

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA



STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAII'
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA

P.O. BOX 621
HONOLULU, HAWAII 96809

Testimony of
DAWN N. S. CHANG
Chairperson

Before the House Committee on
FINANCE

Wednesday, April 5, 2023
2:00 PM

State Capitol, Conference Room 308, Via Videoconference

In consideration of
SENATE BILL 833, SENATE DRAFT 2, HOUSE DRAFT 2
RELATING TO THE WAHIAWA IRRIGATION SYSTEM

Senate Bill 833, Senate Draft 2, House Draft 2 proposes to: 1) require the Office of the Governor to negotiate the State's fee simple acquisition of the Wahiawa Irrigation System on Oahu, which includes the Wahiawa Reservoir, Wahiawa Dam, and Ditch System; 2) authorize and appropriate moneys for the Department of Land and Natural Resources (Department), the Department of Agriculture (DOA), and the Agribusiness Development Corporation (ADC), (collectively, "Departments"), to purchase, repair and maintain the Wahiawa Irrigation System and associated spillway; and 3) appropriate funds four full time equivalent (4.0) FTE positions for the Department. **The Department offers the following comments on this measure, and proposes amendments.**

The Department appreciates the importance of Wahiawa Irrigation System to agriculture irrigation, flood control, wastewater management, and public recreation in central O'ahu. The Department is agreeable to including the parcels listed in the measure, which have been identified by the Department as relevant to public recreation. The Department appreciates the amendments made by the House Committee on Water & Land that clarifies the parcels that the Department may acquire.

The Department is grateful to the Senate Committee on Water and Land for including an appropriation to the Department to manage and maintain its portion of the irrigation system, i.e. the reservoir lands, including creating 4 FTE positions. Additionally, the Department appreciates the amendment made by the House Committee on Judiciary & Hawaiian Affairs that provides the Department with an amount of \$500,000.00 to cover the expenses described above. Without this funding, the Department cannot proceed with its part of the acquisition as it simply does not have the resources to manage this area.

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT
LAURA H.E. KAAKUA
FIRST DEPUTY
M. KALEO MANUEL
DEPUTY DIRECTOR - WATER
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE
MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES
ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

The Department further notes that there will be significant ongoing challenges to manage this area and that future recurring funding will be required. Given the significant management responsibilities that will involve multiple Department divisions, even 4 FTE positions may not be sufficient staff resources to adequately manage this area. Specifically, additional officers from the Department's Division of Conservation and Resources Enforcement (DOCARE) will be required to respond to homeless and other enforcement issues.

- a. The Department estimates that it would be responsible for managing approximately 206.5 additional acres resulting from this acquisition.
- b. The Department understands that as many as 50 homeless people or more occupy various areas of the parcels and a commitment of substantial resources will be required to manage the area to provide clean, safe recreational opportunities to the public.¹
- c. In addition to addressing the homeless issue, the Department will need to manage the submerged land areas and approximately 20 miles of shoreline for public use by regularly removing trash, debris and other hazards, including aging Eucalyptus trees that abut the adjacent residential properties.
- d. To be effective, DOCARE may need to establish an office in the area to ensure 24/7 operations.

DOA and ADC request the appropriation of sufficient funds to ensure that ongoing maintenance, repairs, and operations can be performed during, and subsequent to, the performance of the mitigation, repair, and construction work required to bring the dam and spillway into compliance with the Department's Dam Safety Program.

For background, Wahiawa Dam was constructed in 1905 to create a great reservoir basin to capture waters in Kaukonahua Stream from the Koolau Mountains for a massive irrigation system for Central O'ahu farming that continues to this day. The System generated hydroelectric energy and has received R2 wastewater from the nearby treatment plant of the City and County of Honolulu. Since 1957, through a cooperative agreement with Castle & Cooke, Inc., the Department has managed a public fishing area on Wahiawa reservoir and constructed and manages a boat ramp at the 66-acre Wahiawa State Freshwater Park.

The Wahiawa Irrigation System, which includes Lake Wilson, has a critical role in the economy of Hawai'i by providing an essential input for agricultural production in the Wahiawa-Waiialua-Hale'iwa area. Like for many other types of infrastructure such as roads, airports, harbors and power grid, the economic impact of an irrigation system is most crucial in the service it provides that makes possible for other economic activities to take place and thrive.

The Dam Safety Program regulates dams in Hawai'i to ensure landowner compliance with dam safety laws and regulations. The Wahiawa Dam does not meet current dam safety standards and needs significant repairs to bring it into compliance. These deficiencies were first identified in the 1978 United States Army Corps of Engineers dam safety report. The current landowner was notified by the Dam Safety Program to remedy these issues in 2009 and has not taken all necessary actions to remediate the dam and bring it into compliance.

¹ The Department also understands that there are more homeless in the general vicinity that may migrate to the subject parcels once they become publicly accessible.

The Department, ADC and DOA agree that subject to the appropriation of sufficient funding and negotiations with the current owners of the pertinent lands covered by this measure, that: the Department may acquire and manage the parcels identified by the measure excluding the parcels on which the dam facility including the spillway are situated and the irrigation system infrastructure that serves to deliver water (dam, spillway, outlet works, ditches, etc.); ADC may acquire and manage the irrigation system infrastructure needed for water delivery; and DOA may acquire and manage the dam and spillway and the parcels on which the dam, spillway and appurtenant features are situated. The three Departments acknowledge that acquisition and control of the Wahiawa Irrigation System by the State serves critically important public purposes for the State. The Wahiawa State Freshwater Park is adjacent to the subject parcels and the Department's Division of Aquatic Resources uses the reservoir for recreational fishing programs that serve about 1,500 fishers annually. The irrigation system provides essential water infrastructure for agricultural users in the region who are engaged in activities that support local food production and is a key component in achieving the State's food sustainability goals.

The three Departments note that the State must perform its due diligence for the acquisition. Some of the items required would be a survey map and description, title reports for all the parcels, and a Phase I Environmental Site Assessment (ESA) to determine whether any hazardous materials or other contaminants are present of the parcels, and a Phase II ESA if necessary. The three Departments also note that Parcel (1) 7-3-007:001 which consists largely of the Lake Wilson submerged lands, also appears to have portions of the irrigation system infrastructure, such as a portion of the dam and the outlet works located on it. As the measure contemplates the fee simple acquisition of these improvements by DOA, subdivision of this parcel may be required to achieve the intent of this measure.

Finally, the three Departments note that the final land acquisitions will be determined during negotiations and are subject to review and approval by the boards of the respective agencies.

Mahalo for the opportunity to comment on this measure.

JOSH GREEN, M.D.
Governor

SYLVIA LUKE
Lt. Governor



JAMES J. NAKATANI
Executive Director

STATE OF HAWAII
AGRIBUSINESS DEVELOPMENT CORPORATION

235 S. Beretania Street, Suite 205
Honolulu, HI 96813
Phone: (808) 586-0186 Fax: (808) 586-0189

TESTIMONY OF JAMES J. NAKATANI
EXECUTIVE DIRECTOR
AGRIBUSINESS DEVELOPMENT CORPORATION

BEFORE THE COMMITTEE ON FINANCE

Wednesday, April 5, 2023
2:00 p.m.
Conference Room 325
Videoconference

SENATE BILL NO. 833 S.D. 2, H.D.2
RELATING TO WAHIAWA IRRIGATION SYSTEM

Chair Yamashita, Vice Chair Kitagawa and Members of the Committee:

Thank you for the opportunity to testify on Senate Bill No. 833 S.D. 2., H.D. 2. The Agribusiness Development Corporation (ADC) supports this measure, which requires the Office of the Governor to negotiate the State's fee simple acquisition of the Wahiawa irrigation system on the island of Oahu. The measure also authorizes and appropriates funds for the Department of Agriculture, Agribusiness Development Corporation, and Department of Land and Natural Resources to purchase, repair, and maintain the Wahiawa irrigation system and the associated spillway.

There are other stakeholders besides agriculture that have a vested interest in the Wahiawa Irrigation System known as Lake Wilson. Though the intent of this measure is to preserve the Wahiawa Irrigation System, the lake

currently serves as a state freshwater recreational resource and there is the substantial matter of health and safety to the community as the dam has functioned as flood mitigation for residents and businesses downstream. The dam and spillway are facing ongoing regulatory and legal challenges, which has been confirmed in discussions with the State Attorney General's Office. We strongly believe the acquisition of Lake Wilson and the irrigation system should be a policy decision made and coordinated by the Office of the Governor to address and resolve any long-standing issues collectively. We support appropriating funds to repair and expand the spillway associated with the Wahiwawa irrigation system and to bring the spillway into compliance with all relevant dam safety requirements. These are critical safety issues that need to be addressed immediately.

We would also like to note that we support this bill provided that its passage does not replace or adversely impact priorities indicated in our Executive Budget. Thank you for your consideration of our testimony.

JOSH GREEN, M.D.
Governor

SYLVIA LUKE
Lt. Governor



SHARON HURD
Chairperson, Board of Agriculture

MORRIS M. ATTA
Deputy to the Chairperson

State of Hawai'i
DEPARTMENT OF AGRICULTURE
KA 'OIHANA MAHI'AI
1428 South King Street
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TESTIMONY OF SHARON HURD
CHAIRPERSON, BOARD OF AGRICULTURE

BEFORE THE HOUSE COMMITTEE ON FINANCE

APRIL 5, 2023
2:00 PM
CONFERENCE ROOM 308

SENATE BILL NO. 833 SD2, HD2
RELATING TO THE WAHIAWA IRRIGATION SYSTEM

Chairperson Yamashita and Members of the Committee:

Senate Bill 833 SD2, HD2 proposes to require the Office of the Governor to negotiate the State's fee simple acquisition of the Wahiawa irrigation system on the island of Oahu. Authorizes and appropriates funds for the Department of Agriculture, Agribusiness Development Corporation, and Department of Land and Natural Resources to purchase, repair, and maintain the Wahiawa irrigation system and the associated spillway. Appropriates funds for four full-time equivalent (4.0 FTE) positions for the Department of Land and Natural Resources. DOA SUPPORTS this measure and offers clarifying comments.

DOA appreciates the importance of the Wahiawa Irrigation System, Wahiawa Dam and Lake Wilson Reservoir to agriculture irrigation, flood control, wastewater management, and public recreation. DOA shall acquire the dam and spillway and the parcel on which the spillway is situated, until the appropriate and necessary repairs and rehabilitation are completed, at which time, these assets will be transferred to ADC.

Thank you for the opportunity to comment on this measure.



BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
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April 5, 2023

RICK BLANGIARDI, MAYOR

BRYAN P. ANDAYA, Chair
KAPUA SPROAT, Vice Chair
MAX J. SWORD
NA'ALEHU ANTHONY
JONATHAN KANESHIRO

DAWN B. SZEWCZYK, P.E., Ex-Officio
EDWIN H. SNIFFEN, Ex-Officio

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

ERWIN M. KAWATA
Deputy Manager

The Honorable Kyle T. Yamashita, Chair
The Honorable Lisa Kitagawa, Vice Chair
and Members
House Committee on Finance
Hawaii State Capitol, Room 308
Honolulu, Hawaii 96813

Dear Chair Yamashita, Vice Chair Kitagawa and Members:

SUBJECT: Senate Bill 833, SD2, HD2: Relating to the Wahiawa Irrigation System

The Honolulu Board of Water Supply (BWS) supports Senate Bill (SB) 833, Senate Draft (SD) 2, House Draft (HD) 2, which authorizes and appropriates funds for the State Department of Agriculture, Department of Land and Natural Resources, and Agribusiness Development Corporation and the Department of Land and Natural Resources to purchase, repair, and maintain the Wahiawa Irrigation System and the associated spillway.

The Wahiawa Irrigation System is a vital nonpotable resource to agriculture irrigation and local farmers. By encouraging farmers to use nonpotable water, it ensures the viability of our potable drinking water now and into the future. The system also provides recreation to the nearby community. The State would benefit in its effort to expand local food production and food security. The loss of the system would impact not just farmers or ranchers, but raise the possibility of outside investors developing the land for their own interests.

Thank you for the opportunity to testify in support of SB 833, SD2, HD2.

Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer



March 29, 2023

Representative Kyle T. Yamashita, Chair
Representative Lisa Kitagawa, Vice Chair
House Committee on Finance

Testimony in Support of SB 1064, S.D. 2, H.D. 1, Relating to Dam and Appurtenance Safety (Establishes the dam and appurtenance improvement or removal grant program for plans, design, construction, and equipment that is used to improve or remove deficient dams and appurtenances as determined by the Department of Land and Natural Resources [DLNR]. Specifies eligibility requirements for dam and appurtenance improvement or removal grants. Appropriates funds. Effective 6/30/3000.)

**Friday, March 31, 2023, 2:00 p.m.
State Capitol, Conference Room 308, Via Videoconference**

The Land Use Research Foundation of Hawaii (LURF) is a private, non-profit research and trade association whose members include major Hawaii landowners, developers, and utility companies. LURF's mission is to advocate for reasonable, rational, and equitable land use planning, legislation and regulations that encourage well-planned economic growth and development, while safeguarding Hawaii's significant natural and cultural resources, and public health and safety.

LURF appreciates the opportunity to provide testimony in support of this measure.

SB 1064, S.D. 2, H.D. 1. This bill proposes to establish and appropriate funds for a dam and appurtenance improvement or removal grant program to provide private dam and appurtenance owners with funds for plans, design, construction, and equipment that is used to improve or remove deficient dams and appurtenances, as determined by the DLNR to ensure and enhance the continued availability and operation of dams and appurtenant improvements in Hawaii, and to consider their role in the maintenance of dependable water supply.

LURF's Position.

LURF members include private property owners, farmers and ranchers who own, maintain, and utilize dams and reservoirs, and who consider such resources critical to conduct their agricultural operations and to sustain their businesses.

The State government, departments and agencies recognize that dams, reservoirs, and appurtenant improvements are recognized as being critical to the conduct of agricultural operations and businesses, as well as for their vital contributions to the community such as providing drinking water, renewable energy, and flood control, which are extremely important functions necessary to sustain the State's water resources and to promote public safety.

Large amounts of prime agricultural lands and irrigation systems have been made available for conversion to diversified agriculture as a result of the plantation closures in the 1990s, and the opportunity presently exists to strengthen and expand Hawaii's diversified agriculture industry. Agricultural lands, however, require significant quantities of water to support and maintain productivity. Local farmers are thus relying on State agencies such as DLNR and Department of Agriculture (DOA) to continue working toward expansion of diversified agriculture; promoting the agricultural self-sufficiency of the State; and protecting water as an important resource, which includes and incorporates dam safety.

Landowners and agricultural stakeholders believe the establishment of the grant program proposed by this bill will greatly assist with concerns regarding compliance with current safety standards, including requirements of the dam and reservoir safety program administered by the DLNR, safety requirements for dams and reservoirs imposed by the program, as well as costs which must be incurred for maintenance and upgrade of structures which are presently considered untenable.

Hawaii is already witnessing the local effects of climate change such as rising temperatures; decreased rainfall and stream flow; and increased drought and storms. Such conditions caused by climate change are not only detrimental to local food production but exacerbate the State's excessive reliance on imported food as well. Food security and adaptation to climate change are critical concerns, and irrigation and water storage are increasingly more important to food production.

As this Committee may already be aware, the unsustainable costs cast upon landowners and agricultural stakeholders in connection with dam safety are a serious concern, as are overly burdensome regulations relating to maintenance and operation of dams and reservoirs, which are proving to be potentially counterproductive to the long-term objective of preserving these facilities as valuable water sources.

As potential issues relating to public health, and food safety and security continue to be a significant concern of agricultural stakeholders, LURF and its members appreciate this measure proposed to allow consideration of the interests of dam and reservoir owners, and the acknowledgement of dams, reservoirs and appurtenant improvements being vital water resources for the State, and the need for critical and consistent maintenance and operation of the systems in a safe and feasible manner.

For the reasons set forth above, LURF is in **support of SB 1064, S.D. 2, H.D. 1**, and respectfully requests this Committee's favorable consideration of this measure.

Thank you for the opportunity to present testimony regarding this matter.



NORTH SHORE NEIGHBORHOOD BOARD NO. 27

c/o NEIGHBORHOOD COMMISSION • 925 DILLINGHAM BOULEVARD SUITE 106 • HONOLULU, HAWAII, 96817
TELEPHONE: (808) 768-3710 • FAX: (808) 768-3711 • INTERNET: <http://www.honolulu.gov/nco>

April 3, 2023

COMMITTEE ON FINANCE
Rep. Kyle T. Yamashita, Chair
Rep. Lisa Kitagawa, Vice Chair

Re: SB 833 etter Regarding Support for Transferring the Wahiawa Reservoir and Irrigation System to the State of Hawaii

Aloha Committee Chair Yamashita and Committee Members:

The North Shore Neighborhood Board #27 strongly supports the transfer of the Wahiawa reservoir and irrigation system to the State of Hawaii.

The irrigation water and system is of vital importance to the farmers in our community and without it, they will have to shutdown which will threaten our food security. The land around Wahiawa and the North Shore is some of the best in the state for growing crops. We urge your committees to support SB833 to allow continued agricultural use of the land.

Mālama 'āina,

Kathleen M. Pahinui
Chair, North Shore NB #27



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April 5, 2023

HEARING BEFORE THE
HOUSE COMMITTEE ON FINANCE

TESTIMONY ON SB 833, SD2, HD2
RELATING TO THE WAHIAWA IRRIGATION SYSTEM

Conference Room 308 & Via Videoconference
2:00 PM

Aloha Chair Yamashita, Vice-Chair Kitagawa, and Members of the Committee:

I am Brian Miyamoto, Executive Director of the Hawai'i Farm Bureau (HFB). Organized since 1948, the HFB is comprised of 1,800 farm family members statewide and serves as Hawai'i's voice of agriculture to protect, advocate and advance the social, economic, and educational interests of our diverse agricultural community.

The Hawai'i Farm Bureau supports SB 833, SD2, HD2, which requires the Office of the Governor to negotiate the State's fee simple acquisition of the Wahiawa irrigation system on the island of Oahu, authorizes and appropriates funds for the Department of Agriculture, Agribusiness Development Corporation, and Department of Land and Natural Resources to purchase, repair, and maintain the Wahiawa irrigation system and the associated spillway, and appropriates funds for positions in the Department of Land and Natural Resources.

The Wahiawa Irrigation System is critical for Oahu farmers and ranchers that depend on it for their operations. Water availability is a basic necessity for farmers and ranchers to maintain and expand their production, particularly in times of drought manifested on many islands as a result of a changing climate. Moreover, a reliable water supply is a key factor when Hawai'i's farmers and ranchers are making decisions to start new or to expand existing operations.

The Dole Food Company has listed the Wahiawa Irrigation System for sale. We can't afford to lose this critical agricultural water source. No farming entity can afford the \$20,000,000 listed price. We are concerned about the potential impact on farmers if a private individual or entity purchases the system. They may raise water rates or even discontinue supplying water to farmers.

Oahu growers, especially those in Waialua and Haleiwa, need the reliable source of water that the Wahiawa Irrigation System provides, to continue to produce cabbage, bell pepper, tomato, cucumber, taro, eggplant, okra, papaya, citrus, avocado, banana, dragon fruit, watermelon, and green onion, and to expand production to better serve our communities.

Thank you for the opportunity to testify in support of this measure.

Sustainable Hawaii, LLC
Testimony Before Finance Committee
Hawaii Legislature House of Representatives

To the Honorable Chairman and members of the Finance Committee

As the managing owner of Sustainable Hawaii, LLC, and as a 40 year member of the North Shore Community including years as Chairman of the North Shore Chamber of Commerce, I want to tell you how incredibly important SB 833 and the Wahiawa Dam and Reservoir are to our Community.

