

National Research Council. *Surface Mining: Soil, Coal, and Society*. Washington DC: National Academy Press, 1981, xiii + 233 pp., \$11.50.

This new study is a good follow-up to a predecessor National Resource Council study entitled *Rehabilitation Potential of Western Coal Lands* (1974), benefitting from six additional years of research and experience in reclaiming surface-mined lands and pioneering national legislation (Surface Mining Control and Reclamation Act of 1977). The book addresses the effects of coal surface mining on soil from two major perspectives—institutional (chaps. 1–4) and scientific (chaps. 5–7). Each perspective is well-treated, though the linkage and transition between the two perspectives appear somewhat disjointed.

The study develops the institutional perspective on reclamation using some concepts from environmental economics and social choice theory, for example, the need to internalize the external costs associated with surface mining and intergenerational equity concerns. To the extent that these costs are not reflected in market prices, collective decisions, such as the Surface Mining Control and Reclamation Act, are made to correct the external costs and resulting inefficiency in resource use. The study appears to have missed an opportunity to contribute in analyzing the effectiveness of the legislation in efficiently allocating resources, in equitably sharing the costs of reclamation, and in its implications for private property rights. With respect to the latter point, one might argue that the Surface Mining Control Act does not reassign property rights from the private to the public sector but rather narrows private property rights to land by restricting the exercise of those rights. The study offers alternative approaches to controlling surface mining effects, such as replacing design standards with performance standards, developing a new system of economic incentives, and developing new forms of property and institutions. A minor point applicable here is that the study is a little repetitious in some parts. One example of this is the discussion of alternative approaches to reclamation.

From a scientific perspective, the Council recommends the adoption of an "appropriate" approach to reclaiming the nation's coal-bearing lands, assuming that an appropriate goal for reclamation is to ensure that society does not lose important land use opportunities that were available prior to soil disturbance. The "appropriate" approach to reclamation is not simply the proper replacement of soil horizons but rather regaining or bettering the productivity of premined soils. In other words, reclamation should aim at establishing physical, chemical, and biological processes conducive to productivity rather than merely replacing the soil in the order in which it was found. The questioning of society's goal in reclamation and stressing results rather than the method of soil replacement is incisive and a contribution to analysis.

Chapters 5–8 deal with the soil characteristics in the coal-bearing regions (Appalachia, Midwest, and West), the reclamation strategies, and the costs of reclamation and are particularly useful and informative. Several reasonable and innovative suggestions are offered for consideration. For example, land should be reclaimed to the contour most advantageous for its final use regardless of whether the contour approximates the original one. Also overdeveloped soils, such as those in Appalachia, may be rejuvenated by mining, and productivity possibly equaled or exceeded where high quality substratum is available. Periods of five to ten years may be too short to achieve species diversity. Rather, the appropriate criterion for successful reclamation may be ecosystems in intermediate successful stages, tailored to the individual mining site.

Continuing with the scientific perspective, the study also addresses soils and hydrologic balances from the standpoint of infiltration capacity. It would have added to the comprehensiveness of this study if hydrologic balances would have included a summary of the research on reestablishing groundwater flows in replaced overburden after water-bearing coal seams are removed.

In examining reclamation costs for the three major coal-bearing regions, the study concludes that current estimates are on the high side, though they should be reduced with experience and economies of scale. It further concludes that mining in areas where reclamation is relatively easy and inexpensive should be encouraged and that standards required to protect fragile lands in one region should not be required in all regions simply to maintain equity among regions.

The treatment of reclamation from the two perspectives is extensive and well done. Because the study also summarizes much recent research on reclamation results and costs, it is an excellent up-to-date reference for one's personal library. For those readers not totally captivated by the technical aspects of surface mining on soil, chapters 3 and 4 offer a convenient summary of surface mining as a collective-choice issue and alternative policy instruments in dealing with the external costs associated with mining. *Surface Mining* is a solid base upon which to rethink our national policy on surface mine reclamation.

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Schmandt, Jurgen, et al. *Nutrition Policy in Transition*. Lexington MA: Lexington Books, 1980, xxv + 289 pp., \$29.95.

This book deals with the nutrition problems in society that affect health and productivity and governmental policies designed to alleviate those problems. It provides a comprehensive review of nutrition issues, describes current policy approaches to deal with these concerns, and proposes a set of