

labors and a decent return on their investment. As the U.S. Secretary of Agriculture has said, "Profit will bring about the needed production."

There is little doubt that the world protein market is being transformed from a buyer's market to a seller's market. Because nearly one-third of the world's population consumes soy products directly, there is the possibility that

some may urge "international price-fixing" of this commodity. In my view, this would be the ultimate mistake and would be the most serious constraint possible on efforts to expand supplies of high quality protein.

I believe our twin goals of adequate world food supplies and fair prices to farmers will be realized.

## Proposal for World Protein Research Network

HUBERT H. HUMPHREY, U.S. Senator, Minnesota, and Former U.S. Vice President

### INTRODUCTION

Today I hope that you will permit me to speak as an American and as a member of the U.S. Senate. Therefore, the emphasis of my speech will be upon things as we see them or as we seek them out from the American vantage point. However, I would hope that my experience in public life has conditioned me to think in terms of world needs and world opportunities, as well as the needs and opportunities of my own particular country. I am grateful to the American Soybean Association for its efforts to make this Conference a memorable one, and it is just that.

I know that many of you have had a good time from a social point of view; but more significantly I think that all of us have had an educational experience. I have looked over and visited the many exhibits that are here, and I can honestly say that I have learned more about protein, the soybean, and other forms of protein from this conference and these exhibits than in any time in my life. I only hope that what has been done here can be repeated in other parts of the world time and again.

Might I give just this word of friendly advice. You are talking to each other here, men and women knowledgeable in the field of agricultural production, agricultural processing, and distribution. Many of you here are capable scientists and technicians in the field of food technology, particularly in protein research and development. But you are a small part of the total public. You must take your message—your message of production, of research, of nutrition, and of the battle against malnutrition—to every country in the world; otherwise, you will be hiding your light under your bushel, keeping this information primarily for yourselves and your companies or your particular office of ministry. All of us here are public servants, no matter whether in private enterprise, governmental service, or academic life. The world needs to know what you know. People who are illiterate and uneducated need to know what you know; people who are sick and needy should know what you know. Your message needs to be brought to the attention of a troubled world.

### FOOD PRODUCTION AND SOCIETY

I want to speak to you today in some broader dimensions than just the World Soy Protein Conference. I want to talk to you about food and population. I do not claim to be an expert; I am a politician, a public man. Politicians and public men need to know that experts should be on tap, never on top. We need your professional counsel and advice, but let me make it clear to you that whatever you want or hope to do will be conditioned by the political and economic environment in which you must work.

I know that many of you here want to think from the producers' point of view. I believe that the best incentive for production is a profit. I believe that other incentives for production are education and training. Surely another means of encouraging production is research. I put at that

point, public policy. We can get education, training, and research; then public policy becomes involved—public resources, public opinion, political decisions. No longer is it just the decision of the producer or even the distributor or the processor.

I have to say to my fellow Americans what I said to you privately. As a man who comes from the Midwest and essentially a rural background, I am mindful that it is one man-one vote in our country and in most of the so-called free countries of the world. That means that the rural population has a small percentage of the vote in the U.S. and a smaller percentage in Germany or in France or Britain or any other country—a dwindling percentage year after year. The trend is toward urbanization. Therefore, it is imperative that those of us who are concerned about food, food production, food technology, and food research, are able to convince and persuade the overwhelming majority of people who are not involved in this work.

I know many of you have said "Well, if the politicians would just leave us alone." They will not! That is the problem—they will not. I heard the U.S. Secretary of Agriculture Earl Butz yesterday speak about the consumer, but the consumer is a fact of life—he is there, he has a vote, he determines governments—and we cannot ignore him. Now that does not mean that we let an ill-informed electorate make decisions. It means that we try to inform and educate the electorate. And when we do, then we will have policies that can be sustained.

I thought I would pass along those few observations, because I have been in the minority on agricultural policy in the U.S. Congress for years, because most of the members of Congress are not rural or rural-oriented; they are highly urban and urban oriented. It has been difficult to sustain any kind of national food policy in a society that has the big media and the big city. There are no television networks in rural America; they emanate from New York, Chicago, and Washington. The full limit of the agricultural life of those cities is several petunia plants, and occasionally a flower garden. The print medium—great as it is and vital to a free society—has had little knowledge of or interest in agriculture until this past year, when it appeared that we might have a serious supply problem or until the prices went very high, according to our older standards.

