

**UNIVERSITY OF HAWAI‘I
CENTER FOR INDIGENOUS INNOVATION AND HEALTH
EQUITY**

LANDSCAPE ANALYSIS SURVEY REPORT

March 2023



UNIVERSITY *of* HAWAI‘I®
SYSTEM

**Office of the Vice President for Research and Innovation
University of Hawai‘i System**

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Executive Summary

I. Background

The Center for Indigenous Innovation and Health Equity (CIIHE or “the Center”) is a federally funded initiative through the U.S. Department of Health and Human Services (HHS) Office of Minority Health and was established in September of 2021. There are two arms of CIIHE nationally - one Center focuses on Native Hawaiian and Pacific Islander (NHPI) populations, led by the University of Hawai‘i (UH), and another focuses on American Indian and Alaska Native (AI/AN) populations, led by Oklahoma State University. The Center’s efforts are focused on supporting community-based organizations in areas such as education, service, policy development, and community-engaged research to investigate and advance Indigenous innovations to address health disparities and advance health equity across NHPI communities. This report shares the work of the UH CIIHE.

CIIHE posits that there is no intervention so effective in reducing health disparities and achieving health equity as the restoration of ancestral practices in Indigenous communities. The overarching goal of UH CIIHE is to advance community-centered ancestral and cultural practices as the intervention to improve holistic health for NHPI populations through research initiatives, policy strategies, and economic development initiatives that are all co-produced with community. “Indigenous innovation” is defined as the restoration of ancestral and cultural practices to address contemporary problems.

The driving force behind the Center’s overarching goal is the CIIHE Leadership Team, composed of the Principal Investigators, core staff (consisting of an ‘Āina Based Organizations Liason, two Data and Policy Analysts, and a Project Administrator), and representatives from each of the Center’s Core Partner organizations. CIIHE’s Core Partners are subject matter experts who have years of experience in ‘āina¹-based practices and supporting ‘āina-based work. The Center’s Core Partner organizations are a collective of community-based organizations and institutions of higher education that include Ho‘oulu ‘Āina (a biocultural reserve affiliated with the Kōkua Kalihi Valley health clinic), MA‘O Organic Farms (a social enterprise project that works on youth and community empowerment), the Hau‘oli Mau Loa Foundation (a philanthropic organization that supports place-based Indigenous programming, especially for children); the Edith Kanaka‘ole Foundation (EKF; a center for the perpetuation and expansion of place-based Native Hawaiian thought); Chaminade University of Honolulu; and faculty from UH’s John A. Burns School of Medicine.

CIIHE grounds its work through Indigenous protocols. These protocols established shared agreements, ensuring accountability and transparency among the Center’s staff and project partners. This approach led to the development of three Indigenous frameworks that guide the

¹ ‘āina is defined as land, or that which feeds. It is composed of the verb ‘ai [to eat] and -na, a nominalizing suffix. As more than land, ‘āina is an ancestor and genealogical elder that is in relation with its people. In the broader Polynesian context, cognates like kainga/aiga actually refer to a descent group, those bound by co-residence, or their land (see Goodenough 1955). As such, ‘āina-based indicates Indigenous place-based practices, knowledge, and relationships embedded with, and constituted from, specific ‘āina.

Center in its mission. These frameworks include the Pewa² framework, an ‘Aelike (consensus agreement), and finally, the kapu (sacred restrictions) with accompanying k n wai (bylaws). With CIIHE’s foundational frameworks firmly in place, for Year One of CIIHE’s grant award, the Center sought to conduct a Landscape Analysis to identify and better understand Indigenous innovations with the potential for positive health impacts in NHPI communities while also gathering key information to support further growth of this work. This report details the findings of Year One’s Landscape Analysis.

II. Landscape Analysis

The Center worked with its Core and Network Partners to develop the Landscape Analysis Survey (LAS). The LAS (Appendix B) served as an online tool comprised of six individual sections and twenty-four questions that asked survey participants to provide the following:

- Organizational information;
- Concepts of holistic health at the individual level and the community level;
- Examples of Indigenous innovations with potential for positive health impact;
- Existing barriers to growing or expanding Indigenous innovation within their community;
- Information on past or current research projects the respondent has participated in, including internal data collection efforts; and
- Recommendations on other Indigenous communities of practice that the Center should contact to participate in the LAS.

III. Landscape Analysis Results

Section One of the LAS collected data concerns organizational information. With a goal of 50 survey participants, the Center received a total of 49 completed surveys. Of the total, 32 (65%) survey respondents were from Hawai‘i or Oregon³, and 17 (35%) survey respondents were from three out of the six United States Affiliated Pacific Island (USAPI) jurisdictions, which included the United States (US) Territory of Gu han (also known as Guam, but will be referred to as Gu han throughout this report), the US Commonwealth of the Northern Mariana Islands (CNMI), and the Republic of the Marshall Islands (RMI), a member country of the US Compact of Free Association. Participants of the LAS represented 46 different organizations (non-exclusively) from a variety of community-based organizations (73%), health or healthcare organizations (12%) and were affiliated with a network of organizations (16%).

The Center implemented a qualitative thematic coding analysis for LAS sections containing data on Indigenous innovations. This approach was an iterative process conducted over three distinct cycles that would establish themes based on response frequency. CIIHE Data and Policy Analysts (DAPAs) utilized this approach to establish five themes that described survey responses in Section Two of the LAS, concepts of holistic health. Section Two questions asked participants

² In accordance with the University of Hawai‘i Style Guide, Hawaiian words are not italicized. In not italicizing Hawaiian words, Indigenous knowledge and epistemologies are centered, rather than “Othered” as foreign or peripheral knowledge.

³ CIIHE affirms that the specific location of this respondent was on the lands of the Multnomah, Wasco, Cowlitz, Kathlamet, Clackamas, Bands of Chinook, Tualatin, Kalapuya, and Molalla peoples.

to define holistic health at the individual and community levels and described the correlation between the health of the environment and the health of the people. Responses from Section Two contained significant overlap, where LAS participants described the multi-dimensional factors defining holistic health, including physical, emotional, spiritual, and mental health. There was also a distinct overlap in how LAS participants expressed the definition of individual and community health as they correlated to each other and the reciprocal nature of an individual's health and the community's health. Respondents also emphasized a unanimous "yes," affirming the connection between the health of the land and the health of individuals and their communities.

Section Three of the LAS asked questions that helped further the Center's understanding of Indigenous innovations and their potential health impacts. With variations in how LAS respondents acknowledged or represented Indigenous innovations, it was clear to CIIHE DAPAs that the nomenclature of "Indigenous Innovation" is not understood and used equally with other words or concepts such as "culture." With these variations in mind, categories based on an Indigenous Innovation's respective environment were created. Additional categories were also created for responses related to Indigenous innovations surrounding traditional healing or medicine and how Indigenous innovations are or should be applied within a contemporary context. These applications include Indigenous ways of governing, deployment of cultural epistemologies centered around Indigenous worldviews and protocol, and respondents' proposed ways to improve health individually and collectively within communities. Data designated within these categories were non-exclusive and reflective of responses that may have included more than one Indigenous Innovation in their response. Section Three also asked respondents about their awareness of research publications surrounding Indigenous innovations. These responses (71%) included information on researchers and publications (books, research journals, articles, etc.), including acknowledgments from respondents on their limited awareness (16%), but emphasized interest in learning more (6%). Lastly, respondents were also asked about their data collection efforts on Indigenous innovations. These responses included acknowledgment of existing or previous data collection efforts (43%), no existing efforts (39%), as well as ongoing efforts but only in limited form (8%).

Section Four of the LAS provided the Center with a notable opportunity to better understand the barriers to expanding Indigenous innovations. Through a multiple-response question, respondents were asked to select all options related to barriers applicable to them. Collectively, LAS respondents indicated funding (80%), further education (67%), and training in ancestral practices (65%) as the top three major barriers (non-exclusively) to growing or expanding Indigenous innovations. The top selected barriers also vary between non-USAPI and USAPI survey respondents. Additionally, nearly 60% of all survey respondents indicated that more research and subject matter experts (in the fields of social work, community health, medicine, public health, behavioral health, data, and statistics) are necessary to growing or expanding Indigenous innovations. LAS respondents also emphasized, in their free-text responses, that it would be helpful to better understand the types of research needed, suggesting more research on Indigenous innovations in addition to environmental conditions and other specified areas related to Indigenous innovations. The remaining sections of the LAS, Sections Five and Six, asked LAS respondents to provide any information on individuals or organizations who would benefit from participating in the LAS. Section Six afforded LAS participants an additional opportunity to provide further information or comments on the survey.

Preliminary LAS findings were presented to LAS participants on November 29, 2022 (November 30, 2022, for USAPI participants) in the form of a Respondent Validation Session (RVS). This approach in the Center’s LAS methodology was recommended by one of CIIHE’s Core Partners, Dr. Marjorie Mau. Dr. Mau’s recommendation would allow LAS respondents to review the Center’s preliminary data analysis and synthesis. The RVS afforded the Center an opportunity to collect initial feedback and critiques from LAS respondents, serving as a way to remain transparent with survey participants. The RVS provided participants the opportunity to engage with, validate, and expand on their data collected during the LAS data collection period, adding an additional layer of veracity to the data’s analysis and final synthesis. This practice aligns with CIIHE’s core value of co-design with community, ensuring survey respondents feel that their responses are authentically conveyed.

IV. Conclusion

Through its LAS, the Center was successful in gathering vital information to identify where Indigenous innovations are happening, what those innovations are, how they are perpetuated and practiced, and better understand their potential for positive health impacts in NHPI communities. Survey respondents presented an evident vision of holistic health and overwhelmingly agreed that advancing health equity in their communities depends on the health of three key areas - individual, communal, and environmental. Respondents also acknowledge that these areas are interconnected and co-constituted, influenced by social organization, cultural integrity, ecological health, access to land and water-based sites, and other systemic factors. For respondents, the practice and maintenance of Indigenous innovations serve as the mechanism to improve health within their communities. Thus, Indigenous innovations (e.g., traditional foods or farming) extricated from their context and holistic relationships lose their efficacy, meaning, and potential health impacts. Instead, Indigenous innovations embedded in context are realized as part of an entire lifestyle and worldview, consistent with medical anthropological research on the notion of the “healthy ancestor.”⁴ Indigenous innovations highlighted in the LAS were primarily land-based (65.3%) and water/ocean-based (22.4%), with respondents providing examples related to cultural epistemologies, Indigenous ways of governing, traditional foods, and traditional healing. Respondents also noted that these Indigenous innovations are interrelated (e.g., land-based activities directly or indirectly impact water/ocean-based activities) and demonstrate a reciprocal relationship between practice, their environment, and the community. An example of this is seen in the traditional ahupua‘a system of Native Hawaiians, where carefully managed resources, production, and division of labor and skills were interconnected with their appropriate environmental setting. As such, the contemporary movement of holistically and comprehensively restoring and expanding Indigenous innovations, as seen through LAS responses, demonstrates an organic move to restore Indigenous innovations in modern-day life. This is best summarized by a LAS respondent who wrote, “*when the land breathes, we breathe. When it is abundant, we are abundant. When the land is devoid of native life, the people are ill.*”

While the LAS identified the types, locations, and barriers of Indigenous innovations, the most significant opportunity for the Center to investigate moving forward is better understanding the

⁴ McMullin, J. (2010). *The Healthy Ancestor: Embodied Inequality and the Revitalization of Native Hawaiian Health*. Routledge: Oxfordshire, UK.

barriers to growing Indigenous innovations practices. Responses on barriers highlighted LAS participants' need for funding, education, and training; greater public awareness, research, and access to land resources, all indicating an embattled and often neglected sector. These barriers also vary between Native Hawaiian and Pacific Islander communities (e.g., access to land is a greater barrier for respondents in a non-USAPI area, compared to respondents in the USAPIs) providing an opportunity for the Center to further investigate moving forward.

Returning to the Center's original premise, which posits that there is no intervention so effective in reducing health disparities and achieving health equity as the restoration of ancestral practices in Indigenous communities, CIIHE's LAS has further expanded existing bodies of work related to community organizations engaged in research and evaluation of their ancestral practices. Data collected from the Center's LAS was instrumental in developing the next steps to CIIHE's work in the upcoming year and helped to promote the Center's mission to advance Indigenous innovations through research initiatives, policy strategies, and economic development initiatives to be co-produced alongside NHPI communities to advance health equity.

Full Report

I. Background

Overview: Center for Indigenous Innovation and Health Equity

The Center for Indigenous Innovation and Health Equity (CIIHE or “the Center”) was established through the United States (U.S.) Department of Health and Human Services (HHS) Office of Minority Health (OMH) to advance Indigenous innovation to improve health equity for Native Americans, Alaska Natives, Native Hawaiians, and Pacific Islanders. The University of Hawai‘i (UH) CIIHE focuses on Native Hawaiian and Pacific Islander (NHPI) communities, and its partner arm of the national CIIHE initiative is housed at Oklahoma State University and focuses on American Indian and Alaska Native populations.

CIIHE posits that there is no intervention so effective in reducing health disparities and achieving health equity as the restoration of ancestral practices in Indigenous communities. The overarching goal of the UH Center is to advance community-centered ancestral and cultural practices as the intervention to improve holistic health for NHPI populations through research initiatives, policy strategies, and economic development initiatives that are all co-produced with community.

CIIHE defines “Indigenous innovation” as the restoration of ancestral and cultural practices to solve contemporary problems. While Western epistemologies position Indigenous knowledge and practices as “culture,” the Center contends that they are ancestral sciences and technologies, honed over centuries of observation and inquiry, calibrated for integrated biosystems management. Through changes in research, policy, and funding, the Center aims to expand support for Indigenous practices, such as traditional farming practices and revitalizing Native language, that have proven and emerging positive health impacts. Elders and community-based and land-based cultural practitioners are the keepers who perpetuate these practices and knowledge.

Core Staff

CIIHE’s Principal Investigators are Kamuela Enos, MA, Director of Indigenous Knowledge and Innovation for the UH System, and Aimee Malia Grace, MD, MPH, FAAP, Director of Strategic Health Initiatives for the UH System.

The Center’s Core Staff is made up of a team of highly qualified individuals who work alongside the Principal Investigators (PIs) to design and facilitate the Center’s activities within the community. CIIHE’s Core Staff include a ‘Āina Based Organizations Liaison, Data and Policy Analysts, and a Project Administrator.

- **‘Āina Based Organizations Liaison** - Serves as the primary contact for ‘āina-based (land/place-based) organizations and networks working with the Center. The ‘Āina Based Organizations Liaison also creates and maintains relationships with partner organizations as well as the co-producing research activities as well as providing support for the dissemination of project findings and community capacity-building to advance

indigenous innovation in NHPI communities. Ikaika Ramones, MPhil., CAGS presently serves in this role.

- **Data and Policy Analysts (DAPAs)** - Support research activities in close partnership with core network partners and community partners for the Center. Coordinated the logistics Landscape Analysis Survey (LAS or survey) with respondents, managing survey distribution, organizing data collection, and co-writing publications and reports. The DAPAs also provide support for the PIs with dissemination of research findings to increase community capacity-building and to publish results with a broader national audience. Johnny Tudela Aldan, MPH and Sharde Mersberg Freitas, JD, MPH presently serve in these roles.
- **Project Administrator** - Provides oversight of the Center and manages all project components with the leadership team. Works regularly with the PIs to coordinate project activities and meet overall project needs to ensure that the Center meets its goals, objectives, and outcomes. Assists with scheduling meetings; recording and distributing meeting notes; ensuring that materials are available for community meetings, site visits, and community workshops; coordinating with the Principal Investigators, Co-Investigators, project staff, core network partners, and other community partners; and other duties as assigned. Shanda Shamela Delos Reyes presently serves in this role.

Key Partnerships

Partnering with NHPI communities has required a mechanism to ensure that any of the Center's activities was not extractive, superfluous to their interests, or contravened Indigenous ethics and protocol. The Center took steps to establish partnerships with organizations experienced in working with NHPI communities. These organizations make up CIIHE's Core Partners, who are based on the islands of O'ahu and Hawai'i Island. CIIHE's Core Partners include Ho'oulu 'Āina (a biocultural reserve affiliated with the Kōkua Kalihi Valley health clinic, located on O'ahu in the ahupua'a of Kalihi), MA'O Organic Farms (a social enterprise project that works on youth and community empowerment, located on O'ahu in the ahupua'a of Wai'anae), the Hau'oli Mau Loa Foundation (a philanthropic organization that supports place-based Indigenous programming, especially for children, located on O'ahu in the ahupua'a of Honolulu); the Edith Kanaka'ole Foundation (EKF; a center for the perpetuation and expansion of place-based Native Hawaiian thought, located on Hawai'i Island in the ahupua'a of Hilo); Chaminade University of Honolulu (a private Catholic Marianist university, located on O'ahu in ahupua'a of Waikiki); and faculty from the University of Hawai'i's John A. Burns School of Medicine (located on O'ahu, in the ahupua'a of Honolulu), all of whom are subject matter experts who have years of experience in 'āina-based practices and supporting 'āina-based work.

In addition to the subject matter experts that constitute the Center's Core Partners, CIIHE has leveraged other large-scale 'āina-based networks, the Center's "Network Partners," to expand CIIHE's outreach. These network partners have existing relationships with 'āina-based organizations, and a demonstrated commitment towards investing in their growth. They are the Consuelo Zobel Alger Foundation or Consuelo Foundation (a private, U.S.-based foundation that works for the prevention and treatment of abuse, neglect, and exploitation of children, women, and their families in the Philippines and across the Pacific), the Harold K.L. Castle Foundation (a Hawai'i-based foundation supporting education, health care, youth programs, focused on

strengthening East O‘ahu communities), Hawai‘i Medical Service Association (HMSA) Foundation (associated with Hawai‘i Medical Service Association (HMSA), a nonprofit health insurer and the largest provider of healthcare coverage in the state of Hawai‘i), Hau‘oli Mau Loa Foundation, Hawai‘i People’s Fund (a Hawai‘i-based grantmaking organization that provides financial support and technical assistance to grassroots community movements), and Kua‘āina Ulu ‘Auamo (KUA) (a community-based initiative for addressing environmental degradation in Hawai‘i by advancing community-based natural resource management).

Indigenous Frameworks

The following frameworks are foundational to the Center’s accountability, and are described further below: Pewa Framework, and the ‘Aelike (consensus agreement), which is formed through kapu (sacred restrictions) and kānāwai (bylaws).

The framing principle for CIIHE’s work is called the Pewa Framework, intended to ensure equity, transparency, and reciprocity. A “pewa” is a wedge pattern used in traditional Hawaiian woodwork to prevent splitting and patch holes. It has become a symbol of healing in Native Hawaiian communities of practice. The Pewa framework encompasses an acknowledgement of histories of dispossession to affirm the value of what was lost in Indigenous communities; a willingness to build interventions to address systemic inequities; and operating in an honest and transparent way. This framework laid the foundation for how the Center would approach enacting systemic changes when engaging in research with communities, and further develop its ‘Aelike.

