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Toward a Healthier Environment and a Stronger Economy: How to Achieve Common Ground

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Toward a Healthier Environment and a Stronger Economy: How to Achieve Common Ground

by Murray Weidenbaum, Christopher Douglass, and Michael Orlando

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Executive Summary

Grand attempts to reconcile economics and environmental interests typically fail, with the result that these two groups often become opponents in the public arena. Most efforts to bridge intellectual differences have involved economists trying to get environmental activists to develop "the economic way of thinking" — or conversely, ecologists attempting to convert bean-counter economists to kinder environmental values.

The time is appropriate for a very different approach to developing common ground between these two groups, both of whom are genuinely and often passionately concerned with improving the environment and the economy. A good place to start is to identify the public policies and activities which would be condemned equally by those concerned with the health of the environment as by those worrying about the state of the economy. Reversing those policies would truly generate simultaneous benefits in both areas of concern rather than involving any compromise in either economic or environmental values. Such action does not involve a difficult tradeoff; rather, it involves reaching common ground.

The United States can simultaneously achieve a healthier environment and a stronger economy by reexamining public policies that impede both of these worthy objectives. This report details many opportunities for doing so, illustrating that environmental and economic objectives are often fully compatible. Nevertheless, the challenge to move from ideas to action is a formidable one.

Each reform proposed here requires butting heads with some powerful element of the status quo. But the ability to overcome the status quo does exist; it resides in the common desire of the vast majority of Americans to protect the environment while enjoying the benefits of a healthy, growing economy. The changes envisioned here are an attractive indication of the potential for public policy changes that can achieve this common ground. In addition, a focus on common objectives may enhance the ability of

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environmental groups and economists to work together, producing longer-term benefits.

The following six specific reforms are presented as representative of the findings of our analysis of public policy changes that can help the environment and the economy. By no means do they exhaust the possibilities. Rather, these examples, we hope, will whet the appetites of others to add to the potential for pursuing environmental and economic goals together.

1. *Now that the Cold War is over, it is practical to sell off $6.6 billion of excess chemicals and metals in the Department of Defense's Stockpile of Strategic and Critical Materials.* This could be done over a five-year period to minimize any adverse impacts on the markets for these metals and minerals. This sale would reduce ecological damage by extractive industries and improve the federal government's fiscal condition.

2. *Subsidies (about $1 billion a year) for federal sales of power, timber, and other natural resources should be eliminated.* This can be done by simply charging fully competitive market prices for these resources. The same market-oriented approach should be used in renting federal lands and other assets. These valuable assets should be available to the commercial economy — but only if and when the transactions meet the test of the marketplace. Use of market prices would simultaneously reduce the utilization of these valuable resources and increase revenues available to reduce the budget deficit.

3. *All remaining farm subsidy programs, especially those for sugar and peanuts, should be cut.* The Federal Agriculture Improvement and Reform Act of 1996 is eliminating federal production subsidies and acreage reduction programs that manipulate output and prices of major crops (wheat, feed grains, cotton, and rice). This progress toward greater economic efficiency and reduced pressure on the environment should be accompanied by terminating the remaining farm subsidies, notably for sugar and peanuts. Those two crop supports generate the most egregious combination of adverse economic and environmental effects.

4. *New Army Corps of Engineers, Bureau of Reclamation, and other government construction programs that do not pass a realistic benefit-cost test should be terminated.* Projects that do not meet this standard are a poor investment of society's resources (colloquially, many of these are referred to as "pork barrel" projects). Over the years, the federal government has funded many economically and environmentally undesirable construction projects.

5. *Special tax provisions that artificially encourage the extraction and use of natural resources should be repealed.* The market is a useful, albeit imperfect, mechanism for balancing environmental costs against economic gains. When government attempts to improve on market forces with tax subsidies, the result is to accelerate the use of natural resources while depressing federal revenues and increasing the budget deficit.

6. *Government regulations that discourage recycling should be rewritten.* It may not make sense for government to force recycling when such action will use more resources than it will save, but surely the reverse also is true. It is bad policy for government to discourage recycling in cases where economic incentives are clearly aligned with environmental objectives.

Addressing these six policy areas will do far more to demonstrate the benefits of linking economic incentives with environmental concerns than yet another round of theoretical disputations. Continued examination of fiscal and regulatory policy is desirable to ensure that governmental policies and programs simultaneously meet important economic and environmental concerns. Achieving common ground between ecological and economic viewpoints is an important step toward future progress in public and private policy.

Specific Areas for Public Policy Reform

This report focuses on three key categories of federal public policy — spending, taxes, and regulation — which provide substantial opportunities for simultaneously achieving environmental and economic objectives. In each case, specific reforms are proposed with these dual characteristics.

The first — and largest — section is devoted to identifying the many federal expenditure programs that waste taxpayer funds and environmental resources. Proposals presented here range from selling off unneeded stockpiled minerals to charging competitive market prices for timber.

The second section contains an array of tax subsidies that arbitrarily encourage the use of natural resources. The third, and final, section deals with opportunities for rewriting government regulations that have undesirable consequences from both environmental and economic viewpoints.

Reforming Federal Expenditure Programs

Many government expenditure programs waste both taxpayer funds and environmental resources. As shown in Table 1, the annual cost of seven of these activities is estimated at $1.2 billion. A decision to eliminate them would open up a variety of attractive possibilities.

Selling Off the Strategic Stockpile

The federal government spends $52 million each year just to maintain the $6.6 billion stockpile of strategic materials, most of which is not needed, according to the Department of Defense. Liquidation of the stockpile would temporarily reduce environmental impacts from mining and processing raw ore by increasing the supply of these items available to the commercial economy. Furthermore, a program to sell off the stockpile would provide new revenue to the treasury, reducing the budget deficit.

The objective of the Strategic and Critical Materials Stockpiling Act (50 U.S.C. 98 et seq.) is "to decrease and preclude, where possible, dependence on foreign sources of supply in case of national emergency."[1] In 1920, when the events of World War I were still fresh, Congress gave the War Department responsibility for acquiring supplies and mobilizing industry in case another war should arise.