We have trained thousands of journalists about the stock market but not about the wheat, the soybean, the cattle, or the pork markets. To them the stock market is in New York. The market that they were interested in is slips of paper, not tons of feed grains. And because of all this, we have a poorly educated public on matters relating to food, food supply, distribution, processing, and nutrition. So this morning, I want to emphasize the importance of taking this message that you have received here in these hours of study and deliberation back to your constituency, to your country, to your neighborhood, to your newspaper, to your television and radio, to your university, and to your farm cooperative, wherever it may be. The problem with educated talented people is that they talk to themselves.

They enjoy each other. They do not want to be bothered by those who seem not to understand. Well, let me tell you a fact of life—I have to be bothered with people who do not understand. I did not get appointed; I had to be elected, and that means I have to be concerned about the person who is least informed, as well as the person who is most informed; and sometimes it is more difficult to deal with those who are most informed.

What a marvelous Conference this is with 45 countries now represented, 1100 delegates. Maybe this is the place to talk about what I think is the central issue of our time—population and food.

Now I must confess to you that I could not accept quite so openly the statement made yesterday that we can supply all the food that will be needed for six billion people by the year 2000. I see no such evidence, but I do see evidence that indicates that, unless there is a better balance between population and food, we could have rising international tension, growing malnutrition, and famine.

You know that there are the living dead. You do not always reduce population just by having too little food. What you do is reduce the quality of life. You are interested in protein and therefore know, for example, that during the period of pregnancy, and immediately thereafter for the first three-five years of life, the intake of protein is vital to learning ability, to physical and mental health. As a matter of fact, many of the health problems that afflict us in adult life would be eliminated or greatly reduced by proper prenatal nutrition and proper nutrition during the first four or five years of life. Protein is the miracle remedy for mental and physical health. It is not as good late in life, but it is a Godsent blessing early in life.

So you are, in a sense, not only the providers for a healthy world, you are also the doctors of preventive medicine. I say that as a pharmacist; filling prescriptions for sick people is second best, if you can rate it at all. Keeping people strong, healthy, and well, both mentally and physically, is what we ought to be trying to do. We need health protection, not sickness insurance. Or should I put it this way—we need health protection, as well as sickness insurance. You are in the business of health protection.

In my prepared remarks, I make note of the sociologist and economist, Thomas Malthus who in the year 1793 predicted that man would breed himself into a corner of misery by increasing his numbers beyond the ability to feed himself. Now literally for many years this theory either was laughed at, ignored, or occasionally subjected to debate. The advance of science and the general belief that the world's natural resources are unlimited have resulted in the Malthusian theory being given little serious attention. This is particularly true in the U.S. where we had apparently unlimited resources until we woke up this last decade to find out it is not true. We also thought we had unlimited land, only to find out that we had not conserved it and frequently abused it. So during the past decade, scholars, scientists, social planners, government leaders, and business people have begun to reexamine the basic process underlining this theory: the ever shrinking ratio of people to resources. While it may come as a shock to some of us, we in the affluent countries—in the U.S., Europe, Japan—are increasingly guilty of depleting the world's scarce resources. In the U.S., we have a comic strip character named Pogo, who is somewhat of a philosopher; and Pogo is once to have said, "We have met the enemy, and the enemy is us." Well, we have met the enemy, and the enemy is us—living away, fighting away, clawing away at the nonrenewable resources.

The goal of controlling the continuing expansion of world population still eludes us. The world's population continues to expand at a rate of about 2%/year. Added to this demand factor is yet another major claimant upon our world's food resources, rising affluence. My fellow Americans, we are most guilty of them all. With less than 6%

world population, we use 40% world resources. Last year with less than 6% world population, we used about 35% world energy resources. The fact is, that prosperous people consume more, waste more, use more. In the poorer countries the availability of grain/person averages ca. 400 lb/year, or ca. 1 lb/day. In the U.S. and Canada per capita consumption of cereal grains is now approaching 2000 lb/year. Of course most of that is converted into animal protein and into milk, meat, eggs, and other products of the dairy industry. What does this mean, therefore, in the terms of input requirements? I believe that, before we can talk sensibly about protein or cereals or whatever, we have to know what we are talking about totally in terms of all inputs.

