DEPARTMENT of the INTERIOR

For Release in PM's of November 16, 1973

REMARKS BY GILBERT G. STAMM
COMMISSIONER OF RECLAMATION
U.S. DEPARTMENT OF THE INTERIOR
AT THE FINAL GENERAL SESSION
NATIONAL WATER RESOURCES ASSOCIATION CONVENTION
PHOENIX, ARIZONA
NOVEMBER 16, 1973

RECLAMATION'S FUTURE

It is exhilarating to be here in the Valley of the Sun, where water is historically and so obviously the lifeblood of cities and towns, of business and industry, and of a great irrigation-based agricultural foundation.

Reclamation made all this possible, of that there can be no doubt. The Hohokam Indians showed us how to do it. That exciting and energetic Indian culture instituted reclamation (with a small r) about 1900 years ago. Then Reclamation with the capital R came to Arizona 70 years ago, and the current growth and prosperity began.

Reclamation along the Salt River in Arizona--like Reclamation in the Central Valley of California and Yakima Valley in Washington--is more than a mark of progress, it is a mark of promise for the future. Of course, the needs and requirements for Reclamation in the years to come call for change... but Reclamation has always changed, and grown to meet the needs of the future.

The one thing that has me puzzled as I see the vitality of Phoenix and the surrounding country is this: Where would it all be today if there had been a National Water Commission recommendation against development 70 years ago?

In order to discuss Reclamation's future, we must first discuss the Nation's future, especially those facets in which Reclamation has, does, or can play a role.

The word "crisis" is the word in vogue today to describe most of the Nation's problems. To get a sense of perspective we must bear in mind that only 10 years ago, many of the same problems we now label as "crises" were considered "opportunities."
The four current big crises are:

1. Energy Crisis
2. Environmental Crisis
3. Food Crisis
4. Population Crisis

Each of these is directly related to the others. So interrelated are they that they can be boiled down to one giant crisis. Increasing world populations—coupled with rising expectations and the demand for higher standards of living—have and are placing great pressures on food and energy supplies, with resultant stress on the environment.

Let's examine the four crises...starting with population.

World population statistics are not very reliable, since the fastest growth is taking place in countries that have the least sophisticated and detailed censuses. However, indications are that the world-wide rate of growth is at least as high as ever. Fast growing countries are hard pressed to meet immediate food, housing, and similar needs. They find it a difficult struggle to maintain, much less raise, their standard of living.

In the United States and other industrial nations, the population problem seems to be easing. In the last 12 years the rate of population growth in the United States has been cut in half, declining almost without interruption from about 1.6 percent to 0.8 percent annually. Even with this declining rate, the immediate future will show an increase in new households, because of the high proportion of our present population in the late teens and early twenties. This will bring concurrent energy needs and job requirements in the immediate years ahead.

The food crisis, of course, has its foundation in an expanding population, compounded with the desire for more, and higher quality, food. While world-wide, people want more meat, it is a fact that a bushel of grain can feed more people when directly consumed than when converted to beef, pork, or poultry. The United States is one of the few major world powers that can produce more than enough food for its own needs, and it produces food more efficiently than any other nation in the world. Nevertheless, there is an upper limit to what we can do to feed the world.

Farmlands that were removed from production by soil bank or other such programs will be available for food production next year. More intensive farming practices, increased fertilizer, judicious use of pesticides and herbicides, plus use of better strains of seed and livestock can place a little more cushion under food production. However, more efficient use of presently irrigated lands and conversion from dry land to irrigated farming are the major long-term alternatives, especially for year-round production of luxury foods rich in minerals and vitamins.
Bringing new water to dry lands has two major obstacles that will inhibit its accomplishment. The first and most obvious is the opposition of the extreme preservationists who earnestly believe that any further water-resource development of any kind, anywhere, represents a setback for nature and mankind. The second and possibly more serious obstacle is the fact that we have more potential farmland in the West than we have water with which to irrigate it.

The energy crisis ties very directly to the food crisis. Most of our remaining high-grade, low-sulphur fossil fuels are located in the West. Increased development of these fuels will require water, not only for processing but also for residential water supply for the people who will be involved in the mining and conversion of these fuels to energy. In our present practice in this country, it takes up to four or more calories of fossil fuel to produce one calorie of food. As it now stands, we will have to use some of the West's scarce water to mine and process fossil fuels, some of which will be required for increasing food production.

The energy crisis is very real and will surely get worse before it gets better. World supplies of low-cost gas and petroleum are finite and are being rapidly depleted. We can meet our near-term needs for other new supplies, or importation from the Middle East. We have learned already, fortunately before it is too late, that we cannot rely on that latter source as we had seemed destined to do.

The first two sources are strongly opposed by those who are dedicated to maintaining a status quo for the environment at almost any social cost; the import source impacts so severely upon our balance of payments and national security that we now know we must seek alternatives.

