

Considering Environmental Justice in Natural Resource Damage Assessment

Injury to Recreation Resources

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Abstract

A significant component of natural resource damages (NRDs) is the cost of restoration designed to compensate the public for injury to natural resources. To date, procedures used to identify restoration scale have not considered environmental justice. This paper discusses policy and technical issues associated with building concerns for environmental justice into the natural resource damage assessment (NRDA) process. The focus in this paper is on injuries to human use services of resources, such as recreation.

The natural resource trustees, acting on behalf of the public, select one or more restoration projects from a suite of alternatives, using various criteria to determine which projects are better than others. Three criteria important for project selection are 1) providing sufficient benefits to compensate the public for injuries, 2) achieving a close nexus between the services injured and those restored, and 3) cost-effectiveness. This paper discusses the implications of adding environmental justice to this list.

A simple model of regional recreation is employed to illustrate the issues involved. Primacy is given to the public compensation criterion (PC). A restoration project is deemed to satisfy PC when the sum of individuals' values for recreation trips that the project provides meets or exceeds the summed values of trips lost due to injury. This is called value-to-value scaling. A large number of projects will pass a test for PC and other criteria must be used to make a selection. The cost-effectiveness criterion (CE) eliminates projects that are

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unnecessarily large in scale. The nexus criterion (N) implies that the project should be placed near where the injury took place so as to compensate those suffering the loss. And an environmental justice criterion (EJ) would state that projects that reduce inequalities in availability of recreation resources are preferred.

This paper discusses the interplay among these criteria. The paper shows that the traditional test for PC may include EJ to a degree, but also may be neutral regarding it, or even be in direct conflict, favoring projects that exacerbate inequality. Which outcome occurs is an unintended consequence of the empirical recreation demand models used in NRDA's. Criterion N can conflict with CE and, if primacy is given to N, then a feasible alternative project exists that can make everyone better off. CE may align with EJ but a conflict between them may exist, and some way to trade off equity and efficiency is needed. EJ might be imposed in the form of a constraint; projects that pass the PC test would be "equity-effective" if baseline inequality is not exacerbated. In this case EJ and N are compatible, and such an approach may overlook opportunities to actively diminish inequality, which may require relaxing N.

The paper forwards a method by which environmental justice can be built into restoration scaling computations as a balancing of equity and efficiency. It requires modifying existing scaling methods, but can use the same data and basic approach as in current practice. A generalized sum of individual values is used that includes a weight placed on how inequality is altered by injury and restoration. Restoration can both compensate the public and effectuate a transfer from the resource rich to the resource poor, reducing inequality. The generalized sum of values is an index of social welfare. Restoration is scaled when social welfare with the injury and restoration is at least as great as social welfare at baseline. This new approach is called social value-to-social value scaling. The social welfare index has a free parameter governing the degree of aversion to unequal distributions of recreation resources. This parameter can be varied to see the impact on environmental justice in restoration scaling. Indirect evidence on the likely range of this parameter shows that when environmental justice is formally considered, the unit value of restoration relative to the value of injury may be increased substantially over the traditional approach.

To read the full white paper by Theodore Tomasi, Ph.D., [CLICK HERE](#).