Table 1

Selected Federal Expenditure Programs which Encourage Use of Natural Resources

Federal Program	Annual Amount (in millions)
Timber sales subsidies (1990-1993)	$363
Irrigation subsidies (1902-1996 annual average)	210
River maintenance subsidies (1995)	221
Peanut program subsidies (1996)	119
Hard rock mining subsidies (1995)	150
Grazing subsidies (1993)	100
Cost of maintaining national defense stockpile (1995)[a]	52
Total	$1,215

[a]Disposing of excess stockpiled materials over five years could yield additional annual revenues to the federal government of $1.2 billion.

Source: See text and accompanying footnotes.

One of the ways of meeting that goal was to stockpile raw materials.

After years of War Department studies on the nation's deficiency of certain natural materials, Congress made the first appropriations for stockpiling in fiscal year 1938. When World War II began two years later, the stockpile was still in its infancy. Consequently, it had little impact on the American war effort.[2]

After the war ended, Congress transferred responsibility for the stockpile to the National Security Resources Board, then to the Office of Defense Mobilization in 1953.[3] During the early stages of the Cold War, the stockpile grew in prominence, with President Eisenhower stating, "The stockpile is not a marginal program nor a residual claimant for resources, but is actually a high priority

program, a vital part of the pattern for national security."[4]

After several other bureaucratic shifts, responsibility for the stockpile came to rest in the Defense Logistics Agency, a branch of the Department of Defense. This agency now administrates a stockpile of 89 materials with a 1995 market value of $6.6 billion. Maintaining and administering the stockpile costs the government $52 million a year.[5]

The Department of Defense realizes that the world has changed dramatically since the creation of the stockpile. It reported in May 1995 that, of the 89 materials presently in the stockpile, 86 materials worth $6.5 billion are in excess of need (see Appendix Table A1). Items in the surplus range from 45,000 short tons of asbestos to 3.9 million pounds of cobalt to 16 million pounds of bauxite.

Clearly, the stockpile program is an anachronistic relic of the Cold War.

The Pentagon now believes that global trade in essential goods and services would continue during mobilization before a war and after hostilities begin. In fact, the need for some goods in the stockpile would actually decrease in the event of war because of the curtailment of civilian demand.[6] The only materials which the Department of Defense believes justify continued stockpiling are minor amounts of iridium, tantalum, and quartz crystal worth $24 million.[7] Clearly, the stockpile program is an anachronistic relic of the Cold War.

Sixty-four of the 86 surplus commodities are either metals, minerals, or ores, with agricultural commodities and other commodities accounting for the remainder of the stockpile. Despite the recommendations of the Department of Defense, Congress has authorized very little sell-off of the stockpile's assets over the years. Between fiscal years 1993 and 1995, sales have averaged $247 million each year, the total of which is only 14 percent of the stockpile's value.[8]

Why has Congress been so slow in selling off the stockpile's assets in an age of large budget deficits? The simple answer seems to lie in the political pressure of the groups which produce these materials. Adding the government holdings to available supply is likely to significantly decrease the market price for many materials

in the stockpile. The amount of palladium in the stockpile, for instance, represents 20 percent of the annual quantity demanded for that metal, and the amount of platinum in the stockpile is 5 percent of the annual quantity demanded.[9]

Instantaneous divestiture would glut the market, lowering the market price dramatically for all of the materials in the stockpile. Thus, a phased program of selling off the items over several years would be more appropriate. Announcing in advance the schedule of sales would reduce market uncertainty in many segments of the mining industry.

Under the status quo, the continuing presence of the stockpile distorts the market for investment in domestic production of these materials. Companies are uncertain whether to invest in production of a stockpiled material for fear that the government will sell off that part of the stockpile. Aware of this, companies tie their demand projections to the political winds. Moving the locus of economic decision-making from the market to the government has created an incentive to invest in lobbying instead of investing in new technology or improving production efficiency.

It is interesting to contemplate the environmental consequences of releasing the surplus stockpiled materials. Indeed, 72 percent of the commodities in the stockpile are metals, minerals, or ores which are mined directly from the earth. Such mining, it is often claimed, harms surface and ground waters as well as fish and wildlife habitat. For the more delicate metals, such as silver, which are embedded in ore, the waste from mining the ore can become a significant burden on the ecosystem.[10] Heavy metals resident in the ore and chemicals added to the ore to facilitate recovery of the silver result in a large volume of waste that poses a significant disposal problem.

A liquidation of the military's stockpile would decrease the incentive for companies to mine in fragile areas and, at the same time, generate new revenue for the Treasury. Implementing this liquidation gradually will ensure that the long term viability of our mining industries will not be compromised. Indeed, eliminating the incentive to invest in government lobbying will release industry resources for investment in truly productive efforts.

Eliminating Subsidies in Sales of Natural Resources

The federal government sells and leases a great variety of natural resources in ways that both harm the environment and shortchange

the national taxpayer. The following section identifies the ways in which the government subsidizes these activities and then puts forth some ideas for improving these public policies.

Modernizing Grazing Fees for Use of Public Lands. Livestock grazing, the single largest use of federal lands in the Western United States, has traditionally been heavily subsidized by low grazing fees. Many economists believe that this is an unfair burden on the taxpayer while many environmentalists believe that such grazing has had a deleterious effect on the ecology of the land. Livestock tend to congregate near streams or in wetlands where land is sensitive to damage from trampling.

A liquidation of the military's stockpile would decrease the incentive for companies to mine in fragile areas and generate new revenue for the Treasury.

A 1988 study by the General Accounting Office reported that 90 percent of federal stream side lands in Colorado managed by the government have been degraded, with poorly managed livestock grazing being the major cause.[11] These problems have not been alleviated since the GAO report was written.

The Association of Forest Service Employees for Environmental Ethics has prepared a report delineating the adverse effects of livestock grazing on federal lands in the Umatilla National Forest in the Columbia River Basin. According to the report's authors, "Grazing can alter the composition, structure and function of terrestrial, riparian and aquatic ecosystems. Livestock grazing affects fish and wildlife populations, watershed hydrologic functions, soil structures, nutrient cycling, habitat characteristics . . . ."[12]

Livestock grazing on federal lands has caused fiscal shortcomings, as well. According to the Congressional Budget Office, maintaining grazing lands costs the Forest Service and the Bureau of Land Management $4.60 per animal unit month (AUM).[13] However, the 1994 permit fee was only $1.98 per AUM. The average value in 1993 of grazing on private lands was estimated at $10 per AUM. If federal grazing fees were raised to the private market level, revenues to the federal government would rise by as much as $100 million each year. Setting grazing fees commensurate with market prices would result in beneficial environmental impacts as well as

positive fiscal effects.