Until very recent years, the North Shore including Haleiwa, Waialua and Wahiawa have grown and prospered as agricultural communities, and the primary economy has been the sugar and pineapple operations of Waialua Sugar Company and Dole. For three generations their farming quite literally shaped and was the heart of the multi-cultural communities of Waialua and Wahiawa. Now, pursuant to a Hawaii Constitutional Mandate the City and County of Honolulu has designated the Dole and other lands served by Wahiawa Reservoir as “Important Agricultural Lands” (IAL) and has restricted use of those lands to Agricultural, consistent with our heritage.

As our community has watched sugar and pineapple move to the Philippines and Indonesia, we have also seen Dole develop new agricultural uses of the land: Waialua Coffee and a cacao farm among others. Dole has also sold lands to other farming operations including Pioneer HiBred/Corteva, and others, bringing further diversity to North Shore Agriculture.

A unique element of North Shore agriculture is that the Lelehua Plain and the North Slope of Oahu have deep rich soil. But those lands also suffer from five to six months a year of almost no rain. Thus critical to our agriculture operations has been the Wahiawa Dam and Reservoir. The watershed for this facility is 16 square miles in the Koolau Mountains above Wahiawa. The reservoir preserves the excess runoff of those waters — rain that would have flowed down Kaukonahua Stream to the ocean--- and diverts and distributes it to the agricultural areas during the dry summer months. Incredibly, this facility has been able to provide up to five billion gallons annually, or otherwise stated 18,000 acre feet of water, enough to irrigate 28 square miles of North Shore agricultural lands. All of that water is critical to utilizing the designated IAL in agriculture.

By providing that water for over 100 years, the Wahiawa Reservoir has supported thousands of agricultural jobs and in doing so has literally defined our entire communities. During the 100+ years that the reservoir has been in operation, the community has asked Dole to allow the reservoir to take on more and more community functions. Those functions have included providing: (1) a location where the Wahiawa Sewage Plant can safely deposit its effluent; (2) a recreational facility including a lake side park and walkways, fishing and canoeing, and camping and nature studies on Boy Scout Island; (3) critical flood control for the Waialua community regulating the flow of storm waters from the Koolau into and through the Waialua Community. Relative to the fishing, DLNR has stocked the reservoir with thousands of fish – species enjoyed by local fishermen.

Through the years, Dole has provided these extra community benefits at no cost to the government or to the community. But more needs to be said about the Flood Control aspects of Wahiawa Dam. The dam itself is an earthen dam 88 feet high and 600 feet long. Even as nothing but an earthen dam, it’s replacement cost would exceed \$60 million.

Although Wahiawa Dam was originally built as an agricultural dam, in recent years more and more homes have been built in the low lands surrounding the mouth of the Waialua River as it flows into Kaiaka Bay. The river receives waters not only from the Wahiawa Reservoir, but also from Poamoho, Helemano, and Opaepala, Rivers. The total drainage area flowing to Waialua River exceeds 50 square miles. About one third, or 16 square miles flows from above Wahiawa Reservoir.

Notwithstanding that Wahiawa Dam was built as an agricultural dam, Wahiawa Dam has served for over 100 years to moderate the flow of storm waters from its watershed and protected the downstream community from flooding. The most extreme rainfalls that have been experienced in the reservoir's watershed have ranged up to 15" of rain in 24 hours. And history shows that the dam has handled these flows and helped protect Waialua from flooding.

Nevertheless, DLNR's Probable Maximum Precipitation estimate results in requiring major upgrades of the Wahiawa Dam, far beyond the ability of Dole's Oahu agriculture to bear. Thus Dole's only option would be to decommission the dam and restore the underlying land to its former state, and without water, to discontinue its Oahu agricultural operations. Removing the dam would also have widespread disastrous community consequences by (1) rendering thousands of acres of other North Shore agriculture uneconomic (2) eliminating what has been an effective flood control dam for Waialua, (3) eliminating recreational opportunities offered to fishermen, boaters and park users along the shores of the lake, and (4) removing the place where sewage effluent from the Wahiawa Municipal Sewage Plant can be safely deposited.

For these reasons, Dole has offered to gift its part of the Dam, Reservoir and Irrigation system to the State of Hawaii so that the Dam and Reservoir can continue to support thousands of acres of North Shore Agriculture as well as the other community functions it presently serves. State agencies will be able to work collaboratively with DLNR to develop common sense dam upgrades. The result could produce a better, safer, dam, in the public interest. And revenue from the agricultural water should be sufficient to cover the Dam and Reservoir operating expense.

Therefor, Sustainable Hawaii, LLC as lessor to Dole of part of the land underlying the Dam Reservoir, and downstream irrigation system, agrees that given the critical list of public functions of the Reservoir, it ought to be owned by and maintained by the public. We therefore support the intent and purpose of SB 833.

by Howard R. Green,
Managing Member
Sustainable Hawaii, LLC



Email: communications@ulupono.com

HOUSE COMMITTEE ON FINANCE
Wednesday, April 5, 2023 — 2:00 p.m.

Ulupono Initiative supports SB 833 SD2 HD2, Relating to the Wahiawa Irrigation System.

Dear Chair Yamashita and Members of the Committee:

My name is Micah Munekata, and I am the Director of Government Affairs at Ulupono Initiative. We are a Hawai'i-focused impact investment firm that strives to improve quality of life throughout the islands by helping our communities become more resilient and self-sufficient through locally produced food; renewable energy and clean transportation; and better management of freshwater and waste.

Ulupono supports SB 833 SD2 HD2, which requires the Office of the Governor to negotiate the State's fee simple acquisition of the Wahiawa Irrigation System on the island of Oahu; authorizes and appropriates funds for the Department of Agriculture, Agribusiness Development Corporation, and Department of Land and Natural Resources to purchase, repair, and maintain the Wahiawa Irrigation System and the associated spillway; and, appropriates funds for positions in the Department of Land and Natural Resources.

Ulupono supports funding for critical agricultural infrastructure across the State. The Wahiawa Irrigation System provides critical water access to local producers in the region. The system also provides recreation to the local community under the jurisdiction of the Department of Land and Natural Resources. It is prudent for the State to acquire the Wahiawa Irrigation System to support both recreation and production agriculture, therefore some sort of collaborative agreement across multiple state departments may be necessary. Having such an important system abandoned, or sold to a private entity, may have drastic ripple effects to local agriculture and communities alike. We support keeping this water resource within the purview of the State and maintaining affordable water access island-wide.

It is important to note that there are other maintenance and repair projects proposed in the Hawai'i Department of Agriculture's CIP Budget that also merit strong consideration by the Legislature. Agricultural water system infrastructure (irrigation systems) is an essential component of our state's efforts to achieve its goals of increasing local food production and food security. This is affirmed in the DOA's 2019 Agricultural Water Use and Development Plan (AWUDP), which documents how Hawai'i's agricultural industry relies on these water systems to deliver inexpensive water to meet and expand agricultural production even during times of drought. The DOA has identified agricultural water systems as the most important infrastructural requirement needed to expand Hawai'i's diversified agriculture industry. However, most of the large-scale irrigation systems in the state are or will soon be more than 100 years old.

Investing in a Sustainable Hawai'i

Additionally, according to the Association of State Dam Safety Officials' latest Dam Safety Performance Report, more than a third of Hawai'i's dams are rated either in poor or unsatisfactory condition.

In the AWUDP, the DOA estimates the five-year cost of repairs and maintenance for Hawai'i's most critical agricultural water systems at approximately \$168 million - of that amount, about \$90 million is needed specifically for DOA-managed agricultural water systems over that same period. This is substantial for our small state, requiring an average of more than \$33 million per year for five years. While the price tag to repair and maintain these systems may seem high, the cost to replace these plantation-era water systems would be in the billions of dollars. More importantly, continuing to let these systems fall into disrepair puts Hawai'i's food security at risk, particularly the food security of the next generation who will be forced to adapt to a hotter and dryer planet.

Climate Change in Hawai'i

The importance of well-maintained agricultural water systems becomes even greater when the impacts of climate change on Hawai'i's food security are considered. In April 2021, Hawai'i became the first state to declare a climate emergency, when the State Legislature passed [Senate Concurrent Resolution 44 SD1 HD1](#), which also requested "statewide collaboration toward an immediate just transition and emergency mobilization effort to restore a safe climate."

The people of Hawai'i are seeing first-hand local impacts consistent with the effects of climate change: rising air temperatures; decreased rainfall and stream flow; increased rain intensity; increased frequency of drought; and increased frequency of powerful storms. For example:

- Since 1950, temperatures across the Hawaiian Islands have been on the rise, ranging from increases of 0.2 to 0.4 degrees Fahrenheit per decade;
- The annual total precipitation measured at Hilo International Airport decreased by nearly 20 inches since 1950—the most among Hawai'i's four major airports;
- Rain intensity is becoming as much a destructive factor as drought, with the amount of rain falling in the very heaviest downpours from 1958 to 2007 increasing by approximately 12%;
- The area in Hawai'i burned annually by wildfires has increased four-fold in recent decades, according to University of Hawai'i wildland fire researcher Clay Trauernicht; and
- Powerful storms are anticipated to become more frequent, as warmer climates tend to amplify existing weather patterns and variability, according to Hawai'i's state climatologist, Pao-Shin Chu.

These are each detrimental to local food production on their own; and yet, as an isolated island state we are also susceptible to climate change impacts far from our shores due to Hawai'i's continuing over-reliance on food from imports.

Irrigation Infrastructure IS Part of Climate Change Adaptation

For international and domestic food producers, meeting the global demand of a projected 10 billion people by 2050—an increase of 2.3 billion people over just a quarter of a century—will become increasingly challenging as the Earth's climate continues to warm. Some estimate this will require an increase in global food production of 60%, if we are to ensure enough food for all.



In the Biden Administration’s fact sheet outlining the Infrastructure Investment and Jobs Act, the White House highlighted investments in **infrastructure to make communities more resilient to the impacts of climate change, including** “funds to protect against droughts and floods...”

Irrigation plays an essential role in increasing food production and is an effective method of climate change adaptation. Globally, irrigated land represents only 16% of arable land, but produces 44% of total crop production. For most crops, irrigation can double or triple crop yields. For example, irrigated crop yields for corn, soybean, and wheat are 165%, 75%, and 140% higher than rain-fed yields. In regards to climate change adaptation, irrigation systems mitigate the impact of decreasing rainfall, increasing frequency of drought, and increasing temperatures; and irrigation can help capture more rainfall during storm events, so that water can be used in the future.

According to research by The Nature Conservancy, climate change will bring increased moisture deficits across the United States. Nationally, the total area irrigated will need to increase by 11-54 million acres (an increase of 19-94%) by 2090 in order to maintain food production.

The DOA’s AWUDP plan concludes: “The investment into these agricultural water systems is the key to provide adequate water to continue to grow diversified agriculture. As the saying goes, ...without water there is no agriculture..., which is the reason these agricultural water systems were originally constructed—and why they need to be maintained for another 100 years.”

We strongly agree. For generations to come, local food production will depend on these systems and their ability to provide water for local farmers and ranchers. This represents a singular opportunity to make Hawai‘i more self-sufficient and resilient.

Thank you for this opportunity to testify.

Respectfully,

Micah Munekata
Director of Government Affairs



**TESTIMONY IN SUPPORT WITH AMENDMENTS OF SENATE BILL 833
RELATED TO THE WAHIAWA IRRIGATION SYSTEM**

HOUSE COMMITTEE ON FINANCE
APRIL 5, 2023
2:00 PM

On behalf of Dole Food Company Hawaii, a division of Dole Food Company, Inc., we are submitting testimony in strong support of Senate Bill 833 SD2.

The Wahiawa Irrigation System (WIS) is essential to continued agricultural production in Central and North Oahu. Dole has offered the system to the State. The funding in this bill is essential to making required upgrades to the system. Without this bill, the system will be decommissioned.

We are grateful to the State for stepping in to avoid this situation and are in strong support of this measure.

We understand the fiscal implications of this bill. It is a considerable expenditure of public resources. We believe this expenditure is justified as there is substantial public interest in this measure.

The state has repeatedly passed legislation with the goal of increasing local food production. The substantial work that has gone into the identification and protection of important agricultural lands (IALs) are an example of this. We have provided figures of Oahu's IALs and the lands, and crops, the WIS services. The acquisition of the WIS serves the public interest.

We have attached a number of figures that show the importance of the system to agriculture. We have also provided a list of federal funding resources that we believe could be accessed by the state for the upgrade of the system that is unavailable to us as a private landowner. Despite being one of a small number of western states eligible for \$8.3 billion under Title IX (Western Water Infrastructure) of the Bipartisan Infrastructure Law, Hawaii has not received any of the \$3 billion spent or allocated to date. We have additionally included the 2008 economic impact study commissioned by the Department of Agriculture. While the numbers may be dated, we believe they are still applicable and demonstrate the substantial benefits enjoyed as a result of the WIS.

The decommissioning of this system would be catastrophic to agriculture and food production in Central Oahu. It would also mean the loss of the flood control and recreational assets that the State and the community now enjoy and the loss of irrigation water for a major portion of agricultural production on Oahu.



Dole is prepared to gift the system for no cost in exchange for delivery of a maximum 6 MGD of irrigation water at no cost, which is the necessary amount to keep its agricultural operations going in Central Oahu. Dole will only draw what is needed each day. The system currently delivers about 4 MGD to other users for a total of 10 MGD on average. Currently the maximum daily outflow is 20 MGD. This can be increased with future improvements. The reservoir holds 3 billion gallons, water is abundant for future use opportunities. To fund the cost to expand the spillway the State will be able to access federal infrastructure funds that a private owner cannot access.

This system currently serves fifty farmers with over 500 farm jobs and will serve more in the future once the State of Hawaii Agribusiness Corporation lands are fully leased out in Central and North Oahu. For food security it is essential that Hawaii expands agricultural production, and this is an opportunity for the State to do just that.

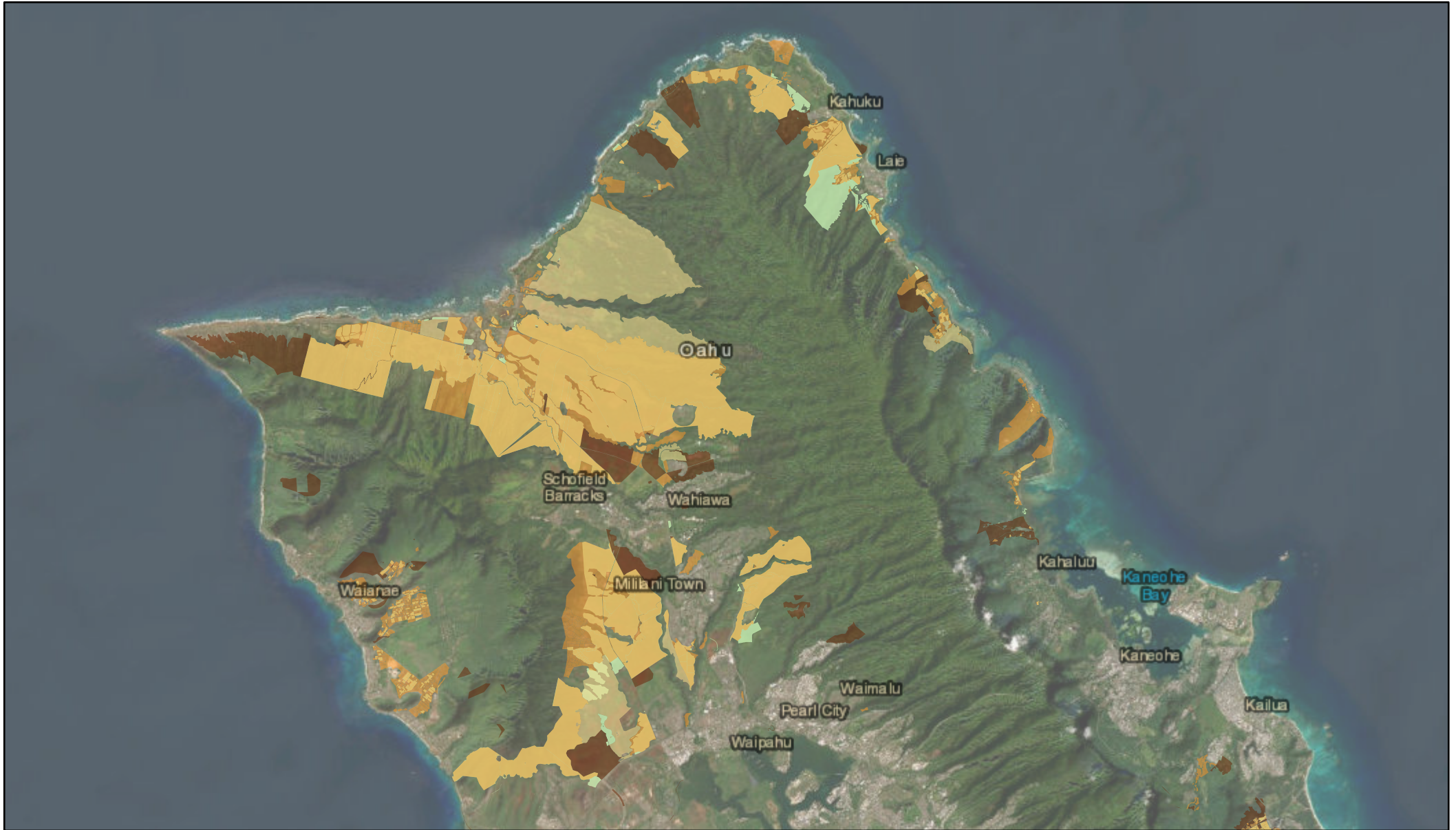
Over the last few months, Dole has conducted extensive outreach to the Central and North Oahu communities regarding the WIS and proposal to transfer the system to the State. Both the Wahiawa Neighborhood Board and North Shore Neighborhood Board voted in support of this proposal. We have obtained over 1,000 signatures in support of the proposal (a full copy of the petition and its signatures is available upon request). We have also collected numerous letters of support from nonprofits, farmers, and other stakeholder groups. A sample was included in our previous testimony to WTL/AEN.

In addition to the current uses of this system the future uses could include hydroelectricity to meet State of Hawaii renewable energy goals and possibly power a water purification system that can provide potable water security to the island of Oahu as our aquifers face threats from contamination and saltwater intrusion from over pumping.

WIS is a historically important asset for Oahu and the State of Hawaii and this opportunity for the State to own, manage, and improve the system is critical to agriculture, flood control, energy security, and water security. I urge you to pass this bill and capitalize on this opportunity.

