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MINUTES

BOARD OF REGENTS COMMITTEE ON RESEARCH AND INNOVATION MEETING

MAY 5, 2022

I. CALL TO ORDER

Chair Bal called the meeting to order at 8:32 a.m. on Thursday, May 5, 2022, with regents participating from various locations.

Committee members in attendance: Chair Eugene Bal; Vice-Chair William Haning; Regent Simeon Acoba; and Regent Kelli Acopan.

Committee members excused: Regent Ernest Wilson.

Others in attendance: Board Chair Randy Moore; Regent Wayne Higaki; Regent Benjamin Kudo; Regent Diane Paloma; Regent Robert Westerman (ex officio committee members); President David Lassner; Vice President (VP) for Community Colleges Erika Lacro; VP for Legal Affairs/University General Counsel Carrie Okinaga; VP for Research and Innovation Vassilis Syrmos; VP for Information Technology/Chief Information Officer Garret Yoshimi; UH Mānoa (UHM) Provost Michael Bruno; UH Hilo (UHH) Chancellor Bonnie Irwin; UH West O'ahu Chancellor Maenette Benham; Executive Administrator and Secretary of the Board of Regents (Board Secretary) Kendra Oishi; and others as noted.

II. APPROVAL OF MINUTES

Chair Bal thanked Vice-Chair Haning for serving as Chair at the last committee meeting. He inquired if there were any corrections to the minutes of the February 3, 2022, committee meeting which had been distributed. Hearing none, the minutes were approved.

III. PUBLIC COMMENT PERIOD

Board Secretary Oishi announced that the Board Office did not receive any written testimony, and no individuals signed up to provide oral testimony.

IV. AGENDA ITEMS

A. Research Project Briefing: “Basic to Applied Research: Volcanology to Hydrology to Managing Community Risks” Presentation by Dr. Donald Thomas, Geochemist, Hawai’i Institute of Geophysics and Planetology, at UHM

VP Syrmos introduced Dr. Donald Thomas, reviewed his educational background, highlighted the numerous accomplishments and awards he received during his career, and spoke about the relevance of Dr. Thomas’ work on hydrology and geology

propagation modeling given the recent Red Hill water contamination crisis. He also drew attention to the university's pivotal role in addressing this crisis, stating that its scientific expertise and research capabilities, as well as its deep understanding of the complex issues surrounding the Red Hill fuel storage facility, were critical factors in providing unbiased technical support to various state and federal organizations.

Dr. Thomas spoke about the local, national, and international relevance of research occurring at the university and illustrated this significance through a presentation on the Hawai'i Scientific Drilling Project (HSDP), a project initiated over 30 years ago to gain a better understanding of the planetary processes involved in Hawai'i volcanism, as well as to investigate the basic geochemical activities occurring within a volcano's base. He reviewed the distinctive way in which the Hawaiian Islands were formed; noted the various research and scientific activities conducted by HSDP; and discussed some of the notable findings made by HSDP that increased the understanding of mantle plumes and their role in the formation of Hawai'i's volcanos.

The work undertaken by HSDP also resulted in the unearthing of information about the geological composition of the Hawaiian Islands that challenged some of the assumptions used in establishing the prevailing model for the subsurface occurrence and movement of groundwater in Hawai'i. Findings suggest that there are different mechanisms for storing varying degrees of fresh water within the Hawaiian Islands and that the abundance of this resource may be much higher than the traditional groundwater model would indicate. It was noted that the knowledge gained about the hydrogeology of the Hawai'i through HSDP will allow for better freshwater resource management that will lead to long-term sustainability for the future.

Dr. Thomas also discussed the technical support the university has provided to various state and federal organizations regarding the potential groundwater system impacts of the Red Hill fuel storage facility noting that the complexity of the region's hydrogeology makes it difficult to ascertain the effects dissolved contaminants from fuel leaks could have on nearby freshwater artesian wells. He also stated that a source of disagreement between the university, regulatory agencies, and United States Navy contractors has been the latter's insistence on using Hawai'i's traditional groundwater model to describe groundwater flow in this region despite the new discoveries made by HSDP. However, the Office of Naval Research has recently approved a project that will be conducted by the university and apply current geophysical, geochemical, and modeling techniques to the Red Hill region so that groundwater movement and contaminant transport in the area can be better understood.

Citing HSDP's discovery of increased freshwater storage capacity within the Hawaiian Islands, Regent Westerman questioned whether this capacity diminishes as each island moves farther away from the mantle plume. Dr. Thomas replied that significant geological changes occur as an island moves further away from the mantle plume including weathering and subsidence. However, a vast amount of uncertainty exists with respect to the presence of freshwater within the Hawaiian Islands and the best way to determine the existence of this resource is continued investigation and research. He stated that the university's ability to carry out this type of work has eroded

over time and it was his hope that this capacity could be rebuilt in the future given recent events which have highlighted the importance and fragility of this resource.

