

Sustainable Development, Negative emissions

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Measures aiming at implementing “negative emissions” include afforestation and BECCS, which are expected to sequester CO₂ from the air. Although both are expected to play important roles in reducing emissions below zero, some problems can arise in terms of biodiversity and sustainable development.

First of all, species of trees in afforestation could be confined to the ones that grow fast and sequester more, which means that the planted would be monoculture forests with low biodiversity. Secondly, the measures need lands, so that they would require either converting existing ecosystem such as grasslands into the fields for the plantation or changing land use from agriculture. In both cases, biodiversity would be lost or agricultural products would be reduced. Thirdly, the measures requires huge amount of fertilizers such as phosphorus. Phosphorus is renewable in natural processes, but it takes very long time, so most of phosphorus uses are taken from phosphate rocks. Increasing demand for phosphorus would lead to a price rise of agricultural product through the price rise of phosphorus. Poor people would be seriously damaged by the foods price rise, which obstructs the implementation of sustainable development.

Establishing an effective framework for controlling incentives may help such problems resolved.