PERGAMON

FUTURE DIRECTIONS
Atmospheric Environment 35 (2001) 2427–2428

ATMOSPHERIC ENVIRONMENT

www.elsevier.com/locate/atmosenv

Future Directions: The atmosphere as a global commons☆

This article investigates some implications of describing the Earth's atmosphere as a global commons. At a very localised level the characteristics of a commons have been well understood for a long time. The term denoted an arrangement under which property or resources were held in common and jointly exploited. The paradigm case was provided by English rural commons where villagers were able to graze their animals on a common pasture. One may argue that the atmosphere can also be regarded as a commons, exploited by all yet owned by none. Most significantly the atmosphere has been abused as a 'common sink'. Until relatively recently it provided a completely free waste disposal system for a whole range of anthropogenic pollutants. It also constitutes the ultimate 'public good', that is to say if resources are expended on improving air quality, it is impossible to exclude people from enjoying the benefits.

There would be little point in conceptualising the atmosphere as a commons if it was not for the reality of over-exploitation. For most of recorded history the atmosphere functioned as a self-regulating system that could easily cope with the polluting activity of human beings. Now, of course, its carrying capacity is being severely tested with local and transboundary pollution, the severe depletion of the stratospheric ozone layer, and the enhanced greenhouse effect. Increasing scientific recognition of the all-encompassing scale of key atmospheric mechanisms and problems has prompted the designation of the atmosphere not only as a commons but a 'global commons' (see Adil Najam's Future Directions article: The case for a "Law of the Atmosphere", Atmospheric Environment, 34 (2000) 4047–4049). It is thus included in a class of rather different areas and resources lying beyond the sovereignity of states, the high seas and the deep seabed, Antarctica and outer space.

Discussion of the problem of the governance of the commons normally proceeds by reference to Garrett Hardin's seminal work on "The Tragedy of the Commons" (Science, 162 (1968) 1234). Hardin's parable of the self-defeating behaviour of villagers who, driven by self-interest, over-exploit the common pasture thereby bringing about collective ruin, provides a salutary warning of the consequences of unbridled economic rationality. Yet it is his proposed institutional solutions that have received most attention. In Hardin's view the situation can only be remedied through enclosure or the privatisation of the common resource, or through the imposition of some form of central authority which might enforce restrictions on users and provide a public good. Both require government action. Yet the defining characteristic of the international system which must superintend the global commons is that there is no central government. Rather there are around 190 sovereign states existing in a condition of anarchy.

This lack of a global government need not necessarily lead us to the conclusion that experience with local commons is irrelevant at the global level or that the designation of the atmosphere as a global commons merely serves to accentuate the impossibility of avoiding Hardin's 'tragedy'. One reason for this is that Hardin's logic rests upon the assumption that commons, by definition, are unregulated and allow 'open access'. Historically, this has not been the case and there are very many examples of successful and sustainable local commons management through common property resource (CPR) regimes. Avoiding both state intervention or privatisation, they have regulated access to and exploitation of the commons through institutionalised co-operation between users (E. Ostrom, Governing the Commons: The Evolution of Institutions for Collective Action, Cambridge University Press, Cambridge, 1990).

By extension, it is possible to argue that similar regimes may be constructed at the global level to provide co-operative *governance* rather than government of the global commons. The international regimes for stratospheric ozone (the Vienna Convention and Montreal Protocol) and for climate change (the United Nations Framework Convention on Climate Change (UNFCCC) and 'Kyoto Protocol') provide appropriate examples. Such enterprises are in their infancy and despite (by international standards) a very impressive record of

☆This is one of a series of specially commissioned New Directions articles for the new millennium. Contributions to New Directions are welcome, as is correspondence on this or previous columns please contact Dr. W.T. Sturges at new.directions@uea.ac.uk or see http://www.uea.ac.uk/ ~ e044/apex/newdir2.html.

