"Our organization is dedicated to the proposition that a democracy cannot thrive without the active participation of informed citizens. And in no area of government is an informed citizenry more essential than in water resources."—
Testimony by the League of Women Voters of Colorado before the Senate Select Committee on Natural Water Resources, Denver, November 20, 1959.

What lies ahead for Colorado water interests in the decade of the sixties?
It's anybody's guess. But the future reveals her secrets first to those who understand the present.

Where do we stand on water in January 1960? Among foreign nations, water development is fast becoming top priority national business. Russia and China seem to be taking the lead.

It isn't easy for American engineers to shift mental gears and relegate water developments such as Hoover, Coulee, Shasta and Glen Canyon to secondary status on the world engineering stage. Cold facts show that Russia's Bratsk powerplant, now under construction, will produce as much power as the combined output from the three largest hydroelectric powerplants in the U.S. China's Yangtze powerplant, now under design, may produce as much power as nine Bratks; China's Sammen Gorge Dam . . . 700 ft. high . . . is under construction. It's the biggest in a 46-dam program for the Yellow River.

It's disturbing to note that the Soviet Union turned out 94,000 engineers in 1958, compared with 35,000 new engineers in the United States.

Russia has loaned the United Arab Republic the equivalent of about $100 million to start construction of the first stage of Egypt's billion dollar Aswan Dam. Russia is providing the engineering and the construction equipment for the entire project. First-stage construction will take four years.
Israel has contracted with an American firm to develop machinery for "the first low cost" salt water conversion plant. It will utilize a process developed by an Israeli scientist. Salt water will be frozen and the crystals will be converted into fresh water. Anticipated conversion cost by 1965, using the Israeli process: 40 cents a thousand gallons. Anticipated conversion cost at U.S. demonstration plants: $1 a thousand gallons at best . . . probably closer to $1.50.

Foreign nations are going all-out on water development. Behind foreign engineering spectacles is a broadening base of multiple-purpose water development and intensive water research. Longstanding water controversies are being resolved. Example: The recently negotiated international treaty allocating waters of the Nile.

Foreign water efforts are somewhat reminiscent of the pioneering spirit which developed the arid U.S. West. Yet there is a basic difference. Instead of the incentives of opportunity and adventure which pulled American engineers toward Western water development, there are population pressures which virtually push foreign engineers into intensive water development.

This difference should carry an ominous warning to discerning Americans. Think about this: Intensive water development efforts by foreign countries may provide less of a hindsight reflection upon where the U.S. has been than a foresight glimpse into where the U.S. is headed, if it is to remain a first-rate nation.

Where do we stand on population problems in the U.S?

The U.S. is becoming more aware of its population problem. This awareness is likely to increase. Election year politics may seize upon population, as related to birth control, as a major issue. 1960 census activities will spotlight population problems.

The 1960 census is going to have practical significance for Western water interests. It will swing the balance of political power further West. It will focus public attention upon reapportionment and redistricting problems. It will emphasize mass population movements to the West and to the metropolitan areas.
Western states are expected to gain about nine seats in the House of Representatives following the 1960 census. Nine seat losers: The Northeastern section of the country. California should gain several new congressmen. Population growth centers like Arizona and Nevada stand to gain seats. Colorado should be entitled to at least one more U.S. representative.

The 1960 census is likely to show some startling trends. The nation is on the move and it's headed toward the West and toward the metropolitan centers.

California is expected to steal the census show. U.S. News and World Report predicts a 1950-60 California increase of 4.5 million, or 43%. USN&WR expects the biggest regional population gains in the 3 Pacific States and in Alaska and Hawaii . . . up 36% in 10 years. Close behind: The 8 mountain states, with a 32% gain.

An urban revolution is underway. Urban (non-rural) population now makes up two-thirds of the U.S. total. By 1970: Probably 70%. By 2000: Probably 85%. Colorado is right in step with this national urban trend. The rush to the cities is greatly accentuating the unevenness in U.S. population distribution.

USN&WR: "The U.S. is fast becoming a nation of city dwellers. In the last 10 years, a million people have left the farms and rural areas while 30 million more people have crowded into cities, towns and urban areas."

