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PA 395: Green Taxes
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September 21, 2004

The fact that Green taxes are all interconnected replicates how all of the ecosystem's services are interconnected; therefore a holistic approach is necessary in ecological economics and the push towards a tax shift. Resource consumption is one of the greatest subsections of Green tax types (some of the other major subsections include Carbon tax, Pollution tax, and Land Value tax). Of resource consumption taxes, perhaps one of most importance and of most urgency is water consumption. Consumption of water is not the only concern. Quality is of equal importance; as an infinite amount of contaminated water is just as futile as a minute amount of uncontaminated water (at least from an anthropocentric viewpoint).

Perhaps it is because we are surrounded by great bodies of water that we forget water is actually a scarce and finite resource. Water consumption taxes are more uncommon than water quality taxes which encompass discharge fees, pesticide and fertilizer taxes, and motor fuel taxes (as these are the main sources of contaminated runoff in our drinking water). Negative effects from contaminated drinking water are undeniably present: cancer, birth defects, and other serious illnesses are on the rise, particularly near extremely contaminated water sources. The realism of running out of water however seems less tangible (unless you live in arid conditions where drought is frequent).

What is a water consumption tax? The concept of the "user/polluter" pays principle is setting a trend towards charging consumers for the consumption of natural resources (fossil fuels, minerals, timber, and water). Currently in America, water acts as a free resource. In most places where a consumption tax exists the tax is relatively small and does not greatly affect consumers, other than irrigators (who use 81% of the water consumed in the US). For example, Durning and Bauman (1998) estimated that a tax of \$0.06 per 1000 gallons of water used would have generated more than \$600 million in 1995 assuming a 15% reduction in consumption due to higher water prices. This would

have been enough to cause irrigators to adjust and improve cropping habits. However, it would only result in about six one-thousandths of a cent increase on food (Durning and Bauman 66-67). It is seemingly ridiculous that this tax does not exist. Taxes on the consumption of natural resources would steer people to being more efficient and conservative in their consumption, and would encourage recycling, reuse, and innovation. Consumption taxes would have to be accompanied with strictly enforced regulations and compensation for the poor. Over time the benefits of consumption taxes would be a cleaner environment for all, but in the meantime such taxes may appear to disproportionately affect those who do not have the ability to pay.

Below is a chart of how the city of Milwaukee taxes water consumption through a municipal service bill.

<u>Water Consumption</u>	<u>Milwaukee</u>	<u>Suburbs</u>
First 100 CCF	\$1.18	\$1.475
Next 4900 CCF	\$1.09	\$1.363
Next 15000 CCF	\$0.68	\$0.85
Next 20000 CCF	\$0.63	\$0.788

Water is measured in one hundred cubic feet (CCF) which is equal to 748 gallons. Notice the trend that the more water consumed, the cheaper the levy. This is clearly perverse. Such a pattern is common in locations where water consumption taxes exist and such models are described as descending block structures. London is another example where charges for residential water consumption decreased as more water was consumed. In 1991, London's billing changed to an increasing block rate structure. The first 1200 cubic feet is now charged at \$2.01 per 100 cubic feet. The next 2800 cubic feet is charged at \$2.12 per 100 cubic feet, and it continues to incrementally increase.

Denmark serves as one of the world's chief role models in an environmental tax shift. An analysis between 1989 and 2001 shows "a clear link between rising water prices and reduced water consumption...In this time water consumption in Danish households went

down by more than 25%... at the same time, the price of water has gone up 150% in eight years” (Nature and Environment website 2002). The price of water in Denmark breaks down as follows:

- Water supply tax (41%)
- VAT (20%)
- Green taxes (14%)
- Variable water taxes (12%)
- Fixed taxes (9%)
- Fixed taxes for wastewater (2%)
- State tax for wastewater (2%)

The National Agency for Enterprise and Construction highlights some positive effects of water consumption taxes, drainage tax in particular. Efficiency and innovation! The drainage tax encourages water-saving installations, such as lavatories with high/low water-level flush, and water taps that save water by adding air to the jet stream. Taxes on the amount of drainage households generate forces people to fix those leaky toilets and taps that they would otherwise ignore.

The Econo H2O Water-Saver is another example of innovation that has emerged from the growing consumer or “user” pays principle. 45% of household water consumption is used by the toilet, whereas only 30% is used in showers and baths, 20% on laundry and dishes, and 5% on other activities. This water-saver device drastically reduces the amount of water used in toilets. It would help to save 32,000 liters of water per person each year (Enviro Access website).

According to the U.S. Geological Survey (USGS) in 2000, Americans used 408 billion gallons of water per day and has remained stable since 1985. The chief water users in America are power generation (48%), agriculture (34%), public water supply (11%), and other sources which includes aquaculture (7%). Fortunately, advances in technology in irrigation and power generation allow agriculture to function with less water.