



A common "Land and Sea" language for a Circular Food System

TEAM C

Having a common "land and sea" language is of utmost importance to ensure that common dilemmas of the trade-offs due to food production are treated alike so that informed choices can be made. Trade offs of all food production and its nutritional value, include biodiversity and/or nature loss as well as an effect on climate and whether communities thrive (or not). The choices that are made concerning these trade offs per food type are political. Making them more comparable however a task for science.

The framework to help appraise these trade offs also between land and sea is missing. Circular food production (and circular bio-based economy) thinking focuses largely on land while food is also harvested from waterways, seas and oceans. Furthermore the two (dry and wet) systems also "leak" into each other. Without looking at the whole we risk developing "segregated solutions" that create problems elsewhere. Farming seaweed for cattle feed, for example, might be an excellent mitigation measure for land based agriculture however large scale extraction of nutrients at sea can affect both fisheries stocks as well as the natural ecosystem. The trade off for nature of the nutrient use at sea for land, if not viewed in an integrated manner, would be missed without this broader perspective.

De Boer & van Ittersum (2018) defined three principles for a circular agriculture . An integrated approach to food systems however also requires principles for the production of food from the oceans . For this purpose the following set was derived by Jaap van de Meer (2020) and frequently discussed within TEAM C:

1. Keep the cycle of life going: nutrient security (safeguard the nutrient balance between land and sea as well as within the sea);
2. Improve efficiency (harvest/culture the lower trophic levels of the food web as much as possible and use waste products);
3. Yield-Ecosystem values trade-off (do not use up all primary production).

As TEAM C consists of members with a marine and a terrestrial background, the team represented and aimed for a circular food approach with land and sea included. Together the two sets of principals provide the start for a common circular food system language and thinking helping the shift focus even more to resource security, instead of solely increasing efficiency. The yield-ecosystem value trade off principle is relevant to all well managed food systems, both on land as well as in the sea. This principal ensures that nature is also taken into account and that the trade offs (externalities) of producing that food (also on land) are "built into the equation".

"Having common terminology for land and sea food production, in order to review trade offs, such as sharing space and resources with nature, is a big step forward in our transitioning to a sustainable food system" (Simkje Kruidenink)



Integrating these two sets of land and sea principals into one set of principals is still needed. The work so far of developing a common language has however already inspired policy officers to rethink trade offs and to work closely together with WUR to develop policy around these choices:

- (1) The province of Zeeland is now focusing on developing an integrated vision on circular food production from both land and sea (including the interlinkages). Here TEAM C contributed with their network in the region of Zeeland, fisheries researchers and policy by a detached LNV employee;
- (2) Plans are underway to set up an international research platform, together with the region of Flanders, focusing circular food production in The Netherlands;
- (3) WUR will develop, for Dutch Ministerial policy officers an analysis of how the above principals relate to food from the ocean as well as land;
- (4) These insights will benefit the Farm to Fork policy of the European Commission as well as the Green Deal concerning the sharing and sparing debate linked to space, climate change and biodiversity loss due to food production;
- (5) The FAO and the UN are keen to link circular thinking into their decade of nutrition as well as integrated food system thinking;
- (6) The OECD would like to develop a common narrative between nature conservation, blue bio economy and food production linked to the Oceans as well as land. The above two sets of principals can form the basis for such a narrative.

TEAM C

This sheet is a product of TEAM C, an agile team that has worked on one circular food system based on the principles of Imke de Boer and Martin van Ittersum on behalf of Martin Scholten

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