The long-range energy picture for the United States is not discouraging. We have over one-half the world's coal, and most of the world's oil shale. Our deposits of oil shale in the West--while presently difficult and costly to process--contain far more oil than the proven petroleum reserves in the entire world. These vast reserves of coal and oil shale can take care of our requirements for at least a century or two. But the environmental consequences of development must be solved or minimized, and the water needs must be met.

For the short-term, energy conservation such as increased insulation for heating requirements, use of lower horsepower automobiles, a turn to mass transit, and a lessening of our urge to freeze in summer and bake in winter, will soften the energy crisis. We must face up to reducing our energy requirements to the point of reducing the frills in our standard of living, while we resolve the long-term problems.

Our fossil fuels also have great value for their chemicals but some of these fuel sources will be gone all too soon. The only way our descendants can enjoy a good life will be if fusion reactors or some as yet unutilized or undiscovered energy source is developed. This will take a
vast and significant research effort in the years ahead. But only by maintaining a reasonable standard of living during the interim can we afford to do this research. A Nation, whose people must struggle for existence, can do little research to improve its lot. The people of such a nation must devote their time and energy to the basics for keeping alive.

The environmental crisis is real, you only have to approach or live in one of our smog-filled cities on a calm day to become a believer. There is no question about it, we must devote an increasingly large share of our resources to correct the situation.

Yes, there are some real environmental problems that we need to solve today and we can ill afford to dissipate our time, energy, and resources arguing about who is at fault. While some are against any form of resource development, I cannot help but feel that you, as informed citizens, recognize the need for compromise in resource development if we are to progress as a nation. We are also going to have to accept some environmental losses as we develop our energy and other natural resources.

To keep our nation self-sufficient in these critical times, we need to view, for example, the impacts of the Alaskan Pipeline on such species as the caribou. Even in these critical times, there will be concern for our environment and development of our resources will take place with full knowledge of the trade-off required.

The very real possibility of an environmental backlash could damage this worthy cause for years to come. Environmentalists must become increasingly sophisticated, and become aware of the curious contradictions in some of their positions.

Environmentalists, for example, should take another look at Reclamation.

Reclamation's primary charge is to develop water and related resources in our 17 water-deficient Western States. In the process of fulfilling this responsibility, we have created many side effects that have benefited the West and the Nation. Reclamation has many more pluses than minuses to its credit.

Among the benefits of Reclamation can be included:

(1) Large amounts of low-cost hydro-generated electric energy from our multipurpose reservoirs.

(2) Recreation, fish and wildlife benefits on and in these same reservoirs, as well as many miles of clean silt-free, fish-laden streams below them.

(3) The new water resource developments have, in turn, created the jobs, facilities, and life-styles which not only have allowed but have actually drawn many people to take up residence in the West. Without these amenities, the crowded cities of the East and elsewhere would be even more congested than now.
(4) A stable floor has been created under our food supply. Irrigation has not only created reliable new agricultural production but has provided insurance against the vagaries of nature, particularly the perennial or unpredictably recurring droughts.

Our primary tasks for the future will be to continue to assure wise husbanding of our water resources, and we intend to do an ever improving job of it. Environmental enhancement is a conscious, dedicated, and major function of our work. The job in the future will be more difficult because the easiest and most economical sources of water have been largely developed. Also, we must plan more comprehensively than in the past, because the ever-scarcer water resources must supply more critical needs, and within more severe constraints, especially if the vast energy supplies in the West are to be developed.

Of course, Reclamation has no jurisdiction over the population crisis. We can and will, however, make substantial contributions toward keeping the other three crises within reasonable bounds. We intend to remain light on our feet when facing future challenges. We will not take an inflexible stand that hinders accomplishment.

With respect to the three crises, we will contribute towards solution of each as follows:

Food

We will assist in providing new food supplies as required by development of new water supplies by increasing conservation of supplies already developed. We intend to direct much of our planning effort to the concept of total water management, in which we do those things that are institutionally and physically possible to increase the yield from existing facilities, prior to proposing the creation of new facilities and systems.

Energy

Reclamation has contributed greatly to meeting the energy needs of the West through hydroelectric power generation, but hydroelectric power is not expected to play a major role in meeting the gross increases in future energy needs. Hydro power's peculiar ability to meet peak power requirements will be expanded through greater coordination with base load facilities. Some good hydro sites still remain in the West. Also pump-back storage opportunities will be expanded. However, development of remaining sites no doubt will be opposed by advocates of preserving natural stream conditions. Should the time come when energy needs outweigh environmental concerns or ecological change in stream valleys, Reclamation will be ready to play a major and expanding role in development.

Environment

Only the most nearsighted preservationist would dispute the fact that the beautiful green irrigated valleys of the West are a better place for
Modern man to live than the generally desolate and dust-blown deserts they replaced. In our "gardening of the West" as it has been called, we cannot rest on our laurels. We must be even more careful and do even better in the future. As rivers are used and reused, their waters degrade. As depletions approach their maximum, salt concentration becomes unacceptable. Remedial or preventive means must be found and adopted. This problem has become critical in some areas such as the lower Colorado. There remedies must be adopted. In other areas such as the Souris River (N. Dak.--Canada) prevention is a must. Reclamation is deeply involved in both roles.

