

Anticipated increases in demand are not likely to be greatly moderated by modest increases in price. Substantial price increases would significantly affect use-patterns but might have only a minor influence on the overall demand. In many present and foreseeable uses, silver comprises a relatively small part of the substance of the manufactured product and substitution is not likely even at much higher prices. Even in photography, the principal consumer of silver, intensive research has failed to develop a practicable substitute. Should such be discovered, a reduction in demand by 25 or 30 percent would result. In the other major use categories, minor saving through substitution will be more than offset by new and expanded applications.

Advances in exploration techniques and instrumentation are expected to lead to new sources, some part of which might be commercially exploited with present technology. Much larger potential sources will be established only if improved extraction and processing techniques, permitting their exploitation at reasonable cost, are devised. Most of the silver in the world is recovered from vein deposits and associated with other valuable materials. The improvement of underground mining methods appears to offer an opportunity for improving resource development and submarginal ore extraction.

Secondary silver has in recent years supplied much of the demand. Photography, arts and jewelry, electronics, special alloys, and users of in-plant scrap provided the source of this silver. The growing use of industrial silver, particularly in electronics, is likely to be a significant source of secondary silver. Only a fraction of the complex electronic scrap is presently collected and reprocessed. In view of the quantities now involved (30 million ounces of silver annually) in this application, the subject merits early attention. A similar observation is applicable to gold, platinum, and copper.

Some land-use conflicts attributed mostly to the disposal of extraction and processing wastes have been experienced and promise to become more frequent.

SODIUM

Salt is the principal natural source of sodium. Native (rock) salt is so abundant in the United States that the foreseeable supply to meet any demand may be considered unlimited. In addition, lakes, brines and the seas provide a truly unlimited source of various compounds. The gigantic chemicals and manufacturing complex of the United States both consumes and produces vast quantities of sodium compounds incidental to a variety of other substances and foresees no supply problems save only the inconveniences of distances between sources and some points of consumption, changing use-patterns and technology that affect manufacturing practices rather than occasion concern for supply.

Essentially all of the chlorine in addition to most of the sodium used in the United States is derived from salt. The demand for chlorine (as well as other substances) is subject to changing use-patterns and its relative availability and price have a bearing upon the economics (and technology) of a variety of mineral and metal processes where it serves as a reagent, solvent, or other processing medium.

(Special note: The interrelationship between a given mineral or metal and all of the materials and substance consumed directly or indirectly in bringing it to some usable form is, at best, a complex system for total analysis. Thus, the economic margin favoring the production of some metal or mineral may disappear, or be substantially improved, with minor changes in the projected availability and cost of a variety of seemingly unrelated substances. The evolution of a realistic means of measuring such margins deserves special study.)

The opportunity of substitution between sodium compounds and those of other elements is always present. Similarly the potential employment of sodium in large volume applications traditionally occupied by other substances (like sodium for copper in the transmission of electricity) has startling possibilities deserving thorough investigation.

The presence of large salt sources in relatively depressed economic or low employment regions provides a basis for speculation on the feasibility of establishing new industries that draw upon such local resources.

Some land-use conflicts and the effects of urbanization may necessitate that the pattern of raw material sources in the future change somewhat from that of the present (e.g., solar evaporation is particularly susceptible).