Some economists would go further than merely raising the fees for grazing on federal lands. Because the federal government owns such large shares of Western lands (over half of California and over 80 percent of Nevada), they urge sales to private owners of some of the land that is now rented for purposes such as grazing. (Contrary to public perception, such action would not include selling off national parks or other pristine property.)

Other analysts recommend more esoteric approaches, such as treating grazing permits as tradable private property rights. They claim that this approach would provide security of tenure to ranchers and increase the incentive for good stewardship of the land.[14]

Eliminating the Subsidy for Hard Rock Mining. Under the law governing mining of hard rock minerals, the General Mining Law of 1872, mining claims are cheap to procure — between $2.50 and $5.00 an acre. This figure approximates the fair market value for Western grazing land and farm land in 1872. It is also inexpensive to maintain this mining right; an owner of a mining claim must do a minimum of $100 of mining-related work on the property each year. The government, however, receives no royalties on minerals taken from federal lands under the claim of private individuals.

The original purpose of the 1872 mining law was to promote exploration and development of the West by making access to minerals inexpensive. In the present day, this law represents little more than a give-away of public assets and a windfall to mining interests — owners and workers — which encourages environmentally intensive activity.[15]

According to the Congressional Budget Office, the annual value of hard rock mining on federal lands is approximately $1.2 billion.[16] Imposing a royalty of 12.5 percent on hard rock mining — which is commensurate with the existing royalties on coal, oil, and gas extraction — could add an estimated $110 million to the annual revenue of the federal government. The exact amount of revenue would depend on the extent to which the imposition of royalty payments discourages mining activity. Eliminating the 1872 Mining Law would force the closing of some marginally profitable mines and curtail the environmental impact of domestic mining.

Eliminating Subsidies in Timber Sales. If the U.S. Forest Service were a business, its economic assets would put it in the top five on Fortune magazine's list of the nation's wealthiest corporations. But if it were ranked according to operating revenue, it would fall to number 290. And in terms of net income, the Forest Service would

be in bankruptcy court.[17]

The Forest Service provides many services to the logging and timber industries. The agency manages the growth of the nation's public forests, maintains logging roads, and replants logged areas. In 1994, the cost of Forest Service operations which directly benefited the logging industry totaled $900 million. Yet, according to Forest Service estimates, the 1994 harvest of 4.8 billion board feet garnered only $800 million in Forest Service revenue. In some of the most environmentally sensitive areas of the nation, such as the Rocky Mountain region, Forest Service expenditures exceeded receipts by about 3-to-1.[18]

The Wilderness Society believes that the actual cost of Forest Service operations may be substantially higher. For instance, making road bases, which made up 63 percent of total road costs in 1992, is not counted as an expense associated with forest use. In addition, the Forest Service has overstated income by counting federal subsidies as revenues. The Wilderness Society estimates the total loss to taxpayers to be $614 million in 1993.

The General Accounting Office has come up with lower loss estimates, notably $112 million in 1990. The midpoint of this range of estimates, $363 million, reflects the general magnitude of the revenue potential of policy changes. Clearly, whatever specific numbers are used, significant subsidies are present in federal timber sales.[19]

Much Forest Service timber is located in environmentally sensitive areas such as steep slopes and wetlands. By compelling the Forest Service to account for the full costs of the benefits provided to the timber industry and to cover those costs with the price of timber sales, the federal government could produce additional revenue of about $100 million a year. Forced to bear the complete costs of harvesting, timber companies would be discouraged from using the national forest system's most ecologically fragile and sensitive lands.

Eliminating Farm Subsidies

Although Congress has voted to phase out most of the agricultural price support programs, those that remain generate some of the most egregious economic and environmental damages to American society.

Eliminating Peanut Subsidies. Holders of peanut production quotas receive generous subsidies from the federal government, while

the laws which mandate these subsidies also discourage farmers from following environmentally benign agricultural practices.

In 1995, peanuts under government quota were supported at $678 a ton, while the world market price for peanuts was approximately $350 a ton.[20] As a result, lucky U.S. peanut producers earned nearly twice as much as their competitors on the world market. This money did not come from the superior quality of the American peanut, but from a virtual tax levied on U.S. consumers.

The Congressional Budget Office estimates that the peanut program cost the federal government $119 million in fiscal year 1996. However, this is only a portion of the total cost of the peanut subsidy. Since 1981, Congress has transferred much of the cost of supporting the peanut program to consumers through higher domestic prices. In 1993, the General Accounting Office reported that the peanut program costs consumers $314 million to $513 million each year in higher prices. As a result of this legislation, peanut producers receive subsidies which average $217 an acre.[21]

Agricultural price support programs generate some of the most egregious economic and environmental damages to American society.

Under present rules, farmers must grow peanuts on the same farm two out of every three years to remain in the federal subsidy program. This discourages crop rotation and contributes to overfarming of the land, thus raising the need for more fertilizer, which can contaminate water supplies. Also, farmers cannot move their peanut production quotas out of the county originally designated for production except in special circumstances. Therefore, peanut production is locked into certain areas, many of which require more fertilizer.

For instance, peanut production in Georgia, with 45 percent of U.S. production, uses 16 pounds of fertilizer per acre while production in Texas requires only six pounds per acre. The recently enacted Federal Agricultural Improvement and Reform Act of 1996 allows limited sale, lease, and transfer of quotas across county lines.[22]

The passage of the North American Free Trade Agreement (NAFTA) and the growing influence of the General Agreement on

Tariffs and Trade (GATT) has significantly complicated the interaction of foreign trade and agricultural price supports. Because the U.S. government is now required by law to allow free imports of most industrial goods, the government cannot restrict the import of secondary production of agricultural goods. Thus, producers of items like peanut butter face the incentive to move their manufacturing outside the United States to obtain cheaper supplies on the world market. According to University of Georgia economists, over a fourth of the reduction in the use of U.S. peanuts in peanut butter during the 1992-93 crop year can be attributed to displacement by imports.[23]

Terminating sugar subsidies would save the federal government the cost of administering the loan program as well as the expenses of enforcement of the quota.