## INTERRELATIONSHIPS AND FOOD PRODUCTION

You do not grow soybeans just by sitting on your front porch or by being in your office. The inputs—land, water, fertilizer, seed, credit, transportation, storage, and energy—are all needed to satisfy consumption habits. The amounts of such resources to support an average North American are nearly five times those required to support the average person from Africa, South America, India, or the people of the less developed countries.

The U.S. today supplies ca. 50% world wheat exports, a little over 60% world feed grain exports, and, depending upon whose figures you read, between 80-90% world soybean exports. While this means that our nation has an agricultural productive capacity far exceeding its own food needs, it also means that much of the world is directly dependent upon us for its food. I realize this means good business, and expanded exports; it means that the future ought to be pretty good for the world farm producer.

But it also means something else. We also must remember that our nation (I speak now as an American) is dependent upon other parts of the world for input resources needed to produce all of that food. In other words, food production and supply is a two-way street. Any disruption or denial of needed agricultural inputs, whether it is fertilizer, credit, transportation, or water or land in future years, especially in the U.S., will have an immediate and catastrophic effect in food deficient areas of the world. To put it simply—if the U.S. has a bad crop next year and its cereal grain production is reduced, the effects around the world could be catastrophic. At home we would be able, through the necessary controls, to supply ourselves. Now I do not believe in export controls, and I have fought against them even this past year; but I want to say to this audience that as an elected public official if I had to make a choice between the people of the U.S. going without food or adequate diet or an export, I am going to vote for the people of the United States. Because if I do not, I would not be around to vote again; and, not only that, I wouldn't be worthy of public trust.

So anything that affects our production not only affects us (it affects us also from the money point). It will have catastrophic effects upon diet and an unbelievable effect upon nutrition, bringing about more malnutrition and an unpredictable amount of famine. From the economic point of view for most countries of the world, it would mean bankruptcy, because when food prices go up for nations that have per capita incomes under \$200/year, where the food costs are 60-90% total income, those countries not only starve and the people therein starve, but the economies in those countries fall apart. It is out of such total catastrophe that wars are born and revolution becomes a pattern.

So while we are talking food and food production, we are talking about stability or instability, solvency or insolvency, and life or death. We are at basics. When Arab coun-

tries cut off petroleum supplies to the U.S., they are, in effect, cutting food grain supplies that will be available or could be available for export.

If we do not have the energy, the oil, from which fertilizer and other products are made, and the oil that we need for transportation, for planting and harvesting, and if our food production is cut back because of an embargo upon oil, we will not starve. However, millions in other parts of the world will. I plead, therefore, that it is the duty of the world's leaders to think in terms of God's children all over the world and to quit playing blackmail politics.

World grain and oilseed prospects point to record crops this year. Rice supplies are the tightest among major commodities at present and are likely to be somewhat tight in the immediate future. While world grain production prospects point to record crops this next year, consumption is expected to exceed that record production which means even further drawdowns on carryover or limited reserve stocks. The world carryover or reserve stocks of all grains—wheat, coarse grains, and rice—is estimated now at ca. 100 million metric tons, ca. one month's supply. In July this year, wheat stocks in the four major exporting countries—U.S., Canada, Australia, and Argentina were at the lowest level in two decades. Grain stocks in many of the other nations of the world also have been drawn down. What all this adds up to in simple language is that the world will be almost entirely at the mercy of next year's weather. Reserve stocks of grain during this next year will be too thin to protect against any major crop failure. Norman Borlaug, Nobel Prize winner who recently testified before one of my committees in the Congress, said that if we would have a poor crop in any of the major food producing areas in the next 2-4 years, 75-100 million people will starve to death, in addition to what will happen to the economies of unlimited numbers of countries.

While we are, of course, primarily concerned about soy protein, you know as well as I that foods are interchangeable. You know that what we really are talking about is the feed equivalent value. This is particularly true in the more sophisticated agricultural economies; therefore, my country and other countries must begin immediately to look toward some form of national and international food agricultural policies which recognize the interrelationship of a number of factors. Let me respectfully suggest just a few.

A more extensive, intensive effort must be undertaken by all countries to control continued population expansion. This is needed not only in the developing nations where population growth rates are the highest, but also in the more affluent nations where resource consumption has reached staggering levels. The U.S. Secretary of Agriculture said that, between now and the year 2000, we in the U.S. may grow to a figure of 300 million people. However, during that same period of time in Latin America, the population estimate is 600 million. Now, has anyone in this room any evidence that indicates to us today or tomorrow that we can meet all of those food requirements and the necessary capital to produce the food? We are not talking about just planting a seed; we are talking about thousands, millions, hundreds of millions, billions of dollars of capital investment that is necessary to make land productive, to make possible crop production. Affluent nations also must temper their own consumption habits, especially as they relate to the extensive depletion of nonrenewable resources.

