**Exposing Environmental Law’s Hidden Value Judgments: Benefits Flows, Economics, Algorithms, and Climate Justice**

Sustainability and environmental law have a geography problem. Benefits and burdens are not distributed evenly across the landscape—leaving some communities and ecosystems with degraded environments, negative health outcomes, and lacking leverage needed force sustainable changes. Power and resource disparities can be exacerbated by the ways in which environmental law and policy assigns quantitative and qualitative values to the environment. This panel will discuss how exposing environmental law’s hidden value judgments can create meaningful opportunities for community empowerment, while facilitating more equitable environmental processes and outcomes.

1. **Keith H. Hirokawa, Associate Dean of Research and Scholarship, Albany Law School, “Enhancing Community Values with an Understanding of Ecosystem Benefit Flows”**

Access to nature—and the benefits that come from functioning ecosystems—is poorly distributed across class, race, gender and throughout communities. Resource decisionmaking is often disconnected from the communities and individuals that would benefit from ecosystem services, and this divide will become increasingly acute as climate change continues to drive more intense storms, droughts, wildfires and disease, as well as rising temperatures and continuation of the human and ecosystem migration. One potential solution involves mapping the flows of ecosystem benefits between and among geographically distinct communities. Ecosystem services—a form of wealth—concern the benefits that humans derive from functioning ecosystems and includes provisioning services (e.g., goods), regulating services (e.g., nutrient regulation), supporting services (e.g., structural and other mechanisms), and cultural services (e.g., spiritual, recreational, and aesthetic). Mapping the flows of ecosystem services helps to identify life-supporting benefits (to humans) from functioning ecosystem services and, in some ways more importantly, helps to identify the beneficiaries of those services. Benefit-flows mapping helps to identify the ways that geographically distinct communities are related and connected.

Prof. Hirokawa will discuss how mapping benefit flows fosters an understanding of the power relationships between ecosystem stakeholders while distinguishing between those with the opportunity to control the flow of ecosystem services and those whose well-being depends on them. It will assist as stakeholders engage in communicating needs and priorities among ecosystem benefits and empower more specific and effective communication within and among power relationships, ensuring a more equitable allocation of resources to where they are needed. Mapping ecosystem benefit flows is an act of community empowerment.

1. **Karrigan Bork, Acting Professor of Law, UC Davis School of Law, “Affording Water: Water Exactions”**

Water rights and their associated infrastructure support human needs and wants but also create significant external costs, including impacts on other infrastructure, ecosystems, and food production. Current approaches do not adequately address the externalities associated with water withdrawals, and this market distortion leads to economically inefficient water use, over consumption of water, and subsequent loss of the goods and services provided by intact water systems. The benefits of water rights and related infrastructure often flow to parties and regions who are not bearing the associated costs, and this uneven distribution creates serious distributional fairness concerns. The distribution of benefits and costs tends to follow pre-existing power dynamics and often constrain the range of possible solutions.

Prof. Bork presents a novel solution. He argues that the exactions framework, long used by local governments to manage or mitigate public costs associated with land use changes, offers a strong framework for addressing these concerns in water rights permitting. State water management agencies should condition water rights with exactions that require funding or in-kind contributions to offset the external costs associated with water rights and associated infrastructure. Water right exactions internalize the public costs of water withdrawals and restore some much-needed rationality to water use decisions, and thus may ensure that those benefiting from water rights pay the associated costs. This framework will also mitigate existing distributive concerns; create dedicated funding and water for management of public costs from water use; and promote better judicial decisions concerning takings in the water right context.

1. **Sonya Ziaja, University of Baltimore School of Law, “Environmental Law by the Numbers: A Framework for Considering Equity in Environmental Algorithmic Tools”**

Algorithm-based decision tools in environmental law appear policy neutral but embody bias and hidden values that affect equity and democracy. Models and software are indispensable for climate adaptation planning in water and energy sectors. But, because they are by nature technical, necessarily rely on simplifications, and embed the value-laden assumptions and biases of the networks that create them, these tools threaten to deepen the divide between technocracy and democratic participation in environmental decision making, while eroding equity. Without more active participation in their development and implementation from a broader range of stakeholders (let alone lawyers and policymakers), the rules by which these tools operate and the rules they begin to impose on social and ecological systems will be driven by the value-laden assumptions of a remarkably small group of people. It is imperative to understand these tools on their own terms, while finding ways to bring them more in line with ideals of democratic participation. Specifically, if we are going to rely on these tools, we must begin by comparing these tools’ representations of governance against the reality and ideals of governance; understanding how these tool influence existing governance; and developing assessment tools and aids to foster substantive and procedural equity in their development.

Prof. Ziaja proposes a framework to begin this process and to serve as practical means for attorneys, watchdog organizations, and responsible decision makers to examine and assess algorithmic tools in a holistic manner. By considering sources of value-laden assumptions across uncertainty, transparency, and stakeholder collaboration, this framework indicates inflection points for substantive equity. By also considering the process of development, this framework incorporates lessons from the past two decades of social science on the importance of networks for the legitimacy and acceptability of scientific products.

1. **Cinnamon P. Carlarne, Associate Dean for Faculty & Intellectual Life, The Ohio State University College of Law, “Benefit Flows Mapping as a Climate Justice Tool”**

The climate justice movement spotlights how social, racial, and economic inequality perpetuates patterns of climate change and how climate change deepens inequality by disproportionately affecting those members of society who already face higher levels of vulnerability.

Achieving climate justice requires acknowledging and responding to existing patterns of inequitable access to and distribution of natural resources. It also requires ensuring that all members of society have meaningful modes of participation in decision-making processes. Benefit-flows mapping provides a potentially powerful tool for furthering the goals of the climate justice movement. It can demonstrate how differently situated communities control, benefit from, or miss out on ecosystem services. In this way, benefit-flows mapping helps uncover existing patterns of ecosystem “wealth” control and offers opportunities to disrupt existing paradigms of power that directly and indirectly shape resource allocation. As climate change amplifies stress on already inequitably allocated resources, benefit-flows mapping can provide critical information for creating more equitable systems of resource management, mapping out more inclusive and informed strategies for just transition, and developing a better understanding of where to expect climate-induced migration and how to accommodate climate-displaced people.

In this presentation, Prof. Carlarne will explore how benefit-flows mapping can serve as a tool of community empowerment and help advance the goals of the climate justice movement by identifying opportunities for developing more inclusive and equitable systems of resource allocation in a climate-stressed world.