

Book Review

“The Tragedy of the Commons” and Global Environmental Problems

Book review by LARS CARLSSON

Barkin, J. Samuel and George E. Shamaugh (eds.) (1999), *Anarchy and the Environment*, Albany, New York, State University of New York Press, USD 17.95. 200 pp. ISBN 0-7914-4183-0 (hardback) and 0-7914-4184-9 (paperback).

“Picture a pasture open to all.” The words are Garret Hardin’s,¹ and even after more than thirty years, his famous article is frequently quoted among scholars of all disciplines. His metaphor “the tragedy of the commons” still seems to capture environmental problems such as transboundary air pollution, ocean fisheries as well as a number of other global problems. But, what has Garret Hardin’s pastoral environment to do with global environmental affairs? For example, can a grazing land in Nepal, an irrigation system in Spain, or a park in the Metropolitan US really be understood with recourse to the same theoretical framework as global warming or the depletion of stratospheric ozone? Answering this question is the challenging undertaking of Samuel Barkin and George Shamaugh in their book.

The authors argue that while global environmental problems to a great extent have been regarded as a question of provision of public goods, clean air healthy fishing stocks, and so on, there is a tendency to neglect the common pool recourse (CPR) aspect of problems. Thus, international environmental conflict, they argue, should preferably be analysed within a CPR framework. Hence, they even make the statement that “all international environmental issues that generate international political conflict, show some characteristics of common-pool recourse” (p. 6). How do they come to this conclusion?

It is widely recognised that common-pool goods have two important, qualifying features; it is impossible, or very difficult, to exclude beneficiaries from them (non-excludability) while the withdrawal from the recourse is rival. If I pump a litre of water from a public well,

this water is not available to others (rivalry). Public goods, on the other hand, are both non-excludable and non-rival; if better air is provided, everyone will benefit from this and certainly also those who do not participate in its provision. Moreover, nobody could be accused of breathing someone else’s air. Drawing upon the writing of Daniel Bromley,² Ostrom³ and others, the authors construe that different types of goods – or more accurately for the topic of the book, “environmental amenities” – provide different incentives for management. The authors basically share the view of McGinnis and Ostrom,⁴ who argue that design principles applicable to local management of CPRs can be applied to a global scale. For example, boundaries should be well defined, those affected by the management of the resource might be part of the unit that sets the rules for the amenity in question, and so forth.⁵ However, with Keohane and Ostrom⁶ the authors also argue that the positive experiences of personal interaction in local management of common-pool resources cannot automatically be scaled up to the global level. Therefore, the authors argue, a theory of international cooperation is needed.

The authors advance their case by emphasising that, especially on the global scene, the distinction between, *appropriation* and *provision* of environmental goods is particularly essential to recognise. While appropriation refers to the use (the flow) of a resource, provision has to do with the creation and maintenance of the resource stock producing this flow of resources. For example, from an appropriation perspective, fresh air has the quality of public goods, while its provision has all the problems related to common-pool resources, such as free riding and under-provision. When it comes to global environmental problems, provision problems are often negotiated internationally. Furthermore, on the international scene different actors possess different power as well as having different time horizons and thus incentive to cooperate. This is how the literature on international cooperation logically fits in with CPR theory.

From this starting-point the authors deduce nine hypotheses that are supposed to clarify why certain states behave the way they do in relation to environmental issues. The core hypothesis is that actors with “shorter shadow of the future should have greater bargaining power than those with longer shadows” (p. 22). However, without explicitly referring to Axelrod’s seminal work,⁷ the authors borrow his statement that actors who perceive a low likelihood of future interaction (shorter shadows of the future) are more inclined not to cooperate. From this assumption three related hypotheses are derived. For example, one hypothesis states that

countries with shorter shadows “may be able to extract concessions from other potential CPR beneficiaries up to the total future value of the resource” (p. 23). These *time-related* hypotheses are followed by five other conjectures concerning *free riding* and the effect of *market power* of involved parties.

Using a number of illustrative cases (the preservation of tuna fish, fisheries in the Southern Ocean, stratospheric ozone politics, and acid rain) the remainder of the book tests these nine hypotheses. In fact, the authors provide support for eight of them (the ninth could neither be refuted nor supported).

The uneven success of regulating the tuna fishery provides a good illustration of the insights gained by this method. It is obvious that the regulation of catches (appropriation) essentially has failed and in the late 1970s Latin American states’ threats to consume more than specified by the agreement (*free riding*) led to special agreements with the regulating authorities, whereas the US and Canada, following the agreement, came to be the real “suckers”. A key question, posed by the authors, is why the US, the world’s biggest tuna market, was unable to determine the policy in the area despite the economic sanctions they posed on seven of the “defrauding” states. The explanation, it is argued, can be understood in terms of “the shadow of the future”. Owing to their shorter shadows, Latin American ships as well as those sailing under a flag of convenience could continue their activities. However, tuna swim along with dolphins – which are frequently and incidentally caught – but as opposed to the “consumptive benefits” of the tuna fish, American opinion values dolphins for their “existence benefit” (p. 26). Suddenly the issue was converted from an *appropriation* problem to a *provision* problem, i.e., how to provide a safe environment for dolphins. The logic is that those who attribute a considerable existence value to a natural resource have fairly long shadows of the future and are thus willing to make considerable efforts for its provision. Thus, the US market simply demanded more dolphin-friendly ways to capture tuna fish, and this has had decisive effects.