The Center subsequently went through a Papakū Makawalu⁵ in a Honuaiākea⁶ process. This process was led by the Edith Kanaka‘ole Foundation (EKF), a non-profit organization with an unbroken lineage to key ancestral chants and stories, committed to perpetuating and normalizing forms of Native Hawaiian knowledge, consciousness, and science. Participants, consisting of CIIHE’s Core Partners, staff, both Indigenous and non-Indigenous, gathered at Ho‘oulu ‘Āina for a two-day workshop. Under the guidance of EKF’s Dr. Huihui Kanahele-Mossman, Luka Kanaka‘ole, and Kuha‘o Zane, the group held discussions, and came to a consensus to elect kapu, that were drawn from the selected texts.

In the following months, the Center dedicated time to further building up the ‘Aelike. During bi-weekly meetings, EKF again established a series of Kānāwai Workshops to guide the group through integrating an Indigenous framework and setting kānāwai to adhere to, thus maintaining the ‘Aelike consensus agreement process established (Kanahele-Mossman & Karides, 2021). During the workshops, group consensus on sacred restrictions and laws was seamless and branched out to reveal other areas and ways that they might be useful. The expertise and experience of CIIHE’s Core Partners came to the fore, as they provided significant insight and guidance to cultural principles throughout the texts and process. Model A illustrates this process.

⁵ Papakū Makawalu is a Native Hawaiian ancestral epistemology and worldview that understands, engages, and builds expertise regarding systems of the natural world.

⁶ Honuaiākea is a facilitated group discussion using ancestral texts to interpret and interact with natural processes. Through group discussion and consensus, kapu [sacred restrictions] and supporting kānāwai [laws] emerged directly from the texts.

Model A. *Honua-i-ākea* process to select CIIHE's *kapu* and *kānāwai*



During this process and beyond, we emphasize that the ancestral chants and stories are not folklore or mythology. Although they are fundamentally spiritual, they are ancestral science based on generations of observation, with that data then encoded in these chants and stories (Kanahele-Mossman & Karides, 2021). As a result of the process, the Center and community partners created a set of five kapu and nine kānāwai to maintain those restrictions. These laws and restrictions guide and inform CIIHE's work while also providing a mechanism for ongoing accountability. For the complete collection of kapu and kānāwai defined for the Center see Appendix A.

Introduction to Landscape Analysis Survey

After dedicating time to building this foundation and mutual agreements amongst staff and partners, the Center moved on to executing its LAS. The purpose of the LAS was to get a sense of where and what kinds of Indigenous innovations with the potential for health equity are occurring, and to gather more information to help determine how to advance these practices. As part of this work, CIIHE hopes to better articulate to policymakers and funders the role that Indigenous innovations play in individual and communal health while continuing to build the field of community-based practice.

II. Methodology

Building from the Pewa Framework, CIIHE ensured compliance with ethical rules and standards as put forth by the Institutional Review Board (IRB). The UH System's Office of Research Compliance exempted the Landscape Analysis protocol as Not Human Subjects Research on November 19, 2021 (IRB Protocol ID: 2021-00836). The following sections further describe our

survey development and co-design process, participant recruitment, data collection, analysis, and synthesis.

A. Survey Tool

The LAS was an online survey tool co-developed and refined with the CIIHE team and CIIHE's Core and Network Partners. The LAS was comprised of six sections that asked respondents twenty-four questions (Appendix B) that highlighted the following:

- Organizational information;
- Concepts of holistic health at the individual level and the community level;
- Examples of Indigenous innovations with potential for positive health impact, awareness of publications on Indigenous innovations, existing data collection efforts and their utilization;
- Existing barriers to growing or expanding their Indigenous innovation within their community; suggestions for addressing these barriers;
- Information on past or current research projects, past or current researcher partners, respondents interest in a research partner; and
- Recommendations for CIIHE to contact other Indigenous communities of practice to participate in the survey.

B. Co-Design Process, Participant Recruitment, and Landscape Analysis Workshops

The CIIHE team had initially culled approximately 60 questions that could be covered in the LAS. The Center solicited Core and Network Partners' feedback to refine the LAS to ensure its alignment with CIIHE's 'Aelike. During this process, Core and Network Partners raised a few concerns about CIIHE's initial approach and inclusiveness, which included: (1) the language of the LAS needed to reframe questions appropriate for its intended audience, (2) the design of the LAS needed to be sensitive and aware of previous data collection efforts conducted by federal agencies or educational institutions that were exclusive of Indigenous languages, and (3) the LAS must reflect a comprehensive cultural understanding and awareness in CIIHE's intent to identify Indigenous innovations in community and where they were occurring. The CIIHE Core and Network Partners also acknowledged that the Center must "*Do Indigenous things Indigenously, and do innovative things innovatively*" (Eric Co, Harold K.L. Castle Foundation, CIIHE Network Partner, on April 18, 2022). Additional Core and Network Partners feedback highlighted that many 'āina-based practitioners have limited time and prefer to work collaboratively.

Following this input, the Center then refined and focused the survey from 60 questions to 24 more targeted and appropriate questions. In addition, the Center "translated" questions to be more culturally appropriate and resonant for our target survey respondents, 'āina-based practitioners. The Center also changed the format of the online survey to include a series of workshops, as described below.

With input from Core and Network Partners, the Center shifted its approach from an online survey to a series of two-hour collaborative sessions entitled "Landscape Analysis Workshops." Through these sessions, participants had a space to learn more from CIIHE

leadership about the Center’s work for context. The sessions also allocated time for facilitated completion of the LAS for participants (meaning attendees of the Landscape Analysis Workshops would be provided with the link to the survey questions as well as time to walk through each set of LAS questions and could complete them in real-time, and the CIIHE staff would be available for any technical assistance when necessary).

The Center leveraged its Core and Network Partners to utilize their organizational networks to recruit participants for these workshops. The Center also maintained inclusivity throughout the design of these workshops and participant recruitment by hosting an information session on June 9, 2022, for participants residing in the USAPIs. This information session occurred during a reasonable daytime time zone for each respective USAPI jurisdiction. This session allowed Pacific Islander participants to share their views and voices before the start of CIIHE’s Landscape Analysis Workshops and the data collection period.

The Center finalized dates for three separate, two-hour-long Landscape Analysis Workshops with CIIHE Network Partners serving as co-hosts to facilitate participant recruitment and trust. Co-hosts of the Landscape Analysis Workshops were the Hau‘oli Mau Loa Foundation (workshop co-hosted on June 14, 2022), the Hawai‘i People’s Fund (workshop co-hosted on June 22, 2022), and Kua‘āina Ulu ‘Auamo (KUA) (workshop co-hosted on July 5, 2022). These Network Partners disseminated the invitation to the LAS and workshops to their network of ‘āina-based practitioners. Additionally, the Center’s Community-Based Organizations Liaison was available for the duration of the data collection period to assist LAS participants in filling out the survey after the conclusion of the Landscape Analysis Workshops. LAS links remained available for the duration of the data collection period, allowing LAS participants to finish the survey at their own pace.

C. Data Collection Process

The LAS was deployed utilizing a cloud-based survey service provider to ensure the survey’s accessibility across different locations, including Hawai‘i and the USAPIs, with potential survey respondents originating across three separate time zones. The LAS data collection period was initiated on June 14, 2022, and completed on July 29, 2022. The DAPAs adhered to the UH’s Institutional Data Classification Categories and Information Security Guidelines (EP 2.214) on storing, using, and protecting population survey data. Assistance was made available for those who requested it to assist with entering their responses into the cloud-based survey. For example, our Community-Based Organizations Liaison met with two participants to input their responses.

D. Data Analysis Protocol Development

CIIHE’s approach to analyzing the LAS was an iterative process performed by the Center’s two DAPAs to review data in three distinct cycles as follows:

- Cycle 1: Establish first impressions and early qualitative codes;
- Cycle 2: Collapse these codes to establish preliminary themes; and
- Cycle 3: Further finalize themes with their relationship to NHPI cultures.

CIIHE sought additional guidance from co-Investigators and Core Partners Alika Maunakea, Ph.D., Marjorie “Leimomi” Mala Mau, M.D., Helen Turner, Ph.D., and Puni Jackson regarding the Center’s data analysis and synthesis methodology. The Co-Investigators and Core Partners recommended that CIIHE’s DAPAs pay close attention to any specific data that interests community researchers, cultural practitioners, and community members such as frequencies of words used in open-ended responses, concepts, and frameworks utilized by a respondent’s organization, similarities in organizational mission, readiness to collaborate and conduct research with university partners, priority areas for community-based organizations, and themes related to specific question stems. These types of data have added benefit to potential university-level researchers by reframing their understanding of community and initiating conversations to establish working relationships with Indigenous communities of practice.

E. Data Analysis and Qualitative Coding Cycles

1. Cycle 1 and Bright Spots Map

CIIHE’s LAS raw data was extracted from its cloud-based service provider on July 29, 2022, and stored natively on an encrypted and secured hard drive. CIIHE DAPAs cleaned a copy of this raw dataset to remove empty data fields, survey respondent identifiers, and integrate any duplicate surveys submitted. CIIHE DAPAs utilized the qualitative data analysis computer software NVivo 18 (a qualitative research software developed by QSR International) for code indexing and tracking. This coding process is utilized in qualitative research or assessments to label, organize, and identify early themes and their relationships to each other. CIIHE DAPAs’ codes were established based on the frequency of responses, and based on the purpose of the survey, identified by hand and through automation using NVivo’s auto-code feature. Codes generated were based on answers for each section of the LAS. A data science technique for geospatial analysis was applied to create visualizations that identified “Bright Spots,” or areas where Indigenous innovations were occurring.

a. Honoring the Words and Lands of Survey Respondents

As part of the analysis, the Center dedicated time to honor the words used by the survey respondents. As a general overview, Table 1 sets forth general translations of terms used in the responses received. We acknowledge that there is often a multiplicity of meanings for Native language terminology that are not often captured in the English language. Commonly used Hawaiian terms, such as “āina,” are used as part of CIIHE’s foundational frameworks and in relevant LAS materials. While English translations of Indigenous languages may fall short, we also acknowledge that Hawaiian terminology may have been used by survey respondents because of its use in CIIHE’s survey materials. Table 1 also represents Pacific Islander languages in reference to commonly Native Hawaiian terms found in LAS responses. In relation to Indigenous innovations and positive health outcomes, Native languages have been researched in First Nations and Aboriginal communities to show a positive correlation with preventing youth suicide (Barker et al., 2017). The healing power of Native languages is yet to be fully realized, and CIIHE hopes to support future research initiatives for Native languages as an effective health intervention. Significant differences are noted in

highlighting the variations of responses for those of USAPI and non-USAPI. For the purposes of this report, this distinction is drawn to illustrate the unique characteristics, responses, and qualities of responses received from their respective land base. From a cultural perspective, it is generally more widely accepted to acknowledge the traditional name of the land as called by the native people of that land base.

Table 1. Honoring the Words of Survey Respondents

English	‘Ōlelo Hawai‘i (Hawaiian)	Pacific Islander Languages (CHamoru or Chamorro, *Samoan, Marshallese, Pohnpeian, Yapese, Kosraean, Palauan, Chuukese)
Land	‘Āina	Tano’, Fanua, Āne, <u>Sahpw Sarawi</u> , Danoop, Acn Kosrae, Dechel, Fonu
Ocean	Kai	Tāsi, Vasa, Lojet, Nansed, Ma Dai/Dai, Meoha, Chei, Sáát
Elders, grandparents	Kūpuna	Manāmko’, Tināmatua, Tamāmatua, Būbū/Jimjima, Mah, Tutuw/Titaw, Kusaiean, Rubak, Saam/iin
Responsibility, right	Kuleana	Tāreha, <u>Tiutetauave</u> , Bōk eddo, Pwukepe/Inen, Milfaan, Kon, Ngerachel

Bold outline: terminology used in survey responses.

* = Thank you to Sharde Freitas’ uncle, Kennedy Afoa, for helping with these translations.

2. Cycle 2 and Preliminary Themes

Preliminary themes from Cycle 1 represented participants’ characterization or voice in response to the LAS questions and sections. CIIHE DAPAs determined which answers were relevant for the purpose and intent of the LAS. These themes were first established independently by each CIIHE DAPA, utilizing codes generated from the frequency of participant responses completed by hand and using NVivo’s auto-code features in Cycle 1. These individual findings were then collaboratively integrated by CIIHE DAPAs.

The CIIHE team, in partnership with the Center’s Core Partners and with close mentorship by Dr. Mau, was eager to present these preliminary themes to LAS respondents at a Respondent Validation Session (RVS). Also referred to as a “Member Check” or a “Community Report Back”, as seen in NHPI and other ethnic minority communities (Birt et al., 2016), the RVS process is commonly used in qualitative research or assessments to provide the study respondents with an opportunity to review the Center’s preliminary themes and address any validity or accuracy concerns about their data.

Held on November 30, 2022, CIIHE’s RVS had 18% of the original LAS participants in attendance. The session showcased preliminary themes and other data, providing LAS respondents in attendance the opportunity to provide feedback on interpretation and representation of their data, as well as recommend any necessary changes. The RVS also aimed to further engage LAS respondents with the Center’s “Indigenous Innovation” nomenclature and deeper empowerment-centered strategy through a “talk story” format (recorded and later transcribed), allowing participants to discuss

CIIHE’s findings openly and freely. Feedback and comments submitted via the chat feature during the virtual RVS were also incorporated into this final LAS Report and the community dissemination workshops.

3. Cycle 3 and Respondent Validation Session (RVS)

A CIIHE DAPA reviewed the RVS transcript to identify positive and negative comments and concerns regarding the interpretation of the LAS data and to document any new data provided by RVS participants. The feedback from respondents was later integrated into the final themes. During the RVS, the Center utilized guiding questions to elicit feedback from RVS attendees after each section of the LAS was discussed in detail. This helped to garner verbal and in the chat feedback. These questions included the following:

- Did we [CIIHE team] get it right?
- What are we missing?
- Anything to emphasize or add?
- For the quotes used in this presentation, would you or your organization like to be credited in our final report?

III. Landscape Analysis Survey Results

The LAS provided an opportunity for the Center to collect both quantitative and qualitative data from participants throughout the survey’s six sections. For Chapter Three of this report, data will be represented utilizing respondents’ open-ended free-text responses that were provided in their survey and notated with quotation marks as well as italics. If a name is provided for a respondent, that respondent provided approval for self-identification to a member of our CIIHE team after the survey. This report also includes figures and tables to visually represent the LAS findings. Lastly, this report uses “they” and “their” to be gender-neutral in representing survey participants.

A. LAS Section One: Organizational Information

1. Survey Access and Bright Spot Maps

The LAS was opened and accessed by 75 individuals, of which 49 submitted a survey during the data collection period. Of the 49 that completed and submitted a survey, 32 (65%) survey respondents were from non-USAPI areas, including Hawai‘i (on the islands of O‘ahu, Hawai‘i [Big Island], Maui, Kaua‘i, Lāna‘i, and Moloka‘i) and the State of Oregon. The remaining 17 (35%) survey respondents were from a USAPI jurisdiction of either Guåhan, the Commonwealth of the Northern Mariana Islands (CNMI), or the Republic of the Marshall Islands (RMI) (Table 2). Bright spot maps were created to highlight the location of LAS participants and visually illustrate the locations where Indigenous innovations are occurring, while preserving anonymity. Bright Spot maps were created for the Hawaiian Islands (Appendix C) and the Mariana Islands (Appendix D), with many LAS respondents originating from these regions. Bright spots in areas with less than ten LAS participants were suppressed for assurance of confidentiality. As such, LAS participants from the RMI and the State of Oregon remain solely identified at the country and state level, respectively.

Table 2. Survey Respondent Breakdown

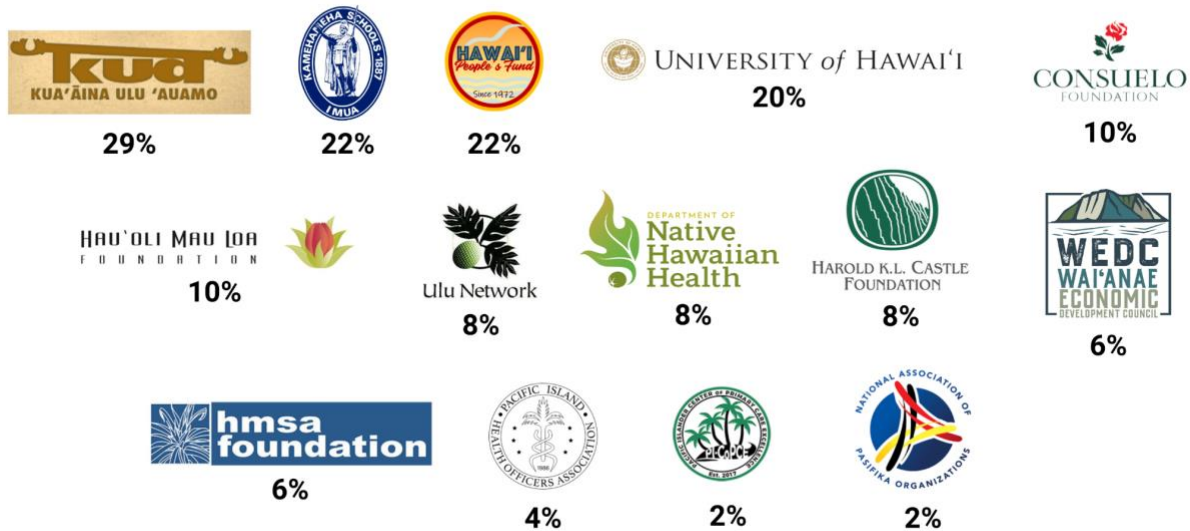
By Organization	Percentage
Non-USAPI	65%
*USAPI	35%
Total	100%
Location of community-based organizations participating in CIIHE’s landscape analysis	
Hawai‘i	
Northern Mariana Islands	
Guåhan (Guam)	
Republic of the Marshall Islands	
Oregon	

*CBO = community-based organization
 *USAPI = United States Affiliated Pacific Island

2. Organizational Affiliation

LAS participants were affiliated with 46 different organizations, which (non-exclusively) represented a variety of community-based organizations (73%), health or health care organizations (12%), and a network of organizations (16%). Sixty-one percent (non-exclusively) of LAS respondents shared that their work involved both NHPI communities, while another 22% only worked with Pacific Islander communities, and 4.1% only worked with Native Hawaiian communities. Additionally, LAS participants were asked about their organization affiliations and were provided options on the LAS to “check all that apply” (see Model B). Organizational affiliations can include funding, peer networks, capacity-building, partnerships, etc. The breakdown of these organizational affiliations is as follows: 29% were affiliated with KUA, 22% with Kamehameha Schools, 22% with the Hawai‘i People’s Fund, 20% with the University of Hawai‘i, 10% with Consuelo Foundation, 10% with Hau‘oli Mau Loa Foundation, 8.2% with Ulu Network/John A. Burns School of Medicine’s Department of Native Hawaiian Health, 8.2% with Harold K.L. Castle Foundation; 6.1% with Wai‘anae Community Redevelopment Corporation, 6.1% with the Hawai‘i Medical Service Association Foundation, 4% with Pacific Islands Health Officers Association, 2.0% with the Pacific Islander Center of Primary Care Excellence, and 2.0% with National Association of Pasifika Organizations.

