

Digital commons and the state of our environment

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How might a digital commons based on volunteered geospatial information and mass collaboration be a credible resource for policymakers? We briefly explore how a geospatial digital commons may benefit knowledge production during institutional assessments of the state of our environment, and what factors may motivate its applicability to policy.

Introduction

To assess whether a policy regime effectively solves an environmental problem requires knowledge about the state of our environment. Recently, international regimes have turned to global environmental assessments, such as the IPCC 4th Assessment Report, for this knowledge. These assessments are not pure scientific knowledge, but rather consensus opinions derived from negotiated processes among scientists, officials, and other stakeholders. We ask whether information derived from a digital commons would be suitable as another input to such a policy process, and discuss its nature and structure.

Digital commons in knowledge production

A *digital commons* is both a place and an idea. As a place, a digital commons is an open database of information and a system by which volunteers and other interested persons collaboratively create and manage its content. It enables transparency in knowledge production, including electronic artifacts from collaborative efforts such as email and version histories. For example, in Wikipedia, transparent knowledge production has enabled new quantitative methods to answer research questions on trust. As an idea, a digital commons is not the same as a classic Hardin commons where public goods are both non-excludable and subtractable, like oil – a finite non-renewable natural resource. Rather, goods are both non-excludable and *non-subtractable*. Internet architecture provides for virtually unlimited concurrent access to non-excludable resources without consuming them. Yet, it is not exempt from commons problems. A digital commons can suffer from pollution, such as junk email and bandwidth congestion, or from free riders, such as in peer-to-peer sharing networks (e.g., Adar and Huberman 2000). Wikipedia suffers from pollution problems when vandals falsify information, and from free riders when only a small percentage of users actively participate. Yet, its information quality remains high at an encyclopedic level and its resources are widely popular (Voss 2005). Finally, a digital commons is not the same as the “*public domain*” which is often used to describe a legal concept of public use and rights, not a place.

The potential benefits from highly collaborative, online digital commons are significant. Benkler (2006) argues that such structures have distinct advantages in what he calls a networked information economy, by “enabling the emergence of new social and economic practices of information and knowledge production” (p. 33). In that light, the key strength of a digital commons lies in its connectedness and flexible organizational structure. That is, if institutions were to adopt a digital commons approach, they need not control the information flow during knowledge production with such rigor. For example, the *Aarhus Convention* stipulates clearinghouses for environmental information based on open access principles, and its goal is to recognize and enforce citizens’ right to environmental information without explanation. But this information’s administration and production are carefully regulated. In contrast, a digital commons provides not only open access to resources, but also the open production of them. When successful, a digital commons may match or exceed the quality of more structured, traditional processes, but in less time with fewer administrative costs.

Yet, would that approach meet the goal of informedness in policy matters? Mitchell et al. (2006) propose that *credibility*, *legitimacy*, and *saliency* as the key factors for how information influences policy. A digital commons may have high quality or low cost information, but in the end, that may be incidental to strengthening these influence factors.

What about geospatial information in a digital commons?

Online open-access geographic and environmental information systems are just now emerging (e.g., Taro et al. 2006). Consider a vision of a “Digital Earth” (Gore 1999) where users access boundless geospatial information through a interface based on a travel metaphor, or “magic carpet ride.” The Google Earth™ mapping service brings this vision into the forefront with its ability to navigate through multiple levels of resolution on a 3D landscape with only a simple desktop computer. Its richly interactive client enables open access to geospatial information that anyone can publish via the Web (Butler 2006).

As these technologies mature and availability of geospatial content increases, digital commons with rich geospatial information will follow. But the geospatial nature of environmental information adds complexity versus traditional Web content. What are the barriers that might prevent volunteers from actively participating in a digital commons with such complex content? Does the geospatial visualization of information affect its credibility or legitimacy?

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