

ADDRESS OF STEWART L. UDALL
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THE FIRST INTERNATIONAL SYMPOSIUM ON WATER DESALINATION
WASHINGTON, D. C.
OCTOBER 4, 1965

It is a real pleasure

^ On behalf of the United States of America and President
Johnson, ^{to} I welcome the delegates and participants to the First
International Symposium on Water Desalination. It is our
carefully considered opinion that the delegates to this conference --
representing 65 countries and 5 continents -- constitute the
most impressive array of water engineering talent ever assembled
in history.

CONFERENCE Pres. idea

President Johnson set the tone for our meeting when he
said that:

"A dependable supply of fresh water is an absolute
requirement for a world seeking peace and prosperity.
Water is needed to grow food, to permit basic development
in emerging nations, to allow industrial expansion in
others, and to increase living standards for an
increasing world population.

"The developing technology of water desalting has received enthusiastic and universal support by nations, large and small, again demonstrating that international cooperation is the key to humanity's advancement. "

I am confident of success -- not only success in the effort to solve the engineering and technical problems which face us, but more importantly in the effort to work together for the universal welfare of mankind.

Our attention is focused on water -- usable potable water. From time immemorial, as reflected in the literature and legend of every civilization and religion, man has sensed the obligation of stewardship over the planet's supply of water fit for human use. As our world population doubles on a cycle of decades, rather than centuries or millenia, that obligation of stewardship becomes correspondingly more pressing. In the end man will conquer poverty, famine and disease only as he masters the problems of water supply.

The United States began its formal desalting program in 1952. Until last year, this country's effort concentrated on basic research and on the construction of demonstration plants.

But last year, President Johnson saw that the time had come for what he called "a significant leap forward." With the cooperation of the Congress, now my country is embarking on an accelerated desalting program.

President Johnson hailed the new law, saying, "It would be difficult to exaggerate the power for good, the palliative effect on age-old animosities and problems, that would result from providing an abundance of water in lands which for countless generations have only known shortage."

Under the new charter, we hope to master the technology of big plants, to serve major population centers; and we will pursue the refinement of small equipment, mobile and versatile; and we

will give equal attention to processes for improving the usefulness of underground brackish waters that represent a major resource in many parts of the world.

The United States will soon need major new sources of water for its great cities. Smaller towns on our seacoasts and many inland communities have similar needs.

The world's needs run the same gamut. Some countries require large plants to serve their large cities, while in other places, it is the smaller plants for small towns and islands which are needed. Our joint purpose at this conference is to discuss and describe the means whereby all of these goals can be achieved for the benefit of all.

A variety of processes, engineered to fit a particular requirement, will supply alternatives for the differing needs.

The cost of energy is a critical component of the costs associated with any process. Reducing energy costs is a goal.

Our country will pursue this inquiry with conventional fuels -- coal, oil, and gas -- and with nuclear energy.

We have committed our finest talent to this total effort. We are eager to share what we know and learn. We need your help in a real world-wide effort if we are going to succeed.

During this Conference experts from colleges and universities, from industry and from government will present technical papers. They will discuss progress and obstacles with their counterpart scientists and engineers from other countries.

Speakers from my country will discuss in detail the progress we have made, the processes we consider hopeful, and the unanswered problems we have identified. We will listen with keen interest to the presentations from our distinguished visitors.

As most of you know, my Department, ~~Interior~~, is cooperating with the Atomic Energy Commission, and the

Metropolitan Water District of California in a feasibility and engineering study of a 150 million gallon per day distillation plant. Preliminary reports indicate that a well designed plant using nuclear energy can produce fresh water at seaside for 22 cents a thousand gallons and generate electric power for as little as 3 mills per kilowatt hour.

The Southern California study is the most advanced of several investigations that we have underway. We are excited and encouraged by the results that are emerging. If your country has large cities or regions with substantial and acute water supply problems, you will be interested in our discussions of this study.

Although our large plant effort often receives the most attention, this is only one part of our total program.

We are determined to develop processes that will produce water economically in smaller quantities. Our immediate goal

is developing the ability to build plants which will produce between 1 million to 10 million gallons per day for 50 cents a thousand gallons. We expect to succeed.