Model B. Organizational Affiliations



Data Note: Data on affiliations are based on responses that asked respondents "Please check all that apply."

B. LAS Section Two: Concepts of Holistic Health

1. Section Two Survey Questions

For Section Two of the LAS, entitled "Concepts of Holistic Health," participants were asked the following questions:

- **Question 12 (Q12)** - *How do you define holistic health on the individual level?*
- **Question 13 (Q13)** - *How do you define holistic health for your community?*
- **Question 14 (Q14)** - *Do you feel that the health of the land and environment is connected with the health of people in your community? If so, please explain.*

2. Concepts of Holistic Health - Individual Level (Q12)

Q12, regarding holistic health on the individual level, received an 85.7% response rate on the LAS. Based on the frequency of responses using codes created, CIIHE DAPAs established five themes that described survey responses received for this question.

- Theme 1: Correlating the health and well-being of individuals to the health and well-being of surroundings.** Survey respondents wrote and described a correlation between an individual's health and their surroundings. These responses emphasized the importance of elements such as the land, the ocean, and an individual's connection to them. A response from a LAS participant residing in Hawai'i described this as:

"Being in harmony with the land, kai [sea], and air. It considers all aspects of the individual, including physical, mental, emotional, social,

intellectual, and spiritual. Promoting lifestyle and health care changes reflecting our ancestral models of self-care, including connection to place.” - Rae Decoito, Mālama Loko Ea Foundation - O‘ahu, Hawai‘i

Another respondent wrote about correlating health and well-being as:

“Being directly connected to the ‘āina and feeling a bond between the health of the land and the health of one’s body.” - Zoe Kosmas, Māla‘ai - Hawai‘i Island, Hawai‘i

- b. Theme 2: Foundational to one’s identity, including cultural values, is their deep connection to ‘āina, kai [sea], genealogy, kuleana⁷, and aloha⁸. Restoring ancestral models of care and the importance of intergenerational transference of knowledge.** Respondents wrote about culture being foundational to one’s identity, including cultural values with deep connections. Respondents emphasized that these values are their “ancestral lineage” of cultural knowledge passed down from one generation to the next. This was described by a respondent in Hawai‘i who wrote about their observation of current organizational board members working as farmers alongside youth, stating:

“Most of us are related in our community; many of our board [members] are farmers. They are raising their families the way they and their grandparents were raised. One kāne⁹ [on our board] experienced having all the water, losing the water, and the water returning. For some, everybody could have fun doing fun activities, and his kuleana was the lo‘i from 5 years old. For me, when I see that, it’s not what someone would think of as a healthy community, but when he’s taught that from his kupuna and passing it down, that’s health to me. All [of] his kids are right there learning, and that’s health. We’re also opening up new taro fields. During COVID, we lost some kalo farmers, so getting the younger generation excited and involved again. Now that I’m so actively involved... it’s very humbling and getting back into nature. Not so materialistic. A bowl of poi on the table of every home like when we were kids, that’s our work.”

Another example that represents the integral connection between an individual and their environment was described by a respondent from Hawai‘i who wrote about culture as a critical component to individual identity and their health as follows:

“It must contain cultural values and components for it to be relevant to the individual. The story of Hāloa tells us that when we care for the land, the land cares for us. We believe a connection to the land is integral for individual health. A strong community is also integral to the health of the individual. Once a person feels supported and uplifted by their community,

⁷ Kuleana indicates obligation, responsibility, and right, placing oneself in a web of relationships with others.

⁸ Aloha is the practice of love, veneration, and respect

⁹ Male, husband, male sweetheart, man

that is empowering.” - Kekaiokalani Naone, Uluhāhāloa - Hawai‘i Island, Hawai‘i

- c. **Theme 3: Recognizing individual holistic health to include an integration and balance of mind, body, and spirit. These harmonious components were also acknowledged as the physical, emotional, spiritual, and environmental dimensions of an individual’s health.** LAS respondents wrote about understanding and integrating balance into an individual’s health along different dimensions – the physical, emotional, spiritual, and one’s environment – all playing significant roles in one’s health and the health of the larger community. This was summarized by a respondent as:

“The spectrum of satisfaction and happiness derived from social, emotional, physical, interpersonal, intrapersonal, financial, occupational, intellectual, environmental, spiritual, and cultural health. Furthermore, a respondent described this balance being ‘directly connected’ to one’s relationship with the environment, land, ocean, people, and spirit, and that achieving this balance is crucial not only to the individual but to the larger community.”

- d. **Theme 4: Connection to self-acknowledging the significance of one’s identity, the relationality of the individual to the community, and the importance of belonging.** Respondents wrote about the significance of the connection between an individual and their broader community. A respondent explained this as:

“Tuning in and understanding what is best for yourself physically, emotionally, spiritually, and mentally and taking into consideration the impacts on the community/land around you. Making space and time for play, connection to others, opportunities to volunteer and serve, access to land and fresh foods, and cultivating a connection to something greater than yourself.”

- e. **Theme 5: Community is the binding force that brings together individuals, and provides critical social, ecological, and other resources that are integral to the health of an individual.** Respondents wrote about the importance of community and its critical role in access to resources that influence health. A LAS participant in Hawai‘i described this critical role in community as:

“...having access to support and resources that meets basic needs, to the extent that individuals grow, thrive and connect with their community and ‘āina.” - Sandy Ward, Hui o Ho‘ohonua - O‘ahu, Hawai‘i

Furthermore, these such resources can also come a spiritual sense of belonging, with another respondent from Hawai‘i describing this as:

“...it’s spiritual, wisdom from the Bible, and using what comes from natural resources to bring healing and strengthening that could come from anyone regardless of age.” - Rachele Nam, Kūkulu Kumuhana O Anahola - Kaua‘i, Hawai‘i

A respondent from the RMI highlighted this spiritual connection, stating, *“holistic health looks at and promotes a status of well-being that results from the integrative caring of the mind, the body, the emotions, and the spirituality.”* Additionally, another respondent in the CNMI wrote about community creating a sense of *“belonging [and] fulfillment”* when community is created amongst individuals.

3. Concepts of Holistic Health - Community Level (Q13)

Q13, regarding holistic health on the community level, received an 85.7% response rate on the LAS. This question focused on respondents’ definition of holistic health on the community level. A respondent defined holistic health on the community level as the *“overall community involvement in unifying together to improve holistic health on an individual basis.”* Five themes were also generated for Q13 and are based on the frequency of responses using codes created.

- a. ***Theme 1: Access and engagement to practice land-based Indigenous innovations for the health of the ‘āina and kai reciprocates abundant resources that improve holistic health across Indigenous communities.*** Respondents wrote about equitable access to land, clean water, and a healthy-built environment being vital to the community’s health. A respondent noted in their response that for the community, holistic health requires *“reconnecting the community to the fact that all aspects of health and wellness are directly connected to our environment and our relationship with the land.”* Another respondent in Hawai‘i describe holistic health and access to resources in a community as:

“I believe holistic health in a community sense means that resources that support mind, body, and spiritual health are offered to all. Healthcare and places in ‘āina should be available to our communities to enjoy and practice. I really believe that healthier communities are ones that offer a lot of community support programs. The more cultural practices that our people can participate in the better for their collective holistic health.”

- b. ***Theme 2: Active engagement in Indigenous innovations and deep connection to ‘āina, kai, history, legacy, kuleana, and aloha.*** Respondents wrote about how engagement encompasses working together to sustain and move forward together positively in all ways. This engagement involves acts of *“reciprocity”* that improve the health of our community. A respondent from Hawai‘i stated this as:

“The health of a community is measured by the health of their environment and one’s engagement and participation in the health of that environment.”

This engagement was described by another respondent from Hawai‘i as:

“‘āina momona: abundant and healthy ecological systems...that contribute to community well-being.” - Kevin Chang, Kua‘aina Ulu Auamo (KUA) - O‘ahu, Hawai‘i

Another example of active engagement in the community and growing pilina¹⁰ [relationship or connection] with community members was emphasized by a respondent of Guåhan as:

“Before the last two generations, after a typhoon swept through the island, the entire village participated in rebuilding homes. Families grew crops and raised animals for survival. Noncommunicable diseases, controlled substances (abuse), and homelessness were unheard of - Our health is dependent on the access to the land and community our ancestors once cultivated for survival. Holistic health requires the revitalization of the wisdom and traditions that kept the CHamoru people alive for generations.”

- c. ***Theme 3: Disconnection and displacement of Indigenous communities from ancestral lands, their systems of health, and Indigenous knowledge have led to systems of dependency and sickness.*** Respondents described the communities’ disconnection to their cultural past. A respondent from Guåhan emphasized this as:

“...need to reconnect our people to who we are. Decolonization is imperative. Revitalizing our language and traditional practices that sustained our people for over 4000 years is critical.”

Another respondent, also from Guåhan, wrote that this disconnection has led to “noncommunicable diseases, controlled substances [abuse], and homelessness [that were] unheard of [and that the health of our community is] dependent on the access to the land and community our ancestors once cultivated for survival.”

- d. ***Theme 4: Efficient and accessible institutions of government, education, healthcare, economy, and infrastructure that align with well-being and environment to best sustain the health of our communities.*** Respondents wrote about how mitigating the “impacts of disconnection and displacement” requires access to “efficient institutions” capable of addressing change in collaboration with the community. These responses highlighted the proper management of natural resources, “place and heritage-based curriculum” in schools, and increased employment opportunities for the community centered around circular and sustainable economic development. The impact of disconnection and displacement is evident in what a respondent described as:

“...the lack of locally grown fruits and vegetables, the cost of imported fruits and vegetables and their correlation with diet, nutrition, and lifestyle diseases. Also, the toxicity of the land and water is still shown to affect our maternal and child health.”

Another respondent wrote about how addressing health and environment-related issues requires “a shift of mindset that turns into a shift of actions that puts a farmer and what he does as a priority and that having land to grow these foods is

¹⁰ Partnership, relationship, or connection

critical to this generation and all future generations.” A respondent from Hawai‘i emphasized that returning to Indigenous knowledge to address health concerns of the community is necessary and that there is actual “value in the ancient knowledge that some of us here in Hawaii are fortunate to have learned and experienced as we grew up here. I realized how valuable understanding the land is when there is nothing else but land. I feel choosing to mālama ‘āina is going to be something from the past that will save our futures.” A respondent summarized efficiency and accessibility as “being consistent in the way you provide for the needs of your community.”

- e. ***Theme 5: The connection of self to a community that recognizes the community health is the sum of its individual community members, community of its people and natural resources, individual contributions to protect vital resources, and providing security and sustenance for future generations.*** Respondents wrote about the community’s health being dependent on community contributions and relationships. A respondent summarized this as community’s “*connectedness at all levels of society, where no one feels stigmatized, left out, ignored, and there is a sense of belonging, safety, and inclusivity.*”

Responses also emphasized this connectedness as being essential, which one respondent described as “*there is no me without the we.*” Another respondent further emphasized this connectedness in community and their contributions to protect vital resources as:

“...general well-being for all who are a part of that community. This would include indigenous humans, plants and animals, residents, aina, wahi pana, archeological, historical, and cultural sites, businesses, and visitors. It means we can all exist while maintaining balance. We can work together to sustain and move forward together positively in all ways.”

Furthermore, a respondent emphasized that with improved connectedness, the community can grow and expand by stating:

“...access to healthy lands, waters, food systems that allow ‘ohana¹¹ to connect and thrive - and provide for their most vulnerable members.”

4. Concepts of Holistic Health - Land, Environment, and Health

Q14, regarding holistic health related to the land, environment, and health, received an 89.7% response rate on the LAS. Based on the frequency of responses using codes created, CIIHE DAPAs established five additional themes that described survey responses received for this question.

- a. ***Theme 1: Equating “Indigenous-based” with “land-based” acknowledges the reciprocal nature of the health of the land and its people. There is a direct correlation between land and its people that leads to healthy and productive lifestyles.*** Respondents wrote about how Indigenous-based and land-based

¹¹ family

innovations illustrate a system of reciprocity between the community and the environment. A respondent stated this as:

“Show me healthy ‘āina, and we will find healthy people. Show me healthy people, and you find healthy ‘āina.”

Respondents also wrote about when insufficient attention is given to the environment, the community’s ability to be productive and healthy can be severely impacted. A respondent from Hawai‘i noted this in their response, stating:

“I agree 100%. The health of ‘āina is inextricably linked to the well-being of kanaka¹² Hawai‘i. When we see land being desecrated and developed upon, it causes trauma, anxiety, stress, and even depression. When you look at the kia‘i [protectors] of Mauna Kea that time was extremely euphoric for those present to know that collectively we have power...When the ‘āina is not only protected but thriving there is a positivity that will outpour from those directly affected into surrounding communities and that flow will continue.”

Another respondent described the link of community to land and the practice of reciprocity, indicating that *“when the land breathes, we breathe. When it is abundant, we are abundant. When the land is devoid of native life, the people are ill.”* Furthermore, respondents also made direct ties of the environment to their social systems, a respondent emphasized this as:

“The land and sea provide so much for Pacific Islander communities and is so interwoven to their families, clans, and societal systems that it is an important determinant of health.”

Respondents also acknowledged that when community practices reciprocity appropriately and effectively, the community and the individual people reap the benefits for years to come. A response highlighted this as the community having:

“...the ability of the ‘āina to provide mea‘ai [food] and hana lau lima [cooperative work] between ‘ohana is directly related to kuleana land ownership¹³ and how well the community uses the land where they live. To be able to do this land to grow food or products for financial benefit is necessary. ‘Ohana working together on their land promotes bonding between generations. To be able to gather laau [medicines] or hau for the ama¹⁴ or kukui bark for dye or to hunt for mea‘ai are all important issues that keep the hoa‘aina [stewards] of a place connected and shows their use of the ‘āina to deter inappropriate development.”

¹² Native Hawaiian

¹³ In 1850, after land privatization, the Kuleana Act purportedly allowed families to apply for land title ownership after demonstrating that they had worked the land and developed long-term relationships with it.

¹⁴ Hau is a plant that is gathered, wound into cordage, and used to fasten the outrigger float [ama] to canoes

- b. **Theme 2: Promoting and cultivating healthy ‘āina and kai requires actionable steps co-designed and reinforced amongst community leaders and elected officials.** Respondents wrote about promoting and cultivating pilina with community and government leaders, creating shared values to make a systems-level impact. A respondent noted this in their response as:

“Until we re-focus our well-being back to our values and beliefs in harmony with our environment, we will continue to struggle.”

Another respondent wrote that *“the health of the environment can only be connected to the community if they are actively informed of the health and treatment needed.”* The same respondent further emphasized a need for actionable steps, similar to an individual taking action to improve their individual health, which was stated as:

“Just as your own body, we can choose to ignore the ailments and hope it fixes itself, or we can seek out and actively participate in the restoration and active management of a healthy body and environment.”

Furthermore, another respondent also wrote about how extractive or exploitive mindsets or practices amongst leaders also impact the land and communities. They summarized this as:

“When our leaders take from the land with no concern for sustainability, you will look at the land as something to exploit. Your people will take that mindset and apply it in a microcosm.”

- c. **Theme 3: Identifying the role of removal and displacement of our people from our lands acknowledges the historical and modern-day injustices that resulted in losing our traditional lifestyles, values, and decline in health.** Respondents wrote about how historical injustices continue to perpetuate throughout their communities. These responses focused on modern-day injustices represented as the continued loss of ancestral knowledge, loss of traditional practices, and limited community interest in Indigenous innovations and techniques. A respondent living in the CNMI emphasized this as:

“...historical trauma of colonialism and war. I believe these traumas have greatly affected our environment, but also Indigenous knowledge, teaching, and practices, ultimately impacting the health of Northern Mariana Islands¹⁵ residents.”

Another respondent from Hawai‘i equated this historical trauma as *“colonized systems of dependency and sickness,”* stating:

“Absolutely. Indigenous people who have experienced displacement from our lands have suffered from losing our traditional lifestyles and values as

¹⁵ All islands north of Guåhan (Guam)

they are transformed into colonized systems of dependency and sickness, that keep us disempowered and struggling.”

A respondent from Guåhan wrote in their response that their community’s displacement and lack of access to land are directly related to the activities of the U.S. military, stating:

“The health of the land and environment is directly connected to the health of the people in my community. The US military continues to contaminate many areas in the Marianas,¹⁶ and the people are suffering to this day. A majority of CHamoru land was seized by eminent domain. A majority of the community no longer has access to ancestral lands that once sustained them. I believe that this directly correlates with the decline of holistic health in my community.”

- d. **Theme 4: Analogizing the relationship between the health of the land and its people as the “breath of the land is life of people.”** Respondents wrote about the relationship between the community’s health and the health of the land, in which a respondent described as, “*O ka hā o ka ‘āina o ke ola o ka po‘e,*” which means, “*the breath of the land is life of people.*” Another respondent further emphasized this as:

“When the land breathes, we breathe. When it is abundant, we are abundant. When the land is devoid of native life, the people are ill.”

A similar response also highlighted that “*without the environment, humans will have nothing.*” Furthermore, respondents also wrote about how extractive and toxic processes that take and do not renew the health of the land have immediate and long-term impacts. This was emphasized as:

“Industrial abuse (i.e., pesticide use, fertilizer use, monoculture cropping) of the land has caused and is causing much environmental degradation. Unequal water distribution is another reason impacting the natural health of our island and community.”

Such toxicity was acknowledged by a respondent living in the RMI, who stated:

“This is evidenced by the lack of locally grown fruits and vegetables, the cost of imported fruits and vegetables, and their correlation with diet, nutrition, and lifestyle diseases. Also, the toxicity of the land and water is still shown to affect our maternal and child health.”

- e. **Theme 5: Highlighting Indigenous Knowledge.** Respondents wrote how Indigenous knowledge can restore the health of the land, its people and address contemporary issues facing communities. This was emphasized in a response that

¹⁶ Collective name for all islands found in the Marianas Archipelago (Guåhan and Commonwealth of the Northern Mariana Islands)

acknowledged “*the land and sea*” being capable of providing “*so much for Pacific Islander communities.*”

A respondent from Hawai‘i emphasized that there is “*real value in the ancient knowledge,*” which can still be accessed and utilized to impact the health of the community and the environment significantly. Another response highlighted that modern conveniences have changed our way of life, but Indigenous knowledge is still applicable in today’s modern context:

“Today’s way of life has changed considerably from our ancestors’ period. The principles remain the same; we still contribute to our community. We can decide and work toward making our community a great place. This approach also meets our needs in taking care of our health.”