Government programs such as the peanut quota favor the few at the expense of the many. In Pennsylvania, U.S. Senator Rich Santorum saw that although peanut quota holders were benefiting, his state was losing jobs from a similar program in the sugar industry. Consequently, he proposed dropping the peanut price support program: "I have a lot of peanut quota holders in Pennsylvania who do not like what I am doing, but I have a lot of jobs from Hershey's, which just moved a plant to Mexico because of the sugar problem."[24]

Eliminating Sugar Subsidies. The sugar program operates through a system of price support loans and import quotas combined with tariffs. The government establishes a loan rate price for sugar and extends a non-recourse loan to sugar farmers for the value of their crops at that price. If the domestic price of sugar falls below that minimum price, farmers can default without penalty. The government then accepts their sugar crop as full payment. It turns around and sells the sugar at the domestic market price, absorbing the resultant loss. For the 1997 crop, the support price is 18 cents a pound, almost twice the current world market rate.

The law requires that the entire burden of the price supports be passed on to the consumer. The government does this by placing a high tariff on the sugar that is allowed to be imported. The effect is to boost domestic prices above the loan rate price. Because domestic sugar production meets only 85 percent of domestic demand, the government allows some sugar from favored countries to be imported tariff-free. Above that amount, however, the tariff is 16 cents a pound, which drives up the price of imported raw sugar to approximately 25 cents a pound. The agreements under the Uruguay Round of GATT require the tariff to drop to 14.45 cents a pound by the year 2000. Import prices are still likely to be above both the domestic price and the loan rate price.[25]

Sugar producers claim that government intervention is justified because nearly all other sugar-producing countries subsidize their sugar crops. Indeed, recent studies have estimated that a world free-market equilibrium price would be between 14 cents and 17 cents a pound for raw cane sugar. That price range is significantly higher than the current 9 cents a pound rate which is kept low by foreign farm subsidies.

Because the sugar cane industry enjoys guaranteed high prices, sugar producers have been anxious to expand their operations, especially in the Southeast, where the climate is most amenable. Since 1970, the amount of acreage devoted to sugar production in the Everglades Agricultural Area has doubled. Sugar cane now occupies more than seven times as much acreage as the next four largest commodities in the area combined. Increased sugar cane acreage has contributed to lower water quality and has encouraged increased chemical use. The Department of the Interior believes that the sugar cane industry has significantly contributed to the degradation of the Everglades.[26]

Terminating sugar subsidies would save the federal government the cost of administering the loan program as well as the expenses of enforcement of the quota. Consumers would save an estimated $1.4 billion yearly through lower prices.[27] Although NAFTA and GATT have included provisions for allowing price supports to continue, the secondary markets for sugar face no such restrictions. Thus, U.S. companies which utilize sugar as an input often import processed materials that include sugar rather than buying high-priced domestic sugar. Eliminating the sugar subsidy program would be a boon to American consumers and American workers while contributing to a healthier environment.

Eliminating Uneconomical Construction Projects

In theory, most federally financed construction programs are supposed to be economically attractive and, thus, to be worth the intrusion on the environment that results. For example, water resource projects of the Army Corps of Engineers and Bureau of

Reclamation are required to pass a benefit-cost test. In practice, however, the costs of many of these undertakings are underestimated and the benefits are projected on a very generous basis.

Frequently, the stated major benefits of reclamation projects are agricultural production from the reclaimed land. In many cases, however, the output winds up as part of the farm surpluses that the U.S. Commodity Credit Corporation must buy up under the federal government's agricultural price support program. In these instances, the real benefits are negative. Both resources and dollars are wasted. But, of course, that is not how the projects are shown in the official benefit-cost analyses that justify them.[28]

Taxpayers are paying half of the bill for maintaining the inland waterway system, thereby lowering costs to transporters and encouraging more waterborne traffic.

Similarly, serious objections have been raised with respect to flood control projects of the Corps of Engineers. In focusing on protecting many specific areas from even modest amounts of flooding, the Corps has made it more likely that other regions will be badly flooded during periods of unusually large spring runoffs of melted snow. Controversy rages over whether, on balance, many of the Corps' projects do more harm than good, both environmentally and economically.

At a more technical level, the discount rates used to estimate the present value of the future benefits of federal construction projects typically assume an artificially low interest rate. Often that rate is lower than the Treasury's borrowing rate for money for a comparable term. Any interest rate lower than the opportunity cost of capital — what the return on the money would be if it were invested in commercially competitive private sector activities — is a subsidy. That is so because a low discount rate results in overestimating the present value of the future benefits that will flow from the undertaking.[29]

For example, in 1983, when the Treasury was paying approximately 12 percent for its long-term money, the Senate Committee on Environment and Public Works and the Corps of Engineers were using the low interest rate of 7.75 percent in evaluating these projects. Even with that subsidized low interest rate, over $1 billion

worth of Corps projects showed a very marginal benefit-cost ratio, notably 1.1 or 1.0. It is clear in these cases that, if anything approaching a market rate of interest — or even the lower Treasury borrowing cost — had been used, all of these projects would have failed the benefit-cost test required by law.[30]

In many cases, the estimated benefits from a federal construction project include a wide range of claimed farm efficiencies, recreational usage and environmental changes, some of which are very generously valued. Thus, in the case of the Calleguas Creek project in California, the statute specifically provides for including the widest possible range of benefits that could result from a shift in farmer decision-making on which crops to plant in a flood plain.

As in many other cases, Congress is very specific in its instructions on that project: "The feasibility study will consider the agricultural benefits using both traditional and nontraditional methods."[31] In plain English, this means that, if agricultural benefits are not very substantial according to the way that the government traditionally calculates them, then the agency should resort to other "nontraditional" benefit estimation methods.

In other instances, Congress tilts the analysis in favor of going ahead with specific parts of the project. For example, the chief of the Army Corps of Engineers was directed "to base all economic analyses of the Sacramento River Flood Control project on the benefits of the entire project, rather than the benefits of individual increments of the project."[32] In that case, proposed add-ons to the original project would have to be approved even if they failed to pass a benefit-cost test so long as the benefits of the overall project continued to exceed the costs.