Thank you for your consideration.
Dan Nellis
General Manager

Proposed Land for IAL Designation (November 2014)



4/4/2023, 8:20:28 AM

- City Proposed for IAL Designation
- Existing IAL
- State-Owned Land in the State Ag District
- Land currently in production

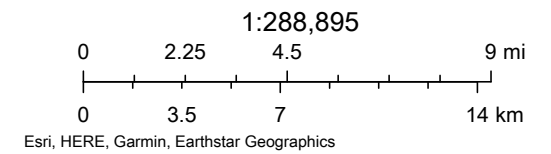
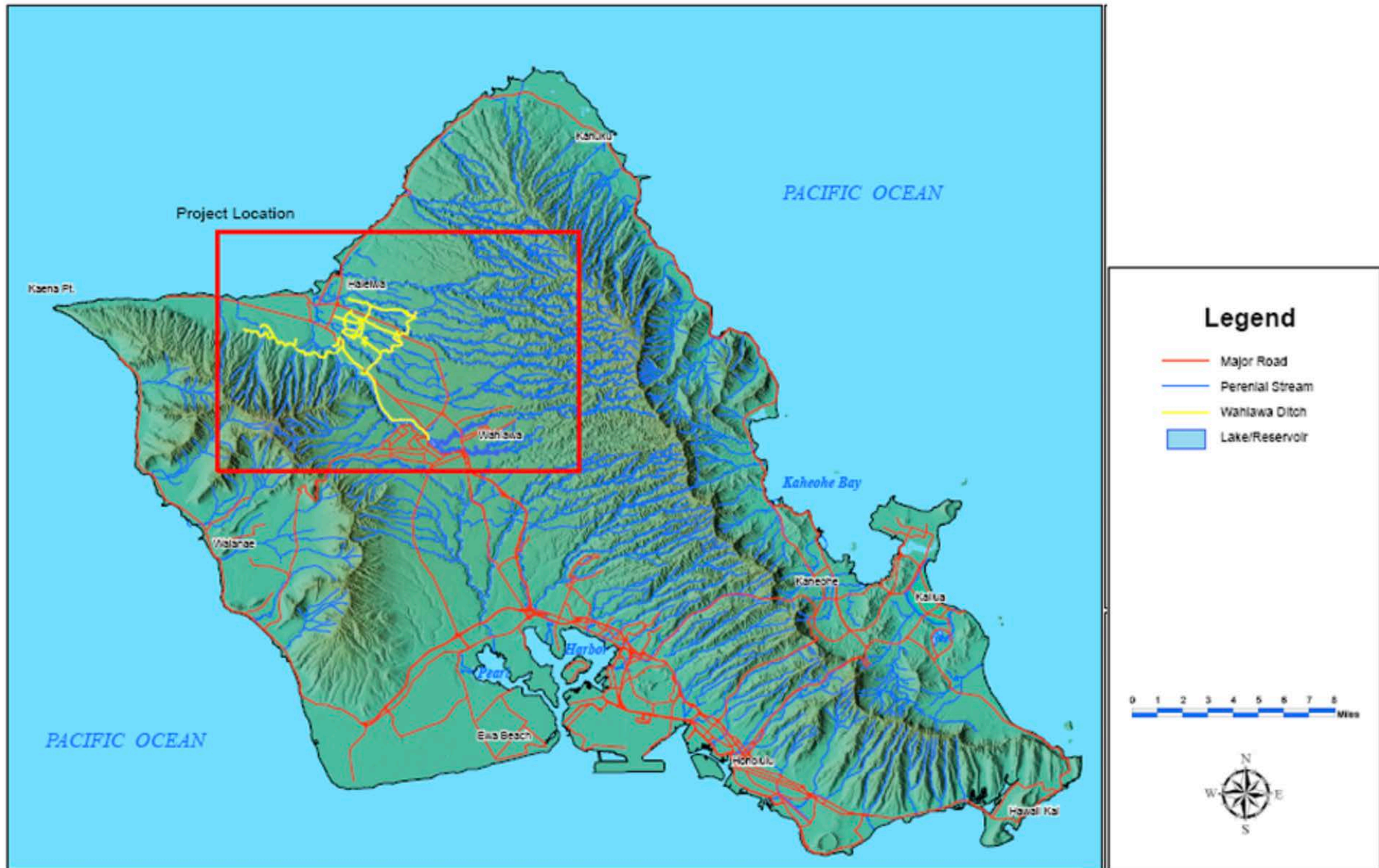
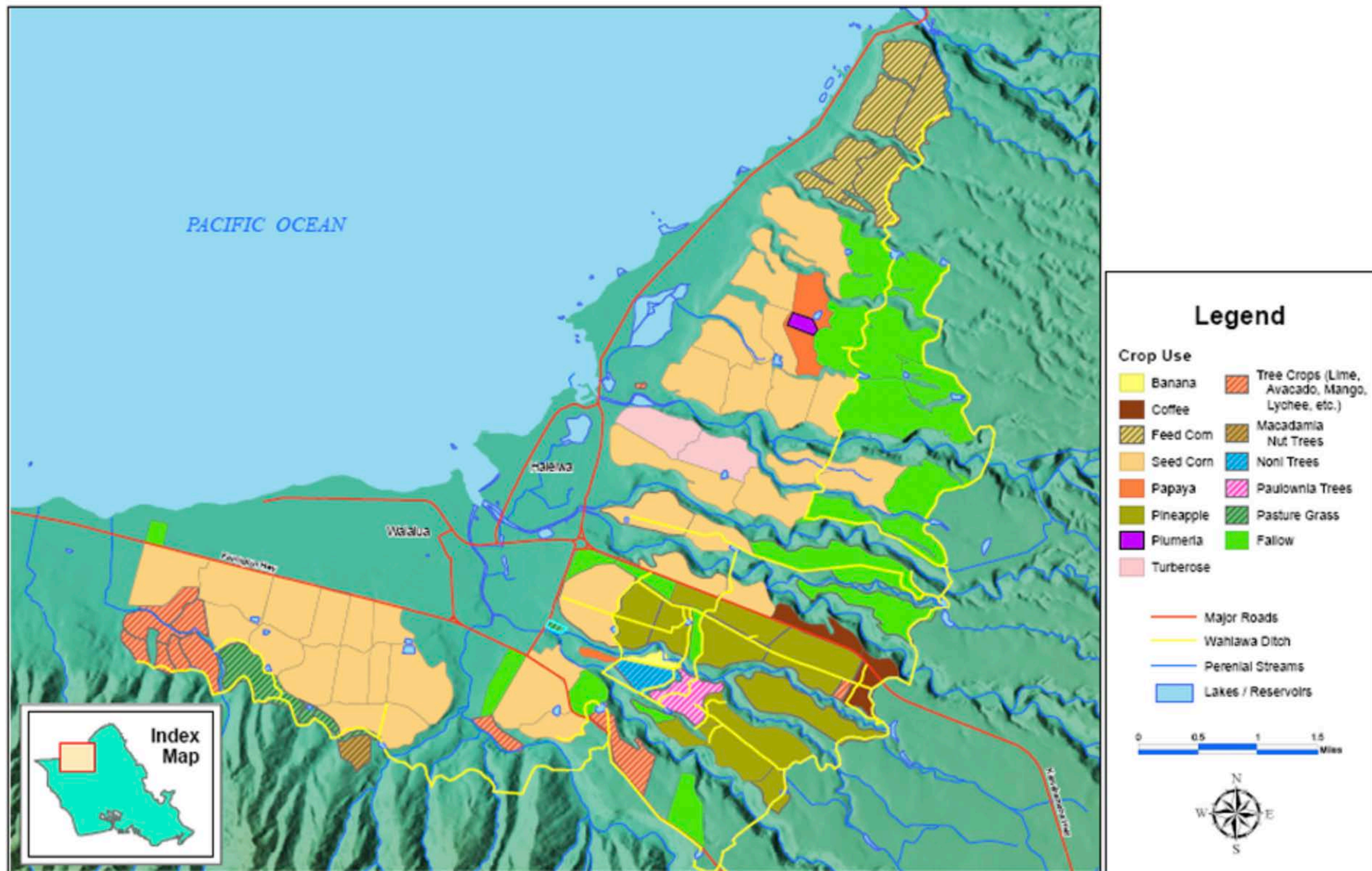


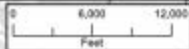
Figure 1. Wahiawa Irrigation System-Serviced Area



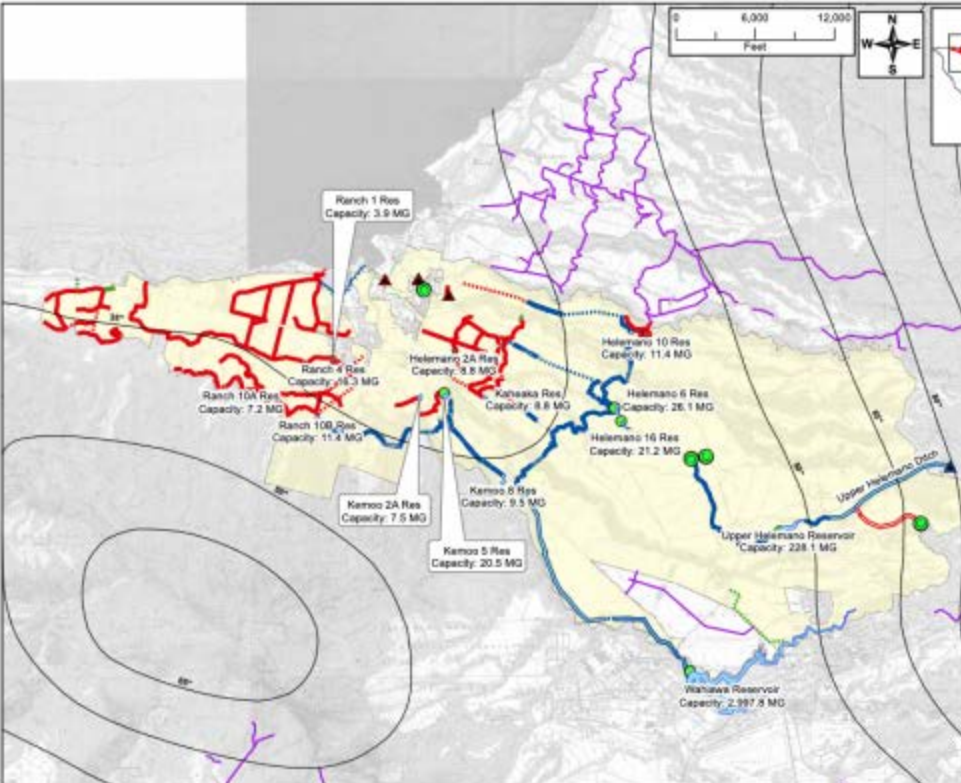
Note: Figure borrowed from Element Environmental LLC (September 2007). *Assessment of the Wahiawa Irrigation System*, commissioned by Agribusiness Development Corporation, Honolulu, HI.

Figure 2. Wahiawa Irrigation System-Serviced Area: Land Use by Crops





- ### Legend
- System Components**
- Canal, Active
 - Canal, Inactive
 - Canal, Unverified
 - Ditch, Active
 - Ditch, Inactive
 - Ditch, Unverified
 - Furne, Active
 - Furne, Inactive
 - Furne, Unverified
 - Penstock, Active
 - Penstock, Inactive
 - Penstock, Unverified
 - Pipeline, Active
 - Pipeline, Inactive
 - Pipeline, Unverified
 - Siphon, Active
 - Siphon, Inactive
 - Siphon, Unverified
 - Tunnel, Active
 - Tunnel, Inactive
 - Tunnel, Unverified
 - Utilized Stream
 - Reservoir, Active
 - Reservoir, Inactive
 - Reservoir, Unverified
 - Regulated Dam
 - Removed Dam
 - Pump, Active
 - Spring, Active
 - Spring, Inactive
 - Stream Diversion, Active
 - Stream Diversion, Inactive
 - Well, Active
 - Well, Inactive
 - Unverified Intake
 - Service Area
 - Neighboring Alignments
 - Isobaths



Hawaii State Department of Agriculture

Oahu Ditch (Oahu, Waihawa, Helemano, Tanaka and Ito Ditches)

Alignments and System Components

Island of Oahu, Hawaii (March, 2016)

'Absolutely essential': Lawmakers revive plans to acquire, restore Wahiawa Dam



State legislators are reviving plans to acquire Lake Wilson and the Wahiawa Dam and Gov. Josh Green said he supports the \$26 million deal.

By [Rick Daysog](#)

Published: Dec. 8, 2022 at 6:57 PM HST



HONOLULU (HawaiiNewsNow) - State legislators are reviving plans to acquire Lake Wilson and the Wahiawa Dam and Gov. Josh Green said he supports the \$26 million deal.

"I support the appropriation in general, I'd like to see it come to my desk," Green said Wednesday. "Water is very serious for us. We're serious about agriculture as our next leg of economic development."

"And for this area of the state, this seems to be key."

Earlier this year, former Gov. David Ige vetoed the funding to acquire the Wahiawa Dam, Lake Wilson and Dole Food Co.'s nearby irrigation system.

The plan also called for the state to restore the dam and invest in a hydroelectric power plant to generate electricity.

"If the dam is not preserved or upgraded — and this asset is not owned by the state — you're putting a lot of different things in jeopardy: the future of agriculture, the safety of Otake Cam and the recreational use for fisherman," said state Sen. Donovan Dela Cruz, chair of the Senate Ways and Means Committee.

The 116-year-old Wahiawa Dam is a high hazard dam that's in desperate need for repairs that Dole can't afford.

State regulators have said the dam's northside concrete spillway isn't large enough to prevent flooding downstream during extremely heavy rains.

Dela Cruz said if owner Dole can't find a buyer, the dam could be decommissioned — turning Lake Wilson into stream and cutting off Central Oahu farmers from their main water source.

Bruce Clements, whose five-acre cacao farm relies on water from Lake Wilson to irrigate their crops, said former Gov. Ige's veto prolonged economic uncertainties for farmers like him.

"We don't get enough rainfall here in this in this area to be able to farm without irrigation water," Clements said.



Potential Federal Funding Sources

A listing of various federal funding programs that could provide resources to the Wahiawa Dam upgrades.



Program (eligibility, ceiling, and match requirements)

Additional Information

WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Year 2023 (2024 is anticipated and forthcoming, usually opens in March and closes in June)

Federal Opportunity Number: R23AS00005
CFDA Number: 15.514

Eligibility: Category A: States, Indian Tribes, irrigation districts, and water districts; state, regional, or local authorities whose members include one or more organizations with water or power delivery authority; and other organizations with water or power delivery authority. Category A applicants must be located in the Western United States or United States Territories, including Alaska, Arizona, California, Colorado, Hawaii, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, Wyoming, American Samoa, Guam, the Northern Mariana Islands, the Virgin Islands, and Puerto Rico.

Ceiling: \$5,000,000

Match: 50 percent or more of total project costs

Agency: Bureau of Reclamation

<https://www.grants.gov/web/grants/view-opportunity.html?oppld=338924>

Bipartisan Infrastructure Law

The Bipartisan Infrastructure Law allocates \$8.3 billion for Bureau of Reclamation water infrastructure projects over the next five years to advance drought resilience and expand access to clean water for families, farmers, and wildlife. The investment will repair aging water delivery systems, secure dams, and complete rural water projects, and protect aquatic ecosystems. The funding announced today (see link) is part of the \$1.05 billion in Water Storage, Groundwater Storage and Conveyance Projects provided by the Law.

The Bipartisan Infrastructure Law (Infrastructure Law) provides a total of \$8.3 billion under Title IX (Western Water Infrastructure) to the Bureau of Reclamation for the programs and activities shown in the table below. Funding is provided as emergency funding and is available for obligation until expended. In FY 2022 and FY 2023 establishing the exact allocation of the initial \$1.66 billion by project will take shape over the coming months.

See spend plans: <https://www.usbr.gov/bil/2022-spendplan.html#:~:text=Bipartisan%20Infrastructure%20Law%20Spend%20Plans&text=Funding%20is%20provided%20as%20emergency,shape%20over%20the%20coming%20months>.

**Hawaii has currently not received any of the \$3+ billion spent or allocated. It is unclear if Hawaii has even pursued any of this funding, which is exclusively for western states, including Hawaii.*

<https://www.doi.gov/pr/essreleases/biden-harris-administration-announces-210-million-drought-resilience-projects-west>



Press Releases

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Biden-Harris Administration Announces \$210 Million for Drought Resilience Projects In the West

Bipartisan Infrastructure Law investments will fund additional water storage to provide increased water security to Western communities

10/17/2022

Date: Monday, October 17, 2022

Contact: Interior_Press@ios.doi.gov

WASHINGTON — The Department of the Interior today announced \$210 million from President Biden’s Bipartisan Infrastructure Law that will bring clean, reliable drinking water to communities across the West through water storage and conveyance projects.

The projects are expected to develop over 1.7 million acre-feet of additional water storage capacity, enough water to support 6.8 million people for a year. The funding will also invest in two feasibility studies that could advance water storage capacity further once completed.

“In the wake of severe drought across the West, the Department is putting funding from President Biden’s Bipartisan Infrastructure Law to work to expand access to clean, reliable water and mitigate the impacts of this crisis,” said **Secretary Deb Haaland**. “Water is essential to every community – for feeding families, growing crops, powering agricultural businesses, and sustaining wildlife and our environment. Through the investments we are announcing today, we will advance water storage and conveyance supporting local water management agencies, farmers, families and wildlife.”

“Through the Bipartisan Infrastructure Law, the Biden-Harris administration is dramatically advancing our mission at the Bureau of Reclamation to deliver water and power in an environmentally and economically sustainable manner for the American West,” said **Bureau of Reclamation Commissioner Camille Calimlim Touton**. “Our investment in these projects will increase water storage capacity and lay conveyance pipeline to deliver reliable and safe drinking water and build resiliency for communities most impacted by drought.”

The Bipartisan Infrastructure Law allocates \$8.3 billion for Bureau of Reclamation water infrastructure projects over the next five years to advance drought resilience and expand access to clean water for families, farmers, and wildlife. The investment will repair aging water delivery systems, secure dams, and complete rural water projects, and protect aquatic ecosystems. The funding announced today is part of the \$1.05 billion in Water Storage, Groundwater Storage and Conveyance Projects provided by the Law.

The selected projects are:

Arizona:

- Verde River Sediment Mitigation Study: \$5 million to provide the federal cost share for conducting the Verde River Sedimentation feasibility study, which would identify alternatives to restore at least 46,000 acre-feet of water storage lost due to accumulation of sediment at Horseshoe Reservoir. It would also determine a plan for future management of sediment at Horseshoe and Bartlett Reservoirs and investigate potential operational flexibilities created with increased storage capacity to assist in mitigating impacts of drought and

climate change on water availability. An appraisal study was completed in 2021.

California:

- **B.F. Sisk Dam Raise and Reservoir Expansion Project:** \$25 million to the San Luis and Delta-Mendota Authority, to pursue the B.F. Sisk Dam Raise and Reservoir Expansion Project. The project is associated with the B.F. Sisk Safety of Dams Modification Project. Once complete, the project will develop approximately 130,000 acre-feet of additional storage.
- **North of Delta Off Stream Storage (Sites Reservoir Project):** \$30 million to pursue off stream storage capable for up to 1.5 million acre-feet of water in the Sacramento River system located in the Coast range mountains west of Maxwell, California. The reservoir would utilize new and existing facilities to move water into and out of the reservoir, with ultimate release to the Sacramento River system via existing canals, a new pipeline near Dunnigan, and the Colusa Basin Drain.
- **Los Vaqueros Reservoir Expansion Phase II:** \$82 million to efficiently integrate approximately 115,000 acre-feet of additional storage through new conveyance facilities with existing facilities to allow Delta water supplies to be safely diverted, stored and delivered to beneficiaries.

Colorado:

- **Arkansas Valley Conduit:** \$60 million to continue the facilitation of supplying a safe, long-term water supply to an estimated 50,000 people in 40 rural communities along the Arkansas River. Once complete the project will replace current groundwater sources contaminated with radionuclides and help communities comply with Environmental Protection Act drinking water regulations through more than 230 miles of pipelines designed to deliver up to about 7,500 acre-feet per year from Pueblo Reservoir.

Montana:

- Dry Redwater Regional Water System Feasibility Study: \$3 million to provide the authorized federal cost-share for finishing the Dry Redwater Regional Water System Feasibility Study.

Washington:

- Cle Elum Pool Raise: \$5 million to increase the reservoir's capacity an additional 14,600 acre-feet to be managed for instream flows for fish. Additional efforts include shoreline protection that will provide mitigation for the pool raise.

The Department also recently announced new steps for drought mitigation in the Colorado River Basin supported by the Inflation Reduction Act, releasing a [request for proposals](#) for water system conservation measures as part of the newly created Lower Colorado River Basin System Conservation and Efficiency Program. The Act provides \$4 billion in funding for water management and conservation in the Colorado River Basin, including at least \$500 million for projects in the Upper Basin states that will result in water conservation throughout the system.

###

Was this page helpful?

Yes

No

SUBMIT

PRESS RELEASE

THE BIPARTISAN INFRASTRUCTURE LAW'S INVESTMENT IN WESTERN WATER RESILIENCE

The Bipartisan Infrastructure Law (BIL) provided **\$8.3 billion** in funding under Title IX (Western Water Infrastructure) to the Bureau of Reclamation (Reclamation), a water management agency within the Department of the Interior. The resources directed to Reclamation under the BIL are more than five times Reclamation's FY2021 discretionary budget.

