

**WATER ALLOCATION PROGRAM DEVELOPMENT  
IMPACT SUBCOMMITTEE MEETING**

**MINUTES OF MEETING**

**3-7-03 1:00 PM at the Offices of the RI Economic Policy Council**

**Next meeting of subcommittee:** We will schedule the next meeting for the first week in March and notify members soon. REVISED: March 4 at 10 AM at the Economic Policy Council

**Present:**

Kathy Crawley, Beth Collins, Rich Blodgett, Judy Benedict, Sheila Brush, Kelly Woodward, Dr. Robert Costanza

**1. Discussion of Task List**

Judy Benedict agreed to be the lead on priority environmental areas. Judy or Julie will set next meeting.

Rich Blodgett will convene members on task 1.

Kelly Woodward is undertaking task 4 on Design Decisions. We want at least one more committee member to join that task.

Drs. Tyrrell and Pacheco have reviewed existing studies on the economic value of watershed assets in Rhode Island for the Partnership for Narragansett Bay. They apply some of Costanza's per hectare values to Rhode Island. We will invite Tim Tyrrell to share with us at our next meeting.

**2. Presentation from Dr. Robert Costanza, Director of the Gund Institute for Ecological Economics and Discussion**

**Introduction from the Agenda:**

***About the Gund Institute***

*The Institute for Ecological Economics was established to fill the growing need to integrate the study and management of "nature's household" (ecology) and "humankind's household" (economics). Ecological Economics is the name given to the effort to transcend traditional disciplinary boundaries in order to address the interrelationships between ecological and economic systems in a broad and comprehensive way. Ecological economics is not intended to replace either ecology or economics, but to draw on the best of both disciplines without being bound by them in order to create an effective and essential synthesis.*

*Dr. Costanza's research has focused on the interface between ecological and economic systems, particularly at larger temporal and spatial scales. This includes landscape level spatial simulation modeling; analysis of energy and material flows through economic and ecological systems; valuation of ecosystem services, biodiversity, and natural capital; and analysis of dysfunctional incentive systems and ways to correct them.*

The subcommittee had the opportunity to hear from Dr. Costanza in an informal discussion format. Beth Collins explained that our committee's mission was to identify policy relevant methods of understanding the impacts of water shortage.

Dr. Costanza summarized the four types of capital: built, human, natural capital (including ecosystem services), and social (including networks and institutions). He referred us to his 1997 *Nature* paper for more detail.

Ecosystem services include: gas regulation, climate regulation, disturbance regulation, water regulation, water supply, erosion control, soil formation, nutrient cycling, waste treatment, pollination, biological control, habitat, food production, raw materials, genetic resources, recreation, and cultural.

We ask how do these four types of capital interact to contribute to well-being.

Well-being is more than consumption. There is a low income threshold under which satisfactory well-being is not attained, but beyond that high levels of well-being can be achieved at a variety of incomes. Well-being is more of a relative construct than an absolute one.

Maryland is applying these concepts in a GIS-based interactive model that displays the values of different types of capital and their functions. The tool is being developed to evaluate alternative land-use scenarios. It shows a change in land use as giving up something to get something else.

A variety of methods must be employed to estimate the economic values of different types of capital. Many environmental services, for example, are non-excludable so you can't set up conventional markets.

It is important to include public good values as well as private (or excludable) values or we end up with a socially non-optimal solution.

There is no market if it cannot be traded, yet it can still have value because it contributes to welfare.

Some alternative methods of assigning values:

- We can ask people to place monetary values on things they know well, like recreation, but not on things like watershed protection.
- Replacement cost
- Shadow pricing (a model based approach)

Fragmentation can have a cost too – avoiding fragmentation maximizes the value of environmental assets.

Identify alternatives to the market: Impact Fees

Impact fees could be used to replace ecological values. If the impact fee is tied closely to impact than developers can work hard to reduce impact to minimize the fee. This is not done with impact fees in Maryland. (In contrast, if impact fees are per house or per acre then the impact fee provides no motivation to reduce the actual impact of the development).

How are environmental impact fees administered?

CA example – TNC like organization “trust”

WV example – sale of land from power co. to Fish & Wildlife allowed the power company a charitable donation of \$16 million for the ecosystem services in addition to the \$16 million they were paid for the land.

Kathy: Has it been difficult to go from global values to local? Dr. Costanza: The global values are derived from many local studies of different ecosystem types. If there have been studies of ecosystems similar to our local one, then it is not hard to apply values.

We discussed the legal authority to impose such impact fees since they would be different than current impact fees that are tied to the capital budget. Authority would derive from local police powers.

There are examples of local governments imposing environmental impact fees such as the “carbon tax” in Aspen, Colorado based on the energy consumption of a new home. This fees is legally justified by the connection between power use and pollution and the costs of pollution mitigation. (Post meeting fact check: New homeowners are charged up to \$100,000 if they exceed the "energy budget" allotted to their property by the local building code. The money collected under the Renewable Energy Mitigation Program is invested in energy efficiency and renewable-energy projects.)

One administrative solution to the complexity of an environmental impact fee is to start with the worst case impact and then the applicant has to prove that their impacts are less to lower the impact fee.

Water Allocation

Water allocation policies can be constructed to encourage long-term water conservation. Users that conserve can get an allocation that is good even in drought – so by using less all the time, they are assured priority access to water during drought.

Connecticut found that grand fathering existing water use encouraged users to use their entire water entitlement and not conserve.

How does Maryland use their model for policy and development decisions?

Kelly Woodward described the Places software of Parsons, Brinkerhoff. It models land values, construction values, and the impact of development on some municipal services. PB is interested in extending the applications of their model and might incorporate more detail on water-related impacts. The West Side Master Planning process has approached them about evaluating their

three land use scenarios. Right now the Places model does not capture ecological impacts well. Maybe there is a way to bridge the Gund Institute model and the Places model.

We discussed some funding sources like the 1 cent fund and an EPA grant opportunity. Kathy Crawley advised that we shouldn't spend time on identifying funding sources until after we identify what kind of economic study or model would provide value to decision makers.