Eliminating Subsidies in River Maintenance. Under current law, taxpayer money subsidizes inland waterway maintenance by funding half of the cost of dredging and maintenance.[33] The Inland Waterway Trust Fund, which receives its revenue from fuel taxes on commercial waterway traffic, pays for the remaining costs.[34]

In fiscal year 1995, the Army Corps of Engineers accepted bids for the dredging of inland waterways which totaled $443 million for the displacement of 202 million cubic yards of river-bottom.[35] In one year the government spent over $220 million of taxpayer money on dredging alone. Maintenance of locks and port facilities are in addition to these dredging expenses. Taxpayers are paying half of the bill for maintaining the inland waterway system, thereby lowering costs to transporters and encouraging more waterborne traffic.

Of course, the additional traffic increases the need for more maintenance. Increased maintenance, in turn, has become a burden on the ecosystem. According to a Department of the Interior report on one such maintenance activity, "Disturbance associated with dredge spoils removal resulted in proliferation of nonnative weeds that further threaten the site."[36] Straightening out and dredging waterways contributes to faster water flow and increased dislocation of sediment. In addition, dredged materials must be deposited somewhere, and these deposits can have secondary, negative effects. As the *Handbook of Dredging Engineering* states, "The dispersal of fluid mud dredged material appears to have a relatively significant short-term impact on the benthic (bottom-dwelling) organisms within open-water disposal areas."[37]

Eliminating federal subsidies to users of inland waterways and forcing those users to cover the total costs of river maintenance would alleviate overuse of waterways by charging the full costs of this service to those receiving its benefit. Firms paying the total cost of river maintenance will have a new incentive to look for innovative means of transporting their products.

Eliminating Irrigation Subsidies. The federal government subsidizes irrigation of private agricultural land by funding Bureau of Reclamation water projects and then charging farmers a minute fraction of the cost. For instance, it is estimated that the Central Utah Project in Southern Utah will cost the government, on average, $350 to provide an acre-foot of water. Farmers, however, will pay only $3 for each acre-foot of water.[38]

This project is not unique. Richard Wahl, a former Department of the Interior economist, has estimated that, since 1902, the Bureau of Reclamation has subsidized projects in the western United States to the tune of $20 billion (86 percent of total bureau construction costs) or an average of $210 million a year. Recent irrigation subsidies have been generous. The Bureau of Reclamation estimated that irrigation subsidies totaled $2.2 billion in 1986 alone.[39] There is little change in sight. Irrigators are scheduled to repay only $3.4 billion of the $21.8 billion cost of construction projects, or 15.6 percent.[40]

The federal government provides irrigation subsidies to many farmers whose crops it also subsidizes. For example, the Bureau of Reclamation estimated that $830 million in irrigation subsidies in 1986 went to farmers growing subsidized crops. Those federal programs continue to this day.

It is fascinating to contemplate the interrelationship between

these two subsidy programs. First, the federal government gives farmers the incentive to increase their output through irrigation subsidies. Then the government purchases those crops to keep prices artificially high to encourage farmers to raise the crops in the first place. According to the Department of the Interior, between 1976 and 1985, an average of 38 percent of the acreage served by the Bureau of Reclamation nationwide was used to produce crops that are also eligible for agricultural subsidies.[41]

The environmental drawbacks to increased irrigation and Bureau of Reclamation projects have been extensively documented by the General Accounting Office. For example, the San Luis Drain, constructed in 1968 to collect and recycle drainage from farms, became a repository for selenium, a trace element which is harmless in nature but which, in concentration, is lethal to animals. It also causes deformity and higher mortality rates in fish and waterfowl. In addition, increased irrigation increases the salinization of lands. When water is applied in agricultural use, the tiny amount of salt present in all water is filtered out and remains in the soil. The salt must then be removed by using more water. In one water district in California, reported crop and land losses due to this problem were estimated to be $35 million in 1987. Waterfowl habitat in California is estimated to be at a third of its optimal level due to water diversion. Ninety-five percent of trout streams in central California are no longer available for spawning due to damming.[42]

Terminating federal government water subsidies would generate both fiscal and environmental benefits. If users of Bureau of Reclamation water were to pay for the construction of dams in the western United States, taxpayers would have saved untold billions over the past century.[43] Elimination of the Bureau of Reclamation would also avoid millions of dollars for administrative expenses.

Surely, the use of tougher standards in reviewing proposed federal construction projects, for water resources or other purposes, would reduce both federal spending and environmental intrusion.

Reducing Tax Subsidies

Many special provisions in the federal tax code benefit firms and individuals engaged in activities that can have a severe impact on the environment. Such provisions range from special treat-

ment of tax deductions for depletable resources to exclusion of parking expenses from employee income. These provisions, special exclusions, exemptions, deductions, and credits diminish the usual incentive to conserve scarce resources. In fiscal year 1995, special tax provisions generated benefits of over $3.8 billion to the recipients (see Table 2).

Use of Percentage Depletion from the Sale of Natural Resources

Owners of interests in mineral deposits are allowed to reduce their taxable income by a percentage of revenue. This provision is also allowed for independent oil and gas producers — those who produce no more than 1,000 barrels per day of crude oil or 6 million cubic feet of natural gas or the combined equivalent of both. This provision of the tax code is known as the percentage depletion allowance and, typically, it results in lowering a company's federal income tax liability.

