metals, secondary recovery practices and techniques need improvement both from the conservation and waste disposal viewpoints.

Land-use conflicts would accompany any large-scale employment of domestic clays as a primary source of aluminum. Similarly, disposal of wastes that accumulate in quantity incidental to the production of alumina (red muds) pose a present problem that will become more critical with time.

Anthracite

Anthracite is an energy source which had been used in great amounts. The high cost of mining due to unfavorable geologic conditions along with the availability and convenience of alternative fuels have substantially reduced the demand for anthracite. As production drops, mines close and become inundated, thereby increasing the cost of recovering anthracite left in the ground. Thus we have a dilemma for which there is no easy solution. Simply stated, there are sufficient anthracite resources to sustain a sizable production, but there is no demand for that production. If production does not occur, the coal remaining in the ground becomes more costly to recover. Yet anthracite is a low-sulfur, clean-burning fuel which may be in greater demand as air pollution restrictions become more widespread.

Essentially the emerging issues of the anthracite industry and region are social in nature. Streams polluted with acid mine water must be purified; spoil piles and culm banks must be eliminated; strip pits, crop falls and impoundments of acid mine water must be eliminated; subsiding land which ruins surface structures must be stabilized; and, fires in culm banks and coal seams which are hazardous to life, limb, and property must be quenched. The issues are here now and will remain until remedial action is taken. The urgency is that of nearly two million people living in a region with a sub-standard economy, yet a region which has much to offer the nation.

The production of anthracite is centered in a 10-county region of eastern Pennsylvania. The economy of this region had been heavily dependent on the mining of anthracite. As a result when the demand for anthracite faltered, the regional economy stagnated. Along with the drop in production, there was a reduction in the labor force. A stagnant economy coupled with fewer employment opportunities encouraged people to leave. For more than two decades, the population in the anthracite region has been declining while the surrounding counties have been gaining in population. Despite these trends, the anthracite area has great economic potential—it is close to large markets, has a surplus labor force, and possesses an ample supply of water. But before the full potential of this area can be realized. the residual effects of past mining practices must be nullified.

Antimony

Major periodic variations in demand, uncertain foreign supply, the nature of deposition that limits the extent of reserves at single sites, and economics unfavorable to domestic production produce an uncertain primary supply picture. Defense requirements contribute to the fluctuating demand but are modified by management of the national stockpile. Also, secondary metal is important in meeting requirements with about 50 percent of the current demand being met from this source. Current domestic production of primary metal materializes as a byproduct in the refining of base metal and silver ores and adds a recognizable increment to the economics of the refining operations. Little opportunity is seen for improving upon current practices.

Secondary metal, already the source of much of the current requirement, is so important to the projected supply pattern that any improvement in the recapture and recycling of scrap merits attention.

There are many applications in which other metals substitute satisfactorily for antimony, the cost advantage together with minor inconveniences being the factors normally favoring employment of antimony. The technology and opportunity for such substitution are fairly well understood. Over the long term the availability and cost of the competing metals will strongly influence the antimony requirement and use pattern. This applies particularly to copper, mercury, titanium, lead, zinc, chromium, zirconium, calcium, bismuth, and various organic synthetics.

Arsenic

The mineralogical association with copper, lead, cobalt, nickel, iron, gold, and silver relates the production potential for arsenic to the refining capacity for those