Where do we go in the immediate future bearing in mind that we must remain sufficiently flexible to meet changing conditions as demanded by society? I foresee the following:

1. Construction

We have more than $6 billion of project works authorized, but not funded. We hope to accelerate our construction program as rapidly as national funding priorities will permit, and to establish functional priorities to bring this backlog into manageable proportions.

2. Operation and Maintenance

We have placed high priority on maintenance of completed works. As rapidly as possible we are moving toward automation of these works to maximize use of modern technology so as to minimize costs.

3. General Research

Our general research program will continue to stress solution of water-related problems leading to more efficiency, and less cost in supplying water. The results of our research are published as rapidly as definitive results are obtained. We have also established a closer working arrangement with the Office of Water Resources Research to assure that duplication is eliminated and to assist that office in identifying research efforts that could have positive impacts on our programs.

4. Research into New Water Resources

Water resources of the West, as provided by nature, are frequently if not usually, deficient with respect to both quantity and location. Storage, regulation, and extensive conveyance systems do much to remedy the mismatches of nature. In addition, however, we need to generate some new water supplies. We have several ongoing programs directed toward producing new water supplies.

The first of these is the atmospheric water resources program, called Project Skywater, which is directed toward increasing precipitation by cloud seeding. We are far enough along with this program to predict with confidence that we can add several million acre-feet of new water to the Southwest at very moderate costs per acre foot. We shall continue to refine
our techniques for precipitation management, and to resolve the environmental and institutional concerns.

The second new water source arises from geothermal potentials. Our research program in this field is designed to determine whether geothermal brines can be economically desalted to produce fresh water. While this program is primarily directed towards a new water supply, there are many side benefits that will accrue. Information derived from our program will be usable for any other water-dominated field, such as steam-electric power or mineral recovery. These anticipated beneficial spin-offs include solution of corrosion, scaling, and waste disposal problems, and understanding of the hydrodynamics of a geothermal reservoir. This latter problem must be thoroughly understood prior to development. Properly located production and reinjection systems determined from knowledge of the geophysical characteristics of the field are vital to maximize useful life and minimize environmental problems including subsidence and/or seismic activity.

The third new source of water is that which can be obtained through more efficient use and minimized loss of water supplies already developed. To this end, we have several studies and programs currently underway. While the water so obtained is not new in the same sense as the previous two sources, the effect is the same. Among the conservation measures being examined and implemented are canal and lateral lining, use of underground pipe systems, drip irrigation, sophisticated irrigation management advisory services, and recycling and reuse of return flows.

5. Salinity Control

As many of you are aware, we have a rather comprehensive salinity study underway in the Colorado River Basin. We hope to identify sources and implement solutions that can greatly reduce Colorado River salinity at justifiable costs. Desalting or diversion and evaporation of point source or concentrated salt inflows, and diversion of flows from natural salt beds appear to offer early promise. The Administration is now reviewing a program directed to resolution of the international problem with Mexico on the salinity of the Colorado. The contemplated solution would include construction of a desalting plant for the Wellton-Mohawk drain in Arizona to decrease the salt content of Colorado River water entering Mexico.

6. Small Reclamation Projects Act

The recent change in that act, whereby the principal purpose no longer needs to be irrigation, establishes a new dimension to the benefits that program can provide.

7. Planning

We shall continue our planning efforts to utilize better the available water supplies and facilities as well as develop new water supplies to generate multipurpose benefits for energy requirements, water
quality, irrigation, municipal, industrial, fish and wildlife, and recreation needs. Opportunities for environmental preservation and enhancement will be considered and evaluation on a par with developmental objectives, consistent with the new planning procedures promulgated by the Water Resource Council. An important consideration in all future planning will be to insure that the limited water resources of the West are developed only for the best long-range interest of the West and the Nation.

In all of our future activities, we intend to continue to rely on the excellent support and advice of the National Water Resources Association--its officials, committees, and individual members. You have--among you--experience and wisdom in water development and management from which we can benefit.

Together, we have accomplished a great deal in the past 40 years. The program with which we share a mutual concern has had highly significant economic, social, and cultural benefits. While today we are concerned with energy, environment, food, and a growing population, the basic, fundamental justification for water resource development is broader and more far-reaching in its significance than the enumerated functions. In addition to the economic benefits which we attempt to evaluate, it provides social and cultural benefits which we have not found susceptible to finite evaluation.

Our charge and our commitment has been to build sound, stable settlements in an underpopulated, undeveloped, and environmentally hostile West. What was once barren desert is now, with water, a veritable garden. Our population has stretched itself from border to border and sea to sea without major dislocations. Reclamation has played a major role in building a great Nation.

Now the future stretches before us, and what we have accomplished is now seen, not as an end, but as a foundation and a new beginning. The Bureau of Reclamation is a dynamic, alert and ready instrument in the hands of the people. What is to be done and where we go is not for us alone to decide. It is up to you--the people of the communities, the States, and the Nation--to make the political and economic decisions that will in reality determine Reclamation's future.