C. LAS Section Three: Examples of Indigenous Innovations with Potential for Positive Health Impacts

1. Section Three Survey Questions

Section Three of the LAS included four open-ended, free-text questions (see Appendix B) to better understand these practices and their potential health impacts:

- **Question 15 (Q15)** - *Please share your ideas of Indigenous innovations (restoration of ancestral and cultural practices) that may have potential to improve health. These ideas may be based on your organization’s practices, your personal or professional experiences, or from other sources.*
- **Question 16 (Q16)** - *What potential or realized health impacts do you see from these practices?*
- **Question 17 (Q17)** - *Are you aware of any publications related to the practices you identified? If so, please provide any information you remember (i.e., author/s, title, journal, date).*
- **Question 18 (Q18)** - *Do you collect any data measures or metrics that you find exciting and useful for your community? For example, metrics related to environment, soil quality, number of organization members with certain health conditions, education, poverty, sustainability, community connectedness, perspectives on health, physical health, or community resources.*

2. Indigenous innovations and their potential to improve health (Q15 and Q16)

Q15 and Q16, respectively, asked respondents to share their ideas of Indigenous innovations and provide a response about any potential or realized health impacts. Q15 and Q16 each received an 81.6% response rate. Responses collected varied in focus, detail, and length. These responses included the following:

- Suggestions to improve existing Indigenous-centered programs;
- Descriptions of barriers to their Indigenous work; and
- Acknowledgments from respondents who do not refer to their work as Indigenous innovation.

With response variations contained within Q15 and Q16, CIIHE DAPAs created categories (Table 3) that distinguish these innovations based on their setting or environment of practice. These categories identified innovations into the following categories:

- Land-based;
- Water and/or ocean-based; or
- Innovations focused explicitly on traditional healing practices.

Table 3. Categories of Indigenous Innovations

Land-based	Water/ocean-based	Traditional Healing Practices
<i>Agricultural</i>	<i>Watershed Management</i>	<i>Lā'au lapa'au</i>
<i>Lo'i</i>	<i>Fishpond</i>	<i>'Aipono</i>
<i>Mahi'ai</i>	<i>Ko'a</i>	<i>Mo'olelo</i>
<i>Gardening</i>	<i>Loko i'a</i>	<i>Hula</i>
<i>Farming</i>	<i>Voyaging</i>	<i>Ho'oponopono</i>
<i>Restoration of Sacred Spaces</i>	<i>Outrigger fishing canoes</i>	<i>Lomilomi</i>
	<i>Chamorro Seafaring</i>	<i>Dance</i>
	<i>Traditional fisheries</i>	

Applications of Indigenous innovations

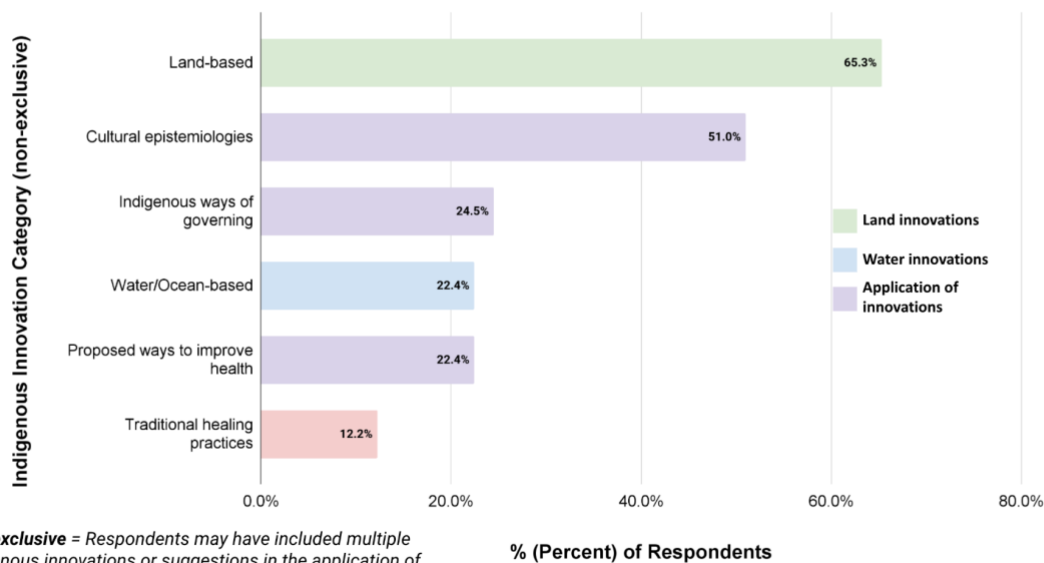
- **Indigenous Ways of Governing**
- **Cultural Epistemologies - worldview and protocol**
 - *Knowing your wahi pana*
 - *Cultural protocol and values*
 - *'Ōlelo Hawai'i*
 - *Diet*
 - *Kilo*
 - *Proposed ways to improve health*
 - *Burial Practices*
- **Proposed ways to incorporate Indigenous innovation to improve health**

The data illustrated in Table 3 were non-exclusive and reflective of single or multiple Indigenous innovations provided by a single respondent. Additionally, part of the responses also included examples of the application of Indigenous innovations, which CIIHE DAPAs determined to be another category within the data set. These applications of Indigenous innovations included:

- Indigenous ways of governing;
- Cultural epistemologies, centered around Indigenous worldviews and protocols; and
- Respondents' proposed ways to improve health.

Figure 1 illustrates the breakdown of these Indigenous innovations by percentages based on their respective category. This report will elaborate more on these categories in the upcoming sections.

Figure 1. Respondents by Category of Indigenous Innovation



Non-exclusive = Respondents may have included multiple Indigenous innovations or suggestions in the application of Indigenous innovations, and therefore may have been accounted for in multiple categories

3. Land-based Indigenous Innovations

LAS responses categorized as land-based Indigenous innovations accounted for 65% of survey responses received for Q15 and Q16 (Figure 1). Examples of land-based Indigenous innovations included in these responses highlighted Indigenous practices involving the Native Hawaiian traditions of lo‘i¹⁷ and mahi‘ai,¹⁸ the applications and benefits of gardening and farming, and the restoration of sacred spaces. A respondent residing in the CNMI wrote that land-based Indigenous innovations and traditional agricultural practices “offer such great healing, both to the land and our people.” Another respondent from Hawai‘i wrote about land-based innovations as the mechanisms of “reconnecting to the ‘āina through growing one’s food [and the means by which the community is] taking care of the ‘āina with their ‘ohana.”

a. Agriculture, traditional farming practices and diet

Respondents wrote about the importance of land-based Indigenous innovations as wholesome practices connected to preserving land-based foods and agricultural traditions. These responses emphasized how land-based Indigenous innovations can contribute to more significant consumption of whole-based foods and promote wider-use of an Indigenous diet. A survey respondent from the CNMI emphasized that Indigenous diets are “guaranteed to improve our general physical health, alongside the rigorous physical activity and spiritual relationship that is nurtured in the process.” Another respondent from Hawai‘i highlighted

¹⁷ Traditional flooded bund agriculture terraces, used to cultivate staple crops such as taro. Lo‘i is not only a Native Hawaiian practice, but also an agricultural practice used across the Pacific in wet and dry varieties.

¹⁸ To cultivate land and produce food.

that “*returning to traditional food sources and cultural perspectives will improve first individual health and pour out into the surrounding communities.*”

Furthermore, respondents emphasized how adopting traditional diets can improve the health of their communities. A participant in the CNMI wrote about improving the health of their community by “*incorporating the traditional diet of breadfruit, all pelagic fishes, and shellfishes that our Chamorro and Refaluwash¹⁹ [Carolinian]...day-to-day would be healthier than what the diet currently consists of high-fat foods [and] minimal vegetables.*” Additionally, respondents emphasized that these land-based Indigenous innovations not only preserve Indigenous foods, but help to improve their community’s food security. As a participant from Guåhan stated:

“*...connecting to the indigenous diet as produced by people on their ancestral lands with food sovereignty...a major component.*”

In responses for Q15 and Q16, respondents also included examples to apply Indigenous innovations related to agriculture and traditional farming practices. A respondent in Hawai‘i wrote about increasing their community’s interest in Indigenous foods and increasing food security through their program called the “*Hāloa Circle.*” This respondent described the Hāloa Circle program as an approach that challenges participants to adopt more traditional foods in their diet, they stated the intent of the as:

“*...to switch modern starches for traditional starches such as kalo [taro], ‘ulu [breadfruit], and ‘uala [Hawaiian sweet potato].*”

Another respondent wrote about utilizing land-based Indigenous innovations to “*establish a cultural food garden/forest to improve food security, resilience and to optimize community health.*” A respondent from Hawai‘i emphasized that these applications within community can facilitate exchange of “*cultural knowledge and practices,*” further supported by another respondent in the CNMI who shared that these innovations would “*engage communities in Indigenous agricultural practices that support environmental stewardship and improve holistic health.*”

b. Lo‘i

Another land-based innovation identified by respondents was the Native Hawaiian tradition of lo‘i. A lo‘i practitioner on the island of O‘ahu, whose organization stewards the largest intact lo‘i on the island, identified lo‘i having the potential to “*increase the spiritual, mental, and physical health of our community.*” Respondents also wrote about lo‘i, as well as other land-based innovations, providing individuals and the community to connect with their “*culture, ‘āina, and kūpuna.*” A respondent expressed that these connections to ‘āina offer individuals a “*sense of fulfillment in their lives’ work by becoming physically stronger from the nature of the work and the foods they eat.*”

¹⁹ a Micronesian ethnic group who originated in Oceania, in the Caroline Islands

c. Restoration of Sacred Spaces

LAS respondents wrote about how the practice of restoring sacred spaces can provide the community with opportunities to participate in unique ways that may be considered restoration. A respondent wrote about how these opportunities are not *“limited to the restoration of native plants and animals, but that this restoration can be considered or viewed as the regeneration of oneself.”* Another respondent highlighted that opportunities to restore ancient and sacred spaces can also help restore connections between leaders and ancestors and create a *“profound sense of being and purpose and provides a pathway for spiritual connection, healthy belonging and mastery, through a cultural lens.”* The realized health impacts of restoring sacred spaces was summarized by a respondent as:

“Decreased anxiety, increased motivation, compassionate and peaceful behaviors exhibited, friendships fostered, relationships strengthened. Increase in habitat for native species [that] leads to their return [medicine plants, food plants, aquatic resources] which, in turn, recalibrates the harmony that industrialized agriculture and economic systems extracted.”

d. Advancing land-based Indigenous Innovations

A respondent described the potential health impacts of land-based Indigenous innovations with a single word, *“multifaceted.”* Another respondent emphasized that the success advancing land-based Indigenous innovations as:

“...reforming of institutions...meticulous planning before being implemented, and data to back up why such drastic changes are necessary and positive.”

The same respondent further emphasized that *“there needs to be a balance between the innovation of modern technology, western science, and Indigenous knowledge that we incorporate to solve problems of the modern era.”*

Another respondent identified this balance as:

“...giving youth a sense of identity and purpose at a young age, giving them the tools identifying and understanding the Indigenous lens through which we see the world, as well as the space to discover, celebrate and expand their gifts, increases the well-being of the community, and allows for the proliferation of ingenuity and creativity, an expansion of more Natives in the professions of research and the arts.”

4. Water and Ocean-based Innovations

LAS responses categorized as water and ocean-based Indigenous innovations accounted for 22.4% of survey responses received for Q15 and Q16 (Figure 1). These responses highlighted practices such as the Native Hawaiian traditions of ko‘a²⁰ and

²⁰ Traditional marine resource management system, marked by the use of ceremony as empirical study and management.

loko i‘a,²¹ along with other Indigenous innovations not exclusively named by their traditional name, but identified as water and ocean-based activities like voyaging, outrigger fishing, traditional fisheries, and Chamorro (also spelled CHamoru) seafaring. These responses also emphasized that such practices serve a critical role in natural resource management related to the protection of watersheds and fisheries.

a. Loko i‘a, fishponds, and traditional fishing/fisheries

A respondent from Hawai‘i wrote about how fishpond revitalization can lead to “*better marine stewardship*” and noted the importance of “*knowing the spawning cycles to ensure sustainable harvests that feed people and do not deplete fishery stocks.*” This respondent stated the potential health impacts as:

“People are physically working to keep the fishpond’s ecosystem healthy. Their bodies are moving, getting stronger, feeding the environment, and likewise getting fed. Ancestral connections are being fused to people that have passed, are present, or will come back in the future. People will have access to food, [such as] proteins, vegetables, [and] minerals that their DNA calls for.”

On Hawai‘i Island, a respondent described how traditional fishing improves overall health, which preserves and promotes sustainable harvesting practices in traditional fishing grounds. This respondent stated the health benefits of traditional fishing practices as:

“...not only improves physical health but also bolsters mental health, especially in young adults and keiki.²² It shows your cultural and historical connection to a place and establishes our right to be there, and shows people who live here and visitors from other places that this is a Hawaiian community. To fish with a canoe is a unique experience that instills pride and elicits respect from other fishermen...”

Furthermore, another respondent wrote about how such practices help to promote a lifestyle which teaches succeeding generations that shoreline and ocean-related activities contribute to “*protecting i‘a.*” In their response, they wrote about how “*opelu²³ canoe fishing culture will teach each succeeding generation that fishing, eating fish, and the lifestyle of gathering mea ‘ai.*” This respondent further described their practice that involves the healthy cooperation of the entire “*‘ohana and community members,*” that reinforces a deeper connection and strengthens bonds with family and community.

²¹ A Hawaiian fishpond constructed from communal labor that maximizes nutrients and creates an abundant food source.

²² Child, offspring, descendant, progeny, youngster

²³ Japanese mackerel, a common Pacific mackerel scad

b. Seafaring and Voyaging

Responses on the Indigenous practices of seafaring and voyaging described how such practices create an opportunity to discover elements of their culture and themselves. This opportunity was stated by a respondent as:

“...to be on the water, focusing on the currents and winds, admiring the beauty of the clouds and the reef below, and how they felt they didn’t realize how much they “needed” the experience.”

Responses related to seafaring and voyaging also emphasized how these traditions can improve overall health and can demonstrate, as a respondent described, “[how] *spiritually healthy and culturally healthy community thrive.*” A respondent wrote about how seafaring offers the community a connection to “*thousands of years of seafaring [tradition]*” and that this tradition is capable of helping Pacific people “*feel accomplished and unique.*” Respondents further emphasized how the health benefits are physical and aid in preserving the knowledge. A respondent wrote this as:

“My organization is dedicated to the revitalization and perpetuation of Chamorro seafaring. The practice of sailing in and of itself is quite a workout. Although I have no quantitative data on calories expended, I can tell you from experience that no one keeps still on a boat. Someone is paddling, someone else is bailing water, someone else is holding the gigehi,^[24] [and] we work as a team to lailai.^[25] Just speaking in terms of physical activities, traditional seafaring would greatly contribute to an active, healthy lifestyle...”

c. Advancing water or ocean-based Indigenous innovations

Respondents also wrote about the importance of preserving Pacific water or ocean traditions by creating opportunities for community members to learn about these traditions, grow their interests and create economic opportunities for tradition to thrive. This was summarized by a respondent, who wrote about their program’s Cultural Maritime Training Center (CMTC) in the CNMI, as:

“The CMTC is different from other maritime training centers across the world because it incorporates cultural aspects of Traditional Navigation, Traditional Sailing & Voyaging, in addition to Traditional Canoe Fabrication & Maintenance. We are working with the local community college to get an accredited Certificate of Completion to eventually get an AAS degree that builds upon the Department of Labor apprenticeship programs offered... a way to help address the brain drain by providing training opportunities [that are culturally centered] and would lead to high paying jobs.”

²⁴ A sheet in English seafaring terms

²⁵ A shunt/tack in English seafaring terms

5. Traditional Healing Practices

LAS responses categorized as traditional healing practices and innovations accounted for 12.2% of survey responses received for Q15 and Q16 (Figure 1). These Indigenous innovations were embedded in responses related to land-based Indigenous innovations. These innovations included the Native Hawaiian practices of lā‘au lapa‘au,²⁶ ‘aipono,²⁷ mo‘olelo ‘āina,²⁸ hula,²⁹ lomilomi,³⁰ ho‘oponopono,³¹ which a respondent summarized as the means to “*improve the health of oceanic peoples,*” and the use of Āmot³² Chamorro (also spelled CHamoru) by traditional Chamorro healers from the Marianas. Respondents described and emphasized how traditional healing practices are needed with increased access. This was summarized by a respondent as:

“...readily available...on every school campus and medical center.”

Another respondent residing in Guåhan wrote about the community’s need for access to traditional healing as:

“...access and use of traditional medicines play a critical role in helping to heal our bodies and to keep it balanced. Further, access to spiritual healers is also important to facilitate rebalancing...”

Additionally, another respondent from Guåhan wrote about their community’s strategic planning efforts with traditional healers, policymakers, educators, youth, and public health professionals at their first Āmot Conference in 2012, which led to the opening of the island’s first Guma Yo‘ámte (Healing Center) in 2016 to improve access to traditional healing services. This was stated as:

“The demand/need increased and [we] opened two other centers thereafter...many patients come to us as their ‘last resort,’ and their health improved as a result...services are rendered without set fee...patients give what they can, at times it may be produce from their farms, fish or cash.”

Applying these traditional healing practices within a modern context was also described by a respondent who emphasized these innovations as opportunities for “*multi-generational learning*” and potential economic improvement. A respondent described their attempts in Guåhan to create an apprenticeship program that would train local youths to take up the practice of healing, which would eventually bring more health to the expanded communities across the Marianas archipelago. Another respondent from Guåhan also wrote about their collaborative knowledge exchange with master healers from the island of Pohnpei. Their response emphasized that with increased access to traditional healing practices and learning opportunities, the community receives “*comfort [with the potential for] improved resiliency [climate*

²⁶ Medicine, curing medicine

²⁷ To eat or nourish with balance, harmony, ease, and in perfect wholeness

²⁸ Story, tale, or tradition of the land

²⁹ Traditional Native Hawaiian dance

³⁰ Traditional Native Hawaiian massage

³¹ To correct, or to make right

³² Medicine, medicinal herbs, drugs

change, economic upheaval, storms], *lower rates of major disease like diabetes, drug addiction, [and] improved mental health.*”

6. Application of Indigenous Innovations

a. Indigenous Ways of Governing

LAS responses categorized as Indigenous ways of governing accounted for 24.5% of survey responses received for Q15 and Q16 (Figure 1). These responses primarily focused on systems change and resource management, utilizing a cultural perspective and community input. A respondent noted that in their experience, Indigenous perspectives in the decision-making process often lack a reflection of Native Hawaiian values and leave no space for input, stated as:

“A lot of political decisions are heavily influenced by the studies provided by western conventional science, which leaves little to no room for indigenous data provided by our kupuna. Creating real actionable value and of our cultural input can put more power in the hands of community input and sway decisions towards the conservation of watersheds that kanaka depend on. Being informed of how these nomenclatures work in the practical sense can help innovate our practices to our modern world.”