1352-2310/01/$ - see front matter
PII: S1352-2310(01)00127-3

institutional innovation over the last 20 years, most of our knowledge about the construction and successful operation of CPRs inevitably derives from the intensive study of local commons management. Often implicitly a structural similarity between local and global commons is assumed, which allows the transfer of insights gained at the local level to the global. The extensive use of Hardin's 'tragedy of the commons' analogy provides one instance of this as does the discussion of the 'free rider' problem. Here CPR institutions at all levels face the need to monitor and control the behaviour of users tempted to exploit a commonly provided resource by taking an excessive share or failing to fulfil the same obligations as others.

Yet it may be objected that while there may be some very broad global–local similarities, it really is too far-fetched to compare the arrangements set up between a few hundred farmers or fishermen to those existing between the 173 state signatories of the UNFCCC. Local commons regimes typically represent a reality embedded in a particular ecology and economy—a 'bio-region' perhaps. They have often evolved over hundreds of years through the accretion of local custom and understanding. By contrast, global commons regimes are often new and artificial constructs. In the case of the atmospheric commons this is inevitably so because the scientific understanding upon which the transboundary air pollution, stratospheric ozone and climate change regimes are predicated is so recent, not to say contested. Equally, the national interests and cultural backgrounds of the formal members are clearly very disparate. Global regimes are also likely to be remote from the behaviour they seek to control and dependent upon the uncertain instrumentality of governments.

Most problematic of all is the equation of an assumed community of states with an actual community of individual human beings. The study of global commons regimes has reflected the formal organisation of the international system and the categories of international law. Global atmospheric regimes are in effect intergovernmental institutions and analysts tend to think in state-centric terms. Thus, it is deceptively easy to assume that inferences may be drawn from local level individual behaviour to that of rationally calculating state actors engaged in determining the fate of particular global commons. Much of the study of international co-operation proceeds in this way when it seeks to understand the circumstances under which state governments will be prepared to sign up to environmental agreements and limit the pursuit of national economic interests. Some scholars have argued the requirement for a dominant hegemonic power to enforce the rules, while others have adopted explanations, often derived from micro-economic theory, which stress the realisation of joint gains through the formation of regimes by self-interested states.

Such stylised comparisons between local and global commons, although they may have some validity, miss an essential point. This is simply that all regimes at whatever scale involve human social interaction. Global atmospheric regimes are not simply formal systems of international law. They are social institutions, which rely upon shifting understandings deriving from the interaction of groups and individuals at various levels playing a variety of roles. Thus, the real equivalent of the farmers or fishermen who interact in a local commons regimes may be the trans-national communities of scientific advisors, policy-makers and lobbyists involved on a day-to-day basis with the evolution of the climate change regime. Their activities are of some importance to the successful operation of global regimes and would repay study in the light of what we know about the functioning of local commons institutions.

One small illustration may be given from the climate change regime. It is well established that local commons regimes manage the free-rider problem through the vigilance of neighbours in a small community where people can be relied upon to know the business of their neighbours. This provides a potent monitoring and enforcement mechanism to ensure adherence to rules for the allocation of common resources. At the level of the emergent global climate change regime, national greenhouse gas inventories, required under the UNFCCC, are compiled by a restricted group of governmental specialists. They meet each other regularly, "attend the same conferences, chat with each other and compete". In the words of one participant at a recent UK Global Environmental Change Programme meeting, "it would be almost impossible to cheat, and very difficult to fake, your inventory".

John Vogler[1]
School of Politics International Relations and Environment
University of Keele
Staffordshire ST5 5BG, UK
E-mail address: j.vogler@pol.keele.ac.uk.

[1] **John Vogler** is Professor of International Relations in the School of Politics International Relations and Environment (SPIRE) at Keele University, UK. He is also chair of the British International Studies Association Working Group on the Environment, and author of 'The Global Commons: Environmental and Technological Governance' John Wiley (2000).