

HOW LANDOWNERS CASH-IN ON POLLUTION ABATEMENT

IN PARTS of the developed world, many people are complaining bitterly because environmental restrictions have reduced employment opportunities through cutbacks in production. Requirements for assessing environmental impact have retarded and cancelled well-publicized plans for expansion of jobs and output. Job expansion has depended on the flouting of environmental protection codes. These conditions of trade-off exist because of the different demands of those who prize economic growth and those who prize environmental integrity.

More such trade-offs loom if limits are placed on growth so as to preserve nature-rich areas and conserve non-renewable resources. In the trade-off between economics and ecology both sides have legitimate claims for positive social action that would help to fulfil their aspirations toward the good life. If one side is

favoured at the expense of the other, tensions may develop that could damage the delicate network that keeps members of the advanced societies in political harmony.

The early skirmishes in the economics-ecology conflict have not yet produced acceptable proposals for coping with this uneasy situation. Perhaps beneficial ideas can arise from the application of Alfred North Whitehead's observation that great achievements have come from a willingness to analyse the obvious.

CONSIDER Tonawanda Creek as it flows through western New York State. On its way to the Niagara River, it collects inadequately treated sewage, phosphates, fertilizers, industrial waste and pesticides. The poisons going into the creek make swimming dangerous and fishing worthless. The poisons foul nearby wells and make boat

maintenance more difficult.

Suppose all polluters were impelled to stop their polluting. How would the costs and benefits of pollution-abatement be distributed? The first burden-carriers have to be the polluters because of the cost of changing processes, of installing abatement equipment or of neutralizing noxious waste products.

Pollution-abaters with something to sell are likely to try to pass their increased costs on to their customers by raising prices. Demand by these customers at abatement-affected higher prices could be elastic and fall. Customers would suffer from abatement by being deprived of supply at cheaper prices. The cutback in output would make some labour and some capital redundant. Suppliers of the displaced labour and capital are likely to flee pollution-regulated sectors, if their economic distress cannot be alleviated by low cost adjustments.

Economic Answers to

ONE OF THE truisms of the ecology movement is this: everything is connected to everything else. Everything else must include economic phenomena. A parallel truism of the body economic is: the cost of anything depends on the cost of everything else. Everything else must include the cost of the air we breathe and the cost of the water we drink.

These truisms are evidence that both sides in the ecology-economics conflict are aware of essential inseparability. Despite the sense of interdependence, both sides seem to be seeking separation in thought that will justify giving one side ascendancy over the other. Both sides should, instead, be seeking a principle of reconciliation or mutual enhancement. Analysis of the obvious suggests that the needed principle involves land values.

Some people conceive of land value as being simply the price that inspires the transfer of land titles from one person to another. In this conception, land may be said to function as a specialized form of capital meriting treatment as a commodity, with its price determined solely by supply and demand.

Increased demand for commodities usually provokes increased supply. Since land is fixed in quantity, increased demand cannot bring increased supply. Nor can falling demand decrease the supply of land. Categorizing land as a commodity and defining land value as the price of that commodity cannot be considered a sufficient description of what happens in the real world.

Supporters of the conception of land as commodity, argue that the price is always right when set by supply and

demand. Any interference with supply-demand action must be deemed as a deterrent to social progress. How can such a rigid proposition admit of ecological concerns without subverting the proposition?

Other people regard land pricing as a process, as a means of calculating the many factors, public and private, that make land useful. The process of land pricing through free bargaining is an operation for arriving at figures that express the productive use value of particular sites at a given time under a given set of social conditions.

In this second conception, productive use sets the limits of rise and fall in land values, with final figures refined by supply and demand. This conception provides a convenient calculus for predicting and measuring the economic consequences of any factor bearing on land use. *Ecological concerns immediately fall within the sphere of this calculus.*

Many people who seek to promote the general welfare, argue that this goal is well-served when land gets its best and highest use. They further argue that the most economically sensible use of land usually occurs when a site goes to the person who can pay or generate the most ground rent. Unfettered use of land is now a thing of the past. Environmentalists have sensibly pressurised legislatures and regulating agencies into asserting this permanent proviso. Other people and other sites must suffer minimal damage from the highest and best use.