Completely new processes are under development. Among the newer ideas reverse osmosis has particularly attracted the attention of our technicians. Because the process has inherent technical advantages it will receive special attention in our development scheme.

Basic research has been substantially increased. We want to know more about water -- and we hope to discover entirely new ways to make it useable, including an attack on the problem of pollution and chemical contamination of water which results in an absolute shortage of useable water, producing famine, disease, and even threats to the peace.

All of what we have learned to date will be available at this Symposium. We expect to discuss our ideas and yours in an open and relaxed atmosphere. We will all benefit.

Nonetheless, we hope for more from this Conference than a mere exchange of technical information. We must recognize water is our most vital resource. Man can exist without food for as much as 60 days. Without water, he will perish in five. Three billion people on this planet are competing for the available fresh water, and there is essentially no more water today than there was when civilization began. Furthermore, it is essentially the same water. The dribble from a leaky faucet in our homes may be the liquid which slaked the thirst of a dinosaur, watered the hanging gardens of Babylon, or refreshed Hannibal at some Alpine stream. Man's survival is threatened by water problems.

With so much involved for the whole world, I challenge the delegates to this Conference to think in terms of a world-wide cooperative effort to solve the problems of desalting in the

shortest possible period of time.

To begin that effort my country will:

(1) Supply to all countries represented here and to others on request, a complete set of research and engineering studies published by our Office of Saline Water. We will expect these exchanges to be reciprocal. We will help establish technical desalting information centers at appropriate locations to insure maximum benefit to all countries.

(2) We invite you, or other representatives of your country to visit our desalting plants, test centers, and research laboratories. Our technicians will be equally interested in seeing what you have accomplished.

(3) Countries that look to desalting to solve water problems will need trained engineers to design and manage plants. The United States will be eager to participate in a training program

designed to make certain that the necessary supply of trained technicians is developed wherever it is needed.

(4) In cooperation with the Department of State, my Department will expand its program of assisting other countries in regional and national water surveys. The Atomic Energy Commission, where appropriate, will join them to seek the most economic solution available.¹⁰

(5) The Agency for International Development in reviewing its programs will give increased attention to water supply problems.

(6) We will enlarge our capacity to render advisory and consulting services to countries seeking assistance in developing water resources programs to meet their present and future needs. These services will encompass the traditional water resource techniques as well as desalting.

I propose that we arrange a continuing world-wide exchange of information related to desalting. My country recognizes that scientists from many countries have contributed substantially to the information that we have available now.

As an example consider reverse osmosis. We plan a major effort to complete the development of this process,

Nonetheless, we recognize that the basic principles were first identified by French scientists and that basic patents have been awarded to Indian nationals.

A successful world-wide cooperative effort that solves man's water supply problems will produce results that stagger the imagination. More water means more food, less disease, and in many countries, new opportunities for economic growth.

For centuries water shortages have caused quarrels between neighbors and in the case of international rivers, these shortages have contributed to international tensions. The scientists working at this Symposium can dream ahead to the day when large combination water-power plants provide cheap energy to drive the wheels of industry, electrify the countryside and "create" enough fresh water to resolve sterile arguments over dry streams.

Already international cooperation in desalting is underway. Among our recent activities in this regard was the visit of a highly qualified team of United States water and power experts to the United Arab Republic and Tunisia. We are currently providing technical advice on a desalting project in Saudi Arabia and are cooperating in a study of the feasibility of a dual-purpose desalting plant in Israel. Last November the United States and the Soviet Union, where excellent work in desalting is being done, entered into an agreement to cooperate in the field of desalting.

Working together, we can assure that nations and cities will have a choice in their search for the best and cheapest source of water; that every country can have abundant, reliable, and reasonably priced pure water.

A thirsty world is watching this assembly. Science and technology can find economic ways to desalt water. I am

confident that this Conference will lead to accomplishments
of great significance to every person on our planet.

Welcome -- And Have a ^{* provocative} ~~Great~~ Conference!

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Greet personally
to write
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