Respondents also emphasized that implementing Indigenous ways of governing that improve existing systems and resource management for NHPI communities. A respondent emphasized that this would require *“increased empowerment.”* Another respondent stated, *“common concerns are tied up in how issues, like environmental governance and management, [and how they] are carried out.”* Another respondent further emphasized that this lack of empowerment has often led to *“inequities [related to] affordable housing, food source, and health care.”* A respondent in Hawai‘i described that their community often experiences being *“overrun by foreigners to the point that we [the local community] have little room to exist. Always fighting for resources in order to survive.”*

Furthermore, another respondent emphasized that increased empowerment is how NHPI practitioners and their communities *“can once again become a stronger player,”* serving as the experts in adapting existing resource management systems with an Indigenous-centered approach. A respondent wrote about how improved oversight can increase the proper *“environmental governance,”* which another respondent described as *“part and parcel to self-determination and reconciliation [of NHPI communities with] equitable access to resources.”* Another respondent highlighted the potential of systemic change as one way that *“restores healthier community relationships, broadens the concept of community in place [with] greater outcomes, [and a] sense of environmental kuleana.”*

Additionally, a respondent further emphasized that applications of Indigenous ways of governing present leaders and the community with *“multiple opportunities [that include] Indigenous food systems and resource management throughout every ahupua‘a and at every school.”* Respondents also acknowledged that multi-generational collaboration increases the next generation’s access to Indigenous knowledge on traditional healing practices, described by a respondent

as: “*la‘au lapa‘au, hula, ho‘oponopono, lomilomi, and other health practices.*” LAS respondents also highlighted that Indigenous ways of governing require the creation of policies that also reflect the Indigenous communities they intend to help. A respondent summarized this as:

“...having policies in our community that reflect our value system and some of our customs and traditions would help us find a better balance with our traditional ways and the demands of the western world.”

b. Cultural Epistemologies

LAS responses categorized as cultural epistemologies accounted for 51% of survey responses received for Q15 and Q16 (Figure 1). These responses focused on implementing Indigenous worldviews and using the cultural protocol in work with the community. This was summarized by a respondent as:

“...cultural protocol can re-establish different sort of respect, understanding, and better people’s approach to the community overall, though learning and cooperative experiences.”

Respondents emphasized that by beginning work with protocol, especially in place-based programs like lo‘i, loko i‘a, and paddling. A respondent highlighted this as “*being in the present moment [by taking the time to be in tuned with their] kupuna [and] set the kahua^[33] for the day.*” A respondent from Guåhan wrote about the benefits of implementing cultural epistemologies, stating:

“...establishing a Native burial council and using traditional chant & dance to bring about unity and cultural learning across the Marianas.”

This respondent also wrote about a coalition of Indigenous CHamoru Organizations on Guåhan dedicated to “*village-based cultural heritage management, rooted in various areas around Guam*” with their focus on “*stewardship of cultural sites, natural resources,*” and *traditional cultural practices*. Responses that highlighted the realized or perceived positive health impacts of cultural epistemologies were summarized by a respondent as:

“...connectedness, mental wellness, ability to express themselves, resilience.”

Another respondent wrote about the health impacts in relationship to the health of the land, stating:

“...the health of the ‘āina will be impacted directly. The health of the water and land will provide the opportunity to perpetuate ancient practices and continue to be a hub of learning and strengthen the community but also will prevent our ‘āina from falling apart or disappearing forever.”

³³ Foundation, base, site, ground

c. Proposed Ways to Improve Health

LAS responses categorized as proposed ways to improve health accounted for 22.4% of survey responses received for Q15 and Q16 (Figure 1). Respondent data on proposed ways to improve health focused on incorporating place-based education and NHPI traditions into existing systems. In the CNMI, a respondent wrote about incorporating NHPI traditions into existing systems as:

“...land and sea-based education into our current formal and non-formal educational curriculums...Indigenized and environmentally focused approaches to education are not only practical but connected to our identity.”

Another respondent wrote about how incorporating Indigenous traditions into existing systems creates positive health impacts within the community, stating:

“...fostering a connection and engaging in nature...Indigenous practices will reconnect people back to whole foods, recognize our interconnectedness in systems, generate hope, cultivate food security, create climate resilience - ultimately improving mental health, physical and spiritual health.”

Respondents also wrote of the current need for economic opportunity and recognition. This was summarized by a respondent as:

“I believe that if our cultural practitioners are compensated well, then it will allow them the time to improve their health. Due to the fact that most of our people farm after our day jobs, we are usually unable to cook healthy meals, do intentional workouts, and spend time with ‘ohana. If we can get paid for doing the things that we already do, it will improve collective health.”

The same respondent also emphasized that expanding and increasing the economic prospects for Indigenous innovations, there are also opportunities to train the next generation of practitioners to grow and help preserve as well as advance Indigenous knowledge, summarized as:

“Āina Trade Schools with competitive, legit pay. I believe we nurture our keiki to do their part in learning and living their culture but don’t offer enough pathways to hold successful careers in these skill sets. Farming, wall building, agroforestry, building tools specific to our crafts, etc.”

In Guåhan, a respondent suggested a similar idea, but simplified to the level of “workshops” that would help “bridge the gap between the youth and [their] elders.” In Hawai‘i, another respondent described an opportunity for programming as simply:

“...putting together a cultural experience program...to share our way of life with visitors and youth.”

The same respondent described such an experience and their benefits by highlighting a three-day program where participants from Maui and Alaska learned from cultural elders. In their response, they described how program participants learned about working in the kalo fields, traditional styles of fishing and netting, as well as lei-making from the program's cultural leaders. They further detailed in their response that each day of the program started with protocol and other daily activities included opportunities to educate participants on critical water-related issues facing East Maui.

7. Research Publication Awareness on Indigenous Innovation (Q17)

Q17, regarding research publication awareness on Indigenous innovations, had a 71.4% response rate on the LAS.

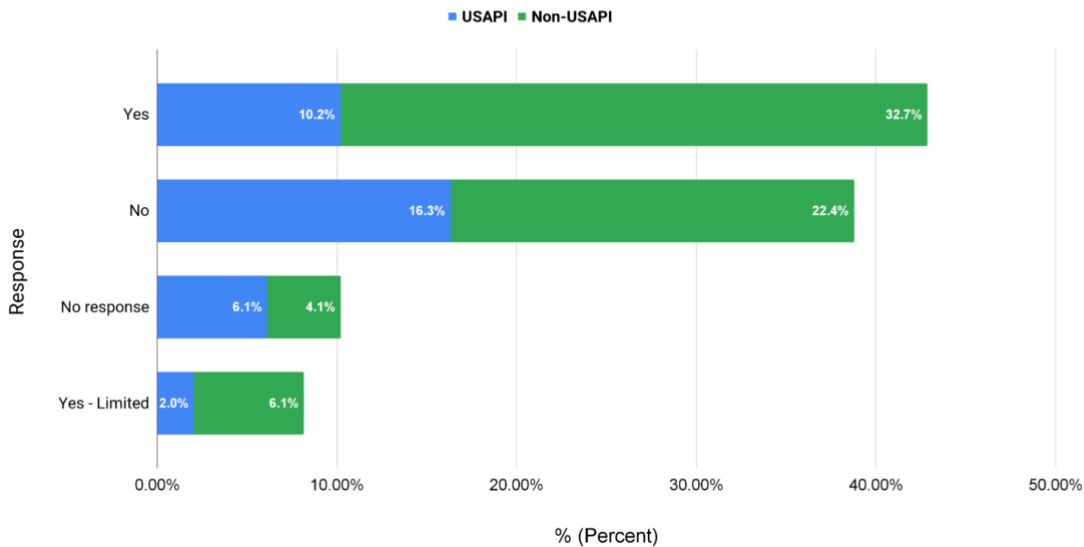
Respondents provided answers that included names of researchers, books, existing publications (i.e., magazines or journals), hyperlinks, use of electronic and mobile applications, and responses sharing that they couldn't recall any publications of late. There were 16.3% of respondents who were unaware of any publication but requested in their response to provide the team with an answer at a later time. Lastly, 6.1% of LAS respondents were unaware of any publications but interested in learning more.

8. Data Collection Efforts on Indigenous Innovations (Q18)

Q18, regarding data collection efforts on Indigenous innovations, received an 81.6% response rate on LAS. Figure 2 illustrates responses from respondents from USAPI versus non-USAPI areas. Responses with an explicit "Yes" had a 43% response rate and responses with an explicit "No" had a 39% response rate. Unique answers were also provided for Q18. These respondents indicated that they collect data, but for discrete metrics; for example, the number of volunteers participating in their program or organization (Figure 2). These types of responses (8%) were designated as "Yes - Limited" to reflect additional information related to their data collection efforts.

Figure 2. Data Collection Efforts

Q18 - Do you collect any data measures or metrics that you find exciting and useful for your community?



Additional areas where LAS respondents reported that they collect data included culture, demographics, education metrics, environmental related to land, water, and human-related impacts, food systems data, health data (chronic disease data), and community-related data (but not specified). Responses for Q18 also highlighted the use of data collection tools within existing organization workflows, and they included the use of interviews, surveys, and historical data contained within reports. A respondent from Hawai‘i noted that they collect data on soil health and are working on building a soil repository. This respondent further highlighted that they do not have the capacity to analyze their data.

Respondents also provided additional information related to their data needs or issues. A respondent noted that they “*would love to have support in this area as we dive deeper into the impacts of our programs.*” A few responses highlighted that they need help in utilizing data more effectively. This was summarized by another respondent as:

“Please tell me how to measure data regarding the things our organizations are doing. I would like to learn how to do that and submit data to secure funding to help us continue and thrive.”

Furthermore, another respondent recognizes their need to “*aggregate and analyze*” data but shared that they don’t have the capacity to do so now. Another respondent shared that there is “*so much resonance*” in the Center’s work and recognized their “*need to partner with [the Center on] research, funding, and policy.*”

D. LAS Section Four: Barriers to Growing Indigenous Innovations

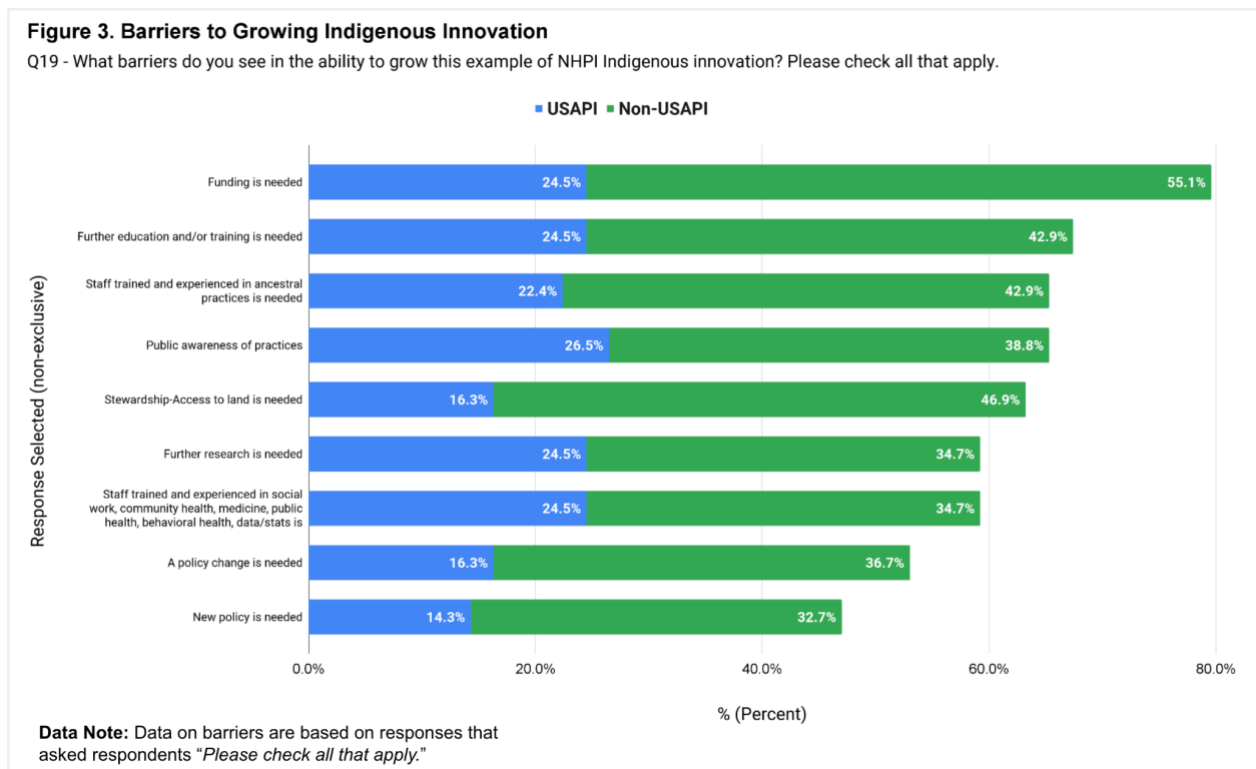
1. Section Four Survey Questions

In Section Four of the LAS, survey respondents provided input on the barriers to advancing and scaling NHPI-led Indigenous innovation for health equity by answering the following questions:

- **Question 19 (Q19)** - *What barriers do you see in the ability to grow this example of NHPI Indigenous innovation? Please check all that apply.*
- **Question 20 (Q20)** - *Do you have any suggestions for ways to address or work around these barriers?*
- **Question 21 (Q21)** - *If you could have a research partner to evaluate one or more of the Indigenous innovations you shared, would you want one?*
- **Question 22 (Q22)** - *If you currently have (a) research partner(s), please share more about that research partner (i.e., name, organization, e-mail address).*

2. Indigenous Innovation Barriers

Q19 asked LAS participants a multiple-response question that included options related to barriers to growing Indigenous innovations. Response options were non-exclusive and LAS participants were asked to select all options applicable to them. Figure 3 illustrates these responses and distinguishes respondents from one of the six USAPI jurisdictions or a non-USAPI area (Hawai‘i or the State of Oregon).



a. Funding is needed

The lack of support to create economic systems that provide opportunities for practitioners and their work was a theme highlighted by the collective responses of LAS participants in regards to funding as a top barrier. Nearly 80% (55% for non-USAPI and 25% for USAPI) of respondents indicated funding as a major barrier to advancing Indigenous innovation. This barrier is perhaps best summarized by a respondent from the CNMI as a:

“...struggle with operational expenses for things that we didn't realize we'd need to publicly market our campaigns when we apply for grants for boatbuilding [canoe boatbuilding]. Sailing to our sister islands, for example, is one thing that we don't get grant funds for - funds for supplies for the voyage - ropes, extra wood, fuel for the escort boat, food to feed our sailors - costs at least \$2000 per voyage, so working with the local island government to help assist - is inconsistent.”

On Guåhan, a respondent described their barriers as the lack of compensation for their work and suggested an economic incentive for practitioners to promote their work and allow healing traditions to prosper. They stated this as:

“The biggest barrier to traditional healing is the compensation for the work...maybe if there were a system where traditional healers can be ‘provided’ for their work, that interest in preserving and maintaining of this practice in the future will assure its perpetuation.”

Another respondent wrote about collaboration with the private sector to help fund projects, stated as:

“Nonprofits can work with private donors and apply for grants to fund the projects.”

b. Education and Outreach

Educating Indigenous communities on the value of their Indigenous innovations was a theme highlighted by LAS respondents based on the responses received for Q19. Survey respondents selected education (43% for non-USAPI and 25% for USAPI) and further training and/or education (43% for non-USAPI and 22% for USAPI) as barriers to growing Indigenous innovation. Responses related to this theme highlighted a lack of support among the broader community when promoting Indigenous innovations and sustaining support. A respondent in the CNMI wrote about the lack of community support when promoting their organization’s mission and provided suggestions to overcoming this barrier in the community that would help further grow interest in the tradition of Chamorro seafaring, which they described as:

“One barrier is that our community has not quite bought in to our mission. We have a large number of detractors in our community. The reason they fight us is varied. Some refuse to recognize Chamorros as seafarers. Some, despite gas prices that make use of power boats unfeasible, see

traditional seafaring as obsolete. I see social media outreach education as a potential way to overcome this.”

Another respondent emphasized that growing community level support is achieved through greater effort on “*continuous education and outreach.*”

c. Public Awareness of Practice

Broader messaging and advocacy that will create more opportunities to address the lack of community support and recognition is a similar theme related to education and outreach. LAS respondents selected more public awareness of Indigenous innovations (39% for non-USAPI and 27% for USAPI). Examples of responses related to this theme include one respondent in Hawai‘i who emphasized the need for community practitioners to receive more public recognition as experts from government officials. They stated this as:

“I feel that if there were respected experts who either conducted the study or signed off on the studies it would help to have the government offices and elected officials take our initiatives more seriously.”- Hi‘iaka Jardine of Kaiāulu ‘o Kahalu‘u, Kāne‘ohe, Hawai‘i

Another respondent, also from Hawai‘i, emphasized the importance of community work at the grassroots level, that helps to empower communities and bring attention to elected officials. They stated this as:

“Continue working at the grassroots level and empowering people in all communities to be heard by elected officials...work at the top with elected officials by getting them engaged in this work, on the `āina, alongside community.” - Sandy Ward of Hui o Ho‘ohonua, ‘Ewa Beach, Hawai‘i

d. Stewardship-Access to Land is Needed

Indigenous practitioners needing space for capacity building and training of the next generation of practitioners is another theme representing over 63% (47% for non-USAPI and 16% for USAPI) of LAS respondents who indicated stewardship and access to land as a barrier to growing Indigenous innovations. The lack of access to land often impedes their growth and ability to promote their traditional practices. A respondent wrote about creating a system where practitioners can be supported for their work as a means to preserve and maintain the tradition for future generations:

“Maybe if there were a system where traditional healers can be ‘provided’ for their work, that interest in preserving and maintaining of this practice in the future will assure its perpetuation.”

Another respondent highlighted the importance of creating more opportunities within newly established or restored spaces for Indigenous practitioners to be acknowledged for their work and train upcoming practitioners:

“...get our folks trained and certified. Better yet help them create more certifications. establish more halau or the practices of creating a halau.” -

Niegel Rozet of Kua‘āina Ulu ‘Auamo, Kāne‘ohe, Hawai‘i

A respondent from Hawai‘i wrote about developing more “*in-house capacity*.” This aligned with another respondent, also from Hawai‘i, who suggested improving in-house capacity in collaboration with institutions of higher education that may create “*college courses [and] internships*,” including business partnerships that create opportunities for “*volunteers [and] employee training programs*.”

e. Workforce Capacity and Experienced Staff

LAS respondents selected the need for trained and experienced staff in social work, community health, medicine, public health, behavioral health, data or statistics (35% for non-USAPI and a 25% for USAPI response rate) as well as staff trained in ancestral practices (43% for non-USAPI and 22% for USAPI) as additional barriers to advancing Indigenous innovation. When asked about addressing these barriers, a summation of these responses includes increasing opportunities for “*technical assistance*” training, integrating Indigenous “*nomenclature of akua names into scientific query and policy*,” and utilizing existing research to create or establish “*new priorities*” for policy creation.

f. Research

LAS respondents selected further research (35% for non-USAPI and a 25% for USAPI response rate) as an additional barrier to advancing Indigenous innovation. Examples of responses that further illustrate this barrier include the following:

“Engaging and informing one’s self in ‘ike kupuna and being open to the possibilities of implementing nomenclature of akua names into scientific query and policy.”

