

CHAPTER IX

THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Development of coal resources in the Eastern Powder River Coal Basin of Wyoming will produce a region completely different from that existing at present. Industrial history suggests that changes will develop over time and will be of very long term--for practical purposes, permanent. Volume of coal, development of technology, and economies to be realized from large-scale and long-term operations all support this conclusion. Now the basin is typical of the rural west. Livestock ranching is both the predominant industry and way of life. Limited oil and coal development have not yet changed that. Population is low, and outside Gillette and Douglas, it is sparsely distributed. The land is essentially wild with man's presence apparent only through a few primitive roads, grazing livestock, and fences to control the stock.

Both short-term and long-term development and use of regional resources will change long-term productivity of the basin. From a typical western ranching area, it will be transformed into an industrialized region with mining of coal and its utilization becoming the dominant industry and financial foundation. Man's presence will be abundantly evident. By 1990, 1,540 million tons of coal will have been mined from nearly 14,000 acres and an equal area occupied by roads, railroads, and plants. Man himself will be more numerous with a population increase of 247 percent predicted by 1990. Higher regional income will be accompanied by a new population, many of whom will bring a set of new values in contrast to present values of stability and permanence.

Long-term productivity or quality of the various resources will be affected in different ways. Generally, resources will remain productive but in

a declining trend. There are two principal exceptions to this statement. The first is minerals, the productivity of which obviously is increasing and is expected to remain at a high level for nearly 100 years. The second is the social environment. Since there is no universal agreement on what is "good" or productive, some significant long-term effects will be pointed out without value judgements. Declines will be moderate to 1980 while development is first beginning and will accelerate rapidly over the next five years. After that, response will depend largely on the nature of the particular resource.

Agriculture

Loss of agricultural production will accrue from two sources, loss of land and loss of water. Most of the 29,000 acres of land to be disturbed by 1990 is used for livestock grazing. Long-term productivity of this land will be lowered by 50 percent, or 2,600 animal unit months per year. In addition, 1,245 acres of cropland will be lost. Since there is not a surplus of water within the region to support anticipated development, additional water will be required. One source is acquisition by industry of rights to water now used for irrigation. Some irrigation waters have already been acquired for industrial uses with a corresponding decrease in agricultural productivity. Projected loss of irrigation water to industrial use would result in an estimated additional loss of 31,500 acres of irrigated cropland.

Soil

Long-term productivity of soils in the Eastern Powder River Basin will decline as coal development progresses. Some of this lowered quality will result from accelerated erosion of denuded and disturbed areas. However, by far the greatest loss will result from mixing of soils and burying of better soils in the backfilling and reclamation of coal mines. Soil development is a slow process under the best of conditions; a semiarid climate magnifies the time factor. Loss in soil productivity will be a long-term loss on the 29,000 acres of land disturbed by 1990.

Wildlife

Loss of habitat on 9,500 acres occupied by facilities by 1990 will be permanent. Habitat value on an additional 19,500 acres disturbed by mining, rights-of-way, etc., will be seriously impaired. Adequate habitat will not be restored for antelope, deer and sage grouse for a long-term--20 to 50 years after the area has been disturbed. Figure 7, Chapter V, illustrates the length of time that is required for habitat suitable for certain species to be restored.

Animals in these areas will be lost since normally there are not "unoccupied" areas to support migrant population. By 1990, it is estimated that the base population of deer will have been reduced by 5 percent (850 deer), antelope by 9 percent (2,700 head), and loss of 940 to 1,250 sage grouse.

Perhaps more important over the long term is the effect of increased population and the activity, business and leisure of that population. It is estimated that a total of 116,000 acres of wildlife habitat will have been impaired from increased human utilization. Many animals cannot stand this increased human activity; their habitat is lost on otherwise undisturbed areas. Anticipated loss of 90 elk in the Rochelle Hills and general vicinity of the Atlantic Richfield and Kerr-McGee leases is an example. Most predators will respond similarly.

Long-term wildlife productivity losses may extend well beyond limits of the basin and its development. If water is to be imported, it most likely will come from the Green River in southwestern Wyoming. Construction of a reservoir on the Green River would cause significant habitat (and productivity) loss in that part of the state.

Recreation

Industrial development of the Eastern Powder River Coal Basin will change the nature of the recreation/aesthetic productivity of the area. Present recreation experiences provided are those associated with wild, semi-primitive lands. Both development and the number of people associated with it will change this. Since there will be more people participating there will, in one sense, be more recreation. However, it will not be primitive land based. There also will be more emphasis on urban types of recreation such as swimming pools, golf, playgrounds, etc. Extensive types of recreation will be replaced by more intensive recreational types.

At the same time and for the same reasons, aesthetic values of the region will change. Mines, structures, railroad traffic, and additional vehicle traffic will transform the basin from an area typical of the traditional west to one more representative of industrial civilization. Both local residents and tourists will be affected by this change.

Finally, there will be a diminished recreation land base. As population increases, so do problems of people use. As gates are left open, litter increases, properties are subject to vandalism, more private lands will be posted and closed to public use. Except for sightseeing, recreation productivity of these lands will be effectively lost.

Socio-Economic Conditions

As stated earlier, evaluation of many social and economic effects, both short-term and long, depends a great deal on the personal value systems of the observer. Development of coal and associated industry will provide about 30,000 new jobs in the region by 1990. In addition to more jobs, average income is expected to rise substantially. Coupled with local expenditures by industry, the net result will be a major increase in regional income.

In the short term, all public facilities will be overcrowded or overloaded and the population, particularly previous residents, will suffer. Schools face overcrowded conditions and possibly double sessions. Bussing to less crowded areas may be necessary, and there may be difficulty in recruiting teachers. Health facilities and personnel probably will also be overtaxed in the short term. Water and sewer systems, police and fire departments of both Gillette and Douglas must be expanded to serve expected populations. In the short term, all these constitute a hardship on the persons involved in growth. However, as facilities catch up to the population, more and better services should be available to all. The larger population will be able to support a larger educational system that can offer a greater variety of instruction more nearly meeting needs of more pupils. Similarly, a large population can support hospitals with more complete facilities and a more varied and specialized medical staff.

Not so easily assessed is the change in life styles that will accompany development. In the short term, a conflict between old and new can be expected. A transient attitude can be expected of much of the population, particularly during construction. Accompanying this will be much that goes with a "boom town" attitude. In the long term, these factors will develop into a

mixing and integration of life styles. New types of people will contribute to variety within the community group and a new "community" will result.