Given that continued research about the existence of fresh groundwater involved core drilling, Vice-Chair Haning asked if any opposition has been encountered regarding these efforts. Dr. Thomas stated that fresh water is a key commodity that is necessary for survival and a resource coveted by multiple interests. He stressed the importance of properly managing freshwater resources through the use of good, scientific information regarding the hydrogeology of Hawai'i rather than flawed speculation.

In view of the Red Hill incident and the present understanding of water migration that has been enhanced by HSDP, Regent Kudo inquired about future recommendations for the placement of facilities, such as underground fuel storage tanks, in order to better preserve and protect freshwater resources in Hawai'i. Dr. Thomas replied that this is a complex matter but stated that an important key to this issue is the use of proper science to make decisions that will lessen the potential risks to Hawai'i's natural resources posed by any such facility regardless of where it is located. Regent Kudo expressed his belief that discoveries made by HSDP with respect to the location of water resources should be considered when determining the placement of these types of facilities.

Regent Kudo opined that State policy regarding freshwater resources should be directed toward islands or counties where the demand for freshwater is at, or exceeds known supply and asked Dr. Thomas about his thoughts on this matter. Dr. Thomas replied that all islands will experience increased demands for freshwater, although O'ahu is near the precipice of this demand exceeding known supply. However, he reiterated that there remains a lack of sufficient understanding of the distribution and movement of fresh water within the Hawaiian Islands and findings from HSDP suggest that an abundance of this resource may be present on some islands. As such, it is important that research on this critical issue continue and that information obtained from these efforts be integrated into the structure of freshwater resource management.

Referencing the abundance of offshore freshwater resources detected by HSDP, Regent Kudo asked whether the drilling of submarine wells will occur in the future. Dr. Thomas replied that he did not believe this action would be necessary given that the source of the fresh water detected offshore is land-based and could be accessed via the drilling of onshore wells. He noted that the Hawai'i County Department of Water Supply is currently working to obtain resources for drilling a land-based well to tap into one of the offshore freshwater resources discovered by HSDP.

Regent Acoba inquired about the provision of information gathered by HSDP to assist policymakers in instituting long-range plans to preserve and protect freshwater resources. Dr. Thomas replied that the multijurisdictional nature of certain aspects of freshwater resource management in Hawai'i complicates this matter but that, in general, a water board or commission is charged with establishing policies and long-range planning with respect to the use of freshwater resources in each respective county. However, many of these policies are based upon the concept of sustainable yield which HSDP has determined relies on incorrect assumptions. As such, these policies should

be reexamined, taking into account new modeling information with respect to aquifer existence and recharge, so that they can be redeveloped to allow for the sufficient provision of freshwater resources to the community while providing adequate protections for this resource.

B. Fiscal Year 2021-2022 (FY22) 3rd Quarter Extramural Awards Update

- 1. FY 22 3rd Quarter Research and Innovation Metrics Summary**
- 2. FY 22 Monthly Report on Extramural Awards**

VP Syrmos reported on the extramural awards received for the third quarter of FY22; provided a breakdown of trends, significant awards, and award amounts by campus; and summarized data pertaining to various research and innovation metrics. He stated that the university received \$440 million in extramural awards to date, which was 10 percent higher than the same period in FY 2020-2021, and anticipates reaching nearly \$500 million by the end of the fiscal year. He also highlighted that increases in award counts at UHM were experienced across all levels of funding and emphasized the widespread nature of these awards across programs on the flagship campus which indicates a healthy research enterprise system.

Referencing past government policies that placed an emphasis on funding for applied research activities, Regent Kudo asked whether there has been a shift in this emphasis and if particular areas of research that can be further monetized had been identified by the university. VP Syrmos replied that the emphasis on applied research continues to be a mainstay of current government policies and is expected to remain so for decades. He noted that applied research in areas such as climate change, public health and healthcare, water resource and energy resiliency, data science, and cybersecurity have been identified as having the potential of benefitting the university and increasing extramural revenues. Regent Kudo questioned whether this information has been communicated to faculty. VP Syrmos replied in the affirmative.

Regent Acoba asked about the types of activities that were encompassed by the innovation and entrepreneurship engagement data metric and requested clarification on the large decrease in this data metric in FY22 as compared to FY21. VP Syrmos replied that innovation and entrepreneurship engagement refers to activities involving start-up companies including actions such as investments made, consultations, and workshops. He stated that he did not have information readily available about the reasons for the large decrease in engagements experienced in FY22 and would get back to the committee.

Board Chair Moore arrived at 9:36 a.m.

C. Committee Annual Review

Chair Bal referenced the committee annual review matrix provided in the materials packet stating that it sets forth the actions carried out by the committee throughout the year. He noted that the item relating to Organizational Research Units (ORU) was blank, which is understandable given that the committee did not consider any ORUs.

Chair Bal stated that it was a very productive year for the committee and thanked the committee members, administration, Board Office staff, and university staff for all of their efforts that allowed the committee to complete the tasks set forth in the committee work plan.

V. ADJOURNMENT

There being no further business, Chair Bal adjourned the meeting at 9:43 a.m.

Respectfully Submitted,

Kendra T. Oishi
Executive Administrator and Secretary
of the Board of Regents