Saturday Evening Post: "In the words of Dr. Luther Gulick of the Institute of Public Administration, 'Population growth will go right on. The drift from the soil to the city will go right on. The economic advantages of industrialism will not abate . . . thus the great sprawling urban regions, the metropolitan complexes, will go right on growing, and their problems will be bigger and worse and more demanding'."

Metropolitan areas (cities of 50,000 or more) are catching most of the urban population wave. In 1900, about a third of the U.S. population lived in metropolitan areas. Between 1900 and 1950, metropolitan areas absorbed 73 percent of the U.S. population increase . . . Between 1950 and 1955: 97 percent. By 1975, metropolitan areas may have a population equal to that of the entire U.S. in the 1950 census.

Within the metropolitan area itself, there is a revolution underway . . . a great outpouring from the core city into the suburbs. Irrigated farm land is giving
way to suburban houses, schools, roads, shopping centers. Nowhere in the U.S. is this suburban revolution more evident than in the Denver metropolitan area.

The 1960 census is expected to show that Denver has the fastest growing suburban area in the U.S. The population in counties surrounding Denver has more than doubled during the past eight years, according to statisticians of the Metropolitan Life Insurance Co. The Denver metropolitan area is likely to be tabbed by the Census Bureau as the third fastest growing metropolitan area in the U.S. . . exceeded only by San Diego and Miami.

A great mass migration to Western metropolitan suburbs is underway. It's the greatest mass migration in U.S. history and one of the greatest in human history. It has many implications for discerning water people in the West.

What are some of the implications?

Major shifting of water use in the West from irrigation use to municipal-industrial use appears inevitable. As USBR commissioner Floyd Dominy told the Four-States Irrigation Council recently in Denver, the outlook for irrigation farmers is "downright ominous" because of limits on development of available water supplies and increasing competition for water from growing cities and industry.

Dominy: "If demands by competing users who can pay higher prices continue to increase, irrigation is likely to be placed under pressure to yield part of its water supply."

This is simply a matter of economics. It also means some future belt-tightening on irrigation water waste.

A clamp-down on irrigation water waste is in the cards. Between one-third and one-half of the water diverted for irrigation in open ditches never reaches the farmer's land. Such losses will become intolerable.

Reclamation will be put under new pressures to justify itself. The old crop surplus record may be replayed to the tune of new Census Bureau figures . . .

William Blair, New York Times Farm Writer: "The output of the country's agricultural plant continues to outtrace the 'population explosion'. During the Nineteen Fifties farm output increased 2.25 percent a year. Population growth speeded up, but only at a rate of 1.8 percent a year . . . This expansion has come about through rapid application of new knowledge to the farm plant."
Water research will increase greatly during the decade of the sixties, as the direct result of population pressures. The Denver-Boulder-Ft. Collins triangle is becoming a nationally recognized water research center.

Most Coloradans don't realize the significance of water research developments at Colorado U's High Altitude Observatory, Denver U's Research Institute and CSU's Engineering Research Center. Add research underway at USBR's laboratories and at USGS's facilities in Denver, at the National Bureau of Standards Lab in Boulder and at the Forest Service Experiment Station in Ft. Collins.

CSU has asked the Legislature for $635,000 to build a new hydraulics lab in the foothills west of Ft. Collins. CSU has also established a division of meteorology, to be headed by nationally recognized Dr. Herbert Riehl, formerly of Chicago U. C.U.'s HAO, one of the world's leading sun-spot research centers, is building a $275,000 headquarters building in Boulder. Dr. Bernard Haurwitz, formerly head of New York University's Dep't. of Meteorology, is on HAO's staff.

Population pressures are having their effect on power production. Total U.S. generating capacity: 160 million kilowatts (January 1959). Needed by 1980: 451 million kilowatts. Hydroelectric plants now supply 20 percent of the total electrical output. Future hydro role: Probably 15 percent of total output by 1970 and 12 percent by 1980. Pressures will be strong to harness the remaining falling water for power.

Population pressures are intensifying the fish and wildlife controversy. The tide moving toward metropolitan areas for work and residence moves toward recreational waters on week-ends and vacations.

