

of 2400 calories a day. The total effect of all this would mean that we would be using modern science and technology to put to use currently unproductive land and seawater to feed tens of millions—and eventually hundreds of millions—of people who might otherwise starve or live on the fringe of starvation. In addition, such centers would bring population to currently uninhabitable areas, establish communities and ports, and perhaps lay the groundwork for other industrial activities making use of the area's natural resources and the nuclear power available. This might include, for example, extracting minerals from the seawater brine or establishing a fishing industry off the coast.

Of course, creating such nuclear agro-industrial centers is an expensive undertaking and one requiring no small amount of human resources and cooperation. But, although building a large complex like this costs, as has been estimated in some of our studies, about \$1 billion, remember that the nations of the world pay more than *\$150 billion* for military arms every year. Think what a fraction of this budget might do if it went into the highly productive centers I have described.

Before leaving agriculture, I want to point out a few more ways that nuclear developments might help in supplying the world with sufficient food. One general way in which the atom serves agriculture is in the extensive use of radioisotopes to study plant and livestock development to ascertain how we can raise the most productive crops and farm animals. One of the most important elements in the success of the agricultural centers I discussed before would be the use of very high-yield crops, disease resistant, weather resistant, and ideal for mechanical harvesting. Radiation might play a role in creating desirable plant mutations that could be selectively bred to produce these special types of crops.

Another aspect of agriculture making use of the atom has to do with the eradication of pests. We have been successful in controlling, through our irradiation technique, one deadly pest that has plagued our cattle industry in Florida. By a program of sterilization and release of massive numbers of male screwworm flies, who mate only once, we have virtually eliminated that pest in the Southeast.

We can also use radiation to control pests that attack food in storage and transport. In some areas of the world as much as 50% of the food production is lost during storage and transport. We are now testing bulk grain irradiators in the United States and abroad and are confident