



# **REPORT ON THE HAWAII DAM AND RESERVOIR SAFETY PROGRAM**

This report is prepared pursuant to Section 179D-29, Hawaii Revised Statutes (HRS), and covers the period July 1, 2007 through June 30, 2008.

## **INTRODUCTION**

The Department of Land and Natural Resources (DLNR), Engineering Division administers the Hawaii Dam and Reservoir Safety Program (Program). Authorization for the Program is provided under Chapter 179D, HRS, "Hawaii Dam and Reservoir Safety Act of 2007", and Chapter 13-190, Hawaii Administrative Rules (HAR), "Dams and Reservoirs", which governs the design, construction, operation, maintenance, enlargement, alteration, repair, and removal of dams, reservoirs, and appurtenant works in the State of Hawaii.

## **BACKGROUND**

Dams and reservoirs in Hawaii were historically developed by the agriculture industry. Today, dams and reservoirs continue to be used by the agriculture industry, in addition to providing storage for drinking water, flood control, and recreation and other purposes.

Only dams that meet a certain size (height and volume) criteria are regulated under the Program. Regulated dams are identified as having artificial barriers, together with appurtenant works, which are 25-feet or more in height or have an impounding capacity of 50-acre-feet (~17 million gallons) or more. Dams less than 6-feet in height, regardless of storage capacity, or that have a storage capacity not in excess of 15-acre-feet (5 million gallons) regardless of height, do not fall under State of Hawaii jurisdiction, unless specified by the Program.

## **PROGRAM**

The Program enforces policies and guidelines regulating the construction, alteration, removal, and operation of regulated dams in the State. Typical duties may include conducting investigations and inspections, reviewing plans, issuing permits, emergency action planning, maintaining the inventory of dams for the State of Hawaii, establishing hazard potential classifications, conducting training and awareness for dam safety, and issuing enforcement orders as necessary for protection of public safety.

## FUNDING

For the reported fiscal period, the Dam and Reservoir Safety Program received funding from the following sources:

<u>From</u>	<u>Approximate Funding</u>
State of Hawaii – General Fund - (Dam Safety Operating Budget)	\$ 338,000
State of Hawaii – Special Fund	\$ 1,000,000
State of Hawaii – Act 118, Session Laws of Hawaii 2006 Appropriations (carry over)	\$ 2,102,200
Federal Emergency Management Agency – National Dam Safety Program Grant	\$ 25,379
Association of State Dam Safety Officials – 2006 Training Grant (carry over)	\$ 7,500
Association of State Dam Safety Officials – 2007 Training Grant	\$ 1,000
<b>Total available funding</b>	<b>\$ 3,474,079</b>

### A. Use of appropriated funds;

Funds from the various sources were used as follows:

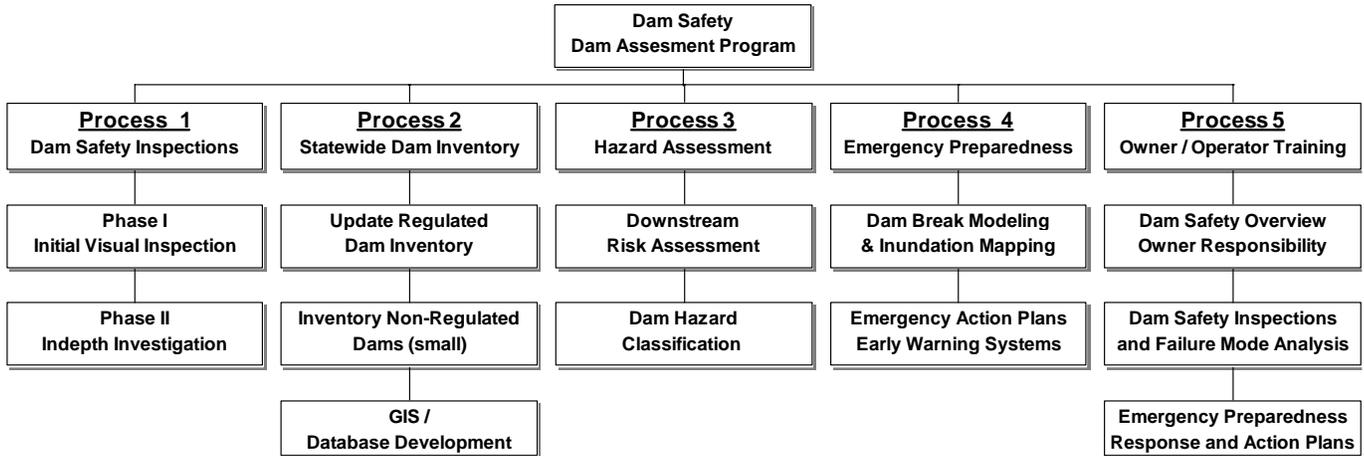
Category	General Funds	Special Fund	Act 118 Emergency Funds	Federal Funds (all sources)	Total
<b>Personnel Services</b>	\$ 161,076	\$ 480	\$ -	\$ -	\$ 161,556
<b>Consultant Services</b>	\$ 64,500	\$ 310,000	\$ 1,699,160	\$ -	\$ 2,073,660
<b>Travel</b>	\$ 6,882	\$ -	\$ -	\$ 15,637	\$ 22,519
<b>Overhead &amp; Equipment</b>	\$ 54,697	\$ -	\$ 190	\$ 7,375	\$ 62,262
<b>B&amp;F Charges</b>	\$ -	\$ 50,010	\$ -	\$ -	\$ 50,010
<b>Total</b>	<b>\$ 287,155</b>	<b>\$ 360,490</b>	<b>\$ 1,699,350</b>	<b>\$ 23,012</b>	<b>\$ 2,370,007</b>

