

and for fostering climate change by carbon emissions. Debt becomes a problem when it expands faster than the ability to repay it. Whether wealthy nations can repay their monetary and ecological debts may become problematic when petroleum supplies eventually peak and decline, and climate change becomes overwhelming.

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### Further reading

Foster & Magdoff 2009, Graeber 2014.

*See also:* Economic institutions, Money, Ecological debt, Debt-for-nature swap.

### Reference

Foster, J.B. & Magdoff, F. 2009. *The Great Financial Crisis*. New York: Monthly Review Press.

Graeber, D. 2014. *Debt: The First 5000 Years*. New York: Melville House.

## Debt-for-nature swap

An agreement between a creditor and a debtor (usually a developing-country government) in which the creditor cancels (part of) its outstanding (external, hard currency) debt claims in exchange for the debtor's commitment to use the countervalue of the saved debt service obligations to fund specific, earmarked expenditures for environmental purposes, at agreed-upon terms (typically at a discount and in local currency). The agreement is often operationalized via a separate (countervalue) fund structure where the stream of countervalue payments is deposited and which is jointly governed by the debtor, creditor, and in some cases a third party, such as an environmental non-government organization (NGO), which implement the project (and broker such deals). To the extent that the swap is done at terms lower than the claim's market value, it may provide debt relief to the developing-country government at the same time as increasing fiscal resources devoted to environmental issues.

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### Further reading

Cassimon et al. 2011; Hansen 1989.

*See also:* Debt, Biodiversity finance, Biodiversity finance solution, Biodiversity conservation, Conservation finance.

### References

Cassimon, D., Prowse, M. & Essers, D. 2011. The pitfalls and potential of debt-for-nature swaps: a US-Indonesian case study. *Global Environmental Change* 21(1): 93–102.

Hansen, S. 1989. Debt for nature swaps: overview and discussion of key issues. *Ecological Economics* 1(1): 77–93.

## Decentralization

Economics:

- a. The delegation or devolution of decision-making power from a central authority to regional or local authorities (Bardhan 2002; Pollitt 2007). It takes several forms, including political or administrative, fiscal, territorial, internal or external, and vertical or horizontal decentralization (Pollitt 2007).
- b. The opposite of centralization.

**Ecology:** an approach to environmental policymaking that gives a preference to localized solutions to environmental problems because of better knowledge of specifics by local actors and reduced enforcement costs (Hartwell et al. 2021; Ostrom 2010). Decentralization and interaction of different levels of governance may lead to sustainable environmental outcomes (Hartwell et al. 2021; Newig & Fritsch 2009). Such an approach can be especially effective in governing common-pool resources—for example, forests, lakes, or irrigation systems—when it is difficult to exclude potential users, but the usage also reduces the availability of a resource for others (Hartwell et al. 2021; Ostrom 1990).

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*See also:* Command economy, Governance, Local governance.