“Get this information [from CIIHE’s LAS] and research in front of the policy players and start creating some new priorities.”

“We take note and keep pushing, we share their experiences with others although it may not be backed by a study, we have our own personal experiences and I truly believe in ma ka hana ka ‘ike, [which translates into] in doing one learns and although we may not have all of the research to support what we know, we have our experiences.”

g. Policy

Educating policy and decision makers to reflect Indigenous values in policy creation is a theme highlighted by survey respondents who indicated that a new policy (35% for non-USAPI and 16% for USAPI) and policy change (33% for non-USAPI and 14% for USAPI) is needed to advance Indigenous innovations. Example of responses that further illustrate this theme include the following:

“Engaging and informing one’s self in ‘ike kupuna and being open to the possibilities of implementing nomenclature of akua [gods] names into scientific query and policy.”

“Set achievable goals and persevere. Become more involved with government, testify for legislation that supports your goals, elect pono politicians.” - Damien Kenison of Kauhako ‘Ohana Association, Hōnaunau, Hawai‘i

Different respondents also included additional input on ways to address barriers related to policy creation or change as:

“The biggest barrier to traditional healing is the compensation for the work bring performed: tradition prohibits monetary compensation because it is mainly charity work and duty. There does not seem to be an interest of the younger generation to take up the practice because it ‘does not pay the bills’. Maybe if there were a system where traditional healers can be “provided” for their work, that interest in preserving and maintaining of this practice in the future will assure its perpetuation.”

“Environmental waivers and Cultural Academy creation in the DOE.”

“‘Āina in community hands is a big barrier. There are a lot of people and community doing big things but are unable to do them without resources.”

“Hui [groups] like ours eventually will have to become lobbyists. We have to remain present and create working relationships with legislators and community members to allow us to help create processes and streamline action.”

“We struggle with operational expenses for things that we didn't realize we'd need to publicly market our campaigns when we apply for grants for boatbuilding (canoe boat-building). Sailing to our sister islands, for example, is one thing that we don't get grant funds for - funds for supplies for the voyage (ropes, extra wood), fuel for the escort boat, food to feed our sailors, costs at least \$2000 per voyage, so working with the local island government to help assist - is inconsistent.”

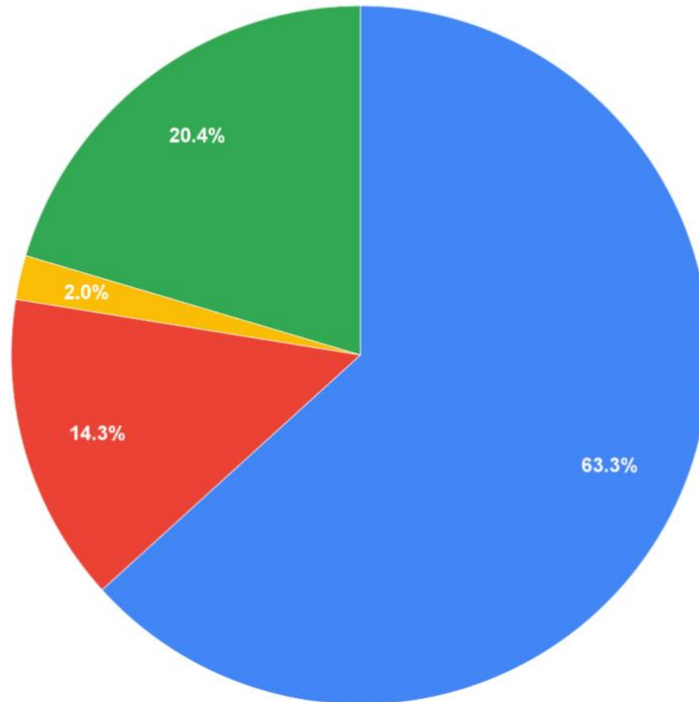
3. Research Interests and Existing Research Partnerships

For Q21, LAS participants were asked to provide an open-ended free-text response highlighting their interests in having a research partner to evaluate one or more of their Indigenous innovations (Figure 4).

Figure 4. Interest in having a research partner

Interest in a research partner to evaluate a organization's Indigenous innovation(s)

• Yes • Conditional Yes • Neutral • No response



Data Note: A “Conditional Yes” is a term utilized by CIIHE to capture data of respondents that provided a “Yes” response, but included additional open-ended feedback as to the conditions for them to commit to having a research partner.

“Yes” responses acknowledging interest in having a research partner was indicated by 63% of LAS respondents. In responses that acknowledged interest in a research partner, but provided conditions in establishing such a partnership, CIIHE DAPAs categorized these responses as a “conditional yes.” These responses were recorded for 14.3% of LAS respondents. Respondents that provided a “conditional yes” emphasized the importance of collaboration, mindfulness of capacity to conduct research, and that these efforts should also aid in organizational capacity building. Examples of a “conditional yes” are included below:

A respondent emphasized that their participation depends on the research, their alignment with community efforts, and the organization’s ability to accommodate research. This was respondent as:

It depends on the nature of the research, the researcher, and the capacity to accommodate it...contemporary scientific approaches are helpful if they help improve community efforts.”

Another example of a conditional yes is by a respondent who emphasized a capacity building component they would like to as part of a research opportunity. They wrote this as:

“...yes, but if we could train our community members at the same time that would be best, with the intention that a community member would be that evaluator, data collector, manager, planner, etc.”

Lastly, another example includes a response from a LAS participant who wrote about how a research partnership would aid in their organization’s abilities to better educate the community through their existing program, stating:

“We would benefit exponentially from having a research partner to evaluate our program. In all honesty our backgrounds are not health focused, they are culture based so we don’t always have the knowledge or words to explain the health benefits that the Hāloa Circles have provided to our participants.”

For Q22, 63% of respondents provided answers when asked about existing research partners. LAS respondents provided the names of thirty-six individuals either affiliated or not affiliated with the University of Hawai‘i. Further investigation into the background of these individuals by the Center revealed at least thirty different domains of expertise (including public health, urban and regional planning, Native Hawaiian studies, data science, ecology, conservation biology, chemistry, journalism, social work, and marine biology).

E. LAS Section Five and Section Six: Expanding Our Reach and Final Comments

Sections Five and Six each contained a single question that asked LAS respondents the following:

- **Section Five - Question 23 (Q23)** - *Did these questions make you think of other individuals or organizations that we should include in this survey? If so, please provide as much information as you’re able (i.e., name/s, organization/s, contact information).*
- **Section Six - Question 24 (Q24)** - *Are there any other comments that you would like to share?*

Q23 and Q24 each had a 65% response rate. For Q23, LAS respondents provided answers that included suggested names of organizations and individuals for the Center to reach out to about the LAS. Unfortunately, the Center did not have an opportunity to follow-up with these recommendations from LAS respondents, but decided to keep their recommendations of organizations and individuals to be used internally as a reference for the Center’s upcoming activities following the Landscape Analysis.

For Q24, respondents included comments with appreciation for the opportunity to participate in the LAS; the names of individuals and their organizations not included in Q23; additional highlights about organizational barriers and needs; and comments of excitement regarding the Center’s work. A respondent described this as:

“Another important aspect I forgot to mention is that no one needs to do life alone. Our heart, mind, soul and body goes into chaos when we feel alone and for many that picture looks very different. They can be surrounded by many people or organizations providing many useful resources, but if they feel alone, none of it matters. Hard questions need to be asked sometimes so instead of being the bystander and guessing what’s going on, sometimes YOU have to come out and ask... however you would phrase it ... ‘Are you struggling right now?’ And give them time to pause and wait for when they’re ready to give you an honest answer. We believe this can open many doors that can lead to a healthier life.”

F. LAS Respondent Validation Session

As described in the Methodology, the Center held a RVS on November 30, 2022, which provided LAS participants an opportunity to assess CIIHE’s analysis and interpretation of respondents’ data up to that point in time. LAS participants were encouraged to engage with the data and address any validity or accuracy concerns about the use of their data.

The RVS was attended by 18% of the original LAS participants, and comments provided during the RVS were overwhelmingly positive. A respondent from the CNMI acknowledged openly that the RVS and the Center’s LAS had been a “*really empowering*” experience which “*allow[s] us to go into our work and really recognize our value.*” The same respondent also openly commented about their work surrounding Indigenous innovation and the concepts of holistic health as:

“As Indigenous people [we] know that we’re the inheritors of the knowledge to rightfully care for the land, and as caretakers of the land and so all of the impacts and the devastation that we’re facing from colonization and from climate change...we’re the ones who take care of our land...(and) when we’re in that space, then that’s a very viable solution.”

Another respondent acknowledged their overall LAS experience, stating:

“In learning about this process, it was so helpful for me and so important for me to see the quotes ...and as a participant you’re also a learner...it’s a very honored space to be in and I appreciate that.”

Additional comments received during the RVS highlighted the barriers to Indigenous innovations. A respondent stated:

“I think one of the challenges that we face in building or growing indigenous innovations, is having the space where - and I’m speaking specifically to my community, the Chamorros on Guam and the Marianas in the same way - we’re coming together to kind of share everything that’s happening...[also] one of the recent terms that I learned, that I wasn’t aware of [before], is gatekeeping...so certain people within the community have access and kind of keep access to funding opportunities.”

When asked to elaborate further, the same respondent stated:

“...people who are educated and trained are the ones who get access to the funding sources - and other grassroots movements [and] grassroots organizations that don't have individuals who have that kind of background, don't have the same access [to funding sources]. There is no network where those people are kind of coming together to help come and lift each other up or [share] more access to the resources.”

IV. Discussion

Building upon CIIHE's foundational frameworks, the Center sought to conduct a Landscape Analysis to identify and better understand Indigenous innovations with the potential for positive health impacts, while also gathering key information to support further growth of this work. The LAS set out to identify where Indigenous innovations are happening, what those innovations are, and how they are perpetuated and practiced. The survey development and method of distribution were developed in collaboration with CIIHE's Core and Network Partners. The survey focused on reaching 'āina-based organizations to include practitioners as the experts. The Center's goal was to secure 50 survey respondents, and it was successful in having 49 survey respondents complete the survey.

Reflecting on the responses received, it is essential to understand individual survey participants' and their community organizations' visions of holistic health, especially how it helps address health inequities across NHPI communities. Similar to the World Health Organization expansion of its definition of health to not merely be the absence of disease, understanding the concept of holistic health from practitioners of Indigenous innovation is just as important to better understanding the communities' paths to overall health and well-being.

The survey's data on concepts of individual, communal, and environmental health are telling. Without rehearsing the comprehensive discussion, the general thrust of responses indicate a deeply holistic model of health. Individual, communal, and environmental health are not merely interconnected, but co-constituted. Health is determined by social organization, cultural integrity, ecological health, access to land and water-based sites, and other systemic factors. Thus, Indigenous innovations' efficacy and meaning are lost if a specific practice (e.g., traditional foods or farming) is extricated from its context and prescribed as an “off the shelf” intervention. Instead, Indigenous innovations are embedded in context, and their efficacy and meaning is realized as part of an entire lifestyle and worldview. This is consistent with medical anthropological research on the notion of the “healthy ancestor” standing for a holistically health-producing social, economic, cultural, and ecological system (McMullin, 2009). It is therefore critical that the health of environments, access to lands and waters, and cultural integrity be meaningfully and substantively recognized as equally important to biomedical health indicators.

The vast majority of Indigenous innovations were land-based (65.3%) and water/ocean-based (22.4%), which entailed cultural epistemologies, Indigenous ways of governing, traditional foods, and traditional healing, all of which are also place-based in their knowledge and practices. As described in the detailed results section above, these innovations include a highly diverse

array of practices. Seeing them as interrelated (e.g., how inland farming relates to downstream coastal practices), these innovations represent a revitalization of a holistic Indigenous social and economic system. For example, the traditional Hawaiian ahupua‘a system carefully managed resources, production, and the division/specialization of labor and skills. The system included farming, medicine specialists, fishing and aquaculture, food distribution, and an entire social organization and governance structure that emerged from, and reproduced, this model. In much the same way, this holistic and comprehensive movement of restoring and expanding all niches of social organization reveals an organic move to restore Indigenous ways of life as a totality. This again underscores the integrated and comprehensive nature of these practices that cannot be detached or extricated from the totality.

An unexpected, yet welcomed impact of approaching the survey through a workshop format created space for survey respondents to come together and further grow the network. The sense of validation that was expressed by survey respondents highlights the importance of this work. Practitioners have felt validated for their efforts to share Indigenous innovations, hopeful for the promise of the future based on what CIIHE sets out to do, and expressed a sense of enthusiasm for the next steps.

CIIHE’s call to serve NHPI communities can be challenging because of the different specific conditions experienced by a wide range of groups. “Native Hawaiians,” as a term in itself, can be a complex group based on the varying definitions used to define “Native Hawaiian,” and the fact that many Native Hawaiians are multi-racial. Pacific Islanders are another complex group that typically includes upwards of ten to twenty different communities depending on how “Pacific Islander” is defined. Nevertheless, it is significant that thirty-five percent of CIIHE’s survey respondents are from the USAPIs.

The differences between NH and USAPI contexts merit discussion. A large proportion of non-USAPI organizations (32.7%) reported collecting data measures on their work, while only 10.2% of USAPI organizations reported that they collect metrics. Metrics are a fundamental requirement for non-profits receiving grants from philanthropy and government. Therefore, this indicates that the non-profit landscape may be more developed in Hawai‘i than in the USAPIs. While the survey does not reveal the reasons for these differences, one can see the need for increased capacity building and funding directed to the USAPIs, as required data reporting can be an indicator for funding. Another highly significant difference lies in the barriers to growing Indigenous innovations. The ratios of non-USAPI to USAPI responses for each barrier at approximately 2:1 was consistent, with “access to land” as the only outlier: the ratio, approximately 3:1, of those needing to access to land was lower for USAPIs. This may indicate a significant effect of differences in land tenure laws. In Hawai‘i, lands can be owned by any individual or entity. In USAPIs like CNMI or Guåhan, only Indigenous lineages may own land (Iati, 2018). Such salubrious land ownership laws in the USAPIs provide increased Indigenous access to lands, while Hawai‘i’s law opens the land base to non-Indigenous ownership.

Responses indicating “yes” or “conditional yes” to potential research collaborations are noteworthy, with a total of 77.6% of participants reporting interest. This shows that there is fertile ground for potential collaborations between researchers and community-based organizations. However, the proportion of “conditional yes” responses (14.3%) indicated concerns such as regarding the type of research and how it is performed. As such, research is a significant opportunity that requires institutional work to build and maintain such relationships.

In addition to these accomplishments, there were also limitations. Our LAS was distributed primarily through Network Partners focusing on land-based organizations. The distribution of NH and PI organizations who completed the survey could also be improved to be more representative of the range of the populations that CIIHE is charged with serving. It was intentional to focus this initial landscape analysis on reaching practitioners, or organizations who practice Indigenous innovations, in their homelands. However, an area of exploration for the future includes diasporic NHPI communities on the US continent.

While this survey set out to identify the types, location, and barriers of Indigenous innovations, the largest opportunity for improvement moving forward is better understanding the barriers to growing their practices. It is clear that the neologism of “Indigenous innovation” is not yet thoroughly understood and used equally to other words or concepts such as “culture.” Additionally, responses received to the question asking about Indigenous innovations were varied. Responses focused on different aspects of Indigenous innovations and suggestions needed to make a Indigenous programs successful to improve health. Survey respondents do not generally call their practices “Indigenous innovations,” instead framing them as “culture.”

With regards to each of the categories of barriers listed above, it would also be beneficial to better understand the priority or more specific information about the barrier experienced. For example, although almost 60% of the respondents indicated that more research is needed, it would be helpful to better understand the type of research (or specific area, e.g., research on the Indigenous innovation itself, research on the soil or water to better show efficacy of work, or research for what purpose or goal) needed. The top barrier was that more funding was needed; at approximately 80% of respondents, this need was far ahead of the next barrier, further education and/or training is needed, that around 67% of respondents indicated. It is no surprise that more funding is needed to support these practices, and this result lends credence to CIIHE’s premise that these organizations should be recognized, and materially supported, for their health interventions. The strong responses of needing funding, education and training, public awareness, research, and access to land overall indicated an embattled and under-resourced sector. Therefore, the community-voiced needs are a recognition of the value of these practices that then translate into funding, procedural and infrastructural support, and general public understanding of these innovations’ value.

As CIIHE has set out to serve NHPI communities, and approach its work from an Indigenous perspective, it is also important to note the demand and interest for this work. It is important as Indigenous peoples to honor the uniqueness of each community, but that is often lost when needed to conform to the social construct of “Native Hawaiian and Pacific Islanders.” Similarly, while respondents may have indicated the Indigenous innovation of seafaring, voyaging, or paddling, these ocean-based practices were honored as unique Indigenous innovations. Based on where the respondents are located, and their connection to land or ocean or water, the Indigenous innovation may be practiced differently. Moving forward, it is worthwhile to further explore the similarities and differences of what may seem to be similar or same Indigenous innovations.

V. Conclusion

Returning to CIIHE's premise, we posit that there is no intervention so effective in reducing health disparities and achieving health equity as the restoration of ancestral practices in Indigenous communities. Additionally, CIIHE is built upon the foundation and intention of replicating versions of Dr. Alike Maunakea's Maui Ola Study (Shelton, 2019), where community organizations are completely engaged in research, benefit from it, and see health impacts that were heretofore unknown.

Now with the data gathered from this survey, we have a better understanding of how community-based practitioners define the concept of holistic health at the individual and community levels, and the relationship between the health of the environment and the health of the people. The survey also took stock of Indigenous innovations, their lived experiences with potential and realized health impacts, and barriers to practicing these Indigenous innovations. This also included data they collect to measure success and progress, and their interests in working with a researcher. Especially with the various Indigenous innovations shared by respondents, this establishes a foundational understanding to further research the potential for positive health impacts.

As demonstrated by the themes of responses and during workshops, many practitioners are realizing that there are others sharing the same experiences. These practitioners may not practice the same Indigenous innovation and they may be of different heritages, and yet there are commonalities with their experiences, the health benefits, and the barriers that they experience. CIIHE continues to receive feedback and input from practitioners, survey respondents, and community members that it has also been important for them to learn and connect with other practitioners who have a shared experience. They have also expressed the healing nature of hearing their experiences and expertise lifted up as data, the interest for further research, and the potential for their Indigenous innovation to be economically viable. Practitioners feel validated for the work that they are doing, that they are not alone, and the importance of being able to share more about their work with policymakers.

Framing equity as an exit from disparity has also been well-received, and supported, by survey respondents. As demonstrated with the Maui Ola study, the respondents find great promise with the potential for future research to come on Indigenous innovations that will likely be more effective to improve our health compared to conventional biomedicine alone, especially as health disparities continue to persist in communities. The Indigenous innovations captured by survey are an untapped and under-valued innovation.

Considering the data gathered, CIIHE's goals for Year Two of its work are to "advance community-centered ancestral and cultural practices as the intervention to improve holistic health for NHPI populations through research initiatives, policy strategies, and economic development initiatives that are all co-produced with community."