Most of the general operating funds were expended on salaries. All of the positions in this Program are currently filled. Other major general fund expenditures were for contract services to survey dams and also to assist in facilitating owner training seminars planned statewide. Travel expenses were incurred for neighbor island inspections as well as per-diem costs for out of state training and conferences.

In Fiscal Year (FY) 2008, the new Dam and Reservoir Safety Special Fund received \$1,000,000 initial funding from the General Fund. The Program expended \$ 310,000 in consultant services to retain a hearings officer to assist in the drafting, hearing and promulgation of new administrative rules for the Program. The Special Fund was also assessed a 5% operational fee from the Department of Budget and Finance. We intend to retain \$ 700,000 as a reserve for emergency inspections and possible remediation should an emergency event occur.

Most of the balance of Act 118, Session Laws of Hawaii 2006 emergency relief funding (provided in response to the March 2006 flooding events) were expended. The remaining unused balance in FY 2008 has been allocated for projects that followed the Program's 5 Step Assessment Plan of Inspections, Inventory Update, Hazard Assessments, Emergency

Preparedness, and Dam Owner and Operator Training. An expanded chart of this process is shown below:



Details of the projects expended in FY 2008 are summarized below:

- Phase I Visual Inspections statewide and reviews of Phase I Inspection reports by owners which resulted in a comprehensive inspection review of previous inspection reports and conducting visual inspections of 135 regulated dams.
- Phase II investigation for Kaloko Dam on Kauai which is pending access issues with the owner.
- Dam Inventory update and database development to gather updated physical data on the dams and importing this information into a database for staff to use for management of the dam inventory and inspection program.
- Assessment of spillway damages at the Field 21 Reservoir above the Fern Grotto on Kauai.

The federal grant funds were used for staff to attend training and conferences in and out of the state and for interisland travel to conduct dam safety inspections statewide.

## ACTIVITIES

- A. Approvals of plans and specifications for the construction of dam and reservoirs and for alterations, modifications, repairs, removals, and enlargements of any dams and reservoirs;

Six new permit applications were submitted to the Program in FY 2008. Some of the applications were incomplete or preliminary in nature and DLNR is awaiting formal submittal of plans and specifications for those projects. Several of the permit applications were for emergency work needed to repair and remediate damage as a result of the floods in March 2006.

B. A listing of dam and reservoir safety inspections made;

In FY 2008, DLNR contracted with private consultants to conduct formal Phase I Visual Inspection of 134 regulated dams. All regulated dams were inspected with the exception of the Kaloko, Morita, and Ahukini Dams on Kauai, and the Happy Valley Flood Control Structure on Maui. The Program already conducted Phase I Investigations of Kaloko and Morita Dams in 2006 and are currently in the process of executing contracts for Phase II Investigations for Morita Dam and working on gaining access to Kaloko Dam. The Happy Valley Flood Control Structure was found to be well below the regulatory size criteria in the previous inspection by the Army Corps of Engineers and the Program will be requesting the Board of Land and Natural Resources to remove this structure from the regulatory inventory. The Ahukini Dam was observed to be breached and not believed to require additional investigations at this time as there are practically no inflows and a significant breach in the embankment.

C. Rules adopted or amended;

The Program is currently in the process of updating the Hawaii Administrative Rules, Title 13, Subtitle 7, Water and Land Development, Chapter 190, HAR, to effectuate the amendments made to Chapter 179D, HRS. The Program expects to hold public hearings as soon as the draft rules are completed.

D. Enforcement orders and proceedings;

There were no enforcement orders or proceedings in FY 2008.

E. Dam and reservoir failures and department evaluations of the reasons for the failure, if known;

There were no known dam or reservoir failures in FY 2008.

F. Any other available data regarding the effectiveness of the State's dam and reservoir safety program.

The Program is working with dam owners on having an Emergency Action Plan (EAP) for their facilities. EAPs are required by statute for only high and significant hazard potential classifications of dams. Out of the 138 regulated dams, 126 are classified high or significant. The following is a summary of EAPs on file with DLNR for all classifications:

Number of Dams with EAPs		
FY 2004	FY 2007	FY 2008
12	55	91

The Program is working on assisting owners to create these EAPs and at the same time, creating a generic EAP format that is acceptable to the specific county emergency management agencies and emergency responders. Additionally the Program is working on mapping dam break inundation areas for all regulated structures and assisting the county emergency management agencies in using these inundation areas to create evacuation maps.