Water Storage, Groundwater Storage, and Conveyance Projects (\$1.05 billion)

Water storage, groundwater storage, and conveyance projects with an existing feasibility study or construction authorization are eligible for funding. The project must be found feasible and with benefits proportionate to federal investment. Project selection will follow an internal formulation process. **For more information on funding opportunities, visit: www.usbr.gov/bil.**

Small Surface Water and Ground Water Storage Grants (\$100 million)

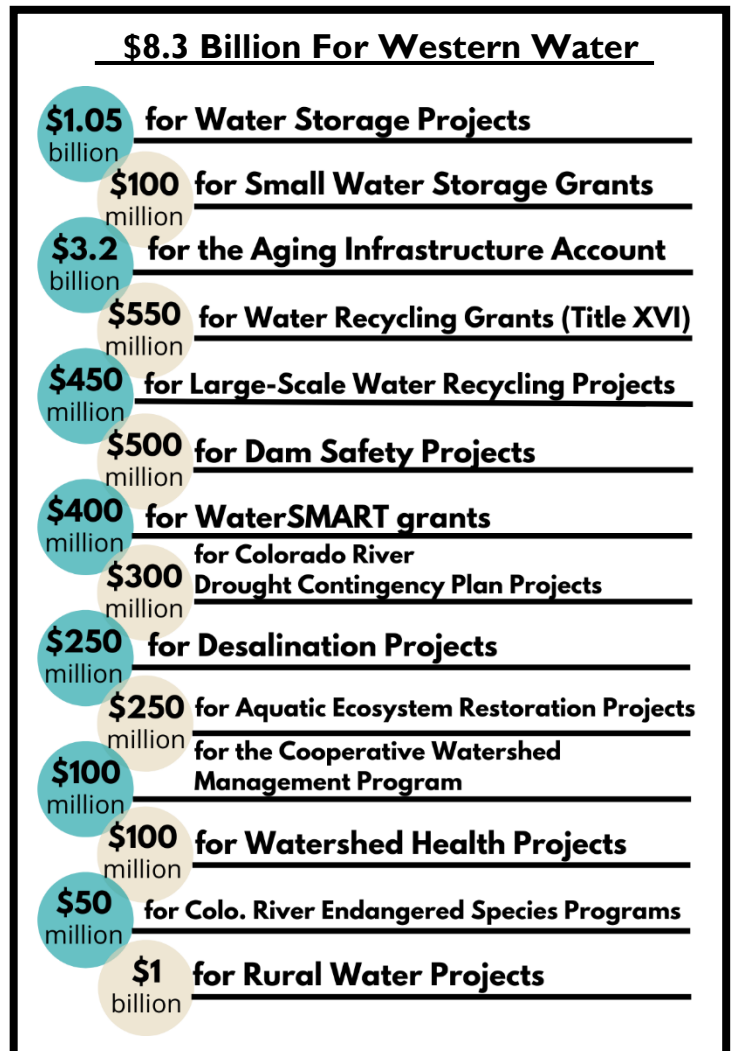
Small water storage and groundwater storage projects are defined as projects that have storage capacity between 2,000-30,000 acre-feet and increase surface water or groundwater storage or convey water, directly or indirectly, to or from surface water or groundwater storage. A competitive grant program is being established by Reclamation for small water storage and groundwater storage projects. **For more information on funding opportunities, visit: www.usbr.gov/bil.**

Aging Infrastructure Account (\$3.2 billion)

The Aging Infrastructure Account was authorized in 2020 to provide funding for significant extraordinary maintenance needs at Reclamation's aging facilities. This account will provide funds through repayment contracts to carry out major repair and rehabilitation projects. **For more information on funding opportunities, visit: www.usbr.gov/newsroom/#/news-release/4066.**

Water Recycling and Reuse Projects (\$550 million)

Water recycling projects help stretch limited water supplies by making new recycled water supplies available. This funding will provide grants under Reclamation's Title XVI authority to support planning, design, and construction of water recycling and reuse projects. Funds will be made available through an external application



process. **For more information on funding opportunities, visit: www.usbr.gov/watersmart/title.**

Large Scale Water Recycling and Reuse Projects (\$450 million)

This newly authorized program will provide grant funding to support planning, design and construction of large-scale water recycling and reuse projects (total project costs of \$500 million or greater) in partnership with local project sponsors. Priority will be given to projects that serve multiple purposes, including fish and wildlife enhancement, and projects that are multi-state or regional in nature. A competitive grant program is being established by Reclamation. **Additional information on funding opportunities is expected later this year.**

Dam Safety Projects (\$500 million)

Reclamation's Safety of Dams program was established to ensure Reclamation dams do not present unacceptable risk to people, property, and the environment. BIL funds will be distributed to high-priority safety projects following an internal formulation process. In March 2022, Reclamation allocated \$100 million in BIL funds for dam safety modifications at B.F. Sisk Dam in California. **For more information on funding opportunities, visit: www.usbr.gov/bil.**

WaterSMART Grants (\$400 million)

Through WaterSMART, Reclamation provides grant opportunities for projects focused on water efficiency, drought resilience, environmental benefits, small-scale water management improvements, and development of water management tools. Of the \$400 million provided, \$100 million is set aside specifically for projects that improve the condition of a natural or nature-based feature. There will be multiple WaterSMART funding opportunities in FY2022 and subsequent years. **For more information on funding opportunities, visit: www.usbr.gov/watersmart.**

Colorado River Drought Contingency Plan Projects (\$300 million)

Funding to implement the Colorado River Basin Drought Contingency Plan (DCP) may be used for projects to establish or conserve recurring Colorado River water supplies. Of this, \$250 million can be used to contribute to supplies to Lake Mead and other Lower Colorado River reservoirs, or to improve operational efficiency in the Lower Basin. Additionally, \$50 million is available for DCP implementation in the Upper Basin. Funding will be provided via an internal formulation process. **For more information on funding opportunities, visit: www.usbr.gov/bil.**

Desalination Projects (\$250 million)

Reclamation's desalination construction program provides federal funding for ocean or brackish water desalination projects. Reclamation has an existing selection process and evaluation criteria to select eligible external projects for funding. **For more information on funding opportunities, visit www.usbr.gov/watersmart/desalination.**

Aquatic Ecosystem Restoration Projects (\$250 million)

The Aquatic Ecosystem Restoration program was authorized in 2020. This program will support voluntary, collaborative restoration projects by providing funding to eligible applicants for the design, study and construction of projects for improved fish passage and aquatic habitat restoration. A competitive grant program is being established by Reclamation. **Additional information on funding opportunities is expected later this year.**

Cooperative Watershed Management Program (\$100 million)

This program provides grants for watershed management projects to encourage a diverse set of stakeholders to form local solutions for local water management needs. Implementation and project selection will follow existing processes and criteria. **For more information on funding opportunities, visit: www.usbr.gov/watersmart/cwmp.**

Multi-benefit Watershed Health Projects (\$100 million)

The BIL provided Reclamation with a new authority and funding for projects to improve watershed health. Funding will support the design, implementation, and monitoring of habitat restoration projects that improve watershed health in river basins adversely impacted by Reclamation projects. A competitive grant program is being established by Reclamation. **Additional information on funding opportunities is expected later this year.**

Colorado River Endangered Species Programs (\$50 million)

The BIL provided funding for four programs that benefit endangered species in the Colorado River Basin. The program that most directly benefits California is the Lower Colorado River Multi-Species Conservation Program. **For more information on funding opportunities, visit: www.usbr.gov/bil.**

Rural Water Projects (\$1 billion)

Congress authorized Reclamation to develop several water supply projects serving rural and tribal communities in locations across the West. This is an existing program and funding will be distributed to already-authorized projects. **For more information on funding opportunities, visit: www.usbr.gov/bil.**

Monitor funding opportunity announcements at <https://usbr.gov/newsroom>

Contact the Bureau of Reclamation with questions at usbr.bil@usbr.gov

Find answers to frequently asked questions at www.usbr.gov/bil/docs/BIL_General_FAQ.pdf

THE BIPARTISAN INFRASTRUCTURE LAW'S INVESTMENT IN DRINKING AND CLEAN WATER

The Bipartisan Infrastructure Law (BIL) provided more than **\$50 billion** in funding under Title I (Drinking Water) and Title II (Clean Water) to EPA's water infrastructure programs. This represents the single-largest investment ever in U.S. water infrastructure.

Clean Water State Revolving Fund (\$11.7 billion)

A federal-state partnership that provides communities with low-cost financing for water quality infrastructure projects. State match is reduced to 101% for the first two years. The program provides state financing for construction of wastewater treatment facilities and implementation of other water quality management activities. Applicants apply through their State Revolving Fund program. **For more information on funding opportunities, visit: www.epa.gov/cwsrf.**

Clean Water State Revolving Fund — Emerging Contaminants (\$1 billion)

Loans and grants to fund clean water infrastructure projects to address emerging contaminants, including PFAS. State match is not required. Applicants apply through their State Revolving Fund programs. **For more information on funding opportunities, visit: www.epa.gov/cwsrf.**

Drinking Water State Revolving Fund (\$11.7 billion)

Program to help water systems and states to achieve the objectives of the Safe Drinking Water Act. Grants and loans and are available to water systems for eligible infrastructure projects. State match is reduced to 10%. Applicants apply through their State Revolving Fund program. **For more information on funding opportunities, visit: www.epa.gov/dwsrf.**

Drinking Water State Revolving Fund — Emerging Contaminants (\$4 billion)

Loans and grants for drinking water infrastructure projects to address emerging contaminants, including PFAS. State match is not required. Further information will be forthcoming. Applicants apply through their State Revolving Fund program. **For more information on funding opportunities, visit: www.epa.gov/dwsrf.**

\$50 Billion For EPA Water Programs



Drinking Water State Revolving Fund — Lead Service Lines Replacement (\$15 billion)

Provides Drinking Water State Revolving Fund program funding dedicated for lead service line replacement and associated activities related to identification, planning, design, and removal. Applicants apply through their State Revolving Fund program. State match is not required. **For more information on funding opportunities, visit: www.epa.gov/dwsrf.**

Water Infrastructure Improvements for the Nation Small and Underserved Communities — Emerging Contaminants Grant Program (\$5 billion)

Provides grants to public water systems in small and underserved/disadvantaged communities that are unable to finance activities needed to comply with drinking water regulations. Projects eligible for assistance include efforts that benefit small and disadvantaged communities in testing and remediating emerging contaminants, including PFAS and water filtration. State match is not required. Applicants will apply through their state. **For more information on funding opportunities, visit: www.epa.gov/dwcapacity/wiin-grant-small-underserved-and-disadvantaged-communities-grant-program-0.**

National Estuary Program Grants (\$132 million)

Each of the 28 estuaries of national significance characterizes the priority problems in its estuary and surrounding watershed, develops a long-term Comprehensive Conservation and Management Plan that identifies actions to address those problems, and identifies partners, to implement those actions. Additionally, National Estuary Programs and other eligible recipients address urgent and challenging issues that threaten the ecological and economic well-being of coastal areas. **For more information on funding opportunities, visit: www.epa.gov/nep.**

Geographic Programs (\$1.7 billion)

Investments into 12 federally recognized geographic programs allowing communities to better protect ecosystems and serve economic and recreational assets. These programs include Columbia River Basin Restoration Program; Great Lakes Restoration Initiative; Gulf of Mexico; Lake Champlain; Lake Pontchartrain; Long Island Sound; Northwest Forest; South Florida; Southeast New England Coastal Watershed Restoration Program; Chesapeake Bay Program; Puget Sound; and San Francisco Bay Water Quality Improvement Fund. **For more information on funding opportunities, visit: www.epa.gov/infrastructure/water-infrastructure-investments.**

Monitor funding opportunity announcements at <https://www.epa.gov/newsroom>

Contact the Environmental Protection Agency with questions at <https://www.epa.gov/infrastructure/forms/contact-us-about-bipartisan-infrastructure-law>

Find answers related to the Clean Water and Drinking Water State Revolving Fund Provisions at https://www.epa.gov/system/files/documents/2022-03/combined_srf-implementation-memo_final_03.2022.pdf

the Committee on Appropriations of the House of Representatives a report describing projects for which funding is provided under the Program, including the status and outcomes of those projects.

(h) FUNDING.—

Time period.

(1) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out the Program \$90,000,000 for each of fiscal years 2022 and 2023.

(2) ADDITIONAL FUNDS.—In addition to the funds described in paragraph (1), the Secretary may obligate available funds from accounts used to carry out the existing Joint Chiefs’ Landscape Restoration Partnership prior to the date of enactment of this Act to carry out the Program.

(3) DURATION OF AVAILABILITY.—Funds made available under paragraph (1) shall remain available until expended.

(4) DISTRIBUTION OF FUNDS.—Of the funds made available under paragraph (1)—

(A) not less than 40 percent shall be allocated to carry out eligible activities through the Natural Resources Conservation Service;

(B) not less than 40 percent shall be allocated to carry out eligible activities through the Forest Service; and

(C) the remaining funds shall be allocated by the Chiefs to the Natural Resources Conservation Service or the Forest Service—

(i) to carry out eligible activities; or

(ii) for other purposes, such as technical assistance, project development, or local capacity building.

TITLE IX—WESTERN WATER INFRASTRUCTURE

Time period.
43 USC 3201.

SEC. 40901. AUTHORIZATIONS OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary of the Interior, acting through the Commissioner of Reclamation (referred to in this title as the “Secretary”), for the period of fiscal years 2022 through 2026—

(1) \$1,150,000,000 for water storage, groundwater storage, and conveyance projects in accordance with section 40902, of which \$100,000,000 shall be made available to provide grants to plan and construct small surface water and groundwater storage projects in accordance with section 40903;

(2) \$3,200,000,000 for the Aging Infrastructure Account established by subsection (d)(1) of section 9603 of the Omnibus Public Land Management Act of 2009 (43 U.S.C. 510b), to be made available for activities in accordance with that subsection, including major rehabilitation and replacement activities, as identified in the Asset Management Report of the Bureau of Reclamation dated April 2021, of which—

(A) \$100,000,000 shall be made available for Bureau of Reclamation reserved or transferred works that have suffered a critical failure, in accordance with section 40904(a); and

(B) \$100,000,000 shall be made available for the rehabilitation, reconstruction, or replacement of a dam in accordance with section 40904(b);

(3) \$1,000,000,000 for rural water projects that have been authorized by an Act of Congress before July 1, 2021, in accordance with the Reclamation Rural Water Supply Act of 2006 (43 U.S.C. 2401 et seq.);

(4) \$1,000,000,000 for water recycling and reuse projects, of which—

(A) \$550,000,000 shall be made available for water recycling and reuse projects authorized in accordance with the Reclamation Wastewater and Groundwater Study and Facilities Act (43 U.S.C. 390h et seq.) that are—

(i) authorized or approved for construction funding by an Act of Congress before the date of enactment of this Act; or

(ii) selected for funding under the competitive grant program authorized pursuant to section 1602(f) of the Reclamation Wastewater and Groundwater Study and Facilities Act (43 U.S.C. 390h(f)), with funding under this subparagraph to be provided in accordance with that section, notwithstanding section 4013 of the Water Infrastructure Improvements for the Nation Act (43 U.S.C. 390b note; Public Law 114–322), except that section 1602(g)(2) of the Reclamation Wastewater and Groundwater Study and Facilities Act (43 U.S.C. 390h(g)(2)) shall not apply to amounts made available under this subparagraph; and

(B) \$450,000,000 shall be made available for large-scale water recycling and reuse projects in accordance with section 40905;

(5) \$250,000,000 for water desalination projects and studies authorized in accordance with the Water Desalination Act of 1996 (42 U.S.C. 10301 note; Public Law 104–298) that are—

(A) authorized or approved for construction funding by an Act of Congress before July 1, 2021; or

(B) selected for funding under the program authorized pursuant to section 4(a) of the Water Desalination Act of 1996 (42 U.S.C. 10301 note; Public Law 104–298), with funding to be made available under this paragraph in accordance with that subsection, notwithstanding section 4013 of the Water Infrastructure Improvements for the Nation Act (43 U.S.C. 390b note; Public Law 114–322), except that paragraph (2)(F) of section 4(a) of the Water Desalination Act of 1996 (42 U.S.C. 10301 note; Public Law 104–298) (as redesignated by section 40908) shall not apply to amounts made available under this paragraph;

(6) \$500,000,000 for the safety of dams program, in accordance with the Reclamation Safety of Dams Act of 1978 (43 U.S.C. 506 et seq.);

(7) \$400,000,000 for WaterSMART grants in accordance with section 9504 of the Omnibus Public Land Management Act of 2009 (42 U.S.C. 10364), of which \$100,000,000 shall be made available for projects that would improve the condition of a natural feature or nature-based feature (as those terms are defined in section 9502 of the Omnibus Public Land Management Act of 2009 (42 U.S.C. 10362));

(8) subject to section 40906, \$300,000,000 for implementing the Colorado River Basin Drought Contingency Plan, consistent with the obligations of the Secretary under the Colorado River

Drought Contingency Plan Authorization Act (Public Law 116–14; 133 Stat. 850) and related agreements, of which \$50,000,000 shall be made available for use in accordance with the Drought Contingency Plan for the Upper Colorado River Basin;

(9) \$100,000,000 to provide financial assistance for watershed management projects in accordance with subtitle A of title VI of the Omnibus Public Land Management Act of 2009 (16 U.S.C. 1015 et seq.);

(10) \$250,000,000 for design, study, and construction of aquatic ecosystem restoration and protection projects in accordance with section 1109 of division FF of the Consolidated Appropriations Act, 2021 (Public Law 116–260);

(11) \$100,000,000 for multi-benefit projects to improve watershed health in accordance with section 40907; and

(12) \$50,000,000 for endangered species recovery and conservation programs in the Colorado River Basin in accordance with—

(A) Public Law 106–392 (114 Stat. 1602);

(B) the Grand Canyon Protection Act of 1992 (Public Law 102–575; 106 Stat. 4669); and

(C) subtitle E of title IX of the Omnibus Public Land Management Act of 2009 (Public Law 111–11; 123 Stat. 1327).

43 USC 3202.

SEC. 40902. WATER STORAGE, GROUNDWATER STORAGE, AND CONVEYANCE PROJECTS.

(a) ELIGIBILITY FOR FUNDING.—

(1) FEASIBILITY STUDIES.—

(A) IN GENERAL.—A feasibility study shall only be eligible for funding under section 40901(1) if—

(i) the feasibility study has been authorized by an Act of Congress before the date of enactment of this Act;

(ii) Congress has approved funding for the feasibility study in accordance with section 4007 of the Water Infrastructure Improvements for the Nation Act (43 U.S.C. 390b note; Public Law 114–322) before the date of enactment of this Act; or

(iii) the feasibility study is authorized under subparagraph (B).

(B) FEASIBILITY STUDY AUTHORIZATIONS.—The Secretary may carry out feasibility studies for the following projects:

Arizona.

(i) The Verde Reservoirs Sediment Mitigation Project in the State of Arizona.

Oregon.

(ii) The Tualatin River Basin Project in the State of Oregon.

