Improve U.S. Water Resource Efficiency

"The United States can make much better use of it's water resources".

H. William Clark
sustainabilityforlife.com

Note: Communicating this information as news to others is free of charge.

Introduction

- First, God Bless every farmer and rancher who ever lived.
- These new ideas may seem impractical and costly at first glance, but applying these ideas is essential to the ability of future generations to meet their needs and live the same happy life we have lived.
- Farmers and ranchers have always responded positively in past crises, and their leadership is needed again.
- These ideas are about a giant leap forward in managing our American water resources.

The Current Situation

- Abundant rain falls in the central and eastern U.S., and most of the water flows to the Gulf of Mexico or Atlantic Ocean.
- In the very northern states, all the way to the south, rivers and streams receive water run-off from farms, ranches, individuals, government organizations at all levels and companies. This run-off contains fertilizers, fecal bacteria, pesticides, and many other pollutants.
- The pollutants that enter rivers are regulated to some degree, but the current amount is harmful to the re-use of the water. (1)
- Also, each year, the amount of rainfall in the western states is decreasing, causing droughts, crop damage and severely hindering residents' ability to lead a healthy, normal life. (2)
- Example, Lake Meade near Las Vegas started with about 30 Million acre-feet of water storage years ago, and today has lost a significant portion of stored water. The ability to generate hydro-electricity is greatly reduced.

One Viable Solution

- River water from the central (midwest) U.S. can be pumped to the western states using new pipelines and massive pumps. (3)
- Yes, you read correctly… we must start making better use of the millions of acre-feet of rain water that falls in the north-central U.S.
- The two projects to make this happen are described on the following pages.

Water Project #1: Much stricter pollution control in the Midwest

- The northern states in the Midwest must have strict control of any pollutant discharge into rivers that are upstream of any pumping station intended to move the water to the western U.S.
- Upstream, every Midwest farm and ranch, municipality and other organizations must be upgraded to have their own (or shared) water treatment facility for ALL water run-off into rivers. This involves diking, reservoirs, and removal of fertilizers, fecal bacteria, pesticide and solids/silt.
- Farmers and Ranchers, and other organizations, will need subsidies and government assistance to install and operate the water cleaning facilities.
- This insures the head-waters of rivers stay clean.
- Yes, cooperation will be needed from Canada.
- Customers in the West could largely pay for the clean-up projects by PAYING for the water pumped to the west. Water now becomes a valuable commodity and source of revenue for the states providing the water.
- Consistent monitoring for pollutants must be a foundation of this program.

Water Project #2: Install the pipeline and pump system

- Two or more pipelines could be installed from the mid-west to the areas in the west in most need of water. Nevada is one example. Arizona, New Mexico, and parts of Texas and California would be other examples.
- The massive pumps must be powered by renewable solar and wind electricity.
- New reservoirs along the way would be needed to 1. remove silt and solids, and… 2. act as buffers for large and small amounts of water depending on rainfall variation.

Water Project #2: Install the pipeline and pump system, continued

- The water would exit the pipeline at designated locations in western rivers. This would greatly increase the water flow in these rivers. This water can then be used for irrigation and many other purposes. Lake Mead (and Lake Powell) would fill back up.
- Note: Several decades from now, the growth of renewable energy will mean some existing oil and natural gas pipelines are no longer needed. After a thorough cleaning, these pipelines can be converted to flow water.
- It is believed that 10-20 % of the rainfall in the upper Mid-west can be diverted to the west with little impact on the on-going use of river water in the central U.S..

A Word on Paying the Cost for this Large Water Project

- **Hydroelectric power is a very renewable and non-polluting source of electricity. It is obviously limited to the existing physical dams and power generation facilities, plus it must have lakes deep with water.**
- **Any hydroelectric power generator in the west could generate massive amounts of renewable electricity <u>if the lake was full of water</u>.**
- **Glen Canyon Dam at Lake Powell (Utah and Arizona) and Hoover Dam at Lake Mead (Nevada and Arizona) are two great examples of the potential for enormous increases in electricity generation if the lakes were full and their power plants could operate at maximum capacity. (4)**
- **This enormous renewable electricity increase could significantly help pay the cost for the water transfer projects.**

Important Issues

- There is already evaluation of pumping water back to Lake Mead from downstream of Hoover Dam. This would increase the generating capacity of the dam, but would not increase the total amount of water available in western states. (5)
- Reducing pollution in Midwest rivers would also help the pollution crisis concerning water that flows to the Gulf of Mexico. Example: Fertilizer nitrogen compounds and human-animal waste promote the growth of toxic algae which lowers oxygen levels and contributes to massive fish kills in the heat of the summer. This is becoming a massive crisis. (6)
- Transporting water from northern Midwest rivers would also help reduce dangerous flooding. (7)

Additional Comment on Rainfall in the Northwest U.S.

- It is well known that the western portions of Washington State and Oregon receive abundant rainfall. (8)
- A key is to capture and pump large amounts of this water before it flows to the Pacific Ocean.
- Using the same strategy, can some portion of that water be captured, with pollution control, and pipelined to the Nevada area where large hydroelectric dams need water… or to California?
- The pumping power would have to be provided by wind and solar, to protect the environment.
- If so, fresh water could become a source of significant income for Washington and Oregon.
- In fact, a few decades from now, is it possible that water (in some dry areas) can become a more valuable commodity than oil?

Additional Comment on Rainfall in the East Texas

- It is well known that far east Texas receives much more rainfall than central and west Texas., which are experiencing many years of droughts.
- Large reservoirs could be constructed in east Texas to capture many acre-feet of fresh rainwater before it flows to the Gulf of Mexico.
- These reservoirs could have floating solar farms covering half to two-thirds of the surface area. This reduces losses due to evaporation and generates valuable electricity.
- Pipelines could be constructed to transport this water to central and west Texas. This system would have an enormous value and R.O.I. for east Texas. Water will be the new “oil” in the 21st century.
- The pumping power would have to be provided by wind and solar energy, to protect the environment.

Citations

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H. William Clark, born in America, resides in Texas