Through the percentage allowance, qualifying firms are able to deduct from their taxable income more than actual costs incurred. Arguably, this provision is justifiable on strategic grounds, to ensure that our economy does not become too dependent on foreign sources of strategic materials. What is not arguable, however, is that this special treatment reduces tax revenue to the U.S. Treasury. Moreover, the percentage depletion allowance artificially increases returns to investment in mining and oil and gas extraction. This distortion increases, albeit by a minor amount, the portion of the economy's resources devoted to these activities relative to other, perhaps more environmentally benign activities.[44]

The percentage depletion allowance typically exceeds the actual costs incurred. However, it is statutorily limited on an annual basis to 50 percent of taxable income after all deductions. Unlike depreciation used by most other businesses, percentage depletion deductions can exceed the cost of the investment. In 1995, the net value of percentage depletion to the companies benefiting from it was $1.8 billion.[45]

Special Treatment of Mineral Exploration and Development Costs

For successful investments in domestic oil and gas wells by independent oil and gas producers, intangible drilling costs (wages, costs of using machinery for grading and drilling, and costs of

Table 2

Selected Federal Tax Subsidies, Fiscal Year 1995

Provisions which Encourage Use of Natural Resources	Amount (in millions)
Excess of percentage over cost depletion	
Oil and gas	$1,335
Other fuels	165
Nonfuel minerals	295
Expensing of exploration and development costs	
Oil and gas	(300)
Other fuels	15
Nonfuel minerals	35
Enhanced oil recovery credit	105
Capital gains treatment of royalties on coal	20
Capital gains treatment of certain timber income	20
Exclusion of interest on state and local industrial development bonds for energy facilities	225
Expensing of multiperiod timber growing costs	370
Exclusion of reimbursed employee parking expenses	1,585
Total benefits to recipients	$3,870

Source: Office of Management and Budget, *Budget of the United States Government, Fiscal Year 1997: Analytical Perspectives* (Washington, D.C.: U.S. Government Printing Office, 1996), pp. 70-71.

unsalvageable materials) are fully tax deductible in the year in which they occur. Integrated oil companies may expense only 70 percent of their intangible drilling costs; they must amortize the remaining 30 percent over five years. Similarly, some investments for exploration and development of certain other fuel and nonfuel minerals may be expensed rather than depreciated over the life of the asset. This treatment is in contrast to the normal tax treatment of investment costs which limits deductions to costs incurred.

Although the net effect in fiscal 1995 was to increase the tax burden on affected firms by $250 million, this provision will generate a net benefit in 1999. In the year 2000, a tax benefit of $145 million is estimated to be provided.[46] Insofar as extraction activities are known to be stressful to surrounding ecosystems, this special tax treatment is another subsidy which increases investments in natural resource extraction while reducing Treasury revenues.

Enhanced Oil Recovery Credit

Firms investing in enhanced oil recovery operations qualify for a tax credit of 15 percent of costs for projects in the United States. Through this tax credit, the government is subsidizing the drilling of wells which might otherwise be viewed as uneconomical investments.

Tertiary, or enhanced, oil recovery constitutes all oil recovered after using primary and secondary methods. Primary production is oil recovered naturally from reservoir pressure encountered after drilling a well. This includes oil recovered from natural gas expansion, gravity drainage, and aquifer drive. Secondary oil recovery is the incremental oil recovered via supplementary methods such as water, steam, and gas injection. Tertiary recovery is the final fractional oil recovered via enhanced methods such as solvent chemical injection and thermal methods.

Costs which qualify for this tax credit include tertiary chemical injectant expenses, intangible drilling and development costs on qualified tertiary oil recovery projects, and amounts incurred for tangible depreciable property. A government tax credit for tertiary methods may make an otherwise unattractive or marginal oil field investment opportunity economically viable. In 1995, the enhanced oil recovery credit resulted in tax benefits to affected firms of $105 million.[47]

Capital Gains Treatment of Royalties on Coal and Certain Timber Income

Profits on sales of coal under some royalty contracts can be treated as capital gains rather than ordinary income. Consequently, proceeds from these sales are taxed at a 28 percent maximum rate rather than the 39.6 percent maximum tax rate on ordinary income.

Through these royalty contracts, prospective investors in coal mining can receive a higher after tax return than that expected from an equally risky ordinary income-generating investment opportunity. This provision provides incentives for investing in coal mining above those profit incentives for businesses generating "ordinary income." The income from selling some iron ore and timber can also be treated as capital gains.

Eliminating special tax treatment of these income generating activities would reduce the environmental damage typically associated with mining and logging while also cutting the deficit by increasing federal tax revenues. In 1995, these provisions generated an estimated tax benefit of $40 million to the affected firms and individuals.[48]

Tax-exempt Bonds for Energy Facilities

Municipally owned electric and gas distribution enterprises benefit from tax-exempt financing of their facilities. To varying degrees, the reduction in operating costs is passed on to consumers in the form of lower energy prices. Thus, this provision discourages energy conservation while reducing federal revenues.

Investors who purchase the bonds issued to finance construction of these municipal power plants are generally exempt from federal income taxation of the interest on these bonds. Therefore, municipal electric and gas utilities are able to borrow at lower rates than other enterprises while ensuring their investors high after-tax earnings. In this way, tax-exempt financing distorts investor behavior and contributes to over-investment in municipal power plant construction. The additional supply of power-generating capacity tends to reduce energy prices, discouraging energy conservation by consumers. Moreover, the U.S. Treasury forgoes the revenue which it normally receives from interest reported by taxpayers.

In 1995, this provision resulted in an estimated tax benefit of $255 million to the owners of these bonds.[49]

Expensing Multiperiod Timber Growing Costs

Generally, costs must be capitalized if goods are produced for inventory. Production for inventory is considered an investment and associated costs are treated accordingly, i.e. costs are amortized over time. However, multiperiod timber growing costs are exempt from typical capitalization rules and can be expensed quickly. Therefore, firms' inventory carrying costs are reduced, which reduces incentives to match inventories to current demand. The practice of rapidly harvesting and storing timber becomes relatively more attractive since inventory costs are subsidized via the tax code. In addition, the resultant decrease in the cost of growing timber translates into a decrease in the cost of using timber, discouraging timber conservation.

In 1995, this provision resulted in an estimated tax benefit of $370 million to the affected firms and individuals.[50]

Exclusion of Reimbursed Employee Parking Expenses

Employees receive a tax-exempt fringe benefit in the form of employer-paid parking at or near the place of work. The internal revenue code does not require employees to report as taxable income the value of this benefit. This provision eliminates revenue to the U.S. Treasury that would otherwise be paid through employee compensation. In addition, this revenue-losing section of the tax code reduces the incentive to carpool or to take public transportation, increasing fuel consumption and air pollution.