These data will inform CIIHE's next steps to address barriers to Indigenous innovation. Based on CIIHE's mission to advance Indigenous innovations with research, CIIHE's research pillar will be in response to many LAS respondents who expressed interest in wanting to work with a researcher to further their Indigenous innovation. As the barriers described by respondents

included existing policies and the need for new policies, CIIHE's policy pillar will address policy barriers.

To best make use of the findings of these data, please see the following deliverables: Working Resource Guide, Bright Spots Map (included as appendices in this report), Community-Sourced Gaps Analysis.

Bibliography

- (1) Barker, B., Goodman, A., & DeBeck, K. (2017). Reclaiming indigenous identities: Culture as strength against suicide among indigenous youth in Canada. In *Canadian Journal of Public Health* (Vol. 108, Issue 2, pp. e208–e210). Canadian Public Health Association.
<https://doi.org/10.17269/CJPH.108.5754>
- (2) Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member Checking: A Tool to Enhance Trustworthiness or Merely a Nod to Validation? *Qualitative Health Research*, 26(13), 1802–1811. <https://doi.org/10.1177/1049732316654870>
- (3) Iati, I. (2018). Asia Pacific Bulletin Customary Land Rights and Pacific Islands Security & Stability. *East-West Center: Asia Pacific Bulletin*, 419, 1–2.
<https://www.eastwestcenter.org/publications/customary-land-rights-and-pacific-islands-security-stability>
- (4) Goodenough, W. (1955). A Problem in Malayo-Polynesian Social Organization. *American Anthropologist*, 57(1), 71-83.
- (5) Kanahale-Mossman, H., & Karides, M. (2021). Papakū Makawalu and grounded theory: a combined and collective analysis for Hawai'i land stewardship—Honuiaiākea. *AlterNative*, 17(4), 449–459. <https://doi.org/10.1177/117718012111058301>
- (6) McMullin, J. (2010). *The Healthy Ancestor: Embodied Inequality and the Revitalization of Native Hawaiian Health*. Routledge: Oxfordshire, UK.
- (7) Shelton, T. (2019, February 23). 60% improvement in Type 2 Diabetes risk shown in preliminary results from Waianae-based study. *University of Hawai'i Med Now*.
<https://jabsom.hawaii.edu/60-improvement-in-type-2-diabetes-risk-shown-in-preliminary-results-from-waianae-based-study/>

APPENDIX A

CENTER FOR INDIGENOUS INNOVATION AND HEALTH EQUITY

Office of the Vice President For Research and Innovation

University of Hawai‘i System



UNIVERSITY *of* HAWAI'I®
SYSTEM

**‘Aelike Consensus Agreement: Kapu & Kānāwai,
Institutional Sacred Restrictions and Laws**

July 2022

Overview

In February of 2022, The Center for Indigenous Innovation and Health Equity (CIIHE) gathered with representatives of partner organizations to develop a set of kapu¹ [sacred restrictions] that ensure cultural alignment of CIIHE’s community-based research initiative on Indigenous innovation and health equity. Facilitated by the Edith Kanaka‘ole Foundation (EKF), their Papakū Makawalu and Honuiaiākea process is a hermeneutic practice of collectively interpreting ancestral texts to understand and engage with the natural world. EKF carefully selected these texts for the themes of health and times of fundamental change. Examining these texts as a group from February 2022 to July 2022 produced an agreed upon set of kānāwai [laws to protect sacred restrictions of kapu].

Partners in Attendance

UH Center for Indigenous Innovation and Health Equity

Edith Kanaka‘ole Foundation

Hau‘oli Mau Loa Foundation

MA‘O Organic Farms

Ho‘oulu ‘Āina & Kōkua Kalihi Valley

Chaminade University

Department of Native Hawaiian Health/Ulu Network, University of Hawai‘i

Department of Anatomy, Biochemistry and Physiology, John A. Burns School of Medicine,
University of Hawai‘i

Texts

Hulihia Ke Au Ka Papa Honua O Ka Moku, “*Hoala o Hiiaka i ke kaikuaana*,” [Hi‘iaka awakens her older sister], Poepoe, 22 May 1908.

Pule Ko ‘ihonua [Genealogy chant], *Na ke kahuna o Kahilipali, Mai loko Mai o KaMiki*, page 97.

Kulia e Uli ka Pule Kala ma Ola [Uli, heed this prayer for life], *Holo Mai Pele*. Pp. 11-13.

Pele and Hiiaka:

¹ In accordance with the [University of Hawai‘i Style Guide](#), words in ‘ōlelo Hawai‘i (Hawaiian) are not italicized.

Chapter XXII: Hiiaka Addresses Pohaku-o-Kaua‘i – The Two Women Rig Up a Canoe – She Salutes Kaena – Salute to Haupu – Sees Lohiau’s Spirit Form. Pp 105-109.
Chapter XXIII: The Lame Fisherman – His Epic Recital Celebrating Pele. Pp. 109-113.
Chapter XXIV: Hiiaka Learns of the Death of Lohiau. Pp. 131-139.
Chapter XXV: Hiiaka Utters Many Praters to Restore Lohiau to Life. Pp. 138-150.

Papakū Makawalu / Honuaiākea Process Overview

Edith Kanaka‘ole Foundation (EKF) is one of the most respected organizations revitalizing Native Hawaiian knowledge, maintaining a genealogical connection to this process and body of knowledge. Huihui Kanahale-Mossman, Luka Kanaka‘ole, and Kuha‘o Zane of EKF selected the above texts (chants, stories, and songs) for the Papakū Makawalu / Honuaiākea process; Papakū Makawalu is a Native Hawaiian ancestral epistemology and worldview that understands, engages, and builds expertise regarding systems of the natural world. Honuaiākea is a facilitated group discussion using ancestral texts to interpret and interact with natural processes. Through group discussion and consensus, kapu [sacred restrictions] and supporting kānāwai [laws] emerged directly from the texts. CIIHE has developed a set of five kapu and supporting kānāwai.

Kapu 1:

KŪLIA E ULI

Striving to thrive; holistic and thriving health of Indigenous communities.

Source: *Kulia e Uli ka Pule Kala ma Ola* [Uli, heed this prayer for life], *Holo Mai Pele*. Pp. 11-13.

Kūlia is to strive to achieve an outstanding state or formation, whereas meanings of Uli include a dark color with connotations of generativity and potential, or a higher divine source bringing health into a place – marking the epistemological alterity of Indigenous systems of “health.” This kapu concerns the multiple dimensions of holistic health for Indigenous communities: what post-Enlightenment Western worldview would disaggregate as mental, environmental, spiritual, physical, individual/collective. Rather than presupposing an atomized individual, this kapu emerges from an Indigenous understanding of personhood; health is communal and upholds the primacy of relations to community, family, ancestors and descendants, and land, that all converge to constitute the person. Also given the connection to land and place that Indigenous peoples have, this vision of health also concerns the health of our lands and waters. Holding this holistic vision of health as a kapu means to keep it protected and sacred. Kūlia as “striving” also emphasizes the constant effort to arrive for that complete and holistic health.

Kānāwai 1:

Kūlia e Uli ka pule kala ma ola

Kūlia i mua, i ke kahuna

*Uli, heed this prayer for life
From the call of your devoted*

This kānāwai refers to the devotees of elements that form Uli, that highest form of holistic Indigenous health referenced in the kapu. “Kahuna” refers to devotees as those who are cultural practitioners dedicated to a specific place. “I mua” means before, forward, or first. Thus, we must consider the practitioners themselves to come first, as they are the holders of knowledge regarding practices, communities, and lands and waters. To maintain our kapu of striving for the highest Indigenous holistic health, this law prescribes that we first honor the practitioners and ancestral knowledge holders of place.

Kānāwai 2:

**E auau² i kou kiowai kapu
O Ponahakeone
E inu i kou pu‘awa hiwa
Awa papa a ke Akua**

*Bathe in your sacred pool
Ponahakeone is the pool
Drink of your sacred ‘awa cup
‘Awa papa is the ‘awa for the gods*

This kānāwai refers to vessels of sacred water used in ceremonies. The research of the Center will hold knowledge that must be kept sacred. Further, the chant from which this comes begins with a request (see first kānāwai), then implores the requester to perform required ceremonies. Ceremony is required for this beseeching of health; it gives attention and awareness to what happens in a place’s lands and waters. That special awareness of place and its patterns is put into the ritual.

Kapu 2:

WĀHIA KA PAPA, KOMO I KA ULU

Clearing and preparation of space; to be accountable for growth afterwards.

Source: *Pule Ko ‘ihonua* [Genealogy chant], *Na ke kahuna o Kahilipali, Mai loko Mai o KaMiki*, p. 97, lines 8-9.

This kapu translates as: the foundation is broken, go into the breadfruit tree. This chant refers to a story where Haumea [the cosmogonic deity of growth, childbirth, and prolificness] rescued her kidnapped partner by opening a breadfruit tree and escaping into it. The kapu contrasts the broken foundation with escape through a tree symbolizing abundance, implying that clearing space also carries the responsibility to subsequently spur growth. Holding this as sacred ties us to creating abundance after the breaking of any barriers.

Kānāwai 2.1:

He kino ulu, he papu ulu ianei

A body for growth, the clearing is expansive here.

In Hawaiian, ulu has many meanings: e.g., breadfruit tree, to grow, to extensively know. Indigenous practices and communities of practitioners are the bodies of growth, each having their own genealogies and sources, and also form a shared “extensive knowing” among community, while “ianei” [here] emphasizes the primacy of specific place, land,

² This document maintains original diacritical markings from the primary texts, to maintain multiple meanings.

and waters. The clearing or flat plane refers to the open space made for the bodies of growth. This kānāwai prescribes the importance of what is appropriate for unique places and communities and the dimension of adaptation/speciation to place. In research, this also emphasizes the need to seek out those bodies of growth that extensively know a place and practice, and the duty of specifically planting *generative* bodies of growth, with genealogies, in cleared spaces/systems. The productive tension between clearing and growth must be carefully maintained, not exclusively one or the other.

Kānāwai 2.2:

Komo i ka ulu hoopae i kona kino

Go into the breadfruit tree concealing her body

This kānāwai refers to Haumea concealing herself through the breadfruit tree. Hoopae can mean to conceal, misrepresent, misunderstand, etc. Relating to the previous kānāwai, this law serves as a warning to: (1) be cautious about what one grows following the act of clearing space, and (2) to be cautious about how CIIHE presents findings so as to prevent misunderstanding.

Kapu 3:

LOA KA ‘IMINA A KE ALOHA

Commitment to long term reciprocity and budget equity.

Source: *Hulihia Ke Au Ka Papa Honua O Ka Moku*, “*Hoala o Hiiaka i ke kaikuaana*,” [Hi‘iaka awakens her older sister], Poepoe, 22 May 1908. Line 20.

This kapu emerges from a hulihia genre of chants, referring to a time of substantial change, upheaval, and transformation. This is a text of beginnings, as Hi‘iaka prepares for her epic journey across the islands. This line of the text states that “the continual search for aloha [love/respect/reciprocity] is long [loa],” and can also be translated as “The search for, and obtaining [loaa] of, aloha.” Aloha is both immanent and obtained, and at the same time is perpetually pursued – especially in times of great change. This relates to the previous kapu, as aloha is required for the regeneration and growth of what used to, and ought to, be and grow. The text also references Kanaloa, a process of stability, and its offspring, thus conveying the continuation of stability and the eternal search of aloha for those offspring. Holding this as sacred requires us to keep a foundation of aloha in all works, acknowledging the length of the

journey in pursuit of aloha. The length of this search requires that one maintains their enduring goals, while being mindful of the process and steps taken to seek it. Aloha also connotes reciprocity, imploring CIIHE to always strive for reciprocal relations, including budget equity with community partners.

Kānāwai 3.1:

E Pele e! Hii ke aka i ka malamalama

Pele! Carry the shadow to enlightenment

This law prescribes that the Center must work to lift that shadow that sits at the root of health inequity, and to bring enlightenment to the Indigenous values that come from, and feed into, the restoration of Indigenous practice and knowledge. In maintaining the overarching sacred restriction of enduring aloha, the Center must constantly strive to remove the obfuscations and confusions that distort or veil these true values. This law is also a serious commitment to lifting that shadow, accepting the duty of no longer allowing that confusion and illusion to settle again.

Kānāwai 3.2:

E Pele e! Kaukauli ana oe

Pele! You are going to move with the hissing sounds of fire.

This law addresses “aloha” itself. Aloha is often misperceived as light and frivolous, but this text describes aloha as love that carries serious responsibility, reciprocity, and requires significant work – moving with the hissing sounds of fire, through darkness, and a perpetual striving, forever, through the darkness. Aloha is also not a passive and abstract value, but is a transitive action and ongoing process of reciprocity with other relations.

Kapu 4:

‘AHA / IHŪANIANI

Ceremony, revealing clarity

Sources: *Hulihia Ke Au Ka Papa Honua O Ka Moku*, “*Hoala o Hiiaka i ke kaikuaana*,” [Hi‘iaka awakens her older sister], Poepoe, 22 May 1908. Line 15.

Pele and Hiiaka. Chapter XXV: Hiiaka Utters Many Prayers to Restore Lohiau to Life. p. 149.

This kapu also emerges from a ceremony during a time of hulihia great change; ceremony is also referenced in the story of Hi‘iaka using her healing abilities to bring Lohi‘au back to life. In the hulihia chant, “ihūaniani” means to overflow [hū] with clarity [aniani], which is the revealing of clarity. In the story of Hi‘iaka, she demonstrates the process of gaining power and expertise through diligent practice to bring a man back from the dead. Ceremony is done with the

purpose of establishing or acknowledging a relationship to something – a relationship to gain knowledge about that something. These references yield a kapu that honors the complexity of ceremony to reveal clarity, the creation of new ceremonies, and the dedication to the act of ceremony itself. Ceremony also entails adhering to hō‘ailona [signs] that might warn against proceeding in a particular area. This ceremony of revealing clarity is precisely the act of research for CIIHE, and this kapu holds us to honoring the complexities and the very process of clarification itself. *Ceremony is research*, demarcating it as sacred, requiring discipline and rigor, and maintaining clear roles and coordination.

Kānāwai 4.1:

**Ko pokii holo kia, kau kia manu o Laa
Ua laa au i ko leo e ke hoa
Kuu hoa, kuu poli, kuu poli aiau hoi**

*Your darting youngest, your bird catcher Laa
I am devoted to your command, friend
My dear friend, my love, my milk filled bosom*

If ceremony is the consistent attempt to create a direct line of communication with communities, elders, and nonhuman elements, then this law describes the duty to create a space of relationship-building and invitation. The use of “la‘a” here, and in the following law, denote setting something apart from everything else, which is a function of ceremony. “Ko pokii” is a way to refer to Pele and her clan of fellow earth-turners who sail their canoe to come to Hawai‘i. The “manu” [bird] in the first line also has the meaning of the nose of a canoe, implying the steering of a canoe; thus, there is a commitment to going in a certain direction together towards that la‘a or ceremony.

Kānāwai 4.2:

Laa wale hoi kuu leo ia oe e

My voice is only dedicated to you

This law refers to the duty of *consistently* maintaining that space for relationships, emphasizing the ongoing obligation of invitation and maintenance.

Kapu 5:

EIA KA WAI, HE WAI OLA

Life is water, water is life, water is sacred.

Source: *Pele and Hiiaka*. Chapter XXV: Hiiaka Utters Many Prayers to Restore Lohiau to Life. Pp. 142-143.

This kapu emerges from the story of Hi'iaka bringing Lohi'au back to life, in which water is extensively invoked as key to health, life, and ceremony. Fresh water is integral to land-based practices of agriculture, healing, and the life of land and people in general. The water cycle and watersheds encompass all factors relating to health. As such, water is to remain sacred. This kapu is a call to maintain, preserve, protect, and restore fresh and salt waters.

Kānāwai 5.1:

**E ulu kini o ke akua
Ulu ae o Kane me Kanaloa
Ulu ka ohia lau ka wai ka ieie
Ulu ae ke kua a noho i kona kahu
Eia ka wai la, ka awa, he wai ola
E ola iau i ke kumu
E ola i ka poo puaa
E ola i ke paepae
E ola i na haumana a pau
Elieli kapu, elieli noa**

*Increase our knowledge, multitude of gods
Inspire us, Kane and Kanaloa
Grow and nourish us like the ohia leaf and the ieie
Inspire the guardian to stay and persevere
Here is the water, the ceremonial awa, the water of life
Give life to the source
Give life to the leader
Give life to the hula assistant
Life to all the students
Profound the kapu, profound its lifting*

This law is a chant that is a call to action, with “ulu” meaning to grow, extensively know, or be inspired. It refers to the “wai ola,” the water of life, that allows the kumu [source, teacher] to be healthy, the leaders to be healthy, the students to be healthy. The chant posits that this is why we need healthy water, then listing the concrete downstream implications. All activities of the Center must align with the values of this chant, protecting and restoring water, increasing the health of the community, and serving the related “multitudes” in the entire watershed.

APPENDIX B

LANDSCAPE ANALYSIS:

University of Hawai'i Center for Indigenous Innovation and Health Equity
Summer 2022

**Aloha! Talofa! Iokwe Yuk! Len Wo! Hāfa Adai! Tirow! Kaselehlie maing! Ran
annim! Alii! Mogethin!**

Mahalo for taking the time to do this survey, and sharing your knowledge and expertise. The purpose of this survey is to support the effort to identify and document Indigenous innovations with potential for positive health impacts. As part of this work, you may help to better articulate to policymakers and funders the role that your program plays in individual and communal health while continuing to build the field of community-based practice.

Each organization that completes this survey will receive a curated package of books from Nā Mea Hawai'i / Native Books, as well as a bag of Hawaiian-grown 'awa/kava, mailed to the address you provided.

