

# GREEN ECONOMY

## A Matter of Efficiency



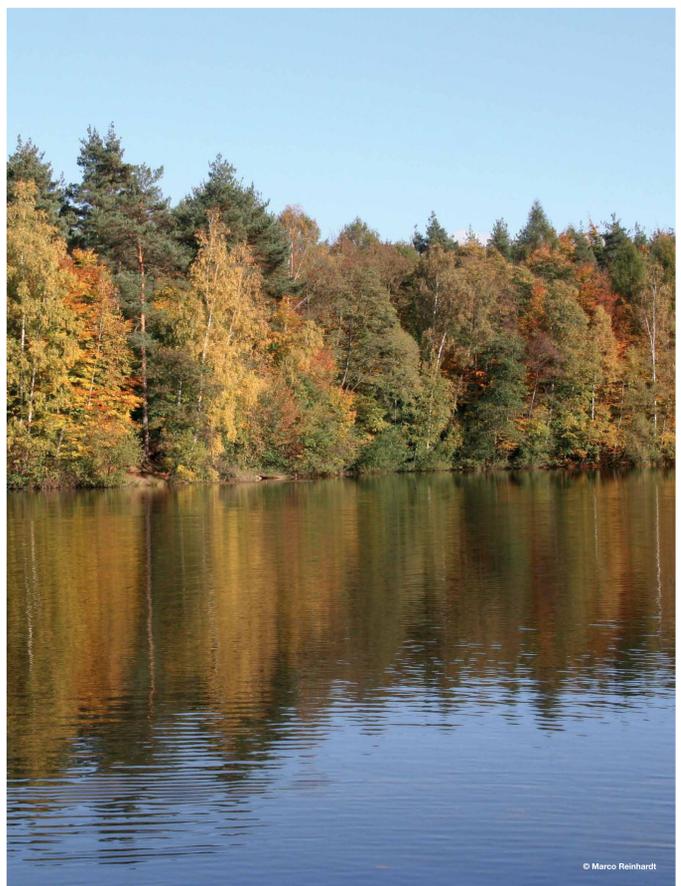
### USA: Clean Water for New York



In the late 1980s, the quality of drinking water in New York City had been deteriorating steadily.<sup>2</sup> Ongoing housing development in the Catskill Mountains – the catchment area of the city – and intensive farming took their toll. Pesticides, sewage, waste and other pollutants had a heavy impact on rivers and streams. By the early 1990s, New York City had been ordered by the Environmental Protection Agency to either build a water treatment plant or to invest in the restoration and protection of the forests and wetlands.

The costs associated with the construction of a water treatment plant would have been \$8 billion, and annual expenditure related to operation would have added another \$300 million. By contrast, the cost estimated for restoring the health of rivers, streams and forests in the Catskill Mountains was about \$2 billion. New York City ultimately opted for the less expensive alternative.

- What would have happened if the construction of a water treatment plant had been cheaper?



### India: Two Villages, One Solution



Kuhan and Ooch, two villages in the Indian Himalayas, depend on the same creek.<sup>3</sup> The inhabitants of Kuhan had constructed a check dam for the irrigation of their fields, resulting in an increase in crop production. In time, the reservoir began to silt up. Shortly after the residents of Kuhan discovered the problem, they found the cause in the village Ooch, which is located upstream. The soil of the four-hectare common land adjoining the creek had been eroded due to intensive livestock farming and overgrazing.

Representatives of both villages came together and discussed matters related to saving the dam. They finally reached a formal agreement. The village of Ooch banned grazing of livestock for eight years on its common land adjacent to the creek. In return, Kuhan paid for tree saplings which were planted in order to retain the soil of the affected area. Furthermore, both parties worked out an arrangement in which Kuhan agreed to sell irrigation water to Ooch as required.

- Can agreements that work successfully in small-scale projects also be implemented in large-scale ones?

### Costa Rica: Coffee Price and Forest Conservation



The owner of the Finca Santa Fe coffee plantation in Costa Rica was able to save \$60,000 a year because native bees living in two patches of forest nearby pollinated his crop.<sup>4</sup> Without these forest areas, the plantation owner would have needed to rent bee hives. It was therefore cheaper to pay the forest owner for the service of protecting the forest and its bees. But what happens when the market price for coffee drops? Finca Santa Fe cleared its coffee plantation and replaced it with pineapple plants.<sup>5</sup> Pineapple does not require bees for pollination. In fact, pollinated plants produce fruit of inferior quality.

- What does this mean for forest conservation?



### Bees as Service Providers?



A group of German and French scientists<sup>6</sup> determined that the worldwide economic benefit of pollination provided by bees within one year is worth € 153 billion. Conservationists also use these figures to emphasize the consequences of bee mortality. Global bee mortality causes tremendous financial damage; according to this argumentation, the economic value alone must lead to protection and conservation measures for bee populations. The example of the bee as a service provider is a stark illustration of how we currently value nature and natural processes only by their efficiency. What would be the implications if one day crops were pollinated by modern technologies?

The researchers Delaplane and Mayer<sup>7</sup> came up with a wise response to this scenario:

- “Bees may not be necessary to human life, but they are necessary for life as we know it.”

<sup>2</sup>Daily, G.C. and Katherine Ellison (2002): *The New Economy of Nature – The Quest to Make Conservation Profitable*. Island Press / Shearwater Books. Washington – Covelo – London.

<sup>3</sup>Singh, S. (2009): “Payments for Ecosystem Services (PES) in India from the bottom-up. Down to Earth, CSE’s fortnightly online magazine

<sup>4</sup>Ricketts, T.H., Daily, G.C., Ehrlich, P.R. & Michener, C.D. (2004). *Economic value of tropical forest to coffee production*. *Proc. Natl Acad. Sci. USA*, 101: 12579-12582.

<sup>5</sup>McCauley, D. (2006): *Selling out nature*. *Nature* 443: 27-28

<sup>6</sup>Gallai, N., J.-M. Salles, J. Settele, B. E. Vaissière (2009): *Economic valuation of the vulnerability of world agriculture confronted with pollinator decline*. *Ecological Economics* 68(3): 810-821

<sup>7</sup>Delaplane, K. S. and D. F. Mayer (2000): *Crop Pollination by bees*. CABI Publishing. Wallingford, Oxon, OX10 8DE, UK. 10 East 40th Street, Suite 3203, New York, NY 10016, USA