresh water supply) were put on maps separately. Every map showing the ultimate adapted future for that theme for the relatively short term (20-30 years). Combined these maps show an integrated adaptation map of the province of Groningen (see figure 1). To get a feeling of possible long term futures (100 year or more), three separate backtracking scenarios have been developed. They show the broad bandwidth of, sometimes unimaginable, futures. These scenarios are used as the background against which adaptation measures and strategies can be judged on robustness and usefulness in specific areas.

The combination of the integrated adaptation map and the long-term scenarios show the areas where

adaptation measures and strategies are robust and other areas (so-called windows), where they form a dilemma, where further in-depth study is needed. In combination with the integrated adaptation map and the backtracking scenarios, the solutions for these windows can be used to develop long-term climate proof scenarios under extreme conditions. For the province of Groningen these scenarios are named 'Sustain' or 'Give-up' (see figure 2). These scenarios and the robust measures define a short-term adaptation agenda, because the measures and strategies, which are useful in even a every unlikely future, can be implemented at present.

The Content: Swarm planning

In a planning context with the objective to provide planning solutions for the longer term, the information developed in the hotspot is not flexible enough. The sum of thematic adaptation measures leads to a map on which every square metre is



If sea level rises too much the only way to survive is to withdraw. People need to migrate to safe places and the coastline needs to move towards a safe position. In front of the new coastline new wetlands emerge naturally and the city of Groningen becomes a sea-side beach city.

exactly planned: a blueprint for the future. The only thing we know for certain, however is that the future is uncertain. Blueprint planning has proven more than once to be wrong.

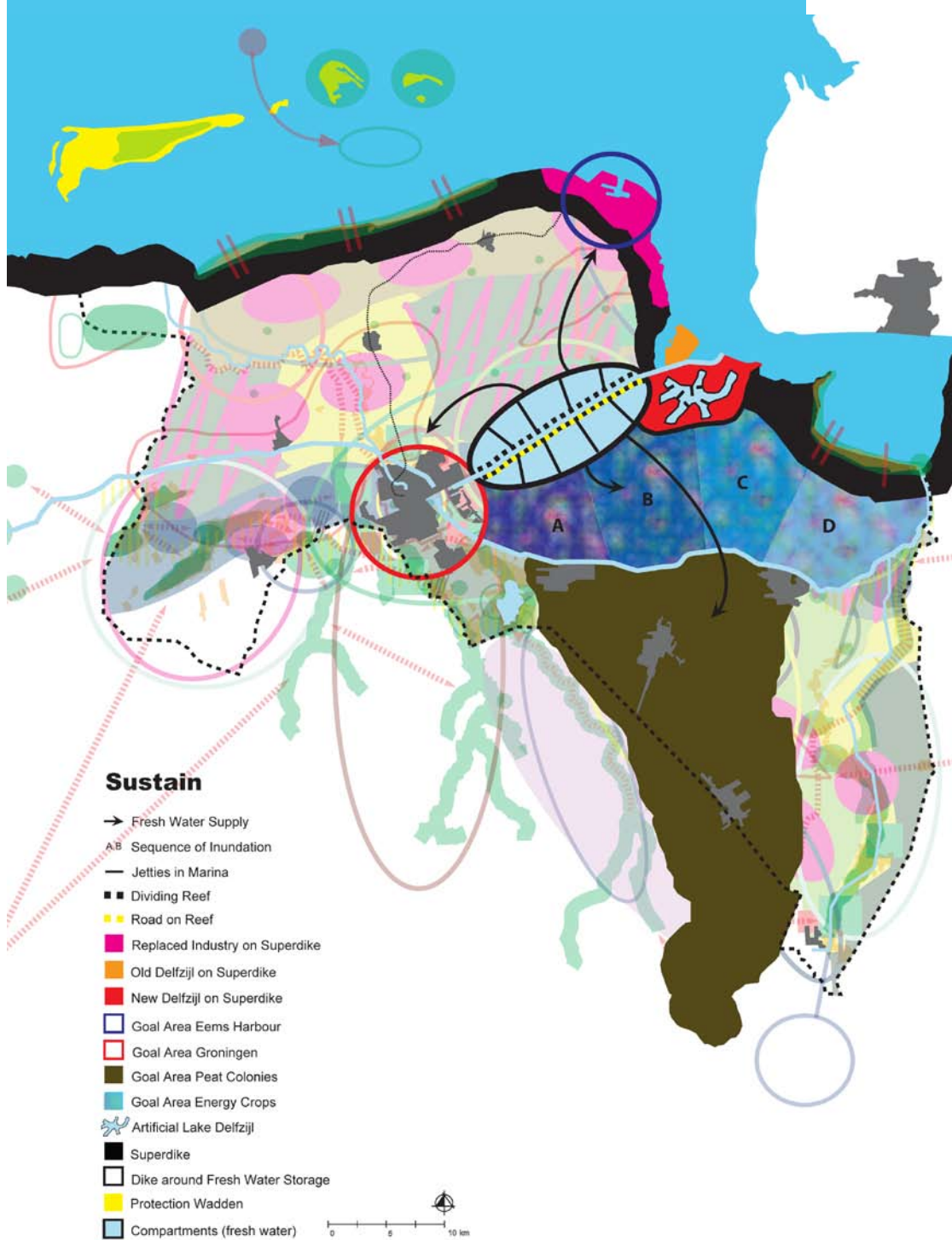
Another type of planning is required if long-term and uncertain developments are to be integrated in spatial plans. This new type of planning identifies ‘nodes’ of special importance and gives direction through spatial incentives and impulses. It may be a certain spot in the dike-system or a crossing of several networks. Changes in these nodes influence the rest of the spatial system. Like giving an

impulse to a swarm of birds will influence the pattern, shape and direction.

Swarm planning defines the nodes of special importance. It intervenes with a spatial impulses and then gives room for evolving developments, autonomously shaping the spatial future of the region. Strict regulations confine the ‘natural will’ of the system instead of increasing the resilience and the level of climate proofing.

A long way to discover

The method and the process used in the hotspot give a glimpse of new ways in spatial planning relat-



Sustain: if we want to continue living behind a coastal defense when sea level rises several meters, inland adaptation measures need to be taken to withstand the effects of climate change: water supply reservoirs, extension of nature reserves and space for sustainable energy supply.

ed to the phenomenon of climate change. But there is a long way full of discoveries to unfold. How to find the nodes of importance and how do we know what kind of impulse directs the process in the right - climate proof - direction? Questions we hope we can answer after finishing the hotspot climate proof Groningen. The first steps are taken!

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