Thomas Kimball: "In 1958, the Colorado Game & Fish Dep't. sold approximately 245,000 fishing licenses . . . if we are to maintain the quality of fishing we have today in the year 2000 we must find the fisheries environment and the space for 2,450,000 fishermen in Colorado." (Senate Select Committee Hearing)

Federal Fish-Wildlifers have come a long way in recent years . . . from relative obscurity as the Fish and Wildlife Service under the Bureau of Land Management to full Interior Dep't. bureau status as the Bureau of Sports Fisheries and Wildlife . . . From virtually no recognition among water project uses to a recognized
beneficial use on federal projects under the F&W Coordination Act . . . From a position of persuasion to a position of authority on water regulation, through use of federal right-of-way permits as a club to make non-federal water developers conform to F-W views.

But future F-W gains may be hard to come by. Water developers are becoming alert. The next F-W major step may be in the direction of state water law legislation . . . an attempt to make Western states recognize recreation as a beneficial use of water under state law. If successful, the F-W's could gobble up unappropriated water and apply it to "beneficial use" for the fish.

Another implication of population pressures: Legislative reapportionment and congressional redistricting. California's problems may be a sign of the times. Southern California counties, with 61 percent of the state's population, have only 30 percent of the votes in the State Senate. A strong movement has been launched to reapportion California by constitutional amendment vote next November. That throws chills down the back-bones of California water people. They don't want any amendment on the ballot except their $1.75 billion water bond issue. Above all, they don't want a flare-up of the bitter area of origin—area of use civil water war.

Redistricting following the 1960 census could cause internal dissensions among water people in Western states. Colorado, for example, has had four congressmen ever since 1911 and no redistricting since 1921.

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Where do we stand on water in the Congress of the United States?

Congress is not likely to act vigorously on major water problems in 1960. The population problem may become an election year issue as it relates to the world-wide implications of birth control. But its effect on water is not likely to be an issue on which to hang big election year hats.

Congress reflects the mood of the people. The present mood is one of peace and prosperity, clouded a little by concern over taxes and nuclear war. The contemporary American outlook reflects a national mood of complacency toward
water problems. It's reflected in a year's-end report by the Research Institute of America which predicts Utopia for the U.S. in 15 years. RIA, quoted in Life Magazine, predicts that the average American will not only have more money to spend and more time in which to spend it by 1975, but he'll have other advantages now almost unheard of ... average annual income of $7,500 compared with today's $5,000 . . . 15% fewer work hours . . . every conceivable kind of electronic device.

Lawrence Weiss (Denver Post): "The economist John K. Galbraith says the concern of the people with luxuries and gadgets in an affluent society has made them callous to the public needs of the community and the nation."

Roscoe Fleming (Denver Post): "Future historians will find most incredible about today's America not its material achievements, but that a nation could have remained so long wrapped in a sort of happy-pill snooze, with its real world crumbling."

There are strong pushers for national water legislation . . . Montana's Senator Murray, for example. His proposed Water Conservation Act of 1960 has many good ideas, plus a little controversy. Colorado has strong pushers on federal water legislation. Wayne Aspinall has authored a bill which would establish new water development policy on a comprehensive basis. Aspinall and John Carroll have weather modification research bills aimed at increasing precipitation in the Colorado River basin. Gordon Allott is in the thick of the Wilderness Bill battle. Allott recently introduced a bill to authorize federal loans up to $1 million for construction of water purification plants.

All Western congressional delegations are going to have to demonstrate diligence in election year 1960 on the federal water problem uppermost in the minds of their water user constituents . . . states water rights legislation. Pressures will be strong for at least a first step in the right direction.

The pushers for major water legislation will push hard in 1960. But their major efforts are expected to fall short of target due to public apathy and election year politics, a formidable team that's hard to beat.
Sentiment will run high for passage of the Wilderness Bill this session. Wilderness groups from Eastern concrete jungles are calling for immediate action through influential outlets such as the New York Times and the Washington Post. Attempts to date to get agreement on a compromise WB draft have been unsuccessful.

There are two strong deterrents to WB passage this session: The logic of waiting until after the Outdoor Recreation Resources Review Commission reports next year . . . and the delay occasioned by extensive House Committee hearings in the West.

Water project authorization and project appropriations are likely to receive considerable election year attention. Hearings by the House Appropriations Committee are already underway. Congress hopes that early hearings will permit final action on appropriations before the conventions start. The no-new-starts barrier is being broken at strategic points. Key men on water dollars: Budget Director Maurice Stans, a realistic, strong-minded belt-tightener in a cabinet level position. Also the influential Texan, Secretary of the Treasury Robert Anderson.

