

know that it is an important stride toward solving some of the problems, once they get together within the framework of an organization.

I might mention the Food and Agricultural Organization estimates that about 10,000 deaths occur daily in the world from starvation alone. Furthermore, with continued growth of population, FAO says that it will be necessary to double the world's food supply by 1980, and to triple it by the turn of the century, if even minimal standards are to be maintained.

I would submit that this is a depressing prediction, considering past production and increase in population in certain food-deficient nations.

Water supply has been mentioned before this committee, and I think it is only fair to bring it into focus one more time by saying that the earth's total supply remains relatively stable and the water crisis is perhaps more related to availability than supply.

About 93 to 98 percent of the water on earth is unfit for drinking or irrigation because it is either too salty, is frozen in glaciers, or it is actually not potable water. In many instances, one man's sewage becomes another person's drinking water—a very dismal concept. So that the 2 to 7 percent that remains is not only unevenly distributed but is rapidly being depleted, and the normal hydrological recycling of water is being upset.

Of course, as was pointed out before, much of this is related to urbanization, concentration of industry in our modern technical civilization. In doing this, what has man done to his environment? He has created deserts, waterlogged in some instances or salinized areas larger than all of the irrigated lands of the world.

Again, a major problem which is confronting us.

About 700 billion gallons of water are available today. And we figure that—well, in 1960, for example, 320 billion gallons were used, and estimates by 1980 go to 560 billion. And for 2000, slightly over 900 billion gallons of water. Thus it is imperative that something be done about the water of this country, to say nothing about areas of the world where less water is available. In other words, we are saying here that the available stock of water is going to be outstripped by the turn of the century.

Another problem area. Intensive work is needed on the possibilities of improving plants and micro-organisms that will grow in brackish-water areas of the world. Many salt-tolerant bacteria are known, for example. Some of these may fix nitrogen and alter the mineral and osmotic relationships of salt water so that a variety of plants can be cultivated in these regions.

We are looking, then, to aquiculture, or a type of aquatic farming that has been envisioned and stated many times before. However, this is probably not as simple as it seems, because it is emphasized that the productive chains of the ocean, the actual organized organisms utilizing other organisms, may be longer than we know at the present time, and certainly are more lengthy than those on land. The potentialities, then, of the sea may be grossly overrated.

More research is needed in the area of marine biology because data indicate that the fertility of the ocean may be increased in some areas and are poorly known in most areas of the ocean.