(2) CONSTRUCTION.—A project shall only be eligible for construction funding under section 40901(1) if—

(A) an Act of Congress enacted before the date of enactment of this Act authorizes construction of the project;

(B) Congress has approved funding for construction of the project in accordance with section 4007 of the Water Infrastructure Improvements for the Nation Act (43 U.S.C. 390b note; Public Law 114–322) before the date of enactment of this Act, except for any project for which—

<p>(i) Congress did not approve the recommendation of the Secretary for funding under subsection (h)(2) of that section for at least 1 fiscal year before the date of enactment of this Act; or</p> <p>(ii) State funding for the project was rescinded by the State before the date of enactment of this Act; or</p> <p>(C)(i) Congress has authorized or approved funding for a feasibility study for the project in accordance with clause (i) or (ii) of paragraph (1)(A) (except that projects described in clauses (i) and (ii) of subparagraph (B) shall not be eligible); and</p> <p>(ii) on completion of the feasibility study for the project, the Secretary—</p> <p>(I) finds the project to be technically and financially feasible in accordance with the reclamation laws;</p> <p>(II) determines that sufficient non-Federal funding is available for the non-Federal cost share of the project; and</p> <p>(III)(aa) finds the project to be in the public interest; and</p> <p>(bb) recommends the project for construction.</p>	<p>Time period.</p>
<p>(b) COST-SHARING REQUIREMENT.—</p> <p>(1) IN GENERAL.—The Federal share—</p> <p>(A) for a project authorized by an Act of Congress shall be determined in accordance with that Act;</p> <p>(B) for a project approved by Congress in accordance with section 4007 of the Water Infrastructure Improvements for the Nation Act (43 U.S.C. 390b note; Public Law 114-322) (including construction resulting from a feasibility study authorized under that Act) shall be as provided in that Act; and</p> <p>(C) for a project not described in subparagraph (A) or (B)—</p> <p>(i) in the case of a federally owned project, shall not exceed 50 percent of the total cost of the project; and</p> <p>(ii) in the case of a non-Federal project, shall not exceed 25 percent of the total cost of the project.</p> <p>(2) FEDERAL BENEFITS.—Before funding a project under this section, the Secretary shall determine that, in return for the Federal investment in the project, at least a proportionate share of the benefits are Federal benefits.</p> <p>(3) REIMBURSABILITY.—The reimbursability of Federal funding of projects under this section shall be in accordance with the reclamation laws.</p>	<p>Recommendation.</p> <p>Determination.</p> <p>Determination.</p>
<p>(c) ENVIRONMENTAL LAWS.—In providing funding for a project under this section, the Secretary shall comply with all applicable environmental laws, including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).</p>	<p>Compliance.</p>
<p>SEC. 40903. SMALL WATER STORAGE AND GROUNDWATER STORAGE PROJECTS.</p> <p>(a) ESTABLISHMENT OF A COMPETITIVE GRANT PROGRAM FOR SMALL WATER STORAGE AND GROUNDWATER STORAGE PROJECTS.—The Secretary shall establish a competitive grant program, under</p>	<p>43 USC 3203.</p> <p>Alaska. Hawaii. Determination.</p>

which the non-Federal project sponsor of any project in a Reclamation State, including the State of Alaska or Hawaii, determined by the Secretary to be feasible under subsection (b)(2)(B) shall be eligible to apply for funding for the planning, design, and construction of the project.

(b) ELIGIBILITY AND SELECTION.—

(1) SUBMISSION TO THE SECRETARY.—

Study.

(A) IN GENERAL.—A non-Federal project sponsor described in subsection (a) may submit to the Secretary a proposal for a project eligible to receive a grant under this section in the form of a completed feasibility study.

(B) ELIGIBLE PROJECTS.—A project shall be considered eligible for consideration for a grant under this section if the project—

WIS is approximately 9,000 acre-feet

(i) has water storage capacity of not less than 2,000 acre-feet and not more than 30,000 acre-feet; and

(ii)(I) increases surface water or groundwater storage; or

(II) conveys water, directly or indirectly, to or from surface water or groundwater storage.

Deadline.

(C) GUIDELINES.—Not later than 60 days after the date of enactment of this Act, the Secretary shall issue guidelines for feasibility studies for small storage projects to provide sufficient information for the formulation of the studies.

Determinations.

(2) REVIEW BY THE SECRETARY.—The Secretary shall review each feasibility study received under paragraph (1)(A) for the purpose of determining whether—

(A) the feasibility study, and the process under which the study was developed, each comply with Federal laws (including regulations) applicable to feasibility studies of small storage projects;

(B) the project is technically and financially feasible, in accordance with—

(i) the guidelines developed under paragraph (1)(C); and

(ii) the reclamation laws; and

(C) the project provides a Federal benefit, as determined by the Secretary.

Reports.

(3) SUBMISSION TO CONGRESS.—Not later than 180 days after the date of receipt of a feasibility study received under paragraph (1)(A), the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Natural Resources of the House of Representatives a report that describes—

Determination.

(A) the results of the review of the study by the Secretary under paragraph (2), including a determination of whether the project is feasible and provides a Federal benefit;

Recommendations.

(B) any recommendations that the Secretary may have concerning the plan or design of the project; and

(C) any conditions the Secretary may require for construction of the project.

(4) ELIGIBILITY FOR FUNDING.—

Determination.

(A) IN GENERAL.—The non-Federal project sponsor of any project determined by the Secretary to be feasible

under paragraph (3)(A) shall be eligible to apply to the Secretary for a grant to cover the Federal share of the costs of planning, designing, and constructing the project pursuant to subsection (c).

(B) REQUIRED DETERMINATION.—Prior to awarding grants to a small storage project, the Secretary shall determine whether there is sufficient non-Federal funding available to complete the project.

Determination.

(5) PRIORITY.—In awarding grants to projects under this section, the Secretary shall give priority to projects that meet 1 or more of the following criteria:

Criteria.

(A) Projects that are likely to provide a more reliable water supply for States, Indian Tribes, and local governments, including subdivisions of those entities.

(B) Projects that are likely to increase water management flexibility and reduce impacts on environmental resources from projects operated by Federal and State agencies.

(C) Projects that are regional in nature.

(D) Projects with multiple stakeholders.

(E) Projects that provide multiple benefits, including water supply reliability, ecosystem benefits, groundwater management and enhancements, and water quality improvements.

(c) CEILING ON FEDERAL SHARE.—The Federal share of the costs of each of the individual projects selected under this section shall not exceed the lesser of—

(1) 25 percent of the total project cost; or

(2) \$30,000,000.

(d) ENVIRONMENTAL LAWS.—In providing funding for a grant for a project under this section, the Secretary shall comply with all applicable environmental laws, including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

Compliance.

(e) TERMINATION OF AUTHORITY.—The authority to carry out this section terminates on the date that is 5 years after the date of enactment of this Act.

SEC. 40904. CRITICAL MAINTENANCE AND REPAIR.

43 USC 3204.

(a) CRITICAL FAILURE AT A RESERVED OR TRANSFERRED WORK.—
(1) IN GENERAL.—A reserved or transferred work shall only be eligible for funding under section 40901(2)(A) if—

(A) construction of the reserved or transferred work began on or before January 1, 1915; and

Effective date.

(B) a unit of the reserved or transferred work suffered a critical failure in Bureau of Reclamation infrastructure during the 2-year period ending on the date of enactment of this Act that resulted in the failure to deliver water to project beneficiaries.

Time period.

(2) USE OF FUNDS.—Rehabilitation, repair, and replacement activities for a transferred or reserved work using amounts made available under section 40901(2)(A) may be used for the entire transferred or reserved work, regardless of whether the critical failure was limited to a single project of the overall work.

(3) NONREIMBURSABLE FUNDS.—Notwithstanding section 9603(b) of the Omnibus Public Land Management Act of 2009 (43 U.S.C. 510b(b)), amounts made available to a reserved



Department
of Agriculture
STATE OF HAWAII

Wahiawa Irrigation System Economic Impact Study

Final

November 21, 2008

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Disclaimer

The views and opinions expressed herein are those of the author and do not necessarily represent or reflect the position of the Hawaii Department of Agriculture.

Executive Summary

The Wahiawa Irrigation System (WIS) has a critical role in the economy of Hawaii by providing an essential input for agricultural production in the Wahiawa-Waiialua-Haleiwa area. Like for many other types of infrastructure such as roads, airports, harbors and power grid, the economic impact of an irrigation system is most crucial in the service it provides that makes possible for other economic activities to take place and thrive. In fact, the WIS is the sole factor making agricultural production possible in the area under study, which is among the most productive agricultural lands in Hawaii and Oahu in particular.

The study aims at analyzing the economic impact of the WIS in its current operating configuration, which requires a six-person team to maintain with an estimated annual operations budget of approximately \$765,000, based on 2007 costs, and with existing farm operations. The economic impact is estimated and presented in three different measures: (1) sales value of farm products; (2) direct contribution to Gross Domestic Product (GDP) by agricultural production; and (3) total economic impact with multiplier effects. The study is useful as an essential reference for decision making regarding the acquisition and management of the currently private-owned and managed WIS by State of Hawaii.

Built in 1906, it originally had 50 million gallon a day of irrigation capacity to serve 12,000 acres of sugarcane fields and 5,000 acres of pineapple fields. Before the Waiialua Sugar Company ceased operation in 1996, and so did its plantation, 30 million gallons were drawn from the WIS daily. Most recently, roughly 10 million gallons of water has been drawn daily from the system to service approximately 6,400 acres growing diversified crops and the remaining pineapples.

In 2007, the WIS contributed to approximately \$37.7 million in farm production, sold at farm-gate prices, 569 full-time and part-time farm jobs and \$14.4 million of household earnings (in wages and business profits). After subtracting costs of farm inputs imported (fuel, fertilizer, materials, equipment and machinery, etc.) and locally supplied intermediate inputs from the aggregate farm sale value, it is determined that farm production in that year contributed nearly \$28 million to State's GDP. Although these figures provide useful measures of the economic worth of the WIS, from different perspectives, they do not provide the full scale of economic impacts of the WIS.

To depict the full scale of economic impacts of the WIS, the input-output method is applied to account for the multiplier effects through industrial interdependence. The indirect and induced effects of farm operations, through intra- and inter-industry purchases and household expenditures of disposable incomes, resulted in \$47.5 million of goods and services produced and sold, 411 full-time and part-time jobs, and \$14.3 million of earnings across industries statewide. Adding the initial impacts (at the farm level) to the indirect and induced effects, it is concluded that the WIS resulted in approximately \$85.2 million of goods and services produced and sold in total across industries in Hawaii's economy. Associated with this economy-wide total impact on output is \$28.7 million of household earnings and 980 full-time and part-time jobs created in a wide range of industries in Hawaii. The total economic impact estimates

exclude the value added created (from exporting, transporting, warehousing, wholesaling, retailing, and processing) beyond farm gate value and Dole's agricultural tourism operations onsite. If these are included, the total economic impact figures will rise slightly.

Farm operations in the WIS-serviced area contributed indirectly to \$9.4 million of sales, \$2.8 million in earnings, and 69 jobs in the construction sector. Other sectors which benefited indirectly from farm operations in the WIS-serviced area were agriculture, real estate and rentals, health services, retail trade, finance and insurance, professional services, wholesale trade, manufacturing, etc. Through indirect and induced effects, farm operations in the WIS-serviced area supported 25, 9, and 19 jobs, respectively, in Hawaii County, Kauai County, and Maui County. These jobs were responsible for the production/sale of goods and services worth \$2.8 million in Hawaii County, nearly a million dollar in Kauai County, and \$2.2 million in Maui County.

Due to the discharge of R-2 water into the system, by the Wahiawa Wastewater Treatment Plant (1.8 mgd) and the Army wastewater treatment facility (4.0 mgd), irrigation water from the WIS is considered R-2 quality and its use is limited to the growing of trees and orchard crops. Prohibited crops include root crops and those that would expose their edible parts to the water (e.g., vegetables). Both facilities have plans to upgrade their recycle water to R-1 quality which will have no restrictions on its use for irrigation. With R-1 water quality, the economic potential of the WIS will considerably expand.

The study is limited in scope. It focuses on pure economic impact of the WIS in broad, ignoring the extent to which the WIS affects the economy and livelihood of residents in the Wahiawa, Waialua, Haleiwa, and the North Shore region. The non-economic value of an open space of managed greenery in the WIS-serviced area is also important. While there may not be a good measure of the dollar value for this managed green space, it has environmental and psychic benefits (the enjoyment people get from seeing the greenery) to residents and visitors.

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1. Introduction

Irrigation plays a critical role in the economy by providing an essential input for agricultural production. The study aims at analyzing the economic impact of the Wahiawa Irrigation System (WIS) in its current operating configuration and with existing farm operations. The extent of the economic impact is estimated and presented in terms of farm production sales value, farm direct contribution to State's GDP, and total impact through multipliers effects. Total economic impacts estimated include impacts on production, household income, and employment. The study is useful as an essential reference for decision making regarding the acquisition and management by the State of Hawaii of the currently private-owned and managed irrigation system.

The WIS is located in the northern part of Oahu, covering parts of Wahiawa, Waialua and Haleiwa (Figure 1). As a result of the WIS development in 1906, sugar and pineapple plantations dominated the landscape of the region. Although the sugarcane plantation operation ceased in 1996, today much of the land remains highly productive and is a fertile ground for the thriving diversified crops that replaced sugarcane. Thus, the WIS which once served sugarcane and pineapple plantations, now provides water to a variety of fruit and other commercial crops.

The economic impact of an irrigation system is most crucial in the service it provides that raises the productivity of agriculture, which further stimulates other economic activities. It is similar to that of other types of infrastructures (roads, harbors, airports, electricity, etc.), which impact the economy by providing services that raise the productivity of other economic activities that can make use of their services. Often, the absence of basic infrastructures, such as irrigation, makes it impossible for other economic activities even to take place and retarding economic growth. In fact, the WIS is the sole factor making agricultural production possible in the area under study. The survey reveals that, without the WIS, agricultural production currently using the irrigation water would cease.

The WIS has been in operation, providing water to farms in the region for more than 100 years. For such many years, not only farm production has been depending on it. Businesses that provide essential inputs to its operation and, especially, to farm operations are also depending on it. Additionally, businesses that use raw materials from farm production, such as coffee processor and noni (*morinda citrifolia*) juice processor, are depending on the coffee beans and noni fruits that are grown there. Businesses that provide numerous farm inputs, wholesalers and retailers of farm products, transportation providers, and even agricultural tourism organizers are established and have evolved around the WIS. Incomes earned by workers and business owners directly and indirectly associated with farm production with WIS water are spent and further created demand for various economic goods and services. Therefore, economic activity and jobs that are associated with the WIS directly and indirectly are widespread.

Next section (2) discusses methodology and data used for the economic impact analysis. Section 3 briefly presents background and characteristics of farm operations in the studied area. Section 4 presents the analytical results, and Section 5 concludes the study.

2. Methodology and Data

The WIS operation has an impact on the economy directly and indirectly, through its backward and forward linkages effects. With an estimated annual operation budget of only about \$765,000 (based on 2007 prices) and a team of six people, its direct and indirect economic impacts through backward linkages effects are considerably limited.¹ The most significant economic impact of the WIS lies in agricultural production made possible by the water it delivers. Thus, central to the problem is agricultural production, which further spurs economic activity along the production stream in the economy. Therefore, the economic impact analysis focuses on agricultural production, and the WIS is treated as an endogenous factor—an input purchased by farms.

The economic impact analysis begins with estimating the total sale value of farm outputs, farm employment, and farms' direct contribution to State's Gross Domestic Product (GDP). The direct contribution to State's GDP is estimated using DBEDT's Honolulu County-specific value added coefficients for five crop groups: (1) macadamia nuts, coffee, other fruits; (2) pineapples; (3) flowers and nursery products; (4) other crops; and (5) forestry and logging.² The estimation of farm output sales values for all commodities are based on sales of farm outputs only, estimated at farm gate prices. That is, the aggregate sales value is the sum of those sold to local distributors or processors. In doing so, it excludes the un-marketable and un-marketed portions of the total output.

Next, the total economic impacts of agricultural production using WIS water are estimated using Hawaii's 2002 inter-county input-output (I-O) economic model, which accounts for the multipliers effects. The inter-county I-O model accounts for county-specific and inter-county industrial interdependence. Being able to account for county-specific is important because differences in cross-county industrial structure (and thus, industrial interdependence) may have a significant impact on the estimation results. The ability to capture inter-county industrial linkages allows readers to value the significance of how changes in an industry located in one county affect industries and the economy in other counties.

For the multipliers effect analysis, the total final demand multipliers are used to account for both the indirect effects (as a result of intra- and inter-industry purchases) and induced effects of household expenditures. In-state expenditures by farm operations, used in the multipliers effect analysis, are estimated based on estimated output in conjunction with industry transaction table reported in the inter-county I-O model.³ Although actual expenditure data of farm operations are more desirable, such proprietary information is not available.

¹ Element Environmental LLC (September 2007).

² These value added coefficients are calculated from the estimated value added for Honolulu County specific crop groups presented in *Hawaii Inter-County Input-Output Study: 2002 Benchmark Report* (DBEDT, 2007). Value added is the income side of gross domestic product (GDP). GDP has two sides of the same value: expenditure side and income side. In technical terms, based on DBEDT's definition, value added is comprised of: (1) compensation to employees, (2) proprietors' income, (3) taxes on production and imports less subsidies, and (4) other capital costs.

³ In-state expenditures by any industry comprise of all intermediate purchases and other expenditures minus imports.

The I-O model analysis of multiplier effects accounts for backward linkages only. Thus, the multipliers effect analysis based on farm production accounts for economic impacts of farm operations, excluding the economic impact of activities beyond the farm—export, transportation services, warehousing, wholesale and retail trade, and processing.

The farm operations' backward linkages effects operate through farm expenditures on personnel, farm materials, machineries, tools, electricity and fuel, communication, vehicles, supplies, professional services, etc. The backward linkages continue with purchases of inputs by those businesses supporting farm operations, and purchases of inputs by those that supply inputs to businesses that provide supports to farm operations, and so on. These linkages create more economic outputs and jobs further along the industrial stream. In addition, individual workers and business owners would spend a portion of their disposable incomes on goods and services (food, housing, clothing, healthcare, entertainment, etc.), further creating jobs and incomes in the economy.

The processes involved in getting fresh produces to final consumers through the super markets, or grocery stores, within the economic region under studied (Hawaii State) create added value to the goods, as a result of transporting, packaging, and retailing. These are real services to final consumers and which create jobs and incomes in the economy.⁴ If Hawaii is a closed economy and if local produces were to disappear, it will affect the transportation, wholesale, retail businesses and all others that support their operations. However, Hawaii is an open economy. Should local produces disappear from the market, imports would immediately replace them, and the impact on transportation and retail businesses and the related jobs and incomes would be at a minimum at most. Thus, if everything grown were sold as fresh produces in-state and nothing went to export markets and processing plants, analyzing the economic impacts of farm production at the farm level alone would account for the total impacts.

Agricultural exports and agricultural processing create additional jobs and incomes. However, the significance of economic impacts may be different between the two. If raw materials used in processing were not unique and could be replaced instantly by imports, economic impacts of local production of raw materials (agriculture) on processing would be insignificant. However, if the business success of agricultural processing were based on the unique quality of local materials, local production of raw materials would have a significant effect on the processing industry and the related businesses. On the other hand, for Hawaii, local production of agricultural exports cannot be replaced by imports for re-export (although it may be different elsewhere). Thus, a change in production of exported agricultural products would inevitably affect jobs and incomes in the agricultural export sector.

The multipliers effect analysis in this paper does not account for the economic impact of export and processing activities, particularly for coffee, noni and kukui oil, due to inadequate data. While capturing the economic impacts of exports and processing of these products would more fully account for the total economic impact of the WIS. Leaving them out would not be a substantial loss to the estimation, since their combined production value is very small relative to the total output in the WIS-serviced area.

⁴ Consumers save on costs associated with locating, travelling and picking the produces they want themselves.

The estimation of farm output in the WIS-serviced area for the latest year (2007) was based on a combined primary and secondary data. Primary data (including crop-specific land area, type of crop grown, output, employment, etc.) were obtained from a combination of interviews, farm visits, and a mail-in survey. Participation in the study by farm operators was voluntary. Most farm operators were reluctant to provide proprietary information, and only a minority number of operators volunteered to participate in the study. Thus, secondary data are used either to complement or to fill the blank, and as references for the estimation. These data include, satellite images of farms in the region, land area held by each operator/lessee, and type of crop grown reported in a recent study titled “*Assessment of the Wahiawa Irrigation System*,” by Element Environmental LLC. Crop-specific land area under Kamehameha Schools control irrigated with the WIS water was obtained from Kamehameha Schools’ IMUA Magazine (March 2005). Annual crop-specific sales data reported in the “*Statistics of Hawaii Agriculture*” and the production and employment estimates from a study conducted in 2005, “*An Economic Assessment of the Former Kekaha Sugar Company Land and Infrastructure: Its Current and Potential Economic Capability*,” were used as references for farm output and employment estimation.