The same type of argument is performed in the other chapters, as the authors carefully and illustratively go through the hypotheses set up in the beginning of the book. This is an interesting exercise. For example, the discussion about the relative success of acid rain regulation in Europe, basically driven by the Scandinavian countries, provides a number of interesting insights that could only be gained by applying CPR theory. Thus, it is explained why small countries like Sweden and Norway have been able to push more hegemonic states in front of them. The authors conclude that the acid

rain case might demonstrate “an important distinction between public goods and CPRs [in] that the benevolent hegemonic solution is inapplicable to CPR problems” (p. 148). The authors also remark that the success of environmental cooperation might be more promising than is commonly assumed.

The methodology used by Barkin and Shamaugh is that of “analytical generalisation”. As in experimental science, a tentative theory, a set of hypotheses, is set up and by consulting the empirical world these hypotheses are either supported or refuted. This is a powerful way of developing theory and especially if the empirical cases are deliberately chosen also to falsify the theory. Otherwise, we might run the risk of the “fallacy of affirming the consequence”, as Hempel⁸ puts it. However, instead of posing the hypotheses one by one and applying a subsequent “test procedure”, the authors tend to search for their support among the whole range of the environmental issues discussed. Not surprisingly, they also come to the conclusion that basically all hypotheses find support.

Nevertheless, Barkin and Shamaugh provide a fruitful framework and an interesting line of inquiry for developing a *Theory of International Relations of Common-Pool Resources*. This is a most important contribution and I hope the authors continue along the indicated way. However, in doing so, I would argue that their assumption that CPR writing in general “assume symmetry among actors” (p. 123), should be reconsidered, especially in light of recent contributions. All types of asymmetries can be modelled in a CPR game and could, thus, be incorporated in the analysis.⁹ A second issue to be contemplated is the image of the State. While the authors, for example in the tuna case, recognise the importance of market pressure, “The State” is perceived as the acting unit. This is also done in other chapters. Treating the state as a single unit might have some merit on the global scene, but this image of the state has also been widely discussed. By referring to the “epistemic community school” of international relations (p. 190), the authors, in fact, also give credit to the idea of the existence of networks transcending the analytical notion of “the State”. Any, coherent theory of *International Relations of Common-Pool Resources* should by necessity be the result of, as well as enable, multi-level analysis.

Notes

1. Hardin (1968, p. 1244).
2. Bromley (1992).
3. Ostrom et al. 1994).
4. McGinnis and Ostrom (1996).
5. Ostrom (1992).

6. Keohane and Ostrom (1995).
7. Axelrod (1984).
8. Hempel (1966, p. 7).
9. Hackett et al. 1994).

References

- Axelrod, R. (1984). *The Evolution of Cooperation*, Basic Books, New York.
- Bromley, D. (ed.) (1992). *Making the Commons Work*, ICS Press, San Francisco.
- Hempel, C. (1966). *Philosophy of Natural Science*, Prentice-Hall, Englewood Cliff.
- Hackett, S., Schlager E. and Walker J. (1994). "The Role of Communication in Resolving Commons Dilemmas: Experimental Evidence with Heterogeneous Appropriators," *Journal of Environmental Economics and Management*, Vol. 27, pp. 99-126.
- Hardin, G. (1968). "The Tragedy of the Commons," *Science*, Vol. 162, pp. 1243-1248.
- Keohane, R.O., and Ostrom E. (eds.) (1995). *Local Commons and Global Interdependence: Heterogeneity and Cooperation in Two Domains*, Sage, London.
- McGinnis, M., and Ostrom E. (1996). "Design Principles for Local and Global Commons," in Young O. (ed.) *The International Political Economy and International Institutions, vol. II*, Edward Elgar, Cheltenham, pp. 464-493.
- Ostrom, E. (1992). *Crafting Institutions - For Self-Governing Irrigation Systems*, ICS Press, San Francisco.
- Ostrom, E., Gardner R. and Walker J. (1994). *Games, Rules and Common Pool Resources*, University of Michigan Press, Ann Arbor.
- Ostrom, E., Burger J., Field C., Norgaard R.B. and Policansky D. (1999). "Revisiting the Commons: Local Lessons, Global Challenges," *Science*, Vol. 284, pp. 278-282.

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