#### **NEED WORLD FOOD CONFERENCE**

Turning to another important area of agricultural inter-relationship (and I am pleased that the U.S. Secretary of State has called for this), we must convene a world food conference to deal with the problems threatening the world food supply. At long last, my country is beginning to understand that we are dealing in world-wide dimensions.

We have a great stake in it, fellow Americans; no one has a greater stake. Because the American people for years have shared their abundance in programs of charity and concessional sales. Those programs are no longer available unless there is food over and beyond our needs.

The countries of the world must have the highest priority to increase the volume of final output, instead of directing their attention and their limited resources to restricting production in markets by trade barriers, higher consumer prices, and other restrictive practices. I join with the U.S. Secretary of Agriculture in emphasizing the liberalization of trade, both sides. That is the only way we really can meet the future. There must be immediate consultation among exporting and importing nations of the world on the question of access and equitable sharing of available world food supplies. Such consultation also must include the inputs that I listed required for food production. It would be unthinkable for developed countries to forget the crucial food requirements of the developing world when these poorer countries encounter periods of temporary shortages. The developing countries must be provided with greater assistance in their efforts to meet their own food needs by expanding their own production and modernizing their own agriculture.

#### **STRATEGIC FOOD RESERVES**

The U.S. also must participate in the establishment of any agreed-upon international system of strategic food reserves. Such reserves would provide a minimum level of security for the peoples of the world from the ravages of hunger and malnutrition, such as those being experienced in Africa and Asia today. I realize that reserves are not a pleasant topic, but I am talking about people, and I can assure you that governments cannot permit people to starve, because out of such ravage comes revolution and because countries cannot survive in a world of instability, revolution, and mounting tension. However, we have to remember that there must be an equitable sharing of the cost of maintaining such a system, both between the producer and the consumer nations.

#### **NEED TO ELIMINATE BARRIERS TO USE OF SOY PROTEINS**

Finally, we must take the opportunity of the upcoming round of trade negotiations to tailor world agricultural policies toward increasing world farm output and expanding international agricultural trade. The demands of a protein starved world require, for example, that trade in soy protein be liberalized to the maximum extent possible and that national barriers to new products of vegetable protein be eliminated. What good does it do for us to sit here and discuss all the wonderful textured vegetable proteins, to see what wonderful things can be done, if your own governments deny their usage and will not permit them either to be imported or exported. We have a job to do and if we do not do the job at the political front, at the governmental front, all of our talk will be for naught. In summary, there are three areas that we must deal with—population, access to resources required to produce food, improved management, and conservation of such resources.

Now to simplify it, let me just say that food is the new currency. People now exchange in commodities, a new form of exchange. Today nations are trading in commodities which represent real wealth. When world bankers met recently at the international monetary meetings in Nairobi, Kenya, they were playing games. All that they did will be meaningless in a world that faces a scarcity of food or energy. Special drawing rights, new forms of reserve currencies, all of this is talk unless you have production behind it—production of goods and services and, above all, the production of food and its distribution. We can starve

in a sea of plenty if there is no way to distribute, to transport, or to finance.

### RELATIONSHIP OF FOOD AND ENERGY

Food is a new form of power; food is wealth; food is health. It is a new dimension in our diplomacy. As I have indicated, there is no way that any country can have economic stability or that its currency can be sound if it suffers from severe scarcity of food and highly inflated food prices. Therefore, I must reemphasize that if we are to avert serious international tensions that could erupt in catastrophic warfare, we must have an adequate supply of food and energy. We must understand the relationship between food and energy; and, when nations threaten to cut back on energy or on oil shipments, the whole world needs to be alerted to the implications that this move could have regarding adverse effects upon agricultural production, not merely in the U.S. but world over. If American agricultural production is severely limited or restricted, then I predict from this platform today, the world will suffer very, very much. Given this great dependence that agriculture has upon petroleum, especially from the standpoint of its importance as a food stock or fertilizer production, the implication on U.S. production goals is obvious. If U.S. production falls drastically, the entire world will feel the consequences. This is the lesson of interdependence. We live in a global village and all of us need each other.