Curecanti is budgeted to go this year. So is Colorado's $11 million Florida (pronounced "Flor-eea") participating project. Fryingpan-Arkansas Project authorization is a perennial question mark. The Fry-Ark appears to wear a "best-chance-ever" label in its 1961 congressional buttonhole. Both slopes are agreed on a watered-down version of original Arkansas Valley project plans. California appears willing to go along IF Colorado agrees to limit transmountain diversions from the Colorado River Basin to 25 percent of the river flow. Colorado cannot agree to that.

The Fry-Ark bill has been introduced by Senators Allott and Carroll. Outlook: Not much chance of Senate approval this year. Authorization may come in 1961.

Another congressional perennial affecting Colorado: Depletion allowances for the oil and gas industry. Senate opponents of the present 27 1/2 pct. depletion allowance indicate that they will make new attempts to have this war-time tax
benefit reduced or repealed. New support for tax reform seems to be behind it. An oil shale boom could mean the start of eventual metropolitan strip development along the Colorado River, with new demands on water supplies.

Viewed in total perspective, congressional appropriations for water will measure small on the yardstick of national need. The total need: $171 billion in capitol investment by 1975 to develop needed water resources in continental U.S., according to the U.S. Dep't. of Commerce. That's $11.4 billion a year in federal, state, local and private expenditures for water development.

Official figures show that appropriations for water resources public works by the 1st session of the Congress for fiscal 1960 amounted to 1.7% of total appropriations.

Dr. Luna Leopold, Chief Hydraulic Engineer, U.S. Geological Survey: "Less than one-half of one percent of all the money spent in water development goes into data and understanding and 99.5 percent goes into development. As water problems increase in the future they cannot be made manageable with such a small percentage of effort going into the collection of data and the improvement of our understanding and such a large percent going into development based on insufficient understanding of the water situation."

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Where do we stand on water at the state level?

breaks are occurring at state level in the public apathy barrier to water development . . . at the points of greatest population pressure. California is setting the pace. Southern California is desperate for water. Texas is taking her cue from California.

The Dallas Morning News: "Texans must watch what California is doing, then take a look at what Texas should be doing. We are too complacent."

Texans may be complacent about water by California standards. By Colorado standards they are performing wonders . . . $200 million water development bond issue . . . creation of an aggressive, imaginative state water resources planning division . . . $2 million biennium appropriation to the Board of Water Engineers . . . special U.S. Commission to study Texas water problems in depth.
But Texans want more than that. They are pressuring their legislature and their Board of Water Engineers for more progress. One apparent result: Resignation of BWE's Chief Engineer on December 18. Texas is dead serious about her water problems.

Another population pressure spot: Arizona. The 1960 census is likely to peg Arizona as the second fastest growing state in the U.S. . . Up 50% in 10 years, exceeded only by Nevada.

Arizona is smarting under a nightmare of legal blunders in the long suit . . . Arizona v. California. If she loses this important Colorado River case, she may come out of it swinging wildly. An Arizona swinger: Sidney Kartus, official observer at the lawsuit for the Arizona Legislative Council.

Kartus: "If the upper basin states took Arizona's water arbitrarily, as they did under the Compact, Arizona has an equitable suit against them. This is the real suit that Arizona should institute."

Another Arizona swinger: Dr. G.E.P. Smith, aging, respected professor-engineer. He's written revealing booklets on "Arizona Loses a Water Supply". He confided to your Newsletter . . .

"I want you to realize the problem faced by projects in the lower basin. The total water supply, to which the lower basin can claim title, is 1,200,000 acre feet less than is required for the projects already authorized and in operation. The upper basin should relinquish at least that much water to the lower basin."

What about Colorado? It's pretty much business-as-usual at the state water level. Colorado Water Conservation Board budget comparisons: $405,000 in 1958-59 . . . $439,000 in 1959-60 . . . $439,000 requested for 1960-61. Even the fish fare better than that!

Thomas Kimball: "During the fiscal year 1960-61, the (Colorado Game & Fish) Department is requesting $1,000,000 out of a $4,000,000 budget for the development of new fish environment through the improvement of streams and the construction of fishing lakes." (Senate Select Committee Hearing)

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