3. Background: The WIS and Farm Operations

The Wahiawa Irrigation System (WIS) was built in 1906 by Dole Food’s subsidiary, the Waialua Sugar Company, to irrigate its sugarcane and pineapple fields located in the north shore region of Waialua and Haleiwa on Oahu (Figure 1). The system consists of a reservoir, a dam, and an irrigation ditch system extending 30 miles. The ditch system includes approximately 25.07 miles of open ditch, 3.13 miles of three tunnels combined, and 1.8 miles of 14 siphons combined. The water source is situated in 10,600 acres of watershed at the head of the Koolau Mountains. The water is barricaded by a dam, which creates a seven mile long reservoir, called Lake Wilson, with an average depth of 26.2 feet and maximum depth of 98.5 feet at the dam.

The WIS was built with the original capacity of 50 million gallons a day to irrigate 12,000 acres of sugarcane fields and 5,000 acres of pineapple fields. Before the Waialua Sugar Company ceased operation in 1996, and so did its plantation, 30 million gallons were drawn from the WIS daily. Most recently, roughly 10 million gallons of water have been drawn daily from the system to service approximately 6,400 acres of the remaining 8,100 acres irrigable with the WIS water. Table 1 summarizes characteristics of farms using WIS water.

There were 22 commercial crop-producing farms, plus a research farm of the University of Hawaii active within the study area in 2007. Among them, 18 commercial farms were completely relying on WIS water. They vary in size, starting from eight to 2,000 acres. Four vegetable farms, with a combined land area of 67 acres, were found using alternative sources water from the WIS. They are excluded from the economic impact estimate. Thus, the economic impact estimate covers 18 commercial crop-producing farms in the area that are completely depending on the WIS water. Without WIS, these farms would cease operation, and virtually all commercial crops would disappear from there. List of crops grown in the WIS-serviced area is shown in Table 2 and Figure 2.

Table 1.

Characteristics of Farms Using WIS Water: 2007

1.	Total Acreage Irrigable with Existing WIS Configuration	8,123
2.	Total Acreage Occupied by Farms Using WIS Water	6,408
3.	Total Number of Farms Using WIS Water	18
4.	Largest Farm (acres)	2,000
5.	Smallest Farm (acres)	8
6.	Average Farm (acres)	355
7.	Number of Farms Smaller Than an Average Farm	14
8.	Number of Commercial Farms with Less Than 50 Acres	7
9.	Average Farm in Honolulu County (acres, 2002)	89

Sources: Data in area studied are from a combination of mail surveys and interviews; from Kamehameha Schools' *IMUA Magazine* (March 2005), for areas owned by Kamehameha Schools; and from the *Assessment of the Wahiawa Irrigation System, Section 3: Inventory and Physical Attributes of the System* (Sep. 2007). Honolulu County data, from *2002 Census of Agriculture, Hawaii State and County Data*, NASS, USDA.

Table 2.

Farms and Crops Grown Within the WIS-Serviced Area

Farm	Crop Grown	Parcel Size (Acres)
1. Dole Food Company	Pineapple Coffee	
2. Pioneer Hi-Bred International, Inc.	Seed Corn	
3. Mokuleia Farms, Inc.	Seed corn, papaya, banana, mango	
4. Kahuku Farmers	Papaya, mango	
5. UH Poamoho Research Station	Various crops	
6. James Y. S. Song (dba Song Farms)	Papaya, avocado, lime	
7. Kiri International Hawaii LLC	Paulownia trees	
8. Loi Lee	Lychee	
9. North Shore Land & Farming Co.	Tree crops	
10. Kamananui Orchards	Macadamia nuts, pasture grass	
11. George Rapoza	Pasture grass	
12. Kamauoha Foundation	Noni, papaya, bananas	
13. Kamehameha Schools/Bishop Estate	Feed corn, noni, papaya, banana, mango, plumeria, seed corn, tuberose	
Total		6,408

Source: *Assessment of the Wahiawa Irrigation System*, Element Environmental LLC, commissioned by Agribusiness Development Corporation, September 2007.

Under a consent decree between the Department of Health and the City and County of Honolulu, the Wahiawa Wastewater Treatment Plant discharges about 1.8 mgd of R-2 quality recycled water into Lake Wilson.⁵ Also, under an agreement with Dole Foods, the Army discharges

⁵ Mgd – million gallons per day.

approximately 4.0 mgd of R-2 quality recycled water from its Schofield Barracks wastewater treatment plant into the irrigation ditch downstream from Lake Wilson. Due to the introduction of R-2 water into the system, irrigation water from the WIS is considered R-2 quality and its use is limited to the growing of trees and orchard crops. Prohibited crops include root crops (e.g., taro, sweet potato, daikon, etc.) and crops that would expose their edible parts to the water (e.g., lettuce, cabbage, onion, basil and other spices, tomatoes, peppers, eggplants, etc.). Both facilities have plans to upgrade their recycled water to R-1 quality which will have no restrictions on its use for irrigation.

The University of Hawaii's Poamoho Research Station, which is located on the WIS-serviced area, has successful experimentation growing a number of vegetable crops on site.⁶ Some farm operators currently active in the WIS-serviced field expressed their interest to expand production on their existing unutilized land of certain vegetable crops if the water quality is improved to "R-1" level.

Within the 6,408 acres that are currently utilizing WIS water, approximately 55 percent of the land is utilized. The remaining 45 percent is partially not arable. The survey reveals that some farm operators plan to expand production in the next five years using the unutilized portion of their existing land, with the existing R-2 water quality. In addition, the Element Environmental LLC (2007) indicates that approximately 1,715 acres that can be irrigated with water from the WIS are currently fallow farmlands. Interviews indicate that the fallow land was due to a lack of tenant.

The area under study is one of the most productive agricultural lands in the State. In fact, Oahu as a whole is the most productive in agricultural production in comparison to the rest of the state. In 2006, per acre yield for Oahu was nearly five times that of the state average and more than three times that of the next highest yield county--Maui.⁷ In terms of net cash farm income of operations, Oahu produced \$52.3 million, more than 50 percent of state's total of \$98.1 million, according to the *2002 Census of Agriculture, State and County Data*. Oahu's net cash farm income of operations, in terms of per acre, was more than 15 times that of the second most productive county (Maui).⁸

4. The Economic Impacts

4.1. Farm Production

As a result of farm operations in the WIS-serviced area, in 2007, an estimated \$37.66 million of fruits, seeds and other agricultural crops were produced and sold, in aggregate, at farm gate

⁶ These crops included beans (green), broccoli, cabbages (Chinese, head, mustard), cauliflower, corn (sweet), cucumbers, eggplants (long and round), ginger, lettuces (romaine and UH-developed head), onion (round), pepper (hot and sweet), potato, tomatoes, and zucchini (Italian squash).

⁷ In 2006, the average per acre output value (at farm gate price) was \$1,920 for Oahu, \$610 for Maui; and for Hawaii as a whole, \$390.

⁸ On average, in 2002, while Oahu produced \$740 per acre of net cash farm income of operations, Maui produced \$48 per acre, Hawaii Island produced \$42 per acre, and Kauai lost \$6 per acre.

prices.⁹ Using the Honolulu County-specific inter-county I-O model as a benchmark, it is estimated that farm operations employed 569 full-time and part-time workers and paid \$14.43 million to households as earnings (in wages and business profits). Details by product groups are not reported to maintain confidential information of individual operators.

Farm production activity in the WIS-serviced area directly contributed nearly \$28 million into Hawaii's GDP in 2007.¹⁰ It is aggregate farm sales (\$37.7 million) minus import costs (\$3.2 million) and locally produced intermediate farm inputs (\$6.5 million). Import costs are costs of production and are leakages to State's economy. Costs of locally produced intermediate inputs, although is not a leakage, is also part of the total costs associated with agricultural production. Thus, it is excluded from agricultural direct contribution to State's GDP. Nonetheless, the \$6.5 million of locally produced farm intermediate inputs is counted in State's GDP under different industries. This nearly \$28 million direct contribution to State's GDP by farm production does not include the value added beyond farm gates as a result of delivery, packaging, processing, etc. Also, it does not include the multipliers effects, which are discussed in the following section. These economic values while provide useful measures, they do not capture the full scale of economic impacts of the WIS.

4.2. Total Economic Impacts

To depict the full scale of economic impacts of the WIS, the input-output method is used to include the multiplier effects through industrial interdependence. Based on the 2007 aggregate farm output sales, farm expenditures were estimated and multiplied with appropriate total final demand multipliers (DBEDT's type II final demand multipliers).¹¹ Results are summarized in Table 3.

As shown in Table 3, farm production with the WIS water further resulted in additional \$47.52 million of goods and services produced in aggregate, through indirect and induced effects, across industries in Hawaii's economy. These indirect and induced effects generated \$14.25 million of

⁹ Farm gate price is loosely defined as a price of an agricultural good sold at its primary stage (unprocessed farm product) at farm gate to distributors or processors.

¹⁰ It is the value added originated from agricultural production in the WIS-serviced area. Direct contribution to State's GDP can be generally defined as the economic value created as a result of using resources in the production or provision of services. In our case, value added is the economic value created from agricultural production in the WIS-serviced area, a production process using physical inputs (land, building, machinery, and materials), labor, and financial capital. For instance, coffee production can be valued at the cherry level (before coffee cherries are converted into parchment and green beans). The contribution to GDP is the total sales value of cherries minus costs of imported and locally produced intermediate inputs used for growing and harvesting coffee cherries. The value of a product gets added at each stage of production/processing, which may take place in multiple stages of production/processing, true for coffee. The value of a pound of green coffee beans is a result of the growing, harvesting, and milling processes. The roasting and packaging processes further increase the value of that same pound of coffee beans. When the coffee is brewed, the economic value of coffee gets further added. In short, it is the total sale value of a product minus costs of imported and locally produced intermediate inputs used in production. Costs of capital (interest payments for loans from local creditors, lease rent for land or building, others), business profits, labor cost, and taxes minus any subsidies are components of the value added generated within the economy.

¹¹ Farm expenditures were estimated using the transaction data in *The Hawaii Inter-county Input-Output Study: 2002 Benchmark Report*. Although it is most desirable to use actual expenditure data of farm operations, such proprietary information is not available.

household earnings (in wages and business profits) and 411 full-time and part-time jobs in various interrelated industries throughout the state. These are the result of instate spending of \$24.94 million originated from farm operations in the WIS-serviced area (shown in details in Appendix Table 2).

Table 3.

**Wahiawa Irrigation System Economic Impacts:
An Application of Hawaii's Inter-County I-O Model**

	Output (\$ Million)	Earnings (\$ Million)	Employment (Number)
1. Initial Effects (at Farms)	37.66	14.43	569
1.1. Farm Direct Contribution to State's GDP ^a	27.98		
2. Indirect & Induced Effects	47.52	14.25	411
2.1. Agriculture	6.04	2.06	67
2.2. Construction	9.40	2.79	69
2.3. Food processing	0.37	0.09	3
2.4. Manufacturing	2.06	0.51	13
2.5. Transportation	1.69	0.47	13
2.6. Information	0.71	0.20	5
2.7. Utilities	0.51	0.09	2
2.8. Wholesale trade	2.28	0.71	18
2.9. Retail trade	4.33	1.35	49
2.10. Finance and insurance	2.41	0.65	16
2.11. Real estate and rentals	5.17	0.76	23
2.12. Professional services	2.40	0.91	21
2.13. Business services	0.50	0.18	5
2.14. Educational services	0.64	0.24	8
2.15. Health services	4.89	1.84	48
2.16. Arts, entertainment, and recreation	0.28	0.11	5
2.17. Accommodation	0.60	0.18	5
2.18. Eating and drinking places	1.22	0.36	16
2.19. Other services	1.45	0.49	18
2.20. Government	0.58	0.26	6
3. Total Economy-Wide Impact (1+2)	85.17	28.68	980

Notes: ^a Estimated using Honolulu County-specific (for five different crop groups) value added coefficients, which are estimated based on the *Hawaii Inter-County Input-Output Study: 2002 Benchmark Report* (DBEDT, 2007). Details are available in the Appendix Table 1. Details of the estimates for indirect and induced effects are available in the Appendix Table 2.

Farm operations required to purchase a variety of inputs, such as seeds or seedlings, electricity, accounting services, delivery and trade services, etc. Costs of imported inputs are excluded from the multipliers effects accounting since they are considered leakages from Hawaii's economy. The suppliers of farm inputs must also purchase a variety of their own inputs needed to produce goods and services to support farm operations. This is described as industrial interdependence in

backward linkages. These intra- and inter-industry purchases continued backward in successive rounds, with a smaller and smaller total value at each successive round. At the mean time, workers and business owners in all effected industries would have spent a portion of their disposable incomes on consumer goods and services. Suppliers of consumer goods and services would also have purchased inputs in order to produce/supply goods and services to final consumers. The intra- and inter-industry purchases continued backward along the stream of the consumer goods and services industries in successive rounds. In sum, the total process ended with an additional \$47.52 million of a variety of goods and services produced and sold across industries as a result of farm operations.

Total economic impacts of the WIS can be obtained by adding the initial effects to the indirect and induced effects. Thus, in total, the WIS resulted in \$85.17 million of goods and services produced (sold), 980 full-time and part-time employment, and \$28.67 household earnings in Hawaii.

A summary of the economic impacts in Table 3 also shows industry interdependence. Through indirect and induced effects, farm operations in the WIS-serviced area benefited construction the most, with \$9.4 million in output, \$2.8 million of earnings, and 69 jobs. Other noticeable industries include agriculture, real estate and rentals, health services, retail trade, finance and insurance, professional services, wholesale trade, manufacturing, etc.

Beyond Honolulu County, farm operations in the WIS-serviced area also benefit economies of Hawaii, Kauai and Maui counties. Table 4 shows the extensiveness of economic impacts of farm operations in the WIS-serviced area across counties. Through indirect and induced effects, farm operations in the WIS-serviced area supported 25, 9, and 19 jobs, respectively, in Hawaii County, Kauai County, and Maui County. These jobs were responsible for the production/sale of goods and services worth \$2.8 million in Hawaii County, nearly a million dollar in Kauai County, and \$2.2 million in Maui County. Details are shown in Appendix Table 2.

Table4.

Wahiawa Irrigation System Economic Impacts: Regional Interdependence

	Output (\$ Million)	Earnings (\$ Million)	Employment (Number)
Farm Production (in Honolulu County)	37.66	14.43	569
Indirect & Induced Effects			
Honolulu County	41.59	12.43	357
Hawaii County	2.83	0.87	25
Kauai County	0.88	0.26	9
Maui County	2.21	0.68	19
Total Economy-Wide Impact	85.17	28.68	980

4.3. Processing and Agricultural Tourism

The WIS did not only make possible the production of diversified crops in the area. Farming there has also enabled agricultural processing of various products and agricultural tourism businesses to be developed in the area.

The coffee farm there is fully integrated—farming, processing to produce the final product and marketing are done by the same operator, Dole Plantation Hawaii, which also has a relatively small-scaled cacao farm. Cacao is used as key ingredient for chocolate making. A noni processing plant located on site, within the WIS-serviced area, did not only use noni fruits grown within the studied area. It also purchased noni fruits grown in other islands for processing. The processing plant was built there because of the availability of noni fruits from the farm on site, made possible by the WIS. Without a noni farm onsite, that processing plant would never have been built. Thus, the WIS impact on farm production went far beyond its own serviced area through noni processing plant purchases of noni grown elsewhere. A small-scaled kukui oil processing business also used raw materials grown in the WIS-serviced area. Agricultural tourism is one of the main economic activities visible in the area, operated by Dole Plantation Hawaii. Started as a visitor center for Dole’s pineapple plantation, today the tour includes a train ride in Dole’s land, a visit to pineapple farms and tropical garden, and shopping.

Due to inadequate data the processing of noni, coffee, cacao, and kukui oil and agricultural tourism are unaccounted for in the total economic impact estimates shown in Table 3.

4.4. WIS Economic Impacts on the Waialua-North Shore Communities

The WIS is an important infrastructure for Hawaii’s economy, especially for the surrounding towns, namely Waialua, Haleiwa and Wahiawa and the Honolulu County at large. These towns together had slightly more than 22,000 residents, according to the 2000 Census. In all these three towns, median family income and per capita income were below those of both Honolulu County’s and State’s averages while poverty incidences were also consistently higher than those of the County and State (Table 5).

Higher percentages of the employed population were engaged in agriculture, fishing and forestry in these towns than in both the Honolulu County and State. As shown in Table 4, according to the 2000 Census, there were respectively 6.2%, 3.1%, and 2.9% of employed population engaged in agriculture, fishing and forestry in Waialua, Haleiwa, and Wahiawa. In comparison, it was only 0.7% in Honolulu County and 1.3% in State. These statistics clearly indicate that agriculture is important in providing employment to some residents in these towns. The economic importance of the WIS to the residents of these towns goes far beyond farm employment. The WIS also resulted in the creation of jobs and incomes to some town residents involving agricultural tourism, retail business, agricultural processing, delivery, farm equipment and machinery maintenance, and others. The farm scenery and Dole’s agricultural tourism, made possible by the WIS, are also incentives for island visitors and local residents from other regions on the island to take a drive to visit the towns and North Shore areas. This certainly benefited businesses in the area, although it is unclear to what extent.

Table 5.

**Selected Socioeconomic Data in 2000
Towns Surrounding the WIS-Serviced Area Versus Honolulu County and State**

	Waialua	Wahiawa	Haleiwa	Honolulu County	State
Population	3,761	16,151	2,225	876,156	1,211,537
Population employed in agriculture, fishing, and forestry occupations	92	183	29	2,534	6,909
As percent of employment ^a	6.20%	2.90%	3.10%	0.70%	1.30%
Median family income (1999)	51,801	46,524	48,553	60,118	56,961
Per capita income (1999)	17,220	16,366	16,504	21,998	21,525
Families below poverty level	8.90%	13.50%	15.00%	7.00%	7.60%
Individuals below poverty level	11.70%	16.70%	17.60%	9.90%	10.70%

Notes: ^a Percent of population age 16 and above who were employed within the survey period. Source: U.S. Bureau of the Census, Census 2000.

5. Conclusion

Like for many other types of infrastructure such as roads, airports, electricity, the economic impact of an irrigation system is most crucial in the service it provides that makes possible for other economic activities to take place and thrive. In 2007, the Wahiawa Irrigation System (WIS) directly contributed to \$37.7 million of farm production in aggregate, sold at farm prices. It directly produced \$14.4 million of earnings, in wages and business profits, that supported approximately 569 full-time and part-time farm jobs. After subtracting costs of farm inputs imported (fuel, fertilizer, materials, equipment and machinery, etc.) and locally supplied intermediate inputs from the aggregate farm sale value, it is determined that farm production in that year contributed nearly \$28 million to State's GDP.

To depict the full scale of economic impacts of the WIS, the input-output method is applied to account for the multiplier effects through industrial interdependence. The indirect and induced effects of farm operations resulted in \$47.5 million of goods and serviced produced and sold, 411 full-time and part-time jobs, and \$14.3 million of earnings across industries statewide. Adding the initial impacts (at the farm level) to the indirect and induced effects, it is concluded that the WIS resulted in approximately \$85.2 million of goods and services produced and sold in total across industries in Hawaii's economy. Associated with this economy-wide total impact on output are \$28.7 million of household earnings and 980 full-time and part-time jobs in a wide range of industries in Hawaii. The total economic impact estimates exclude the value added created (from exporting, transporting, warehousing, wholesaling, retailing, and processing) beyond farm gate value and Dole's agricultural tourism operations onsite. If these are included, the total economic impact figures will rise slightly.