### "PROTEIN CRISIS DECADE"

Now if we are to meet the minimum protein needs of the people of the world and if we are to prevent the dietary habits of the rich from spelling malnutrition and even starvation for the poor, a protein explosion must take place. This must be the central goal of national and international food policy. Just as this period of time is known as the energy crisis decade, as one of your associates said to me last night, "the 80's will be known as the protein crisis decade." To achieve this goal of adequate protein, a major new partnership and expanded research program by government and the private sector must be undertaken immediately. We cannot afford to have happen to us in food what is happening to us in energy.

Let me address myself to my fellow Americans for a moment. We knew this energy crunch was coming on whether there was an embargo or not on crude oil. But we did nothing about it. I happen to think that what has happened may bring us to our senses. We may, due to the embargo, learn how to conserve, learn to make better use of our energy resources, and become much more self-sufficient. Let me say here in Munich, Germany, that I intend to do everything in my power as a public official to make the U.S. energy self-sufficient. I do not intend to become a hostage to anybody. As citizens and as Americans, we cannot permit it. It threatens our national security, and it can destroy us. I shall spend the rest of the days of my public life working in the fields of food and energy to make sure that we have an adequate supply of both and that never ever again will anybody be able to put the pistol of embargo to our heads and say "do it our way or else," because if you do that then you are a slave; you are not a free man. I intend to be a free man and intend to see that my country is free from such blackmail efforts.

### WORLD-WIDE PROTEIN RESEARCH SYSTEM

Therefore, looking at the whole subject now of our research in food, we can get better nutrition, we can wage war on malnutrition, we must expand and concentrate on increasing the protein quality of our feed grains at research

centers around the world—again I repeat, around the world. A much greater effort to maximize fish production from fresh and salt water and an effort to improve intensive management practices are musts. Many other avenues must be opened to increase protein supply, and they must be investigated fully in a hurry. As I see it, the golden bean and soy products will play key roles for years and years to come. There is no doubt that this product is in a seller's market. I also doubt that there is any possibility that there will be an overproduction in terms of real need of that production for years and years to come. Therefore, I am calling for the creation of a world-wide protein research and development network, spanning the globe. It would be composed of cooperating nations and institutions in Africa, Latin America, Asia, Australia, Eastern Europe, Western Europe, and U.S.

Just as we produced in our own country the great land-grant colleges, which have been a great blessing to agriculture, the world needs a network of protein research institutions where an interchange of information can take place, and where scientists and technicians can work until we get the needed breakthrough in all forms of protein producing products. I propose that we in the U.S., for example, establish what can become the hub in this research system—a Sino-American protein research institute for cooperation in research between the U.S. and the Peoples' Republic of China. This is the way to begin to normalize relationships, not at the exclusion of others, but as an addition to what is presently underway. These two nations which produce roughly 90% of the world's soybeans should take the leading role in closing the protein gap. The soybean and soy products should be given special attention by governments, by universities, by scientists, and by private enterprise.

We should have two major goals out of this research. The first would be a breakthrough in per capita yield of soybeans. For 20 years soybean yields have only increased at marginal rates. We must set a goal of meeting at least half of the average annual increase in world-wide soybean demand from yield improvement. Set a target, and go out and get it accomplished. Secondly, to develop soybean varieties that will flourish in a variety of climates and in a variety of land areas, particularly in the tropics. If this could be accomplished, the impact on the level of human nutrition and the reduction in human suffering would be tremendous.

I want this Conference to go on record as never before, to let your voice ring and be heard around the world. Let the voice of this Conference reach out to governments, private enterprise, and academic institutions to mobilize their resources into a network that will span the globe of protein research institutes, so that we make the breakthrough in yield, the breakthrough in varieties, and are able to expand the production of protein resources to meet the needs of mankind.

The stakes are too high for us to fail in any way. Our responsibilities to the producers and the consumers of the world demand that we act now for it is a clearly defined national and international food problem.

I want to express my appreciation to this Conference, to thank you for the public service that you are performing. This may well be one of the most important conferences of international nature that has taken place in this century, because you are dealing with life. Food does not kill; it saves lives. Food does not destroy; it builds. And you are today in the lifesaving and building work. You should go from this Conference happy; you should go knowing that you are fulfilling a great responsibility.