Input for workplan activity 11

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(a) *Guiding question 1: Which climate change policy(ies) and actions, informed by the best available science, were assessed for environmental, social and economic co-benefits and what were the co-benefits identified from your assessment?*

A. Development of low temperature heat networks

Co-benefits:

- More positive externalities: cold for cooling, storage of heat and cold, insulation, co-investors, economic prosperity, cooperation and social cohesion
- Less negative externalities: conversion of energy source to user, less pressure on electricity grid, emittance of CO2, space use for other energy sources, energy poverty, water pollution

B. Redevelopment of former landfills

Co-benefits:

- More positive externalities: sanitation of polluted soil, space use in already urbanized areas, combination of functions (green, water, sports, housing, solar panels, etc.)
- Less negative externalities: pollution, use of green fields

C. Industrial ecology in the second large industrial cluster of the Netherlands

Co-benefits:

- More positive externalities: use of byproducts (heat, oxygen, CO2, hydrogen, process water), sharing of infrastructure, cooperation and social cohesion, economic prosperity, CCU.
- Less negative externalities: waste, use of groundwater, use of fossil fuels, CCS

(b) *Guiding question 2: How such assessment was conducted? Were there any standards used? What are challenges and opportunities, and lessons learnt from these assessments?*

In all three cases the assessment was conducted looking at positive externalities, how they can be profitable and build resilience to counter negative externalities. Externalities are economic phenomena to start with, but negative externalities can be interpreted as legal phenomena also. As economic phenomena these externalities can be translated to money, so the standard used in the assessment is money. As legal phenomena the negative externalities can be in compliance with the law, or not, so the standard used in the assessment is the law also.

The challenge of this kind of assessment is how to present it as an integrated picture, and at the same time break it down in parts that are of interest to those who specialize in these parts. For instance, a housing company wants to know if a former landfill is a good place to develop houses, or if a low temperature heat network is a good choice for houses. This company is interested in the whole picture but is most interested in some parts of it. Can the housing company be convinced that the co-benefits help to add up to a place, the former landfill, to build houses? Can they help to add up to a network that provides enough heat? These are the questions this kind of company needs an answer to, and they must stand out as part of the whole picture.

The opportunity of this kind of assessment is to create 'multiple business cases' and show a positive outcome in terms of the law. The quintessence of a multiple business case it the use of a single asset for more purposes, co-benefits. These co-benefits share the costs of the one asset, and often these benefits enhance one another, there's a multiplier. Less costs and a multiplier can mean more money, and they can mean less pressure on the environment i.e. a positive outcome in terms of the law.

One of the main lessons learnt from these assessments is that climate change adaptation always is either a co-benefit of working on another goal or has co-benefits when this adaptation is the goal. So, no climate change adaptation without co-benefits. In other words, there's always a multiple business case. However, and this is the second lesson, this is not how financiers think. When it comes to financing climate change adaptation, they always look for the singular business case. An important reason for that is their habit to see singular as low risk, and multiple as high risk. As a result, the worlds of finance on the one hand, and of climate change adaptation on the other, are still miles apart.

(c) Guiding question 3: What actions were/are/will be taken based on the co-benefit assessment and what specific measures taken to maximize the co-benefits if any?

A. Development of low temperature heat networks

Based on the co-benefit assessment the feasibility of actual heat networks is being looked at. Specific measures to maximize co-benefits are a.o. coupling between high and low temperature heat networks, and systems integration of these networks with both electricity and gas, preferably biogas and hydrogen gas.

B. Redevelopment of former landfills

Based on the co-benefit assessment a program for redevelopment of former landfills has been submitted to the Dutch Ministry for the environment. Specific measures to maximize co-benefits are a.o. usage of certain types of trees to help sanitize the soil, and using pump systems for harvesting heat from groundwater to filter pollutants out of this water at the same time.

C. Industrial ecology in the second largest industrial cluster of the Netherlands

Based on the co-benefit assessment there's a design underway to help tender co-benefits. A specific measure to maximize co-benefits is establishing a cooperative of private and public parties in this cluster that is there to find out new co-benefits and interest parties to make use thereof.

More information is in Dutch, in most cases. Two sources in English are forthcoming, and four are available:

1. Reinventing Multifunctionality: https://english.rvo.nl/sites/default/files/2020/06/Reinventing-Multifunctionality-2020-Jurgen-van-der-Heijden-Denise-de-Blok.pdf

2. Future Value: https://foundationaleconomycom.files.wordpress.com/2017/01/future-value-as-the-basis-for-multiple-investments-w-cover.pdf

3. Low temperature heat network: https://iabr.nl/en/projectatelier/botu_local_energy

4. Former landfills https://www.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1531232572.pdf