Farm operations in the WIS-serviced area indirectly contributed to \$9.4 million of sales, \$2.8 million in earnings, and 69 jobs in the construction sector. Other sectors indirectly benefited from farm operations in the WIS-serviced area were agriculture, real estate and rentals, health

services, retail trade, finance and insurance, professional services, wholesale trade, manufacturing, etc. (see Table 3). Through indirect and induced effects, farm operations in the WIS-serviced area supported 25, 9, and 19 jobs, respectively, in Hawaii County, Kauai County, and Maui County. These jobs were responsible for the production/sale of goods and services worth \$2.8 million in Hawaii County, nearly a million dollar in Kauai County, and \$2.2 million in Maui County.

Due to the discharge of R-2 water into the system, by the Wahiawa Wastewater Treatment Plant (1.8 mgd) and the Army wastewater treatment facility (4.0 mgd), irrigation water from the WIS is considered R-2 quality and its use is limited to the growing of trees and orchard crops. Prohibited crops include root crops (e.g., taro, sweet potato, daikon, etc.) and crops that would expose their edible parts to the water (e.g., lettuce, cabbage, onion, basil and other spices, tomatoes, peppers, eggplants, etc.). Both facilities have plans to upgrade their recycle water to R-1 quality which will have no restrictions on its use for irrigation. With R-1 water quality, the economic potential of the WIS will considerably expand.

The total economic impact analysis which includes the multipliers effects reveals how extensive the WIS affects the economy across industries and regions (counties) in Hawaii. Also, it should be noted that although estimates in this study are based on 2007 WIS and farm operations, the multipliers and value added coefficients are derived based on 2002 economic data which may be slightly different than those for 2007 economic data. However, job multipliers were adjusted to 2007 employment (for inflation and productivity gain) according to the forecast in the DBEDT's Inter-County I-O model.

The study is also limited in scope. It focuses on pure economic impacts of the WIS in broad, ignoring the extent to which the WIS affects the economy and livelihood of residents in the Wahiawa, Waialua, Haleiwa, and the North Shore region. The non-economic value of an open space of managed greenery in the WIS-serviced area is also important. While there may not be a good measure of the dollar value for this managed green space, it has environmental and psychic benefits (the enjoyment people get from seeing the greenery) to residents and visitors.

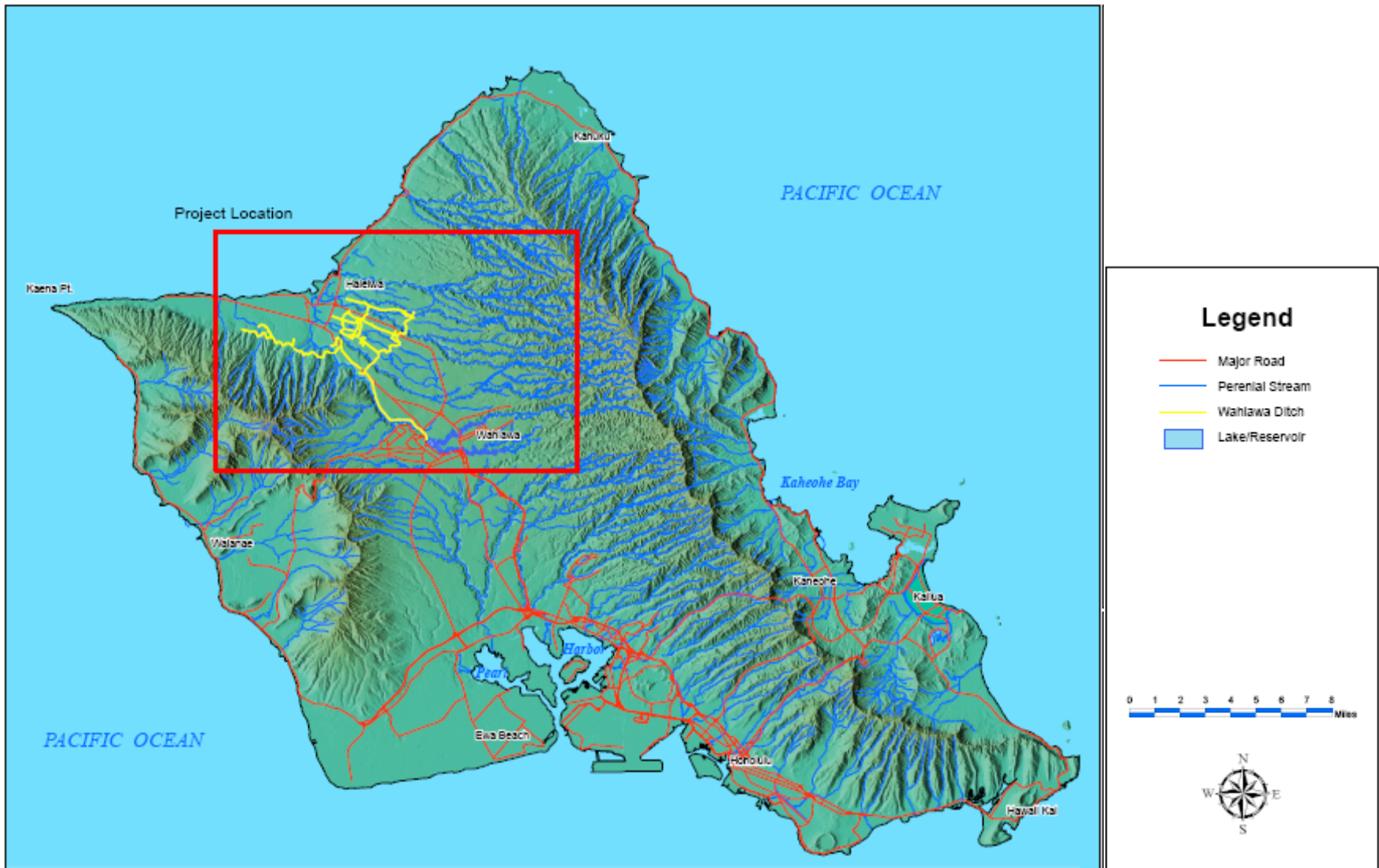
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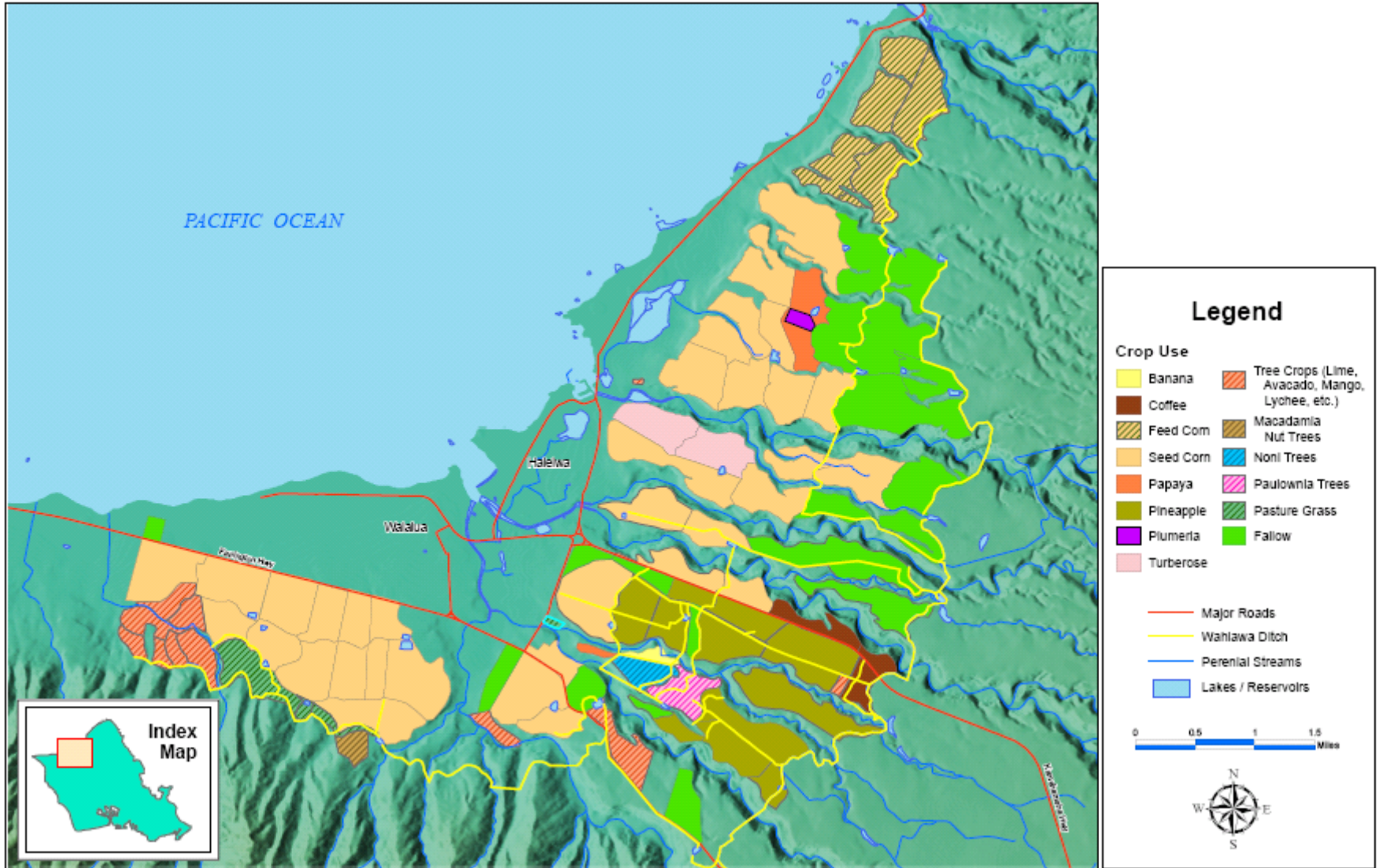
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- Migita, Susan, Farm Manager, University of Hawaii Poamoho Research Station

Figure 1. Wahiawa Irrigation System-Serviced Area



Note: Figure borrowed from Element Environmental LLC (September 2007). *Assessment of the Wahiawa Irrigation System*, commissioned by Agribusiness Development Corporation, Honolulu, HI.

Figure 2. Wahiawa Irrigation System-Serviced Area: Land Use by Crops



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Appendix Table 1.
Value Added Coefficients for Selected Crop Groups in Honolulu County

	Value Added Coefficients ^c	Total Value Added (\$ mil.)
Macadamia Nuts, Coffee, Other Fruits	0.88	
Pineapples	0.67	
Flowers and Nursery Products	0.51	
Other Crops	0.77	
Forestry & Logging	0.35	
Total		27.98

^c Honolulu County crop group-specific value added coefficients are calculated from value added for each corresponding crop group presented in the *Hawaii Inter-County Input-Output Study: 2002 Benchmark Report* (DBEDT, 2007). A value added coefficient indicates the value added created per dollar of output produced (sold). As an example, a 0.67 value added coefficient for pineapples indicates that for every dollar worth of pineapple produced (sold), 67 cents of economic value has been created and added to State's GDP.

Appendix Table 2.
Total Economic Impacts Detailed Calculation
Inter-County Input-Output Model Application for Wahiawa Irrigation System

	Industry	In-State Expenditures ^a	Multiplier (Type 2)			Impact		
			Output	Earning	Job ^b	Output	Earning	Job
H-S1	Agriculture	0.04	1.97	0.62	41.29	0.08	0.03	1.77
H-S2	Construction	1.03	1.95	0.60	15.43	2.01	0.62	15.96
H-S3	Food processing	0.01	2.04	0.49	23.52	0.03	0.01	0.31
H-S4	Manufacturing	0.04	1.69	0.46	14.75	0.06	0.02	0.55
H-S5	Transportation	0.02	2.01	0.63	18.80	0.04	0.01	0.34
H-S6	Information	0.00	1.86	0.57	17.01	0.00	0.00	0.01
H-S7	Utilities	-	1.65	0.29	6.13	-	-	-
H-S8	Wholesale trade	0.03	1.81	0.60	18.54	0.06	0.02	0.59
H-S9	Retail trade	0.13	1.83	0.52	20.87	0.25	0.07	2.79
H-S10	Finance and insurance	0.00	1.96	0.60	17.81	0.01	0.00	0.07
H-S11	Real estate and rentals	0.01	1.64	0.28	9.75	0.02	0.00	0.13
H-S12	Professional services	0.02	2.05	0.69	22.78	0.05	0.02	0.54
H-S13	Business services	0.00	1.98	0.73	33.23	0.00	0.00	0.04
H-S14	Educational services	0.00	2.15	0.79	32.53	0.00	0.00	0.05
H-S15	Health services	0.00	2.01	0.71	22.02	0.01	0.00	0.11
H-S16	Arts, entertainment, and ...	0.00	1.97	0.78	35.29	0.00	0.00	0.09
H-S17	Accommodation	0.10	1.91	0.59	17.59	0.19	0.06	1.77
H-S18	Eating and drinking places	0.00	2.02	0.57	27.24	0.01	0.00	0.09
H-S19	Other services	0.00	2.03	0.71	33.79	0.00	0.00	0.06
H-S20	Government	-	1.94	0.96	25.78	-	-	-
O-S1	Sugarcane	-	1.00	-	-	-	-	-
O-S2	Vegetables	0.02	2.05	0.66	21.36	0.03	0.01	0.33
O-S3	Macadamia nuts, coffee, ...	0.00	1.92	0.85	40.80	0.01	0.00	0.14
O-S4	Pineapples	0.17	1.98	0.73	28.16	0.34	0.13	4.91
O-S5	Flowers and nursery ...	0.03	2.06	0.72	29.93	0.06	0.02	0.83
O-S6	Other crops	2.00	1.67	0.53	17.33	3.35	1.05	34.71
O-S7	Animal production	0.00	2.15	0.63	21.14	0.00	0.00	0.03
O-S8	Aquaculture	0.00	2.20	0.99	20.60	0.00	0.00	0.01
O-S9	Commercial fishing	0.00	2.29	0.82	37.71	0.01	0.00	0.19
O-S10	Forestry & logging	0.10	2.35	0.97	16.64	0.23	0.09	1.62
O-S11	Support activities for ag. ...	0.89	2.03	0.77	22.51	1.79	0.68	19.93
O-S12	Mining	0.03	2.07	0.70	14.82	0.06	0.02	0.41
O-S13	Single family construction	1.46	1.83	0.48	11.88	2.68	0.71	17.38
O-S14	Construction of other ...	1.35	1.97	0.60	13.99	2.66	0.82	18.90
O-S15	Heavy and civil eng. ...	0.03	2.45	1.12	21.58	0.08	0.04	0.71
O-S16	Maintenance & repairs	0.03	2.02	0.68	13.98	0.05	0.02	0.35
O-S17	Food processing	0.15	2.05	0.49	17.39	0.30	0.07	2.54
O-S18	Beverage manufacturing	0.04	1.95	0.43	11.08	0.09	0.02	0.49
O-S19	Apparel and textile ...	0.03	1.87	0.56	23.05	0.06	0.02	0.71
O-S20	Petroleum manufacturing	0.28	1.19	0.09	1.76	0.33	0.02	0.49
O-S21	Other manufacturing	0.80	1.80	0.50	12.89	1.44	0.40	10.33
O-S22	Air transportation	0.26	2.04	0.52	12.38	0.52	0.13	3.16
O-S23	Water transportation	0.21	2.17	0.51	12.43	0.46	0.11	2.61
O-S24	Truck and rail transportation	0.16	1.96	0.66	18.16	0.31	0.10	2.83
O-S25	Transit and ground pass. ...	0.01	2.00	0.56	32.89	0.03	0.01	0.48

O-S26	Scenic and support ...	0.01	1.92	0.77	17.99	0.02	0.01	0.16
O-S27	Couriers and messengers	0.03	1.73	0.58	18.11	0.05	0.02	0.49
O-S28	Warehousing and storage	0.09	2.06	0.72	20.91	0.19	0.07	1.97
O-S29	Publishing (include Internet)	0.04	1.92	0.79	16.76	0.07	0.03	0.63
O-S30	Motion picture and sound ...	0.04	1.64	0.49	22.17	0.07	0.02	0.94
O-S31	Broadcasting ...	0.03	2.04	0.87	20.23	0.06	0.03	0.63
O-S32	Telecommunications	0.28	1.77	0.44	10.33	0.49	0.12	2.87
O-S33	Internet providers, web, ...	0.01	2.02	0.69	17.50	0.01	0.00	0.13
O-S34	Other information service	0.00	2.00	0.59	21.75	0.00	0.00	0.01
O-S35	Utilities	0.31	1.66	0.28	5.62	0.51	0.09	1.74
O-S36	Wholesale trade	1.19	1.79	0.56	13.91	2.12	0.66	16.49
O-S37	Retail trade	1.99	1.90	0.60	21.42	3.77	1.19	42.61
O-S38	Credit intermediation and ...	0.58	1.79	0.46	10.29	1.03	0.27	5.93
O-S39	Insurance carriers and ...	0.56	2.25	0.61	15.24	1.25	0.34	8.48
O-S40	Other finance and insurance	0.05	2.07	0.78	24.01	0.11	0.04	1.27
O-S41	Owner-occupied dwellings	1.61	1.54	0.17	4.57	2.47	0.27	7.35
O-S42	Real estate	1.43	1.74	0.31	10.01	2.49	0.45	14.34
O-S43	Rental & leasing and others	0.08	1.93	0.41	12.90	0.16	0.03	1.06
O-S44	Legal services	0.17	2.00	0.86	17.73	0.34	0.14	2.98
O-S45	Architectural and eng. ...	0.16	2.14	0.85	18.23	0.34	0.14	2.93
O-S46	Computer systems ...	0.60	2.31	0.85	19.87	1.39	0.51	11.93
O-S47	R&D in the physical, ...	-	1.92	0.61	13.50	-	-	-
O-S48	Other professional services	0.11	2.27	0.83	22.74	0.26	0.09	2.58
O-S49	Management of ...	0.06	2.22	0.87	17.34	0.13	0.05	1.01
O-S50	Travel arrangement ...	0.05	2.21	0.79	24.21	0.12	0.04	1.32
O-S51	Administrative and ...	0.04	2.13	0.92	34.76	0.09	0.04	1.53
O-S52	Waste management and ...	0.07	2.02	0.58	14.08	0.15	0.04	1.03
O-S53	Colleges, universities, ...	0.07	2.24	0.84	26.03	0.16	0.06	1.89
O-S54	Other Educational services	0.21	2.26	0.87	28.71	0.47	0.18	5.93
O-S55	Ambulatory health care ...	0.90	2.02	0.93	20.61	1.81	0.84	18.50
O-S56	Hospitals	1.00	2.26	0.68	17.64	2.26	0.68	17.66
O-S57	Nursing and residential ...	0.15	2.07	0.77	25.94	0.31	0.12	3.92
O-S58	Social assistance	0.23	2.11	0.86	35.27	0.48	0.20	8.07
O-S59	Arts and entertainment	0.14	1.98	0.78	36.92	0.27	0.11	5.01
O-S60	Accommodation	0.01	2.00	0.66	17.32	0.02	0.01	0.21
O-S61	Eating and drinking	0.57	2.08	0.62	26.78	1.19	0.35	15.38
O-S62	Repair and maintenance	0.13	2.02	0.68	24.24	0.26	0.09	3.11
O-S63	Personal and laundry ...	0.27	2.20	0.73	32.41	0.59	0.20	8.70
O-S64	Organizations	0.28	2.10	0.72	22.07	0.58	0.20	6.14
O-S65	Federal government military	-	1.71	0.78	17.48	-	-	-
O-S66	Federal government: civilian	0.24	2.08	0.92	21.07	0.50	0.22	5.06
O-S67	State and local government	0.04	2.00	0.95	25.03	0.07	0.04	0.94
K-S1	Agriculture	0.03	1.81	0.49	37.39	0.06	0.02	1.24
K-S2	Construction	0.25	1.95	0.59	16.33	0.49	0.15	4.13
K-S3	Food processing	0.00	2.02	0.48	25.71	0.01	0.00	0.09
K-S4	Manufacturing	0.01	1.92	0.75	19.26	0.01	0.01	0.14
K-S5	Transportation	0.01	2.00	0.58	19.45	0.03	0.01	0.27
K-S6	Information	0.00	1.66	0.40	11.92	0.00	0.00	0.00
K-S7	Utilities	-	1.63	0.27	6.15	-	-	-
K-S8	Wholesale trade	0.02	1.67	0.44	16.09	0.03	0.01	0.26