In 1995, this provision resulted in an estimated tax benefit of $1.6 billion to the affected individuals. This estimate does not include the value of employer-owned parking facilities.[51]

Rewriting Regulations

Government expenditures and tax provisions are not the only areas presenting opportunities for environmentally and economically friendly reform. Regulations put in place to address a certain ill at a certain time may generate unintended consequences that are adverse to the environment, the economy, or both. In particular, those regulations which specify materials and production processes to be used for certain applications tend to "lock-in" specific levels of technology, reducing incentives for innovation.

Examples of this phenomenon are regulations which discourage recycling. As resources become increasingly scarce, firms and individuals try to develop innovations, such as recycling, which minimize resource use. However, regulations written before recycling became widespread serve to lock producers into prior production technology.

Effects of FDA Packaging Regulations on Recycling

Citing the authority of the Food, Drug, and Cosmetic Act of 1958, the Food and Drug Administration (FDA) regulates food packaging material as an indirect food additive. The 1958 law establishes ambiguous standards of purity which discourage food manufacturers from using recycled materials. Many food manufacturers which might otherwise profitably utilize recycled materials are compelled to make greater use of virgin materials in packaging.

Through the Food, Drug, and Cosmetic Act, the FDA regulates food additives to ensure that no component will make food dangerous to human health.[52] The regulations also set standards for quality of packaging material which comes in contact with food, regulating it as an "indirect food additive." To ensure contaminants will not migrate from packaging to food, the regulation states that packaging must be "suitably pure." To establish suitable purity, food manufacturers must test the prospective packaging material and submit the results to the FDA for approval in a non-objection letter. The testing and regulatory review process is costly and usually takes several months.[53]

The "suitably pure" standard was originally written for virgin material or material coming from a controlled source. But this standard is ill-suited for application to recycled materials which may come from a variety of changing sources. Whereas industry standards may allow one to assume the purity of virgin materials is constant, the variability of feed stocks to the recycled materials market makes its purity uncertain.

Should the purity of the recycled material in use change under current rules, the food manufacturers must reapply for a new non-objection letter from the FDA. Due to the uncertainty, analytical costs, and time associated with this process, food manufacturers are discouraged from using recycled materials in their food packaging operations. Furthermore, where the objective is to avoid use of packaging materials likely to allow migration of contaminants to food, standards merely specifying purity of packaging are

apt to be ineffective.

Indeed, as far as public safety is concerned, the purity of packaging is irrelevant. What matters for public safety is whether or not contaminants migrate from packaging to food. If the nature of a material is such that all components are fixed, the level of purity is inconsequential in determining suitability for packaging. In contrast, even a "suitably pure" material may not be as desirable for packaging if the few impurities which do exist in the packaging are likely to migrate to food.

Establishing a clear analytical standard for packaging suitability based on likelihood of contaminant migration would give food manufacturers an unambiguous "OK" to continue using recycled material which meets these standards without having to reapply for a letter of non-objection every time their recycled material feed stock changes.

Effects of Construction Codes on Recycling

Since most construction codes were written before recycling became popular, recycled products are often locked out of many appropriate applications. Many codes are written, not to specify performance standards which are the true measure of safety, but to specify materials and production processes. Though such codes may have been closely correlated with performance standards at the time they were written, these codes can deviate dramatically from their original objective as technological innovations unfold. Innovations in materials and production processes are locked out because traditional materials and production processes are "locked in" by these out-of-date codes.

To facilitate their application, codes were developed that often rely on "rules of thumb" which are easy to apply at the work site. The assumption underlying this approach is that codes can be developed which are not only easy to apply but are also closely correlated with the standards they seek to promote.

For instance, if standard writers want to ensure that any floor can hold a stipulated minimum weight, they might write a code that says "floors must be constructed with support beams at intervals not to exceed 18 inches." Thus, at the time the code was written, and given the materials then typically used for flooring, the stipulated construction process would readily meet the desired standard. But, as technology changes, the standard may be achievable with less material or a different amount of material.

However, since the building code stresses the construction process or material property rather than the performance standard, technological innovations may be discouraged.[54]

This is the case with recycled materials. For example, the Union Electric Company of St. Louis developed a process to convert waste ash from its energy production operations into blocks of building materials. Construction codes around the country are so specific that the company had to go all the way to Pittsburgh, Pennsylvania, to find a place where it was legal to use such material for building construction.[55]

There are many such codes which specify production processes or materials standards rather than performance standards. These codes go so far as to specify color and thickness requirements on items such as trash bags and toilet stalls,[56] requirements which may be correlated with the performance of traditional building materials but which may be irrelevant measures of the performance of recycled materials. If the physical characteristics of recycled materials are related differently with performance than are the physical characteristics of traditional materials, these standards may unintentionally prohibit the use of recycled materials.

Regulations such as these could be made more recycling-friendly — and also more amenable to technological innovation — if they were rewritten to specify performance standards rather than requiring certain production processes and material characteristics.

Conclusion

This report highlights three areas of public policy that provide attractive opportunities for simultaneously furthering environmental and economic objectives — selected government spending programs, special federal tax provisions, and particular regulatory requirements. In many cases, in each of these categories, policy changes would help to achieve a healthier environment and a stronger economy.

In the case of the government programs analyzed here, each appears to be a hard-to-defend subsidy to a special interest related to agricultural, mineral, and other natural resources. Thus, their elimination would represent a helpful contribution to the federal budget deficit while reducing artificial pressure on the nation's natural resources.

Likewise, the various special tax provisions identified here

share similar characteristics. Their elimination also would help reduce the budget deficit and curb artificial pressure on natural resources.

Finally, regulatory statutes and administrative rules could be rewritten so as to eliminate their unintentional bias against the efficient use of resources. The two examples provided above illustrate the discouragement of recycling.

This report has suggested just a few public policy changes that share two generally favored criteria: good economics and good environmental policy.