SUPPOSE that, prior to any confirmation of land tenure, a maximum value were established for

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The flight of capital and labour from any area has to make land values in that area go down.

If demand for pollution-abaters' products were inelastic, that is, if first-stage customers accepted higher prices by buying at previous levels, pollution-abatement burdens would fall on first-stage customers. The customers of pollution-abaters are likely to try to pass along their increased costs to their customers and so on down the economic ladder to final consumers. Somewhere in the course of the "pass along" game, some of the players may not be able to pass along the added costs originating in pollution-abatement, and they will have to rearrange consumption and production plans downward. The associated labour and capital will have to move, literally or economically.

Regardless of demand conditions,

some customers of pollution-abaters will join them in carrying the burden of pollution-abatement. When these burdens are insupportable or none transferable, capital and labour will move from one site or use to another. Sites adversely affected by ecological encumbrance must experience a fall in values or a retarded rate of return.

THE CONJECTURED cessation of pollution in Tonawanda Creek would confer a considerable economic gain on at least one group of people. This group comprises property-holders downstream from the polluters. With no expenditure of effort or money, they would find their property values rising considerably. The real estate market would capitalise into higher land prices the presence of an enhanced environment for swimmers, fishermen, boaters, picnickers, etc.

The general effect on property values of changes in the state of pollution can be no different from the often demonstrated effects of changes in social conditions surrounding human enterprise. If access, policing, fashion, regulations, demand, population and so on, undergo change, there must be corresponding changes in opportunities, to achieve satisfaction. Where markets are reasonably free, changes in opportunities must produce proportional changes in demand for some or all kinds of land. This change in demand must eventually be expressed in land prices, some going up and some going down.

Human affairs are so rich in detail, variation and complication that they overwhelm those who try to discover how and why things happen. In the interest of mental economy, thinkers are forced to separate human affairs into manageable categories. In many cases, separation and classification of phenomena is distinct. In some cases, there is enormous overlapping. How much separation exists in reality between economics and ecology?

Ecological Problems

each site either by appraisal or by public auction, as conditions warranted. Let site tenure by government be granted or maintained from payments determined by maximum site value. A site cost so determined may be deemed a positive opportunity cost, because the cost to a willing user must be reasonably proportional to the locational benefits received by the user.

If compelled to erect pollution-abatement equipment, site users would be turning capital funds from a productive use to a non-productive one. Such diverted funds lack direct earning capacity. Capital funds made non-earning by compulsion may be justly classified as negative opportunity costs.

It is well established that positive opportunity costs in the form of ground rents or land values are never passed along to customers in the form of higher prices. It has also been established that pollution-abatement costs, as currently imposed, are almost always passed along to customers, one way or another.

Efficiency in the use of resources requires the keeping of opportunity costs at a level that provokes the highest and best use of land.* The next step in getting the needed ecological-economic coordination tool is this: use the growing discipline of technology assessment in cooperation with accepted accounting practices to find a rational method of defraying the costs of deploying properly imposed pollution-abatement techniques.

By this time, technology assessment should be able to provide a feasible set of requirements for environmental protection in all kinds of economic enterprise. If condi-

tions for site use are severely restrictive, the advantage to particular users of particular sites must be lower than under conditions of little restriction. When land users calculate their chances of a successful enterprise, they will translate restrictions into lower opportunity values and bid less for land tenure. How low will the bids fall? In a reasonably competitive market for land, bids for land tenure would vary by amounts that depended on the perceived costs of environmental code conformity.

As a condition for maintaining land tenure, existing and potential polluters would bear the initial costs of erecting environmentally governed production facilities. How do we keep these costs from being punitive costs that will either lower production or raise prices? By remembering that opportunity costs may be divided into two classes.

Final site tenure cost would be based on the summation of the two pertinent kinds of cost. One would be the periodically revised maximum annual value of the site, the positive opportunity cost. The other would be negative, the annually amortized cost of introducing pollution-tempering structures into production facilities. The negative cost should be set by free-market negotiation between firm managers and technology assessors.

Tenure would derive from payments based on the net annual opportunity cost. The final figures would essentially come from highest-use site value minus amortized costs of compliance with environmental codes. If, in the absence of ecological rules, opportunity costs were such as to permit and encourage the maintenance and expansion of jobs or output, then they must remain so