K-S9	Retail trade	0.07	1.90	0.59	23.36	0.12	0.04	1.52
K-S10	Finance and insurance	0.00	1.94	0.54	18.45	0.00	0.00	0.02
K-S11	Real estate and rentals	0.01	1.65	0.27	9.27	0.01	0.00	0.07
K-S12	Professional services	0.00	1.95	0.56	21.83	0.01	0.00	0.10
K-S13	Business services	0.00	2.09	0.86	31.67	0.00	0.00	0.04
K-S14	Educational services	0.00	2.20	0.86	29.25	0.00	0.00	0.00
K-S15	Health services	0.00	2.03	0.70	23.61	0.00	0.00	0.05
K-S16	Arts, entertainment, ...	0.00	1.93	0.72	30.34	0.00	0.00	0.03
K-S17	Accommodation	0.05	1.84	0.50	15.34	0.09	0.02	0.74
K-S18	Eating and drinking places	0.00	1.99	0.55	27.83	0.00	0.00	0.06
K-S19	Other services	0.00	2.06	0.69	34.38	0.00	0.00	0.05
K-S20	Government	-	1.92	0.93	24.83	-	-	-
M-S1	Agriculture	0.03	1.96	0.65	30.63	0.07	0.02	1.06
M-S2	Construction	0.70	1.96	0.61	15.79	1.37	0.42	11.02
M-S3	Food processing	0.02	2.05	0.51	19.63	0.03	0.01	0.31
M-S4	Manufacturing	0.03	2.10	0.94	18.26	0.06	0.03	0.55
M-S5	Transportation	0.03	1.95	0.55	16.98	0.05	0.01	0.45
M-S6	Information	0.00	1.64	0.31	9.08	0.00	0.00	0.01
M-S7	Utilities	-	1.62	0.26	5.46	-	-	-
M-S8	Wholesale trade	0.04	1.76	0.53	16.98	0.07	0.02	0.68
M-S9	Retail trade	0.10	1.87	0.56	20.67	0.19	0.06	2.09
M-S10	Finance and insurance	0.00	1.87	0.48	14.48	0.00	0.00	0.03
M-S11	Real estate and rentals	0.01	1.62	0.22	8.83	0.02	0.00	0.12
M-S12	Professional services	0.01	2.06	0.66	22.06	0.02	0.01	0.22
M-S13	Business services	0.00	1.95	0.64	24.25	0.00	0.00	0.03
M-S14	Educational services	0.00	2.05	0.64	26.71	0.00	0.00	0.02
M-S15	Health services	0.00	1.99	0.67	19.52	0.01	0.00	0.08
M-S16	Arts, entertainment, ...	0.00	1.92	0.72	29.29	0.01	0.00	0.09
M-S17	Accommodation	0.15	1.95	0.59	16.94	0.29	0.09	2.51
M-S18	Eating and drinking places	0.01	2.02	0.57	23.85	0.01	0.00	0.15
M-S19	Other services	0.00	2.00	0.61	25.10	0.01	0.00	0.07
M-S20	Government	-	1.91	0.91	24.28	-	-	-

Total In-state Expenditures	24.94		
Total Indirect & Induced Impacts		47.52	14.25
Initial Impacts (at farms)		37.66	14.43
Total Economy-wide Impacts		85.17	28.68
		411	980

^a Aggregate in-state expenditures originated from the five separated crop groups (Macadamia nuts, coffee, and other fruits; Pineapples; Flowers & nursery products; Other crops (seeds and non-seed); and Forestry & logging). Expenditures are estimated based on the industry's transaction data in *The Hawaii Inter-County Input-Output Study: 2002 Benchmark Report*.

^b Job multipliers were adjusted to 2007 employment (for inflation and productivity gain) according to the DBEDT's forecast in the 2002 Inter-County I-O model. For example, because of inflation and productivity gain, a million dollars worth of output in 2007 would require less number of workers to produce than a million dollars worth of the same output produced in 2002.



INTERNATIONAL LONGSHORE & WAREHOUSE UNION
LOCAL OFFICE • 451 ATKINSON DRIVE • HONOLULU, HAWAII 96814 • PHONE 949-4161

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MAUI COUNTY DIVISION: 896 Lower Main Street, Wailuku, Hawaii 96793 • **KAUAI DIVISION:** 4154 Hardy Street, Lihue, Hawaii 96766
HAWAII LONGSHORE DIVISION: 451 Atkinson Drive, Honolulu, Hawaii 96814

LOCAL 142

April 4, 2023

The Thirty-Second Legislature
Regular Session of 2023

THE HOUSE OF REPRESENTATIVES

Committee on Finance

Rep. Kyle T. Yamashita, Chair

Rep. Lisa Kitagawa, Vice Chair

State Capitol, Conference Room 308 & Videoconference

Wednesday, April 5, 2023; 2:00 P.M.

**STATEMENT OF THE ILWU LOCAL 142 ON S.B. 833 –
RELATING TO THE WAHIAWA IRRIGATION SYSTEM**

The ILWU Local 142 strongly **supports** S.B. 833, SD2, HD2 which requires the Office of the Governor to negotiate the State's fee simple acquisition of Wahiawa Irrigation System (WIS), otherwise known as Lake Wilson. The measure allows the Department of Agriculture, Agribusiness Development Corporation and the Department of Land and Natural Resources to authorize and appropriate funds to purchase, repair and maintain the Wahiawa Irrigation System and associated spillway.

WIS serves as an important freshwater resource for local agriculture. The dam and spillway are critical structures that prevent flooding for residential and business areas. The condition of the WIS has been rapidly deteriorating and has fallen out of compliance with safety requirements. We believe that the State should take control of the WIS as it would protect local agriculture and make the necessary improvements to make the area safe for residents and businesses.

Thank you for the opportunity to testify on this matter.

Respectfully,

Christian West
President

SB-833-HD-2

Submitted on: 4/4/2023 8:45:41 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
kyle barber	Individual	Support	Written Testimony Only

Comments:

This water system is critical to north and central Oahu agriculture. Please support this bill to transfer the ownership

SB-833-HD-2

Submitted on: 4/4/2023 9:09:29 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Tramontano Frank M	Individual	Support	Written Testimony Only

Comments:

Without irrigation water from Wahiawa

I and other farmers will not be able to produce food. It's That simple .

please walk your talk about supporting farmers and decreasing our dependence upon mainland imports

I rely on your understanding , good judgement and common sense .

thank you

SB-833-HD-2

Submitted on: 4/4/2023 10:22:27 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Kelsey Beck	Individual	Support	Written Testimony Only

Comments:

I SUPPORT

SB-833-HD-2

Submitted on: 4/4/2023 10:22:36 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Noah Campbell	Individual	Support	Written Testimony Only

Comments:

I support SB 833

SB-833-HD-2

Submitted on: 4/4/2023 10:22:42 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Aaron Miyashiro	Individual	Support	Written Testimony Only

Comments:

Support SB833

SB-833-HD-2

Submitted on: 4/4/2023 10:22:46 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Chaz Bajet	Individual	Support	Written Testimony Only

Comments:

I support bill sb833

SB-833-HD-2

Submitted on: 4/4/2023 10:23:00 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
kainalu paikai	Individual	Support	Written Testimony Only

Comments:

I support

SB-833-HD-2

Submitted on: 4/4/2023 10:23:06 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Clinton Blackman	Individual	Support	Written Testimony Only

Comments:

In support of SB833

SB-833-HD-2

Submitted on: 4/4/2023 10:23:13 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Jeremy Inferrera	Individual	Support	Written Testimony Only

Comments:

Support

SB-833-HD-2

Submitted on: 4/4/2023 10:23:15 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
noah	Individual	Support	Written Testimony Only

Comments:

I support this bill.

SB-833-HD-2

Submitted on: 4/4/2023 10:23:25 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Jacob Ramos	Individual	Support	Written Testimony Only

Comments:

I strongly support Bill SB833.

SB-833-HD-2

Submitted on: 4/4/2023 10:23:42 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Robert Enriquez	Individual	Support	Written Testimony Only

Comments:

Strongly support!!! SB833

SB-833-HD-2

Submitted on: 4/4/2023 10:23:45 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Alana Kaili	Individual	Support	Written Testimony Only

Comments:

In support of SB833

SB-833-HD-2

Submitted on: 4/4/2023 10:24:15 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Zorich Palimoo	Individual	Support	Written Testimony Only

Comments:

.

SB-833-HD-2

Submitted on: 4/4/2023 10:24:16 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Jordon kapu	Individual	Support	Written Testimony Only

Comments:

I support bill SB833

SB-833-HD-2

Submitted on: 4/4/2023 10:24:19 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Paquito KHD Capillan	Individual	Support	Written Testimony Only

Comments:

Support

SB-833-HD-2

Submitted on: 4/4/2023 10:24:33 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Chad Amasiu	Individual	Support	Written Testimony Only

Comments:

I support SB833

SB-833-HD-2

Submitted on: 4/4/2023 10:24:41 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Sierra Revilla	Individual	Support	Written Testimony Only

Comments:

I support this bill.

SB-833-HD-2

Submitted on: 4/4/2023 10:24:46 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Gabriel	Individual	Support	Written Testimony Only

Comments:

I strongly support this bill

SB-833-HD-2

Submitted on: 4/4/2023 10:25:46 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Edward Klaneski	Individual	Support	Written Testimony Only

Comments:

I support this bill

SB-833-HD-2

Submitted on: 4/4/2023 10:25:53 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Walter Walker	Individual	Support	Written Testimony Only

Comments:

Support

SB-833-HD-2

Submitted on: 4/4/2023 10:26:20 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Jonovan Tuinei	Individual	Support	Written Testimony Only

Comments:

I support sb833.

SB-833-HD-2

Submitted on: 4/4/2023 10:26:38 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Adrian Kaleo Nakashima	Individual	Support	Written Testimony Only

Comments:

I support SB833.

SB-833-HD-2

Submitted on: 4/4/2023 10:26:38 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Ted Scott	Individual	Support	Written Testimony Only

Comments:

I support bill SB833

SB-833-HD-2

Submitted on: 4/4/2023 10:26:39 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Nick West	Individual	Support	Written Testimony Only

Comments:

I support SB 833.

SB-833-HD-2

Submitted on: 4/4/2023 10:26:51 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Kale Ornellas	Individual	Support	Written Testimony Only

Comments:

I am in support for the Wahiawa irrigation system . Thank you

SB-833-HD-2

Submitted on: 4/4/2023 10:27:36 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
William Campbell	Individual	Support	Written Testimony Only

Comments:

I support bill SB833

SB-833-HD-2

Submitted on: 4/4/2023 10:27:44 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Burton Chun	Individual	Support	Written Testimony Only

Comments:

I support this bill.

SB-833-HD-2

Submitted on: 4/4/2023 10:27:53 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Donton Meinel	Individual	Support	Written Testimony Only

Comments:

I support SB833

SB-833-HD-2

Submitted on: 4/4/2023 10:28:02 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Sy Delizo	Individual	Support	Written Testimony Only

Comments:

I support this bill

SB-833-HD-2

Submitted on: 4/4/2023 10:28:10 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Kekoa Bruhn	Individual	Support	Written Testimony Only

Comments:

I support sb 833

SB-833-HD-2

Submitted on: 4/4/2023 10:28:15 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Kaai Bruhn	Individual	Support	Written Testimony Only

Comments:

I support this bill

SB-833-HD-2

Submitted on: 4/4/2023 10:28:21 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Ka'ena Paikai	Individual	Support	Written Testimony Only

Comments:

I support

SB-833-HD-2

Submitted on: 4/4/2023 10:28:24 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
KAIKA SASAOKA	Individual	Support	Written Testimony Only

Comments:

I support this Bill!

SB-833-HD-2

Submitted on: 4/4/2023 10:28:43 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Dane Kaluhiwa	Individual	Support	Written Testimony Only

Comments:

Support

SB-833-HD-2

Submitted on: 4/4/2023 10:29:27 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Ashkhon Kuhaulua	Individual	Support	Written Testimony Only

Comments:

I support SB833!

SB-833-HD-2

Submitted on: 4/4/2023 10:30:32 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Keoni Mendiola	Individual	Support	Written Testimony Only

Comments:

I firmly support, Bill SB833.

SB-833-HD-2

Submitted on: 4/4/2023 10:30:56 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Dave Teriirere	Individual	Support	Written Testimony Only

Comments:

I support this bill

SB-833-HD-2

Submitted on: 4/4/2023 10:32:59 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Anthony Kassebeer	Individual	Support	Written Testimony Only

Comments:

I Strongly Support this Bill!

SB-833-HD-2

Submitted on: 4/4/2023 10:33:11 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Jay Amina III	Individual	Support	Written Testimony Only

Comments:

I support SB833.

SB-833-HD-2

Submitted on: 4/4/2023 10:33:51 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Kuulei Kupihea	Individual	Support	Written Testimony Only

Comments:

In Support!

SB-833-HD-2

Submitted on: 4/4/2023 10:34:43 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Seen Morimoto	Individual	Support	Written Testimony Only

Comments:

In full support of Bill Number SB833.


SB-833-HD-2

Submitted on: 4/4/2023 10:34:59 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Kekoa masutani	Individual	Support	Written Testimony Only

Comments:

Support this bill 

SB-833-HD-2

Submitted on: 4/4/2023 10:39:24 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Seth Holck	Individual	Support	Written Testimony Only

Comments:

In support

SB-833-HD-2

Submitted on: 4/4/2023 10:51:00 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Falaniko Vitale	Individual	Support	Written Testimony Only

Comments:

I'm Strongly in support of SB833!

Mahalo

SB-833-HD-2

Submitted on: 4/4/2023 11:19:34 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Tyler Yuu	Individual	Support	Written Testimony Only

Comments:

Supoort

SB-833-HD-2

Submitted on: 4/4/2023 11:33:12 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Benjamin Hirokawa	Individual	Support	Written Testimony Only

Comments:

I am in full support of SB833.

SB-833-HD-2

Submitted on: 4/4/2023 11:38:48 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
B. Hansen	Individual	Support	Written Testimony Only

Comments:

Support SB833

SB-833-HD-2

Submitted on: 4/4/2023 11:39:20 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
John Rabanal	Individual	Support	Written Testimony Only

Comments:

I support this bill

SB-833-HD-2

Submitted on: 4/4/2023 11:42:19 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
James Mueller	Individual	Support	Written Testimony Only

Comments:

I SUPPORT SB833

SB-833-HD-2

Submitted on: 4/4/2023 11:43:07 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
thomas Ilae- timoteo	Individual	Support	Written Testimony Only

Comments:

I'm strongly in support of bill SB833.

SB-833-HD-2

Submitted on: 4/4/2023 11:50:44 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
ahtooanya jones	Individual	Support	Written Testimony Only

Comments:

I support SB833

SB-833-HD-2

Submitted on: 4/4/2023 12:11:55 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Wade Terlep	Individual	Support	Written Testimony Only

Comments:

In strong support

SB-833-HD-2

Submitted on: 4/4/2023 12:15:04 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Manny Kulukulualani	Individual	Support	Written Testimony Only

Comments:

I support SB833

SB-833-HD-2

Submitted on: 4/4/2023 12:39:23 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
anthony padilla	Individual	Support	Written Testimony Only

Comments:

I support sb833

SB-833-HD-2

Submitted on: 4/4/2023 12:49:56 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Robert Like	Individual	Support	Written Testimony Only

Comments:

I support sb833

SB-833-HD-2

Submitted on: 4/4/2023 12:59:49 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Stephen Paling IV	Individual	Support	Written Testimony Only

Comments:

I support SB833

SB-833-HD-2

Submitted on: 4/4/2023 1:14:48 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Brandon Ching	Individual	Support	Written Testimony Only

Comments:

I support Bill SB833

SB-833-HD-2

Submitted on: 4/4/2023 1:57:43 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Troy	Individual	Support	Written Testimony Only

Comments:

I support SB833

SB-833-HD-2

Submitted on: 4/4/2023 2:11:29 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Dustin Vierra	Individual	Support	Written Testimony Only

Comments:

I support SB833.

SB-833-HD-2

Submitted on: 4/4/2023 2:26:43 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Trey Ah Yuen	Individual	Support	Written Testimony Only

Comments:

I support.

SB-833-HD-2

Submitted on: 4/4/2023 2:36:29 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Cisco Valeho	Individual	Support	Written Testimony Only

Comments:

I strongly support SB833

SB-833-HD-2

Submitted on: 4/4/2023 2:55:11 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Hubert Pruett	Individual	Support	Written Testimony Only

Comments:

I support

SB-833-HD-2

Submitted on: 4/4/2023 3:30:05 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Kyle Miyahana	Individual	Support	Written Testimony Only

Comments:

I UPPORT 833 SB RELATING TO THE WAHIAWA IRRIGATION SYSTEM.

SB-833-HD-2

Submitted on: 4/4/2023 3:31:59 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Clayton Glass	Individual	Support	Written Testimony Only

Comments:

I support!!

SB-833-HD-2

Submitted on: 4/4/2023 5:19:03 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Pomai Kalama	Individual	Support	Written Testimony Only

Comments:

I support SB833!

SB-833-HD-2

Submitted on: 4/4/2023 8:04:35 PM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Christopher Finau	Individual	Support	Written Testimony Only

Comments:

Support!

SB-833-HD-2

Submitted on: 4/5/2023 12:23:36 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Arnold Orpilla Jr	Individual	Support	Written Testimony Only

Comments:

I support SB833.

SB-833-HD-2

Submitted on: 4/5/2023 6:21:00 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Racquel Achiu	Individual	Support	Remotely Via Zoom

Comments:

Aloha mai Kakou Chair and Committee Members. My name is Racquel Achiu of the North Shore. I currently sit as Vice Chair on the North Shore Neighborhood Board but am testifying as an individual. I am in full support of SB833. The Wahiawa Dam is critical to our community and ultimately our entire state. Not only is it a crucial resource for our farmers & Agricultural community the Wahiawa Dam & its continued maintenance plays a critical role in the safety and well being of the lower lying communities in Waialua. Not supporting a critical water resource that sits above any community could have major impacts. I often think about the impacts that Kaloko Dam had on our Kaua'i neighbors and our State. Without the Wahiawa Dam transfer to the State we are placed in a state of uncertainty and fear, especially when we encounter significant weather events that include severe rain and potential flooding. Not having continued reliable and capable monitoring of the dam, its water levels and spillway could be catastrophic to the lower lying communities. The transfer of the Wahiawa Dam to the State is a responsible and preventable measure that ensures a continued necessary stewardship of a major resource to our farmers, lands, communities and State. Please please support SB833 our future very literally depends on it. MAHALO

SB-833-HD-2

Submitted on: 4/5/2023 9:25:52 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Lawrence DeCosta III	Individual	Support	Written Testimony Only

Comments:

I am in support!

SB-833-HD-2

Submitted on: 4/5/2023 10:05:20 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Alfred Horner	Individual	Support	Written Testimony Only

Comments:

Alfred Horner I support SB833.

SB-833-HD-2

Submitted on: 4/5/2023 11:40:26 AM

Testimony for FIN on 4/5/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Michael Misunas	Individual	Support	Written Testimony Only

Comments:

I support this bill