Appendix

Table A1

Excess Items in the U.S. Stockpile of Strategic and Critical Materials

Material	Unit of Measurement	In Units	In Dollars (millions)
Aluminum Metal	Ton	62,881	$94.31
Aluminum Oxide Abrasive Grain	Ton	39,113	17.27
Aluminum Oxide Fused Crude	Ton	216,860	25.16
Antimony	Ton	31,249	134.37
Nonstockpile Grade	Ton	7	.03
Asbestos — Amosite	Ton	34,005	.00
Nonstockpile Grade	Ton	1	.00
Asbestos — Chrysotile	Ton	9,783	.00
Nonstockpile Grade	Ton	984	.00
Asbestos — Crocidolite	Ton	36	.00
Bauxite, Metal Grade, Jamaica & Suriname	Ton	16,576,959	175.83
Bauxite Refractory	Ton	212,202	13.08
Beryl	Ton	15,023	10.25
Beryllium Copper Master Alloy	Ton	7,387	90.82
Beryllium Metal	Ton	400	144.07
Bismuth	Pound	1,107,772	3.73
Cadmium	Pound	5,188,352	6.24
Chromite Ore — Chem., Met., & Ref.	Ton	1,119,087	20.60
Nonstockpile Grade	Ton	76,138	1.19
Chromium — Ferro	Ton	1,170,284	676.17
Nonstockpile Grade	Ton	13,484	12.26
Chromium Metal	Ton	8,471	28.13

Table A1, cont.

Material	Unit of Measurement	In Units	In Dollars (millions)
Cobalt	Pound	46,902,663	$1,178.29
Columbium Group	Pound	1,787,528	12.56
Nonstockpile Grade	Pound	1,083,666	6.93
Diamonds Bort	Carat	2,001,938	8.32
Diamond Stones	Carat	5,186,144	394.19
Diamond Dies, Small	Piece	25,473	.92
Fluorspar Acid Grade	Ton	631,711	10.30
Nonstockpile Grade	Ton	1,297	.02
Fluorspar Metallurgical Grade Ore	Ton	222,733	6.75
Nonstockpile Grade	Ton	106,651	3.23
Germanium Metal	Kilogram	68,207	18.76
Graphite Natural Ceylon Lump	Ton	5,439	$2.57
Nonstockpile Grade	Ton	53	.03
Graphite Natural Malagasy	Ton	16,706	6.04
Graphite Nat. other than Ceylon, Malagasy	Ton	1,933	.35
Indium	Ounce	50,205	.48
Iodine	Pound	5,281,994	22.03
Jewel Bearings	Piece	30,237,764	50.56
Lead	Ton	485,931	272.71
Manganese Ore, Chem. & Met. Grades	Ton	1,179,214	61.62
Nonstockpile Grade	Ton	437,364	3.51
Manganese Dioxide Battery — Natural	Ton	123,275	7.79
Nonstockpile Grade	Ton	18,103	.65
Manganese Dioxide Battery — Synthetic	Ton	3,011	3.31
Manganese, Ferro	Ton	1,090,322	374.53

Table A1, cont.

Material	Unit of Measurement	In Units	In Dollars (millions)
Manganese Metal, Electrolytic	Ton	14,172	$23.70
Mercury	Flask	127,854	10.74
Mica Muscovite Block, Stained and Better	Pound	4,359,427	120.36
Nonstockpile Grade	Pound	193,594	5.35
Mica Muscovite Film, 1st and 2nd Quality	Pound	1,002,827	.17
Mica Muscovite Splittings	Pound	13,875,617	2.78
Mica Phlogopite Block	Pound	16,718	.07
Nonstockpile Grade	Pound	114,027	.46
Mica Phlogopite Splittings	Pound	1,233,326	6.17
Morphine Sulf. & Analg., Crude & Refined	Pound	62,186	23.69
Nickel	Ton	27,023	195.30
Palladium	Ounce	1,262,387	158.21
Nonstockpile Grade	Ounce	2,214	.28
Platinum	Ounce	439,598	145.26
Nonstockpile Grade	Ounce	13,043	4.31
Quartz Crystals	Pound	221,208	.96
Quinidine	Ounce	2,471,287	7.51
Quinine	Ounce	2,770,091	$5.10
Nonstockpile Grade	Ounce	475,950	.88
Rare Earths	Ton	504	.56
Ricinoleic/Sebacic Acid Products	Pound	4,608,897	7.93
Rubber (Natural)	Ton	128,867	78.34
Rutile	Ton	10,166	4.60
Sapphire & Ruby	Carat	16,260,229	.15
Silicon Carbide	Ton	32,148	13.29

Table A1, cont.

Material	Unit of Measurement	In Units	In Dollars (millions)
Silver	Ounce	49,318,537	$181.64
Talc — Block & Lump	Ton	1,082	.22
Talc — Ground	Ton	1,089	.01
Tantalum Group	Pound	1,773,141	74.41
Nonstockpile Grade	Pound	1,005,738	25.80
Tin	Ton	134,180	744.27
Titanium Sponge	Ton	25,964	155.79
Nonstockpile Grade	Ton	10,866	65.19
Tungsten Group	Pound	58,515,714	181.22
Nonstockpile Grade	Pound	23,796,602	67.73
Vanadium Pentoxide	Ton	719	9.96
Vegetable Tannin Chestnut	Ton	8,021	4.35
Vegetable Tannin Quebracho	Ton	111,303	36.15
Vegetable Tannin Wattle	Tonz	9,997	5.60
Zinc	Ton	309,465	269.46
Zirconium	Ton	15,991	.00
	Total		$6,537.93

Note: Nonstockpile grade materials no longer meet the specifications of the stockpile, but may be sold in the private market.

Source: Department of Defense, *1995 Report to the Congress on National Defense Stockpile Requirements*, May 1995.

Notes

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42. Ibid., pp. 14-15, 18-20.

43. Anderson, p. 278.

44. In practice, the percentage depletion allowance is a complicated provision of the tax code. Qualifying firms compute their allowable deductions on both an actual cost basis and a percentage of revenue basis. They are then allowed to take the

higher of the two as a deduction against net revenue. The cost basis allowance is computed by multiplying the undepleted capitalized costs by the units of production in the current year as a percentage of the units of total remaining reserves at the beginning of that year. The percentage depletion allowance is computed by multiplying gross income after royalties by a statutory percentage. For example, the depletion rate for small independent oil and gas producers is 15 percent. Percentage depletion rates range from 22 percent for a variety of minerals including sulfur, uranium, and asbestos to 5 percent for gravel, sand, and stone.

45. Executive Office of the President, *Budget of the United States Government, Fiscal Year 1997: Analytical Perspectives* (Washington, D.C.: U.S. Government Printing Office, 1996), p. 70.

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