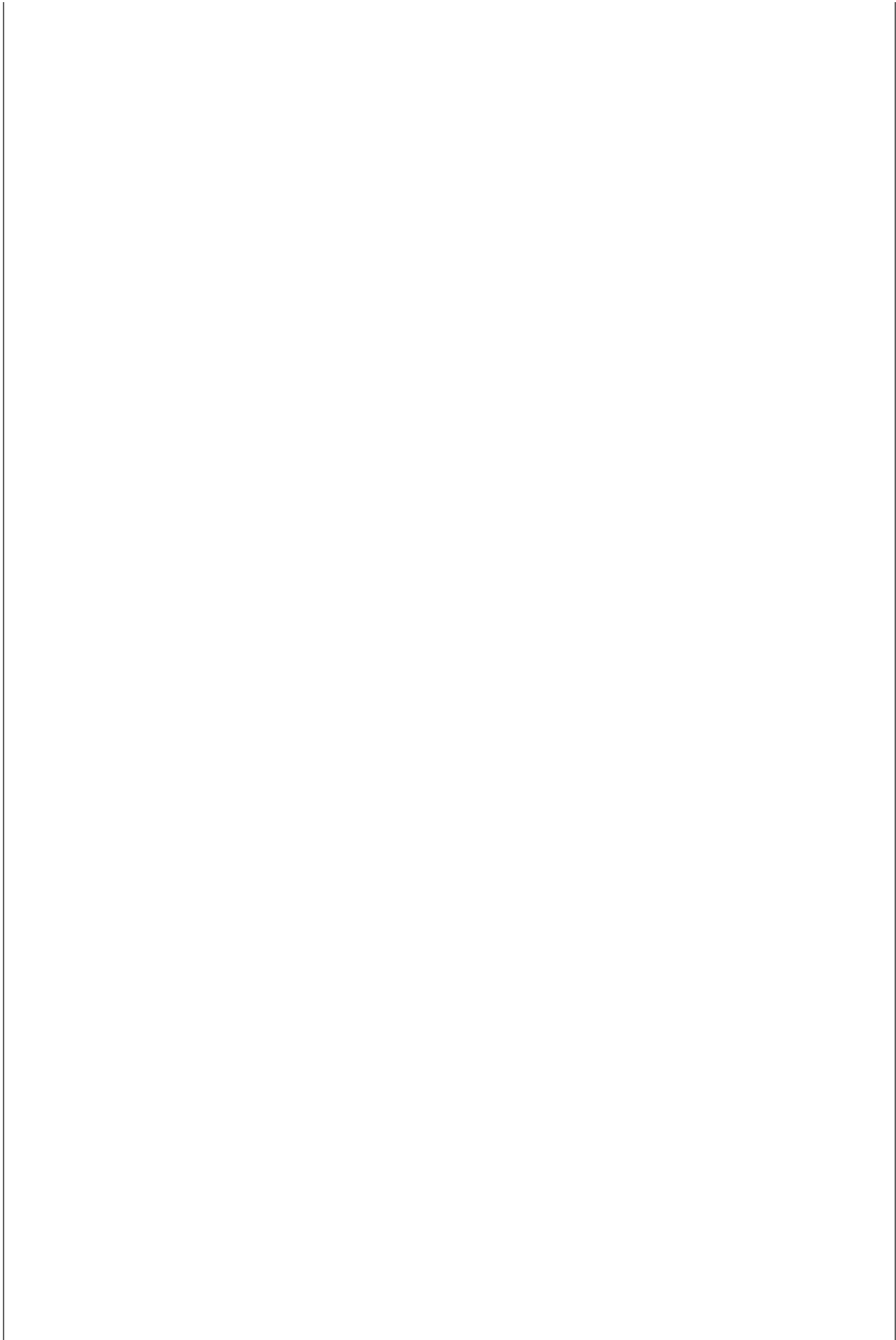
The University of Hawai'i (UH) Center for Indigenous Innovation and Health Equity (CIIHE), led by Kamuela Enos (Director of Indigenous Innovation, UH System) and Dr. Aimee Malia Grace (Director of Strategic Health Initiatives, UH System), seeks your participation on a survey to help to document Indigenous innovation related to Native Hawaiians and Pacific Islanders (NHPIs) occurring across the United States and Pacific.

We define "Indigenous innovation" as the restoration of ancestral and cultural practices to solve contemporary problems. Specifically in the health arena, early studies and shared knowledge suggest that the restoration of ancestral and cultural practices may have important contributions to improved health and well-being in NHPI communities, thereby leading to health equity.

For example, a research study by Alika Maunakea, Ph.D., et. al. demonstrated that at-risk youth engaged in sustainable Indigenous farming and educational opportunities in Wai'anae, Hawai'i, experienced a 60 percent reduction in their risk for diabetes ([Link to Maui Ola Study](#)). Additionally, recent studies by Joseph Keawe'aimoku Kaholokula, Ph.D., et. al. have shown that hula significantly reduced blood pressure in Native Hawaiian participants ([Link to Hula Study](#)).

As part of a cooperative grant (MP-CPI-21-007) with the U.S. Department of Health and Human Services' Office of Minority Health, we seek to:

- Assess the landscape of NHPI indigenous innovation across the United States.**
- Complete a working literature review to document publications related to NHPI indigenous innovation across the United States.**
- Identify the gaps that may exist (i.e., research, policy, funding, education) to scale and advance NHPI indigenous innovation.**
- Identify other individuals and organizations that we can engage in this work.**



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BEFORE PROCEEDING PLEASE READ INFORMATION BELOW

We expect this survey to take approximately 20 minutes of your time to complete if completed individually.

Data will be protected by the CIIHE core team and kept in a secure environment.

Aggregated data that are individually de-identified will be disseminated to survey respondents and other program participants (i.e., no data that identify the individual respondent will be shared). If you would like a copy of your responses, the CIIHE team can provide it to you at a later time.

If you have any questions, please contact Johnny Tudela Aldan at jtaldan@hawaii.edu or Sharde Mersberg Freitas at shardem@hawaii.edu.

This survey was approved by the UH System Office of Research Compliance on Nov. 19, 2021. If you have any questions or concerns, you may contact them at (808) 956-5007, with this study's protocol ID number: 2021-00836.

We truly appreciate your time!

Mahalo nui loa, Kommol tata, Si Yu'us Ma'āse, Kalahngan, Ghilissow, Kinisou, Kammagar, Kulo, Ke Kmal Mesaul!

1. Do you wish to proceed?

Yes

No

LANDSCAPE ANALYSIS:

University of Hawai'i Center for Indigenous Innovation and Health Equity
Summer 2022

SECTION 1: ORGANIZATIONAL INFORMATION

We seek to better understand the structure and affiliation(s) of your organization, and ensure that we have your contact information in case we would like to follow-up for additional information.

2. Last Name

3. First Name

4. E-mail address

5. Phone number

6. Professional Title

7. Organization Name

8. Organization Address

Physical Address

City/Town

State/Province

ZIP/Postal Code

Country

9. How would you like to classify your organization? *(Please check all that apply)*

- Community-based organization
- Health organization
- Network of Organizations
- Institution of Higher Education
- Other *(please specify)*

10. Please briefly share how much of your organization’s work involves NHPI communities, if applicable. For example: “We serve approximately 500 individuals per year, 80% of whom are NHPI” or “As a network, we serve 18 PI community-based organizations.”

11. Affiliation(s) (Please check all that apply)

- Hau'oli Mau Loa
- 'Ulu Network/UH JABSOM Department of Native Hawaiian Health
- Wai'anae Community Redevelopment Corporation
- Pacific Islands Health Officers Association (PIHOA)
- HMSA Foundation
- Consuelo Foundation
- Kua'āina Ulu 'Auamo (KUA)
- Kamehameha Schools
- Hawai'i People's Fund
- Castle Foundation
- University of Hawai'i (UH)
- Center for Native and Pacific Health Disparities
- Pacific Islander Center of Primary Care Excellence (PI-CoPCE)
- National Association of Pasifika Organizations (NAOPO)
- Chaminade University of Honolulu
- Other (*please specify*)

LANDSCAPE ANALYSIS:

**University of Hawai'i Center for Indigenous Innovation and Health Equity
Summer 2022**

SECTION 2: CONCEPTS OF HOLISTIC HEALTH

What makes individuals and communities healthy? We seek to understand your vision of holistic health, both on the individual and community levels. Please be as holistic as possible; for example, this vision of health may come from specific elders, ancestors, community, environmental restoration, youth, and beyond.

12. How do you define holistic health on the individual level?

13. How do you define holistic health for your community?

14. Do you feel that the health of the land and environment is connected with the health of people in your community? *If so, please explain.*

LANDSCAPE ANALYSIS:

**University of Hawai'i Center for Indigenous Innovation and Health Equity
Summer 2022**

SECTION 3: EXAMPLES OF INDIGENOUS INNOVATIONS WITH POTENTIAL FOR POSITIVE HEALTH IMPACTS

As shared above, we define “Indigenous innovation” as the restoration of ancestral and cultural practices to solve contemporary problems. Specifically in the health arena, early studies and shared knowledge suggest that the restoration of ancestral and cultural practices may have important contributions to improved health and well-being in NHPI communities, thereby leading to health equity. In addition to the examples described above, the rejuvenation of Native languages has been linked to mental health empowerment and decreased youth suicide, and there is potential for post-war ceremonial cleansing practices to decrease PTSD among Native veterans.

We would like to understand your ideas of other Indigenous innovations that may have potential to improve holistic health, individually and/or as a community. Please be as specific as possible and please share as many ideas as you'd like.

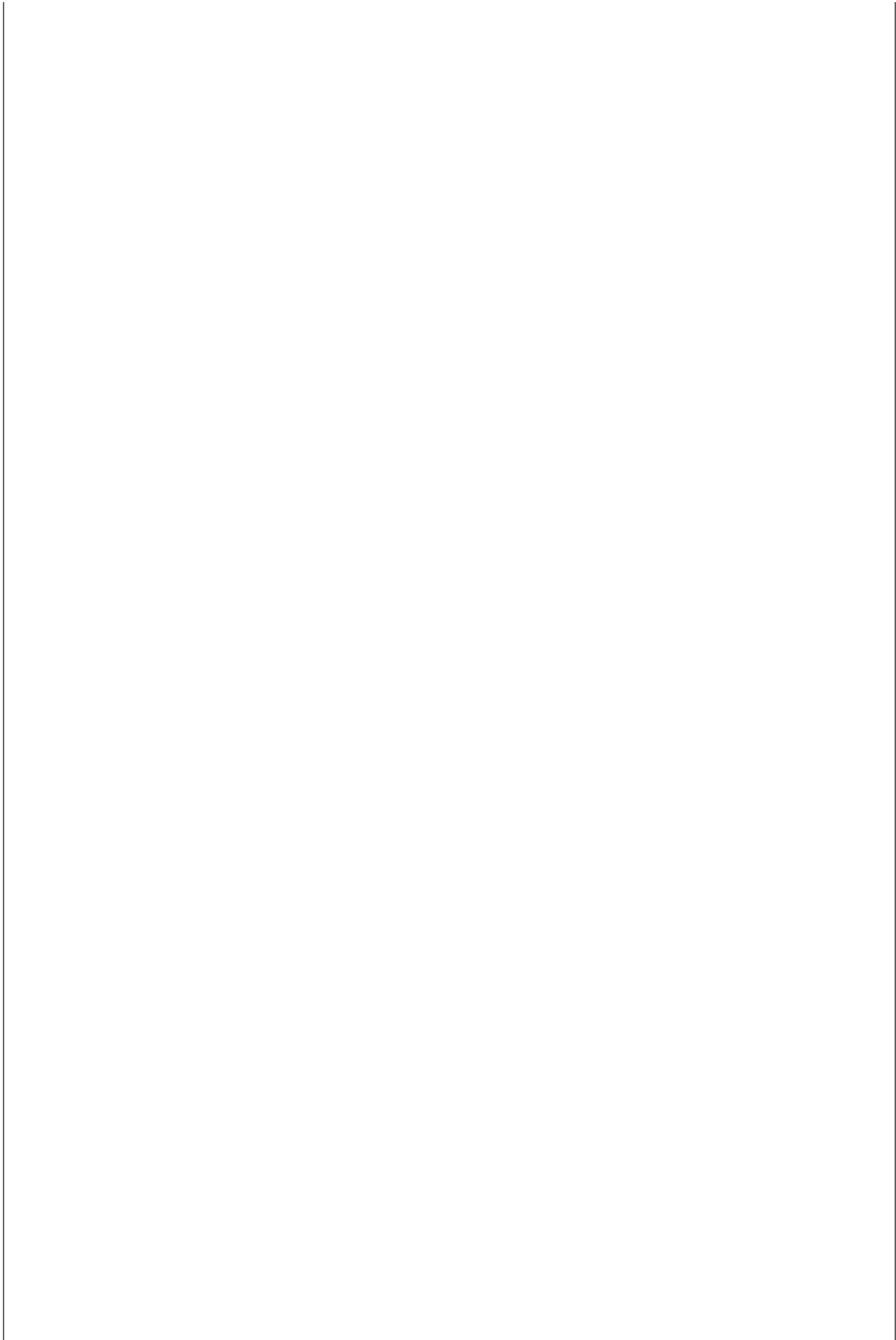
15. Please share your ideas of Indigenous innovations that may have potential to improve health. These ideas may be based on your organization's practices, your personal or professional experiences, or from other sources.

16. What potential or realized health impacts do you see from these practices?

17. Are you aware of any publications related to the practices you identified? If so, please provide any information you remember (*i.e., author/s, title, journal, date*).

18. Do you collect any data measures or metrics that you find exciting and useful for your community?

For example, metrics related to environment, soil quality, number of organization members with certain health conditions, education, poverty, sustainability, community connectedness, perspectives on health, physical health, or community resources.



LANDSCAPE ANALYSIS:

University of Hawai'i Center for Indigenous Innovation and Health Equity
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SECTION 4: BARRIERS TO GROWING INDIGENOUS INNOVATIONS

We seek to understand any barriers to growing the Indigenous innovations you identified that have potential for improved health. For example, a practice may improve health but is not covered by insurance or is limited by a federal or state policy; another practice may anecdotally show improved mental health, but has not been documented by “research” so its benefits can’t be “proven” to funders; or perhaps the public needs to be better educated about certain practices.

19. What barriers do you see in the ability to grow this example of NHPI Indigenous innovation? *Please check all that apply.*

- Further research is needed
- New policy is needed
- A policy change is needed
- Further education and/or training is needed
- Funding is needed
- Staff trained and experienced in ancestral practices is needed
- Staff trained and experienced in social work, community health, medicine, public health, behavioral health, data/stats is needed
- Stewardship-Access to land is needed
- Public awareness of practices
- Other and/or please provide more information on barriers

20. Do you have any suggestions for ways to address or work around these barriers?

21. If you could have a research partner to evaluate one or more of the Indigenous innovations you shared, would you want one?

22. If you currently have (a) research partner(s), please share more about that research partner (*i.e., name, organization, e-mail address*).

LANDSCAPE ANALYSIS:

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SECTION 5: EXPANDING OUR REACH

23. Did these questions make you think of other individuals or organizations that we should include in this survey? *If so, please provide as much information as you're able (i.e., name/s, organization/s, contact information).*

LANDSCAPE ANALYSIS:

**University of Hawai'i Center for Indigenous Innovation and Health Equity
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SECTION 6: FINAL COMMENTS

24. Are there any other comments that you would like to share?

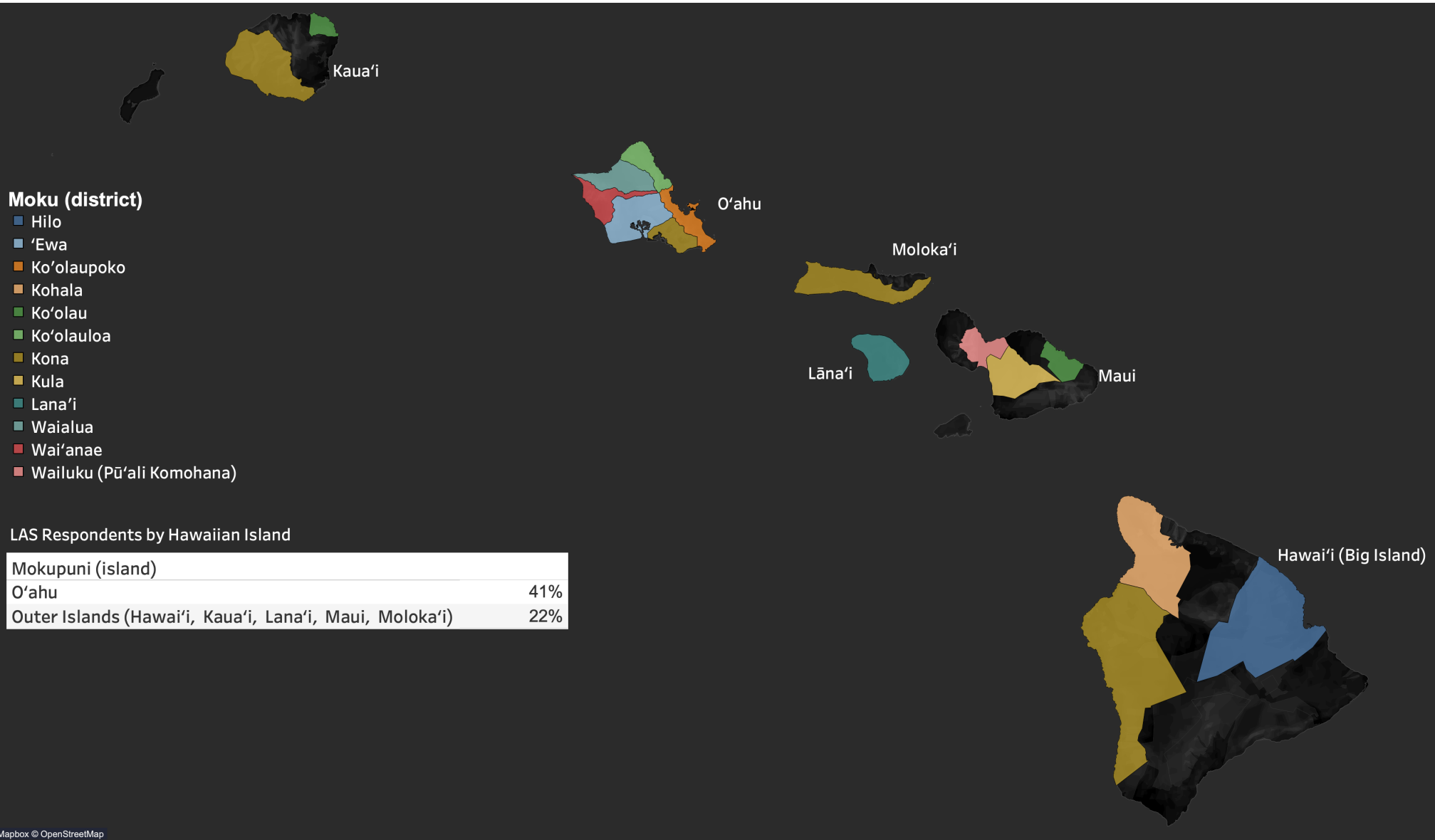
As a small token of our appreciation for your time, effort, and knowledge shared for each question of this survey each organization that completes this survey will receive a curated package of books from Nā Mea Hawai'i / Native Books, as well as a bag of Hawaiian-grown 'awa/kava, mailed to the address you provided.

For any questions, comments, or concerns please contact **Johnny Tudela Aldan** at jtaldan@hawaii.edu or **Sharde Mersberg Freitas** at shardem@hawaii.edu.

Mahalo nui loa, Kommol tata, Si Yu'us Ma'āse, Kalahngan, Ghilissow, Kinisou, Kammagar, Kulo, Ke kmal mesaul!

APPENDIX C

Hawaiian Islands



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Colors highlight individual moku (land division) and their respective mokupuni (island) of LAS participants residing in the Hawaiian Islands. Percentages are based on total LAS participants (N=49). Shapefile sources: Hawaii Statewide GIS Program, last updated November 9, 2021.

APPENDIX D

The Mariana Islands



Colors highlight island or village of LAS participants residing in the Mariana Islands. Percentages are based on total LAS participants (N=49). Shapefile sources: 2020 United States Census Bureau TIGER/Line shapefiles.